

The Mobility of Displaced Syrians

An Economic and Social Analysis

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in collaboration with



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Key Messages

This report analyzes the spontaneous mobility of Syrian refugees in Lebanon, Jordan, and Iraq from an economic and social (not political) perspective. Main results are summarized in the executive summary. A list of 10-key-messages built upon those results are provided below.

Conditions faced by Syrians inside and outside Syria

1. Despite the generosity of host countries and the best efforts of the international community, the sheer scale and pace of the conflict in Syria have resulted in persistent hardships for Syrians both inside and outside Syria.
2. Taking refuge is not always a “win-win” situation (e.g., both better security and better economic opportunities) for Syrian refugees. On the contrary, access to security is often counterbalanced by a decrease in the quality of life.
3. The security and quality of life tradeoff often takes an intergenerational form: short-term security comes at the expense of lower human capital accumulation that will disproportionately affect the future of Syrian children and youth.

Returns so far

4. Conditions on the ground affect both the scale and composition of returns in different ways. With persistent concerns regarding insecurity in Syria, the return of Syrian refugees has been infrequent and selective so far, which does not represent a large-scale return.
5. Conditions in Syria have rather predictable and monotonous effects on the return of refugees, e.g., better security and service access in Syria consistently increase returns.
6. Host country conditions affect returns in more complex ways. A lower quality of life in exile does not always increase returns; e.g., more education increases return at primary education level but not at secondary or tertiary education levels.

Return simulations

7. The international community has a diversified policy toolkit, including subsidies (return assistance), transfers, and service restoration in Syria, to help refugees, their hosts, and Syrians in Syria.
8. This policy toolkit should ideally be used in an adaptive manner. “Corner solutions” (e.g., using all resources through one tool only) are inefficient. The optimal allocation of resources across these tools are shaped by the conditions on the ground.

9. Insecurity in Syria is a major deterrent to return and it reduces the effectiveness of service restoration efforts. Thus, with improvements in security, which would include the cessation of arbitrary detention, forced conscription, and other violations of human and property rights, more resources can effectively be allocated to restoring services.

10. Maximizing refugee returns at any cost is a poorly defined policy target. Maximizing the well-being of refugees, their hosts, and Syrians in Syria should be considered.

EXECUTIVE SUMMARY

This report analyzes the spontaneous mobility of Syrian Refugees in Lebanon, Jordan, and Iraq. To do this, it follows a five-step integrated analytical strategy: first, a review of international experience helps identify factors that contribute to mobility (a.k.a. push and pull factors), then, the conditions faced by Syrians inside and outside Syria along these factors are investigated. Next, the relative importance of each factor is estimated by using actual returns to Syria that have taken place so far. Finally, potential roles that can be played by these factors going forward are simulated with a scenario-based approach.





Executive Summary

In its eighth year, the Syrian conflict continues to take its toll on the Syrian people. Even though the incidence of armed conflict and forced displacement has diminished to a certain degree in the first half of 2018, there are persistent effects from the brutal conflict that continue to unfold. Over half of the population of Syria remains displaced (as of September 2018), with more than 5.6 million registered as refugees outside of the country and another 6.2 million displaced within Syria's borders.¹ The internally displaced include two million school-age children, with less than half enjoying full access to education. Another 739,000 Syrian children are out of school in five neighboring countries that host Syria's refugees.² The loss of human capital is staggering. The combined effects of displacement and forgone investments in human development will create permanent hardship for generations of Syrians going forward.

While cessation of hostilities within Syria is conducive for the return of displaced Syrians, it may not, by itself, be a sufficient condition. Despite the tragic prospects for renewed fighting and large-scale displacement in certain parts of the country, parties to the multiple-strand peace process continue to push for de-escalation, and overall reduction in armed conflict is possible going forward. However, international experience shows that the absence of fighting is rarely a singular trigger for return. While strict causality is difficult to assign, return experiences such as those in Bosnia and Herzegovina, Afghanistan, Somalia, Liberia, South Sudan, Angola, and Iraq demonstrate that numerous other factors, including improved security and socio-economic conditions in origin states, access to property and assets, the availability of key services, and restitution in home areas play important roles in shaping the scale and composition of returns. Overall, refugees have their own calculus of return that considers all these factors and assesses available options.

This study sheds light on the “mobility calculus” of Syrian refugees. In complete adherence to international norms governing issues related to refugees, and in strict repudiation of any policies that imply wrongful practices involving forced repatriation, this study analyzes factors that may be considered by refugees in their decision to relocate. By doing so, it aims to provide a conceptual framework, supported by data and analysis, to facilitate an impartial conversation about refugees and their return choices. To this end, the study follows a five-step integrated analytical strategy (Figure E.S.1):

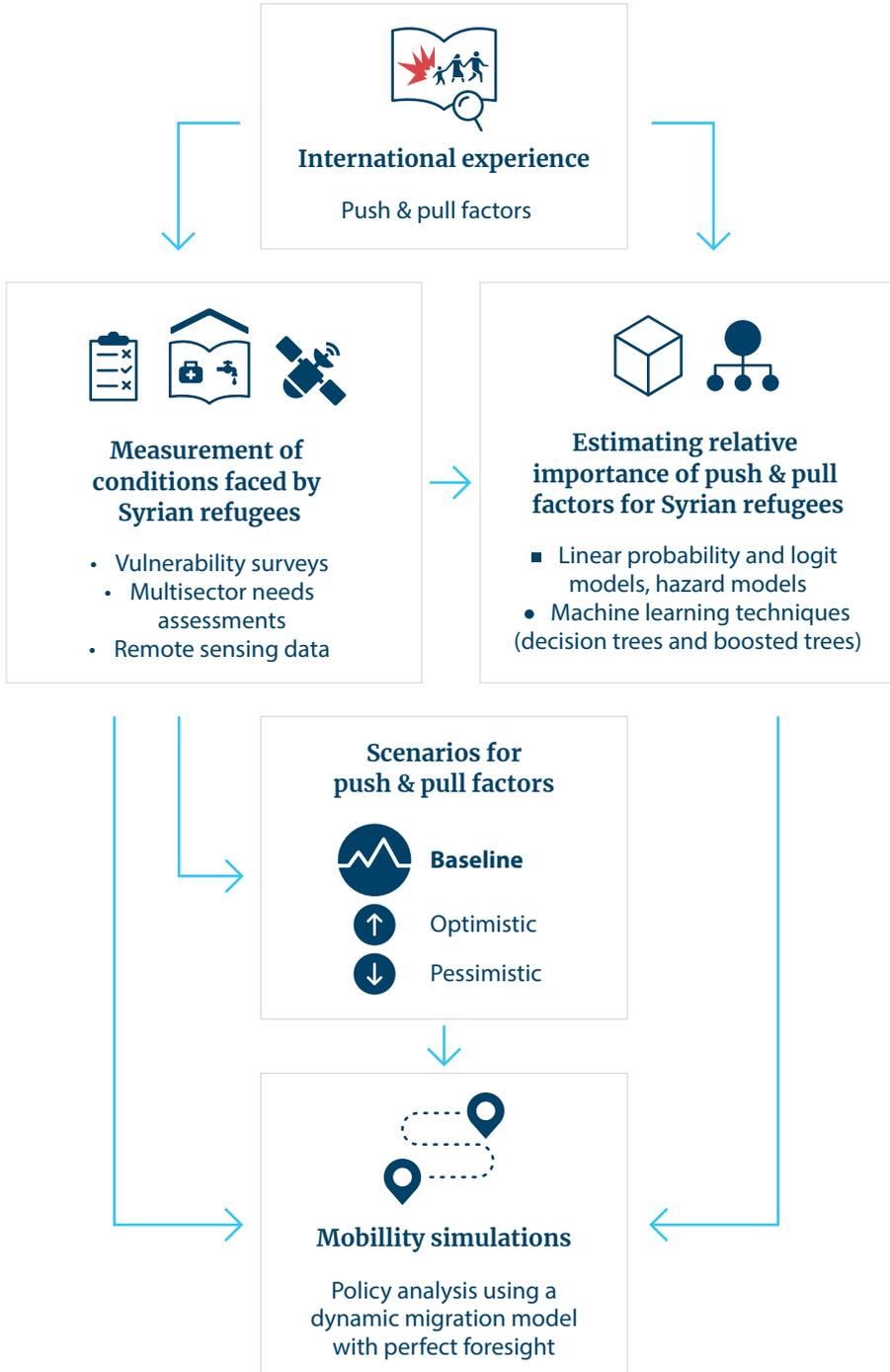
- ***The first step considers international experience,*** which helps to identify important factors in analyzing refugee movements (that is push and pull factors). Given the lack of data and empirical research about the drivers of refugee returns, the analysis adheres to descriptive findings that rely on case studies.
- ***The second step measures these factors*** in Syria (using previous UN surveys and remote sensing-techniques) and for refugees in host countries (using official data, vulnerability surveys led by the United Nations High Commissioner for Refugees (UNHCR), and a World Bank verification survey).

- **The third step estimates the relative importance of each factor** in explaining the spontaneous returns that have taken place so far in the Syrian context by using various econometric approaches (e.g., linear probability and logit models) and machine-learning based specifications such as decision trees.
- **The fourth and fifth steps** use a simulation model that builds on the Toll of War study (World Bank 2017b), to analyze the role that can be played by several factors in influencing spontaneous return of refugees in the medium term. Since this approach is prone to significant uncertainty, a scenario-based approach, where factors that can affect refugees' decisions can vary, is adopted.

The analysis in this study focuses solely on the rational choices of refugees themselves. It is important to emphasize that refugees are not people who are “misplaced and to be returned.” They are fully capable of assessing their options, and act rationally given their resources and constraints, except for facing extreme circumstances and, sometimes, post-traumatic complications. Other parties, including the international community, host country governments and communities, and the government of the source country, can influence those resources and constraints by means of rules, regulations, and assistance, but they cannot prevent the fact that refugees may reassess the situation, and act according to their own perceived best interest just as any other human being. In technical terms, it is the refugee who undertakes the optimization decision, not other parties. Thus, an analysis of the potential implications of any policy action primarily entails understanding how refugees may react to the proposed changes. This concept constitutes the core of the analysis in this report. The remainder of this executive summary discusses key findings of the study.

Given the immense complexity surrounding the refugee mobility issue, the report leaves several equally, if not more, important topics for future work. The analytical complexity of refugee situations forced the report to narrow its focus to be able to provide some real value added in improving understanding. For instance, issues pertaining to security-sector and cultural, ethical, and political dimensions of the conflict are beyond the scope of this report. In addition, data shortages were more daunting in areas such as IDPs in Syria and refugees in Turkey. Thus, this analysis focuses on the refugee mobility issue through the five steps described above in Lebanon, Jordan, and Iraq, and leaves the study of displaced Syrians in Syria, Turkey, and Europe for the future. Finally, the highly pertinent topic of how the host communities are affected by the arrivals of refugees, and more broadly by the Syrian conflict, is scheduled to be analyzed in a forthcoming study “The Regional Economic and Social Impact of Syrian Conflict,” which will benefit from the methodology and findings of this report.

Figure E.S.1 Five-Step Integrated Analytical Strategy



International Experience



An overview of international experience highlights four major groups of factors that drive the mobility of refugees, although these factors work together in a complex manner. Refugee return is not a monotonic event: it often includes an iterative, staggered or cyclical process. In the case of iterative return processes, there may also be temporary return movement. Evidence from Iraqi refugees hosted in Syria (before the war in Syria) and Somali refugees in Kenya, points to the idea that refugees follow complex strategies in spontaneous returns: a few members of refugee households may return informally for short periods, to, among other things, assess the scope for more permanent return, safeguard and re-establish entitlements to property, or assist family members who have remained behind. Nevertheless, trends in spontaneous returns point to a few structural factors that are commonly considered by refugees when considering their decision to move. These are:

- **Peace, security and protection**, including the scope of peace and reconciliation measures; adequate rights protection; access to justice; and trust in local actors.
- **Livelihoods and economic opportunities**, including economic and social absorption capacity of return areas; and access to resources including financial resources, with intangible economic aspects such as human capital and social networks playing an important role.
- **Housing, land, and property**, including the ownership of assets in countries of asylum and origin; the likelihood of asset restitution; prevailing conditions of appropriation; and property rights.
- **Infrastructure and access to services**, including the scale of physical and infrastructure destruction; strategies and funding for reconstruction/restoration; access to adequate services and housing; social programs; education; and health services.

The specific role played by each of these four categories of factors varies from case to case. International experience shows that each refugee situation is different. For many of the individual factors that fall into one of these four broad categories, the magnitude and direction of their impact on returns may not be consistent across refugee situations depending on various other conditions. For instance, poverty in countries of asylum may be a driver of return—for example, Iraqi refugees from Syria 2007-2010—but perhaps counterintuitively, the opposite may also be true. Refugees from higher socio-economic groups may have a greater propensity to return earlier than others, as in the case of Liberian displacement. Similarly, after a protracted period of exile the loss of skills or the lack of skills to meet new economic conditions may constrain return or it may propel returnees to urban areas with better livelihood opportunities.

All refugees are not alike: each person in exile faces a different configuration of constraints and capabilities. The role played by the four major group factors also vary across individuals within a given refugee situation. This is true because each person who is in exile faces a different combination of these factors based on his/her economic and social background. The most obvious case in this regard is refugee women. They often have fewer opportunities than men to acquire new skills or capital savings in exile; they generally have less power and influence than men about the decision to return. Upon return, women may face additional difficulties in securing livelihoods; reclaiming house, land, and property; and accessing other essential services. The experience of Chilean women returning home from exile at the end of the Pinochet dictatorship in the 1990s provides a poignant example of such impact of changing domestic power structures. Overall, such differences across subgroups of refugees necessitate a granular approach to understanding the determinants of refugee mobility. It is important to account for a large set of characteristics before any causal relationship is attributed to the role played by any specific factor. To this end, the next step assesses the conditions faced by Syrians inside Syria and in host communities.

UNHCR's policy on return is predicated on refugees' right to go back to their country of origin at a time of their choosing. Their decisions and choices are to be respected and enabled. In cases where refugees choose to return, UNHCR provides counselling and assesses that the decision is voluntary, and then works to make the return dignified, but without incentivizing other refugees to return. UNHCR also works actively to find solutions for refugees from the beginning of the crisis. In the context of Syria, through consultations with refugees, UNHCR identifies the obstacles to their return in safety and dignity and is working with all parties to remove obstacles to return, including through discussing a legal framework with the Government of Syria, addressing gaps in civil documentation and legal status, while expanding operations and humanitarian programs in places of return. UNHCR is engaged with the Government of Syria and other stakeholders to ensure that everyone is aware and applies international protection standards and principles to return planning. UNHCR advocates for the application of international protection standards to ensure that returns are safe and dignified and no-one is forced to return prematurely. While protecting individual rights, this approach also means returns are more likely to be sustainable in the longer term and the risk of further displacement will be reduced.

Conditions Faced by Syrians Inside and Outside Syria



This study combines numerous data sources to assess the conditions faced by Syrians along the four categories distilled from international experience. In the absence of comprehensive administrative or survey data, this report pays special attention to combining disparate sources of information that are not immediately comparable otherwise. For conditions in countries of asylum, this analysis uses refugee

registration data and vulnerability surveys from UNHCR; official data from governments of Lebanon, Jordan, and Iraq; and a new World Bank survey for return intentions and verification of other large-scale surveys. For conditions in Syria, the Humanitarian Needs Assessment Programme (HNAP, 2018), the UNHCR-led Multi-Sector Needs Assessment (MSNA, 2017), and the Urban Community Profiling Surveys from UN-Habitat (2016) are used. Additionally, a novel database of physical damage and functionality of facilities was created for the purposes of this study, reflecting conditions as of May 2018. To this end, optical imagery at 30-50 cm resolution from Digital Globe and Airbus satellite platforms and NASA's visible infrared imaging radiometer suite (VIIRS) were employed to generate a series of physical damage and human activities around facilities in 15 cities and six sectors. These city-level assessments were then extrapolated to the 14 governorates by using conflict intensity and baseline asset inventories.

In Syria, access to publicly provided services is determined by displacement, destruction, and disorganization (3Ds). Conditions in a given location, especially those related to services like education and health, are driven by displacement, physical destruction, and organizational factors such as availability of skilled personnel and supplies. Whereas some Syrian governorates like Ar-Raqqa, Deir-ez-Zor, and Al-Hasakeh have lost large shares of their inhabitants (53 percent, 28 percent, and 27 percent respectively) over the course of the conflict, others have increased their populations, such as Idlib (39 percent) and Rural Damascus (15 percent); see Figure E.S.2. This pattern, by itself, can lead to unexpected conclusions if other factors, especially disorganization, are not taken into consideration. In proportionate terms, more Syrians moved away from conflict-hit areas than the share of infrastructure damage in those areas. In addition, conflict has been relatively more intensive in areas with historically low infrastructure availability, such as Ar-Raqqa and Deir-ez-Zor. As a result, the share of population who have 30-minute access to health facilities in 2018 (about 73.8 percent) was only marginally lower than that in 2010 (about 74.5 percent). The picture is, however, completely different when human resources are taken into consideration. From 2010 until 2018, the number of physicians in Syria fell from 0.529 per 1,000 persons to 0.291 per 1,000. Household and community surveys (e.g., MSNA) confirm that access to infrastructure alone does not guarantee access to service. A summary of the findings regarding the conditions faced by Syrians inside and outside Syria are discussed in the four broad categories below.

Peace, security, and protection:

More than any other factor, Syrians, especially refugees, are worried about persecution and the lawlessness that may endure well into the future. UNHCR's fourth regional survey on Syrian refugees' perceptions and intentions on return to Syria (2018) found that safety and security in Syria were by far their most important concern regarding return: among refugees not intending to return to Syria within 12 months, 45 percent of the reasons provided to explain their intentions were related to the prevalence of indiscriminate violence or the risk of targeted reprisals. Refugee apprehension over security conditions include other dimensions of security as well. As of June 2018, mandatory military conscription for men aged 18-42 remained a major deterrent against returns, which, as governed by Decree

Figure E.S.2. Change in Population, 2011-2018

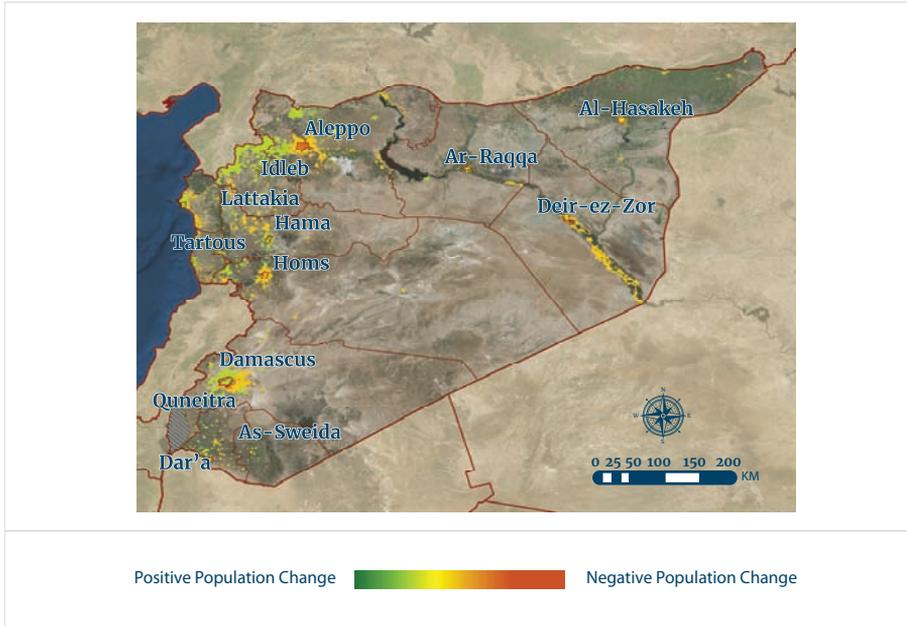
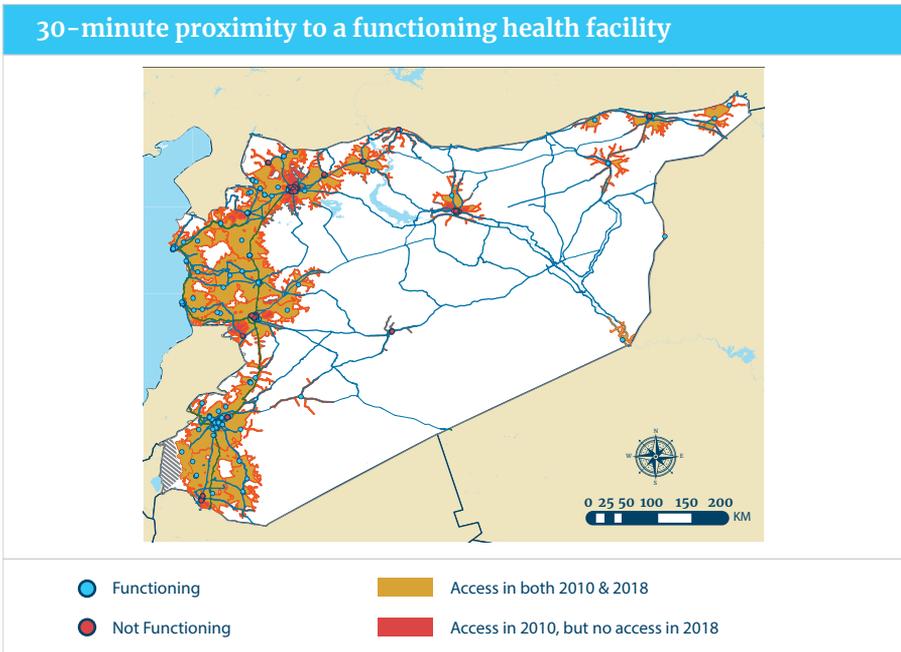


Figure E.S.3. Change in Proximity to a Functioning Hospital, 2010-2018



No. 18, also pertain to those who came of age following the crisis and technically qualify as “draft-dodgers” rather than deserters. Lack of civil documentation and insecurity seem to reinforce each other. Around 40 percent of the Syrians surveyed by the HNAP-2018 reported a lack of some official civil document, such as birth certificate or national identification card, with higher percentages in opposition-controlled areas (e.g., 80 percent in Idleb). Syrians primarily attribute the marked lack of documentation to insecurity during travel (63 percent). Finally, around 45 percent of Syrians reported that their inability to obtain official documentation curtailed their freedom of movement and 9 percent claimed that it led to arrest.

Employment and livelihood opportunities:

Syrians have better access to livelihood opportunities in countries of asylum than in Syria, but poverty prevails among Syrians everywhere. Unemployment rates in Syria are not known exactly, but estimates vary up to 57.7 percent (Syrian Center for Policy Research [SCPR], in end of 2014). In comparison, the UNHCR vulnerability surveys report a 20.5 percent unemployment rate for Syrian men in Jordan and 12.7 percent in Lebanon (2017 estimates). The labor force participation (LFP) rate of Syrian men is higher in Syria (79.1 percent) than in Lebanon and Jordan (68 percent and 63.3 percent, respectively), whereas female LFP is similarly low in all three locations (between 10 and 13 percent). These rates do not account for underemployment where the employed may not be necessarily engaged in full-time activity. In Jordan, Syrian men are employed largely in the informal sector where they work without work permits or formal contracts and are concentrated in the manufacturing, construction, and agriculture sectors—the only sectors open to refugees for employment. The pattern of labor market outcomes is approximately the same in Lebanon, with more than two-thirds of Syrian men but only one in ten women active in the labor force. Restrictions in sectors of employment where Syrians can work, costs of obtaining a work permit, and regulatory barriers to hiring refugees leads to informality, lack of job security, underemployment, and subpar wages. The Government of Jordan has however relaxed the rules that restricted the economic activities of Syrian refugees, with more work permits being issued and NGOs supporting home-based businesses inside camps, and a widening of the scope for the operation of home-based businesses outside the camps. Finally, despite the efforts of host governments and the international community, extreme poverty rates of Syrian refugees in Jordan (51-61 percent), and to a lesser extent in Lebanon (37-50 percent), remain close to that in Syria (55-67 percent).

Housing, land, and property:

The top housing-related concern for Syrians is looting and expropriation, followed by concerns over damage. In conflict-affected Syrian cities, physical destruction along with the exodus of people is extensive. About a fifth of all residential buildings in the 15 cities covered in this study suffered damage. With both conflict-driven damage and large inflows of internally displaced people (IDPs), the worst housing conditions are in Idleb (48 percent housing deprivation). The least deprivation is in Quneitra (11

percent) and Tartous (18 percent). Most Syrians see looting as the primary housing-related concern in As-Sweida (80 percent), Ar-Raqqa (42 percent), and Deir-ez-Zor (41 percent). Damage to land and property is also a significant concern in Ar-Raqqa, Idleb, and Dar'a. The lack of documents is an important concern in Ar-Raqqa (24 percent), Deir-ez-Zor (15 percent), and Aleppo and Homs (10 percent). Returnees are more likely to face this problem (9 percent compared to 4.4 percent IDPs and 5 percent for the host community). Refugees, if and when they return, are likely to face even more challenges than the IDP-returnees—results captured by surveys in Syria may not fully reflect the challenges faced by Syrian refugees. Several recent legislative actions (e.g., Law #10 in 2018, Law #33 in 2017, and Legislatives Decrees # 40, 63, 66 in 2012) seem to facilitate further confiscation and expropriation of property, especially of refugees.

Access to services:

Refugees have better access to services such as education and health in countries of asylum than in conflict-intensive regions of Syria, but this is not always true for other regions. To assess healthcare access of Syrians, this study has built a health accessibility index, comprising infrastructure, human resources, and financial coverage indicators. Using this tool, the overall healthcare accessibility index within Syria (0.39) is lower than that of Jordan (0.436) and Lebanon (0.462) but higher than Iraq (0.304), with conflict-intensive governorates faring much lower: Idleb (0.267); Rural Damascus (0.318); and Dar'a (0.319). In contrast, despite efforts by host countries and the international community, refugee children are generally worse off in education. The average school enrollment ratio in Syria dropped from 82 percent before the crisis to 61 percent currently. In comparison, school-age enrollment of Syrian children in Lebanon is only 42 percent (Lebanese enrollment rate is 77 percent), and in Jordan it is 56 percent (Jordanian enrollment rate is 90 percent). Overall, for many displaced families, the cost of education for their children is too high and attending school also has high opportunity cost for youth. Teenage males often drop out of school to work and support their families, while an increasing share of girls get married under the age of 18. Finally, water deprivation faced by Syrians is lower in Syria (index: 25 percent) than Lebanon (index: 33 percent), but not Jordan (index: 14-22 percent, depending on uncertainty about water quality).

Overall, the economic and social context analysis shows that most refugees face a tradeoff between security and other aspects of quality of life. For Syrians, one factor is unambiguously better outside Syria: security. The analysis shows that a multidimensional sense of insecurity (including violence, prosecution, and social tensions) is the primary concern among refugees regarding potential future returns. The countries hosting Syrian refugees also provide better access to services and livelihood opportunities when compared to the war-torn regions of Syria. However, this is not always true when compared to those Syrian locations with lower conflict intensity, especially in education and water. This distinction leads to a conjecture about the “revealed preferences” of Syrians: in exile, refugees gain access to better security, yet they face additional hardships that may lower the quality of life for current generations (lower living standards) and future generations (lower education). In other

words, taking refuge in neighboring countries is not necessarily a win-win situation (better security and better quality of life), but sometimes a win-lose situation involving a difficult tradeoff (better security but in some respects a lower quality of life).

With increased economic responsibilities, decreased access to economic and social life, and deepening gender-based violence, Syrian women face additional challenges. The conflict has exacerbated an already restrictive environment for women in Syria, reinforcing patriarchal traditions and attitudes. With weak to no enforcement and limited effective protection of women against violence, cases of domestic violence, rape (including marital rape), forced marriage to armed group fighters, trafficking, and sexual enslavement have all increased in scale and scope. The fear of sexual violence and its consequences is one of the leading causes of displacement. This is particularly challenging as more women are now required to replace disappeared, killed, or displaced males to provide for their families: female headed households have increased from 4.4 percent in 2009 to 12-17 percent in 2015. Syrians cope with this dilemma by either migrating or resorting to negative coping mechanisms including child marriages. The share of marriages among female minors is reported to have surged from 7 percent in 2011 to around 30 percent in 2015, with an estimated 60 percent of child marriages going unreported. For most of these children, human capital accumulation ceases with their early marriage..

The Anatomy of Returns to Date



In this step, the analysis estimates the importance of the four broad factors distilled from international experience in shaping the mobility of Syrian refugees so far. Returns to Syria have been low relative to the total refugee population but more than 100,000 (103,090 UNHCR verified returns between 2015 and 2018), nevertheless. These returnees (and non-returnees) provide an opportunity to investigate the factors that have contributed to the return decision so far. To do this, the report uses empirical tests including linear probability and logit models to identify generalized (population-wise) effects of each factor on return behavior and uses machine-learning techniques like decision trees and boosted trees to capture localized (group-wise) effects, which enables better capture of the complexity of return. Finally, novel surveys of refugees are employed, including non-registered ones, to analyze the willingness to return. The use of vignette scenarios (e.g., not asking refugees directly about their own return, but presenting them with scenarios about hypothetical refugee profiles, and randomizing the scenarios across participants) lessens some important biases that often plague return-intentions surveys, such as cognitive problems (e.g., responses being shaped by social/political pressure).

The analysis shows that the actual returns to date are of a special kind, in both their scale and composition, which are generally different from large-scale returns. Overall, the estimations of generalized effects show that demographic characteristics like family ties, age, and marital status are important determinants of return. Empirical results in this study confirm the findings from international experience that refugee

return is a complex process. While this analysis is not able to verify the cyclical and transitory nature of some return behavior (since this data does not lend itself to such exercise), the nuances of who returns and under what conditions are shown.

- **Refugees who are single, or male, or not members of a nuclear family have been more likely to return.** Generalized results (e.g., applicable to the entire Syrian refugee population in Lebanon, Jordan, and Iraq) show that singles are 2.7 percentage points more likely to return than married refugees, male members are 0.6 percentage point more likely than female, and extended family members are 12 percentage points more likely than nuclear family members. However, this pattern varies greatly across countries of asylum with individual returns being very common in Lebanon (89 percent of all returns). In contrast, case-level returns are much more common in Iraq and Jordan, making up more than 85 percent of all returns. “Case” here refers to UNHCR’s registration system of “refugee case” in which a group of refugees, often families with relatives, is headed by the case-head. It should also be noted that frequent back-and-forth movements of refugees between Lebanon and Syria have been reported, which may not be completely captured by the official return statistics.
- **With intensive conflict in home locations in Syria, returnees are more narrowly selected from a specific profile of refugees.** Using the machine-learning algorithm with a return-augmented sample (by randomly choosing a smaller sample from non-returnees) elaborates on more complex dynamics. In this biased sample, overall, only 14 percent of nuclear family members return, whereas 74 percent of non-nuclear family members return in this specific sample. However, the returns of nuclear family members become even less likely under high-intensity conflict. For instance, only 3 percent of nuclear family members return when the dread factor (tank, artillery, and air strikes) has been high in the district of origin in Syria. In comparison, among those in non-nuclear family member group, 88 percent return when the dread factor is low and 67 percent return when the dread factor is moderate, and the non-nuclear member is older than 55 years old. These findings provide some support for the anecdotal evidence that suggests that senior relatives go back despite an active conflict for family reunification, to identify return conditions, or to guard property against appropriation risk.

Results show that whereas “pull” factors in Syria have unambiguous effects on return behavior, “push” factors in countries of asylum have mixed implications. Findings confirm international lessons regarding dominance of country of origin effects. However, this study finds no evidence for any suggestion that “bad living conditions in host communities always make refugees go back.” The relationship between host community living conditions and return is complex as shown below.

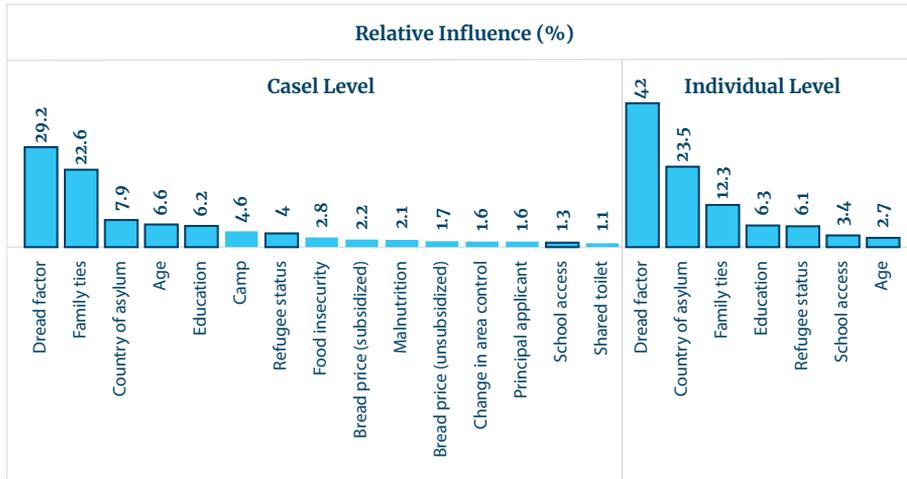
- **Security in Syria is one of the most important determinants of return.** Figure E.S.4 shows that security, along with demographic aspects, is one of the most important determinants of return, a result that is consistent across specifications. Refugees are found to be less likely to return to districts with a history of intensive conflict. A one standard deviation increase in the dread factor reduces the likelihood of return by 4.5 percentage points. However, the sole absence of violence

is not sufficient and the party in control is equally critical. Estimations show that refugees are 3.6 percentage points more likely to return if the district of origin is not controlled by the Government of Syria. Similarly, a takeover of control (by any group) increases the likelihood of return by 18 percentage points. Thus, security is not only a backward-looking factor (e.g., conflict history), but also a forward-looking one (future exposure to violence and possible tensions).

- **Low provision of education, health, and basic services in Syria provides an effective deterrent against return.** Other things being equal, concerns about access to basic services, education, and health provide a consistently negative effect on the likelihood of return across all specifications. Refugees are 2.2 percentage points less likely to return if access to basic services (electricity, fuelwood, etc.) is a primary concern in their home district. Similar results are obtained for limited access to public health and education, but the coefficients are smaller.
- **Better living conditions and access to services in countries of asylum do not reduce the likelihood of return on the low end of the distribution.** Results regarding living conditions (such as food security) and access to services (such as education) show that refugees' living conditions and access to services in countries of asylum have non-linear effects on the likelihood of return. For instance, refugees are 15 percentage points more likely to return if they consume an extra meal per day (Lebanon and Jordan dataset with geographical aggregation). Similarly, a one standard deviation increase in food insecurity decreases the likelihood to return by 1.8 percentage points. Although higher education has been associated with lower likelihood of return at secondary and tertiary levels (e.g., having a university degree reduced the likelihood of return by 2.5 percentage points, and having a secondary degree by 1.7 percentage points), having a primary education increased this likelihood by 0.3 percentage points vis-à-vis having no education.

Surveys detected a complex nexus of human-psyche and economic factors: refugees do not embrace financial issues in discussing mobility, but those issues still matter. Responses to vignette surveys provided predictable results regarding the role of assets in returns. About 38 percent of respondents indicated that their family would likely return to Syria if they find out from their neighbors in Syria that their house is intact, but the destruction of the family's house reduces the likelihood of return by 22-23 percentage points. However, responses to hypothetical scenarios of financial assistance were rather unexpected. Positive responses to a fictional return scenario decreased from 50 percent to 46 percent when a hypothetical amount of US\$2,000 cash assistance was introduced into the scenario.³ Interestingly, however, a scenario with less money (US\$1,000) is still associated with a lower likelihood to return to Syria by about 8 percentage points as compared to the more money (US\$2,000) scenario. Thus, somewhat paradoxically, cash assistance reduced the positive return responses, but more assistance still triggered more positive responses than less assistance.

Figure E.S.4. Most important factors in explaining returns so far, case vs. individual levels



Note: Estimations show boosted tree results. Case-level estimations feature both pull (country of origin) and push (country of asylum) factors, in addition to demographic characteristics, using a limited sample size of about 43,000 refugees. Individual level estimations feature only pull factors and demographic characteristics of refugees with a sample size of about 2.2 million refugees.

The future mobility of Syrian refugees could be different from their past mobility. In many ways, the return that has taken place so far has been undertaken in specific circumstances, that is, during an active conflict, with specific motives like protecting property. Going forward, however, both the circumstances and motives are likely to be different. To capture these concerns, the analysis next considers scenario-based simulations.

Mobility Simulations



To study the responsiveness of refugee movements to shifting conditions in Syria, a bottom-up scenario-based approach is developed. To avoid making strong, top-down assumptions regarding the complex and unpredictable political economy dynamics surrounding the Syrian conflict, the analysis described here pursues a pragmatic microapproach. This involves building scenarios for two prominent pull factors: security and infrastructure. To do this, eight underlying conditions are analyzed for every governorate in Syria (14 overall): political influence/control, administrative capacity, social tensions, reconstruction priority, rule of law, legal/procedural complexity of return, financial capacity, and the region's connectivity with other regions. By using

observations and expert assessments regarding these conditions, three possible future paths for security and infrastructure are generated for each location:

- **Baseline environment:** the insecurity index decreases from 1.4 in 2017 to 0.15 in 2023. In the meantime, 16 percent of the currently damaged infrastructure is rebuilt/fixed in the entire country, but the reconstruction ratio varies from 3 percent to 32 percent in different areas.
- **Optimistic environment:** the insecurity index decreases from 1.4 to 0.07 between 2017 and 2023, and about 30 percent of the currently damaged infrastructure is rebuilt/fixed during that period. With a greater amount of rebuilding, the reconstruction ratio is more divergent across different locations than the baseline: 5 percent in the lowest case and 48 percent in the highest.
- **Pessimistic environment:** the insecurity index decreases from 1.4 in 2017 to 0.54 in 2023. The average reconstruction ratio remains at 5 percent of the current damages across the country, with significant disparities between the highest reconstruction at 14 percent and the lowest at 2 percent.

Simulations confirm the importance of security and service provision for mobility.

If the insecurity index is reduced from 1.4 now to 0.07 (optimistic environment) in five years, instead of 0.15 (baseline environment), and if 30 percent of the infrastructure is rebuilt (optimistic environment) instead of 16 percent (baseline environment), then returns would be 4.9 percentage points higher than in the baseline environment by the 5th year. In contrast, if the insecurity index decreases to only 0.54 and only 5 percent of the infrastructure is rebuilt (pessimistic environment), then returns would be about 9.8 percentage points less than the baseline.

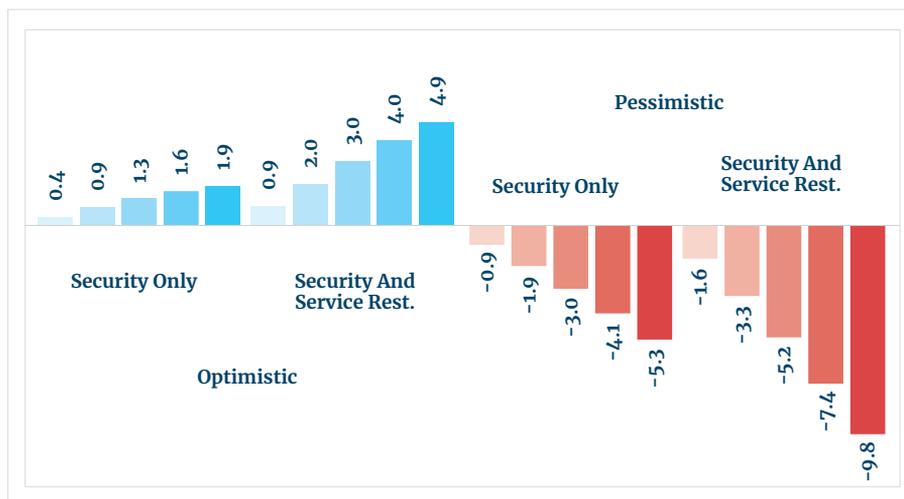
Service restoration is more effective in mobilizing refugees when security is less of an issue.

To better understand the distinct roles played by improving security conditions and service restoration, these effects were introduced separately. When only security improvements are considered, the optimistic path features 1.9 percentage points more returns than the baseline environments in five years (Figure E.S.5). This ratio increases by about 2.5-fold to reach 4.9 percentage points when service restorations are involved (second blue group in the figure). In comparison, the gap between “security only” and “security + service restoration” cases are smaller when the pessimistic scenario is compared to the baseline scenario. The pessimistic insecurity path, by itself, reduced returns by 5.3 percentage points as compared to baseline path. When differences between service restoration rates are also accounted for, this gap widens to 9.8 percentage points, about 1.8-fold. Thus, the difference-making potential of service sector restoration goes together with improvements in security.

To further analyze the mobility responses of refugees, alternative resource allocation scenarios are considered.

Because refugees’ mobility decisions may also be influenced by other policy-driven conditions, this report analyzes the relative effectiveness of alternative uses of financial resources. More specifically, each of the three environments specified above (e.g. baseline, optimistic, and pessimistic) is investigated to determine if certain ways of allocating resources other than service restoration may be more conducive to return. To this end, the following options are used:

Figure. E.S.5. The Effect of Service Restoration on Returns (Relative to the Baseline, percentage points)



- **Transfers:** in each environment, the estimated environment-specific cost of service restoration is distributed equally on a per capita basis within Syria, in the form of cash transfers, including to the returnees. This continues for five years until the money is depleted; no service restoration is performed.
- **Subsidies:** in each environment, the estimated environment-specific cost of service restoration is used to subsidize the return of refugees to Syria, in the form of reductions in mobility costs and cash transfers including to the returnees. Because the Syrians inside Syria are not subsidized, the returned receive a larger transfer in this case. This continues for five years until the money is depleted; no service restoration is performed.

Finally, maximizing returns and maximizing Syrians' welfare may be different objectives, and tradeoffs between the two are likely. Simulations show that, on average, mobility subsidies are the most effective in mobilizing refugees, but the least desirable from a welfare perspective (Table E.S.1). Returns under the subsidy scheme can exceed those under the service restoration scheme by about 29 percentage points, 45 percentage points, and 60 percentage points under pessimistic, baseline, and optimistic environments, respectively. Intuitively, for refugees, subsidies provide a more direct, exclusive, and thus larger benefit associated with returns. In comparison, the benefits of service restoration are shared by all Syrians and, thus, diluted from the refugee's perspective. The difference between the two schemes is the most prominent in the optimistic environment, where a larger financial resource is either shared among returnees (subsidies) or diluted by means of service restoration.

Overall, the analysis in this report does not attempt to generate policy solutions; but, it provides important reminders about the design of such policies. The simulation exercise developed here shows that the international community has

Table E.S.1. Returns and Welfare under Transfers and Subsidy Schemes (Compared to the Service Restoration Case, percentage points, cumulative)

Returns and Welfare (% Deviation from Service Restoration Case)						
		RETURN				
		1 Year	2 Years	3 Years	4 Years	5 Years
Baseline Environment	Transfers	-0.1	-0.7	-1.6	-2.9	-4.8
	Subsidies	9.1	17.9	26.6	35.5	45.0
Optimistic Environment	Transfers	0.7	0.4	-0.7	-2.6	-5.2
	Subsidies	14.0	26.6	38.3	49.3	60.3
Pessimistic Environment	Transfers	-0.1	-0.4	-0.7	-1.1	-1.7
	Subsidies	5.6	11.1	16.6	22.5	28.8
		WELFARE				
		1 Year	2 Years	3 Years	4 Years	5 Years
Baseline Environment	Transfers	-4.1	-4.6	-5.1	-5.6	-6.2
	Subsidies	-6.9	-7.1	-7.4	-7.6	-7.8
Optimistic Environment	Transfers	-4.0	-4.8	-5.7	-6.5	-7.4
	Subsidies	-8.6	-9.0	-9.2	-9.5	-9.7
Pessimistic Environment	Transfers	-2.5	-2.7	-3.0	-3.2	-3.5
	Subsidies	-4.0	-4.1	-4.2	-4.4	-4.5

access to diversified policies to help refugees, their hosts, and the Syrians in Syria. These include, but are not limited to, subsidies (return assistance), transfers, and service restoration in Syria. Although simulations do no attempt to solve for the “optimal allocation of resources” across these tools, it is still possible to infer key insights from them. First, “corner solutions” (e.g., using all resources through one tool only) are inefficient because the problems addressed by these tools reinforce each other. Second, these policy tools should ideally be used in an adaptive manner, responding to changes in conditions on the ground. For instance, insecurity in Syria is a major deterrent to return and it reduces the effectiveness of service restoration efforts. Thus, with improvements in security, which would include the cessation of arbitrary detainment, forced conscription, and other violations of human and property rights, more resources can effectively be allocated to restoring services. Third, while allocating resources across these policies, the objective should be maximizing the welfare of refugees, including those who return and who do not return, of their hosts, and of Syrians. Maximizing refugee returns comes at a cost in terms of welfare losses, thus, it is a poorly designed policy objective.

INTRODUCTION

The forced displacement crisis resulting from the conflict in Syria remains the largest in the world. By September 2018, over half of Syrians had been forcibly displaced, with over 5.6 million registered as refugees outside of their country and another 6.2 million displaced within Syria's borders. Refugee returns to Syria have been relatively low: from 2015 until mid-2018, about 103,090 Syrian refugees were verified to have returned to Syria by UNHCR.

This chapter first describes the nature of the Syrian displacement and refugee returns in more detail and then summarizes how the remainder of the report analyzes the complex issue of refugee mobility. Special attention is paid to the report's five-step integrated analytical strategy, which provides a fact-based and transparent framework to support a concerted dialogue among concerned parties.





Introduction



As the war in Syria enters its eighth year, the forced displacement crisis resulting from the conflict remains the largest in the world. While recent population movements are comparatively smaller in size than in previous years, the numbers of forcibly displaced persons both inside and outside of the country remain unprecedented. Over half of the population of Syria has, as of September 2018, been displaced, with over 5.6 million Syrians now registered as refugees outside of their country and another 6.2 million persons displaced within Syria's borders.⁴ Of the number of refugees, 3.5 million are registered in Turkey, with another 2.1 million registered in Lebanon, Jordan, Iraq, and Egypt. Around 35,000 are registered in North African countries. These totals do not account for those that are not registered or those that have migrated outside of the Middle East and North Africa region.⁵

A reduction in hostilities has finally become possible going forward; however, the effects of war continue to unfold. Although tragic prospects for renewed fighting and large-scale displacement are still ongoing in certain parts of the country such as Idlib, parties to the Astana talks and the Geneva process continue to push for de-escalation. Even in the absence of a negotiated settlement, the trajectory of the war has consolidated territorial control under forces loyal to the Syrian Government, though that consolidation today may be best described as fragmented. The war has reversed development gains and compromised prospects for stability, peace, and prosperity for future generations in the country and across the region.⁶ A previous World Bank report "The Toll of War" (World Bank, 2017) estimated a 27 percent damage ratio in the country's housing stock, and more in education and health facilities. More than 400,000 people died because of the war. Life expectancy declined dramatically, especially for males, aged 15-39, from 69.7 years in 2010 to an estimated 48.4 years in 2016.⁷ Over 2 million school-age children inside Syria have been displaced, with less than half enjoying full access to education. Another 739,000 Syrian children are out of school in the five neighboring countries that host Syria's refugees (Table 0.1).⁸ The loss of human capital is staggering. The combined effects of casualties, displacement, and forgone investments in human development will create permanent hardship for generations of Syrians.

Some believe that a less violent landscape within Syria should serve as a preamble to large-scale return. Yet, rarely is the absence of fighting a singular trigger for return. While strict causality is difficult to assign, return experiences such as those in Bosnia and Herzegovina, Afghanistan, Somalia, Liberia, South Sudan, Angola, and Iraq serve as a reminder that numerous other factors are required to precipitate return.⁹ These factors include improved security and socio-economic conditions in origin states, access to property and assets, and the availability of key services and restitution in home areas. Overall, refugees have their own calculus of mobility that considers all these factors and assesses available options before return is considered.

Table 0.1: Total Number of Registered Syrian Refugees, by Host Country

Country of Asylum	Number of Registered Refugees	Percentage of Total Caseload	Data Date
Turkey	3,564,919	63.4%	21 September 2018
Lebanon	976,002	17.3%	31 July 2018
Jordan	671,428	11.9%	24 September 2018
Iraq	248,696	4.4%	31 August 2018
Egypt	131,019	2.3%	31 August 2018

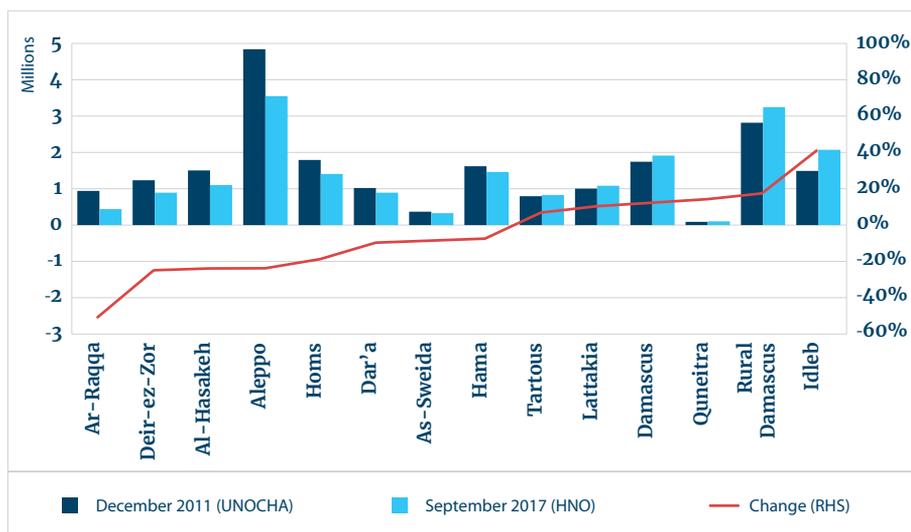
Source: United Nations High Commissioner for Refugees (UNHCR)

This study analyzes the “mobility calculus” of Syrian refugees. In complete adherence to international rules and norms governing issues related to refugees as practiced by UNHCR, and in strict repudiation of any policies that may involve wrongful practices like forced repatriation, this study analyzes the factors that are likely to be taken into consideration by refugees in their rational decision to relocate. This chapter will first describe the nature of displacement and returns, focusing on the demographic side of the problem, and then describe how the remainder of the report will analyze the complex issue of refugee mobility.

The Nature of the Syrian Displacement



In just seven years, the conflict has changed the demographic map of Syria dramatically. In the absence of official census data, especially during an active conflict, knowledge of the scale and composition of Syrian demography comes from estimates performed by different agencies. Nevertheless, all estimates suggest that, during the conflict, massive and rapid movements of Syrians took place both internally and in the direction of other countries. Overall, the population within Syria is estimated to have decreased from 20.8 million in 2011 to an estimated 19.4 million in 2017 (UNOCHA 2018, HNO). By May 2018, the population estimate was revised up to 20.2 million, still falling short of what it could be without conflict, especially when the high fertility rate (about 3.5 births per woman) before the conflict is considered.

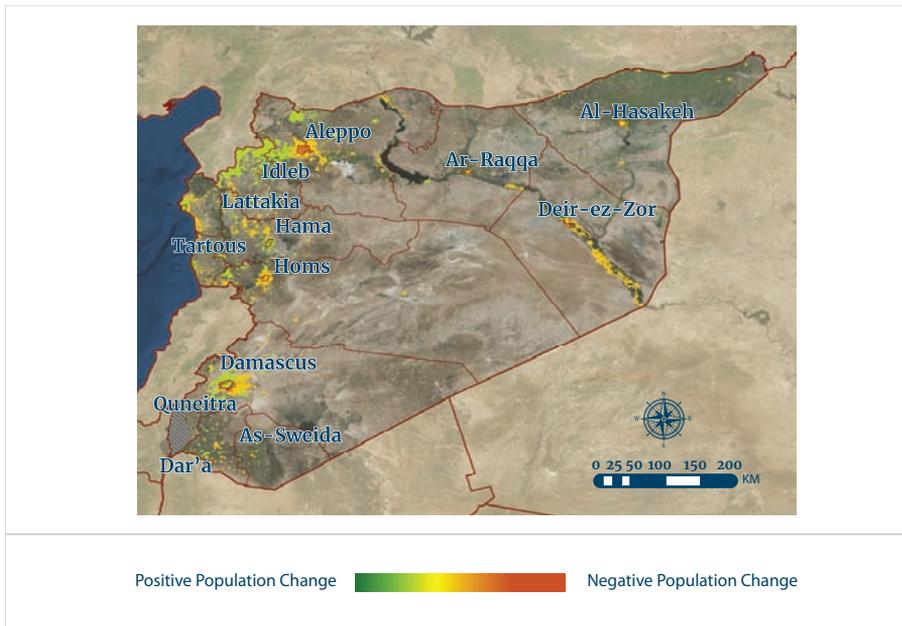
Figure 0. 1: Population Change by Province and Refugee Outflows

Source: UNOCHA 2011, HNC 2017.

Some governorates experienced dramatic displacement of population. In nominal terms, Aleppo lost the most residents over the last seven years, around 1.3 million inhabitants. This was followed by Ar-Raqqa (500,000), Homs (400,000) and Al-Hasakeh (400,000). In relative terms, however, Ar-Raqqa presents the biggest displacement case: the population of Ar-Raqqa decreased by more than 53 percent, followed by a 27 percent decline in Deir-ez-Zor, Al-Hasakeh, and Aleppo (see Figure 0.1). The governorates that lost inhabitants, albeit at a smaller scale, include Homs, Dar'a, As-Sweida, and Hama. Note that inter-governorate displacement is not the only type of internal displacement; in fact, it is not even the largest one. Most displacement takes place near the original settlement, that is, within the same governorate. Also note that these numbers are in net terms; thus, the actual displacement numbers are higher as cross movements of Internally Displaced Persons (IDPs), e.g., simultaneous inflows and outflows, reduce the net population differentials over time.

Other governorates witnessed a large influx of people. Idleb governorate registered the highest numbers of population inflows, both nominally and relatively, with a population increase of about 600,000 between 2011 and 2018, a 40 percent increase. Other governorates, including Rural Damascus, Damascus and Quneitra received more than 10 percent new inhabitants, in net terms. Although some of these increases can be explained by the fact that these governorates provided a relatively safer environment, in certain cases the arrivals and safety are not correlated. For instance, although Idleb is far from being a safe location for civilians, even in relative terms, it admitted internal population shifts because of several reconciliation agreements between the Syrian Government and opposition groups.

Figure 0.2. Geographic Distribution of Population (100m resolution), 2010 vs. 2018



Source: WorldPop, World Bank staff calculation

The exodus of Syrians from some places, and influx in others, changed the population density of Syrian cities dramatically. There is a marked difference between the pre-crisis and current population distribution at a micro-scale. To show this, the analysis uses population distributions at about 100-meter resolution from WorldPop. Because the latest data available from this source is for 2015, those were extrapolated by using 2018 district-level data from UN agencies. Figure 0.2 shows the results of this exercise. The reductions along the highway in Deir-ez-Zor and around Ar-Raqqa is particularly visible. In contrast, intensification in Idleb and northern Aleppo, especially along border areas with Turkey, is remarkable. Numerical measurements of these changes are discussed in more detail in Box 0.1.

Box 0.1. Displacement in Syria: A Granular View

There is no single indicator that can capture all dimensions of displacement in Syria by itself. Thus, interpreting several indicators together is often the best way to understand the true nature of displacement. To this end, the table below shows four displacement indicators that use granular data and calculate percentage changes between 2010 and 2018:

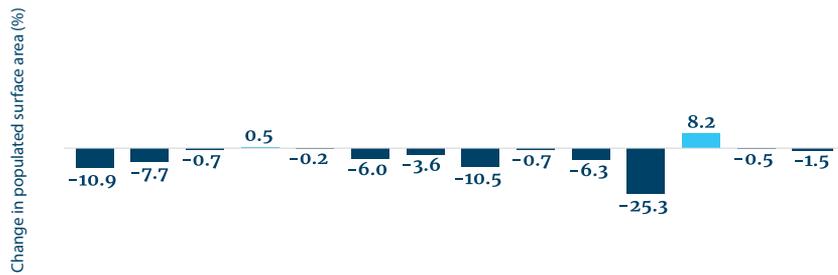
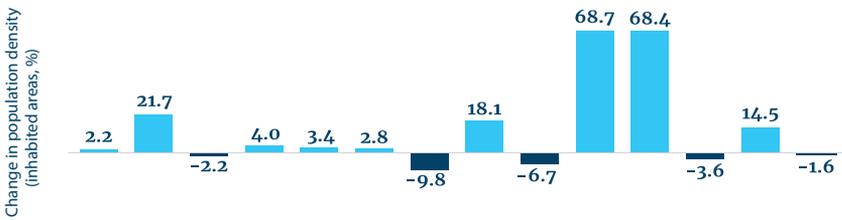
- Populated surface area for each governorate
- Population density using total surface area of each governorate
- Population density using only the inhabited area of each governorate, and
- Population dispersion using standard deviation divided by the governorate's surface area.

To generate these indicators, high resolution data from WorldPop was used. Statistics are calculated for each zone defined by the official administrative boundaries for the Syrian governorates, based on values from a value raster dataset (in our case a geolocated population dataset for 2010 and 2018 with a resolution of 84 by 84 meters per pixel). This allows us to calculate the mean and standard deviation by governorate for the population datasets of 2010 and 2018. These are scaled with governorate surface areas to get the density and dispersion values. For inhabited area statistics, areas with zero population are removed.

As the table shows, except for Quneitra the inhabited surface area decreased for all Syrian governorates between 2010 and 2018. The largest decreases are observed in Lattakia, where the newly unpopulated areas are up by 25 percent, as well as Aleppo and Hama, with an 11 percent increase in the desolate areas. The second column (change in population density) shows directly the net population movements as the denominator (surface area) is fixed. The largest proportionate influx of people is observed in Idleb and Quneitra, and largest outflow is observed in Deir-ez_Zor, Aleppo, and Al-Hasakeh. Density in inhabited areas increased in all governorates except in Deir-ez-Zor, Homs Quneitra and Tartous. Notably, the density of the inhabited areas in Idleb and Lattakia increased by almost 70 percent. Finally, the last indicator shows the change in the dispersion of the population within each governorate and it follows the pattern of the change in density indicator to a large extent.

Overall, in Idleb and Lattakia, we observe reductions in populated surface areas, but increases in density and dispersion. These, together, imply that both the local population and those coming from elsewhere moved towards relatively more urban areas, including both large and medium size ones, over the course of the conflict.

Box 0.1. Continued



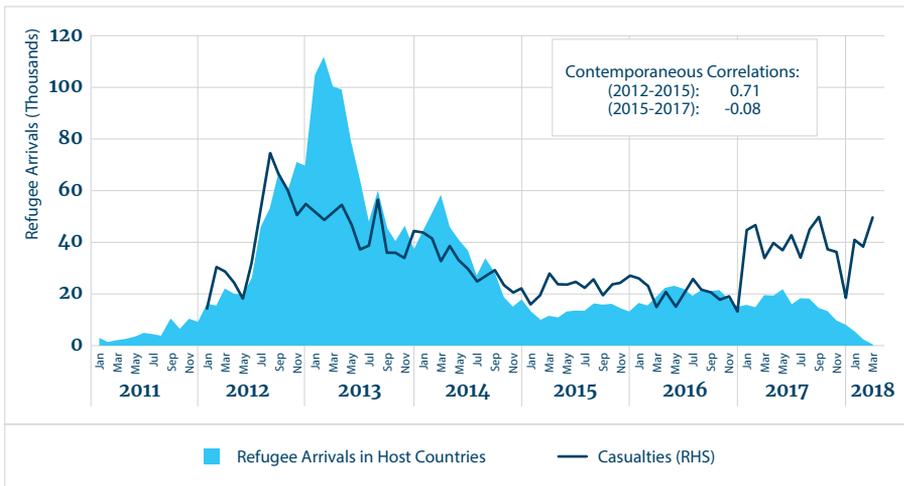
Aleppo
Al-Hasakeh
Ar-Raqqa
As-Sweida
Damascus
Dar'a
Deir-ez-Zor
Hama
Homs
Idleb
Lattakia
Quneitra
Rural Damascus
Tartous

The arrival times of Syrians in countries of asylum were highly correlated with the intensity of conflict until 2015, but tightened border controls broke this parallelism since then. Figure 0.3 shows the monthly series of verified casualties and refugee arrivals in Lebanon, Jordan, and Iraq. From 2011 until the end of 2014, these two series were highly correlated (coefficient of contemporaneous correlation 0.71). However, following tightened border controls in Lebanon and Jordan, this correlation disappeared until the end of the series (coefficient of contemporaneous correlation -0.08). This is also clearly visible in the 2017 values of the figure. Although casualties spiked in early 2017 and remained elevated throughout the year, refugee arrivals were exhibiting a downward trend.

Syrians were often displaced toward the nearest neighboring country, but proximity was not the only determinant for the selection of destination. An analysis of the UNHCR's registration systems for Lebanon, Jordan, and Iraq shows that 19 percent of the Syrian refugees in these countries came from Aleppo governorate (Figure 0.4).¹⁰ Homs registered the second largest outflow of refugees, representing 17 percent of the overall refugee population, followed by Dar'a (16 percent). At the source, almost 70 percent of the refugees from Homs fled to Lebanon and around 78 percent of the refugees from Dar'a fled to Jordan, both of which share a border with those countries. In these cases, proximity is an important explanation. In other cases, it is less obvious. Although Ar-Raqqa is located closer to the border with Iraq, about 82 percent of Syrians from Ar-Raqqa in these three countries relocated to Lebanon. This indicates a more sophisticated displacement pattern, possibly determined by ethnic-sectarian factors, networks, access to information and economic opportunities. For instance, for many years after the war in Lebanon and until 2011, the Lebanese construction sector relied on Syrian workers for the reconstruction process. Many Syrian farmers used to work in the Jordanian agriculture sector before 2011. These economic ties probably provided some predictability when these workers and their families had to move.

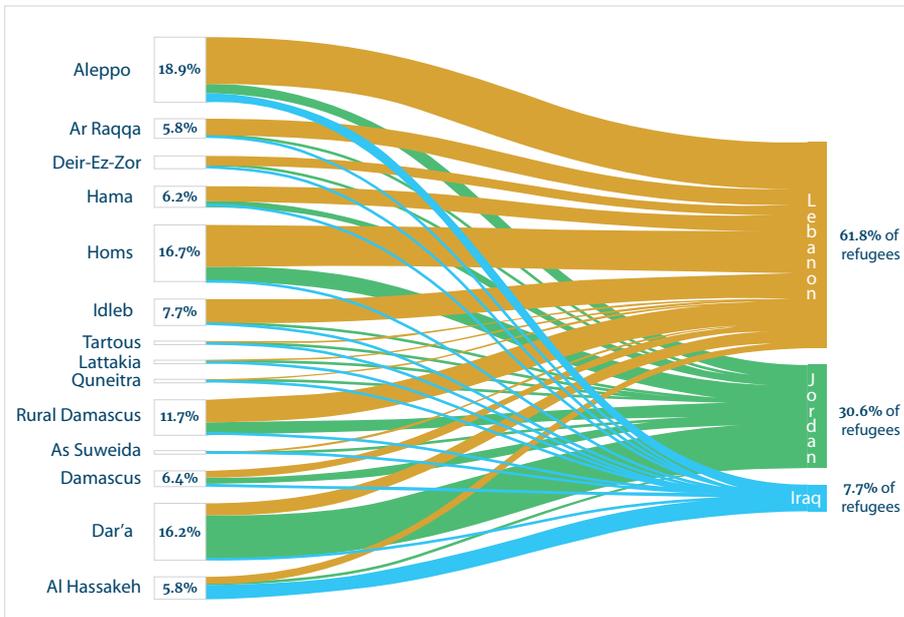
Syrian refugees are generously hosted by the host communities in Lebanon, Jordan, and the Kurdistan Region of Iraq. The sizes of the refugee populations in Lebanon and Jordan relative to host country populations are among the greatest in the world. In Lebanon, the Beqaa province hosts the largest number: 351,252 (36 percent), with another 255,424 refugees in Beirut, 251,619 in North Lebanon, and 117,770 in South Lebanon.¹¹ Informal settlements are spread across a large part of Lebanon, with concentrations near the Syrian border and in Beqaa. In Jordan, Amman governorate hosts the largest number of refugees (194,958, or 29.3 percent), followed by the Mafraq and Irbid governorates (162,213 and 139,945, respectively). Close to 20 percent of Syrian refugees stay in three camps (Zaatari in Mafraq governorate, Azraq and Mrajeeb Al Fhood in Zarqa governorate). In Iraq, the number of refugees is small compared to the country's total population (about 0.7 percent) but constitute 5 percent of Iraq's Kurdistan Region population, where almost all refugees reside.

Figure 0.3. Verified Casualties in Syria and Refugee Arrivals in Lebanon, Jordan, and Iraq



Source: UNHCR and World Bank.

Figure 0.4. Refugee flows from Governorate of Origin to selected Country of Asylum

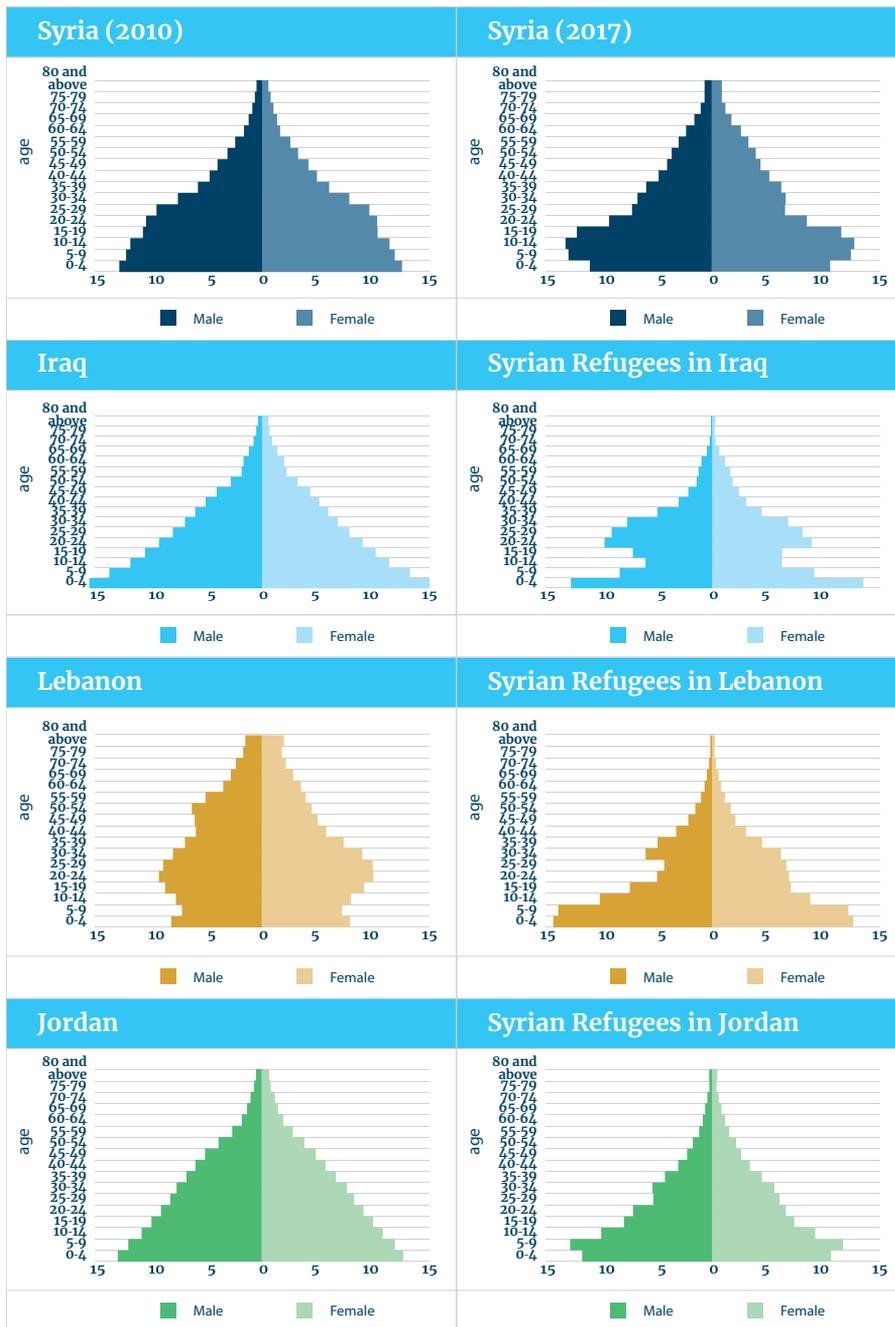


Source: UNHCR data (April 2018), World Bank staff calculations

The age distribution of Syrians inside and outside Syria demonstrates clearly the age-biased displacement effects of the conflict. Before the conflict (2010), the Syrian population was already very young; around 80 percent was under the age of 40 (Figure 0.5). The conflict seems to have pushed away younger people disproportionately. Currently, about 87 percent of refugees in Lebanon, Jordan, and Iraq are under the age of 40 compared to 77 percent of Syrians in Syria. Almost one in two (47 percent) of the refugees are children under the age of 14. This brings them in sharp contrast with the populations of the host countries. Lebanon has a youth-dependency ratio of 46.2, and Jordan 58.5, while the figure for Syrian refugees is higher than 63.5. This creates a unique set of challenges both for the refugees and the host countries, which shoulder the responsibility of meeting the needs of this predominantly young population.

Despite minor differences, the demographic profiles of refugees across Lebanon, Jordan, and Iraq are remarkably similar. In the three countries examined in this study, the percent of female refugees is slightly higher (51 percent) than the number of men, except for Iraq where women comprise about 47 percent of the population (Figure 0.6). About 85 percent of refugee cases (group of refugees, often a household with relatives, who are registered together by UNHCR) have children, with that number being slightly higher for Lebanon (89 percent) and lower for Iraq (76.5). Syrian refugees in Iraq are more likely to be single-person cases than those in Lebanon and Jordan. The average case size in these three countries is 5.3 persons, with bigger families being more likely to be in Lebanon. Most refugees (around 60 percent) are under the age of 14. In terms of education, over a quarter of the refugees in Lebanon, Jordan, and Iraq are not educated (29 percent); more than half received some elementary education (1-6 years) (59 percent), less than 10 percent received preparatory and secondary education (7-12 year), and only 3 percent have university education.

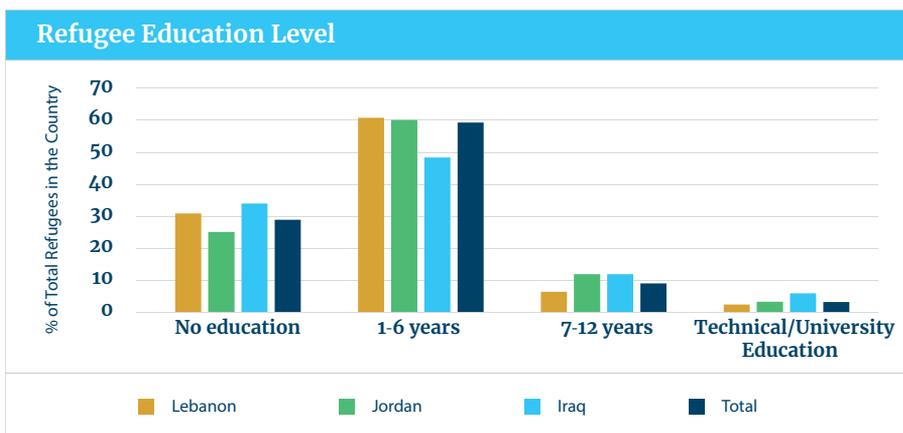
Figure 0.5: Population Pyramids for Syria (2010, 2017), Host Communities, and Syrian Refugees



Source: World Development Indicators (WDI, 2017 and 2010) and UNHCR.

Figure 0.6: Demographic Characteristics of Syrian Refugees in Lebanon, Jordan, and Iraq

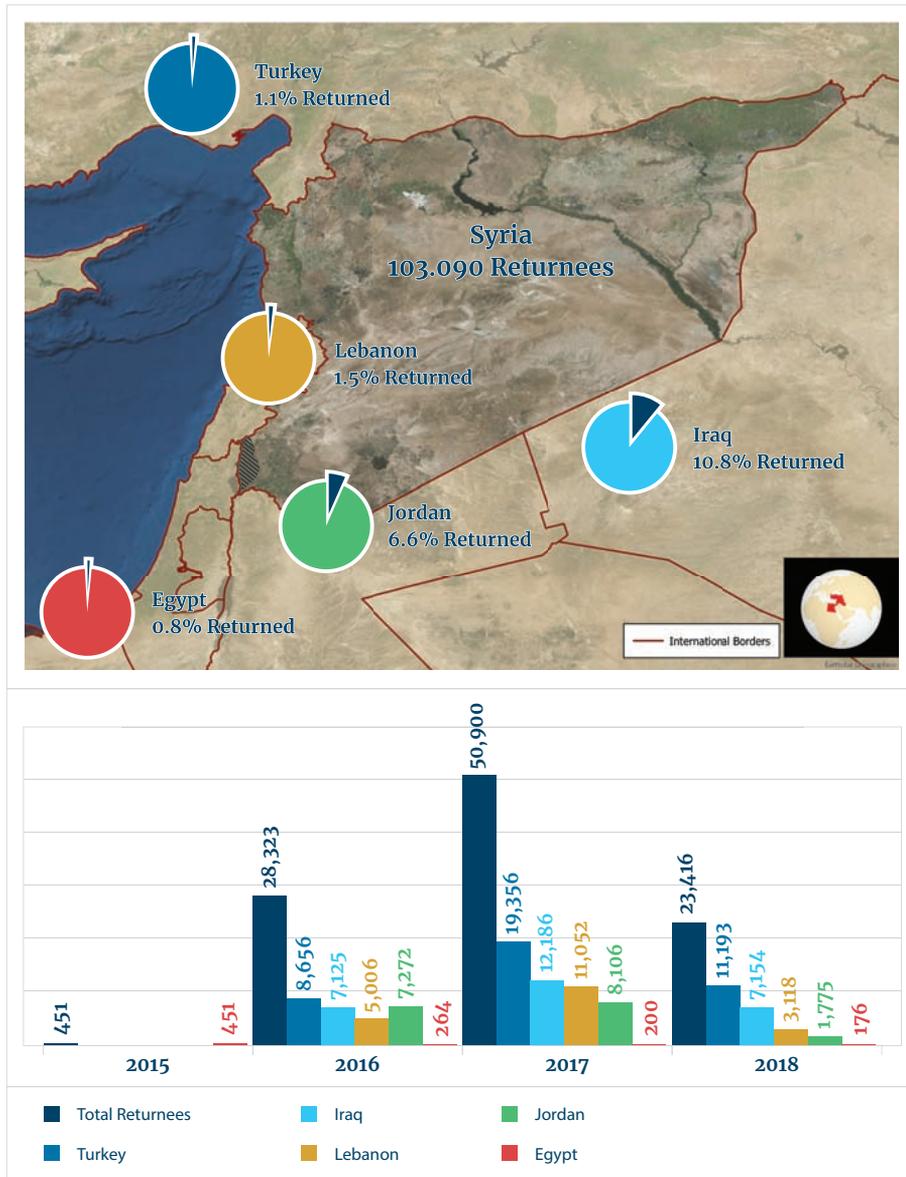




Source: UNHCR data, World Bank staff calculations.

Returns to Syria have been relatively low but in the tens of thousands, nevertheless. UNHCR keeps a record of registered refugees who returned to Syria. Unfortunately, due to access constraints and the spontaneous nature of returns there is no way to systematically trace these returnees; it is not known if they returned to their original places, or whether they were arrested, killed, or became displaced again. Nevertheless, from 2015 until 2018, 103,090 Syrian refugees were verified to have returned to Syria by UNHCR (Figure 0.7). About 40,000 of those returned from Turkey (about 1.1 percent of total Syrian refugee population in the country). In relative terms, the highest return from the three countries covered in this study took place from Iraq: about 26,000 refugees (10.8 percent of all registered Syrian refugees in the country) have returned so far. In Jordan, about 17,000 Syrian refugees (6.6 percent) and in Lebanon about 19,000 Syrian refugees (1.5 percent) have returned. In all three cases, return numbers in 2017 were higher than those in 2016, with the greatest increase (two-fold) recorded in Lebanon.

Figure 0.7. Return Statistics



Source: UNHCR data (2018)

About This Report

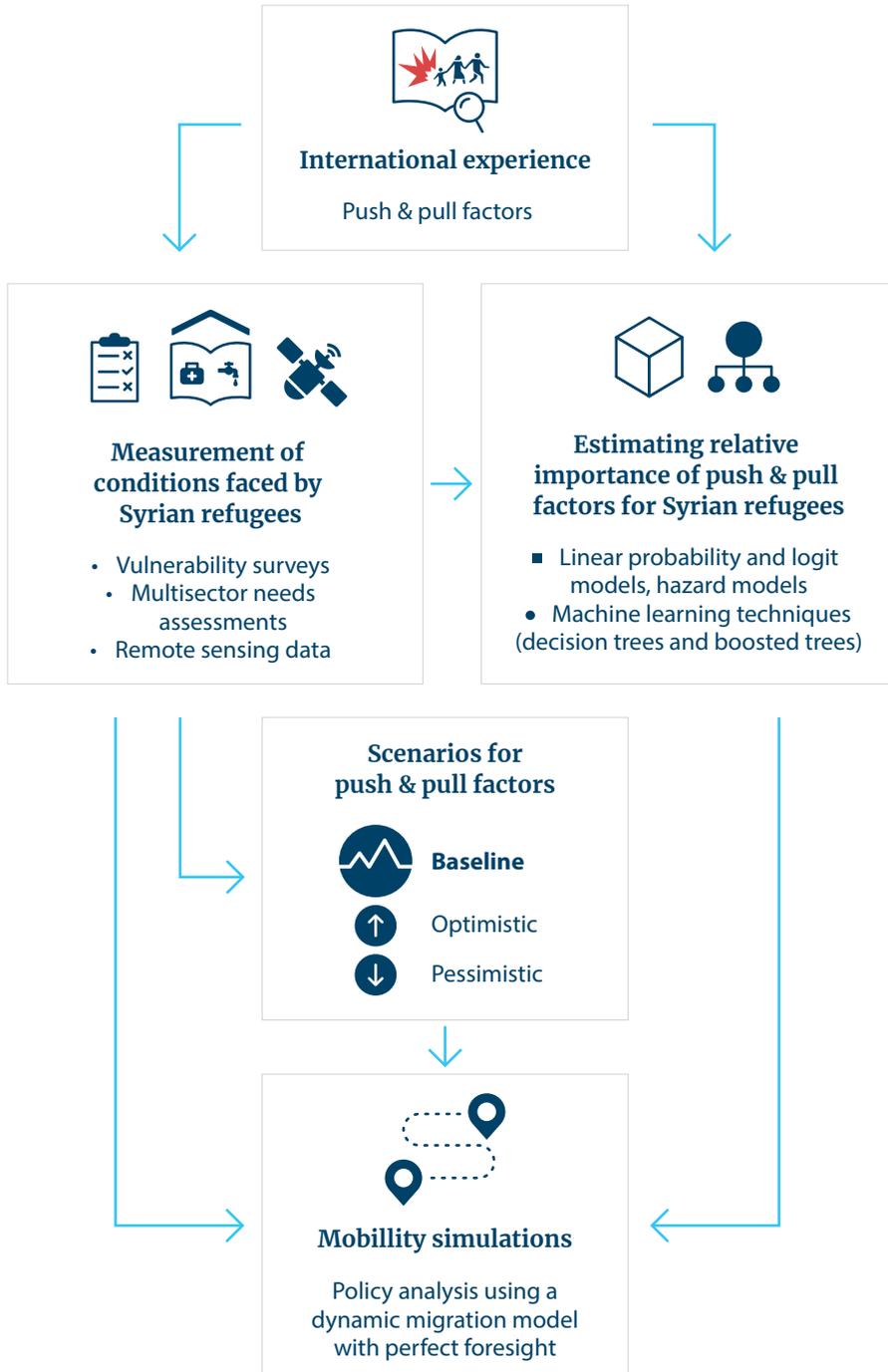


It is not easy to talk about refugees. The issue is highly politicized, and facts and fiction are sometimes indistinguishable in a polarized public view. Although nations often act to help refugees based on moral and legal imperative, these actions may not always be sufficient despite the best efforts of host country governments, NGOs, international organizations, and donor countries. Knox and Kushner (2012) suggests that “people feel that the country should maintain asylum for genuine asylum seekers, but they’re always in the past, never today.” In the Syrian case, neighboring countries have suffered massive inflows of refugees, the largest in the world in proportion to host populations. Absorbing such an extreme shock is not easy. Even if international assistance helped offset some direct costs associated with refugee arrivals, it is impossible to mitigate the impact on host societies in all dimensions. The issue is open to political exploitation, and policy makers often adopt an increasingly conservative approach, willingly or by means of political calculus. This dynamic can be effective in host countries and advanced economies alike.

Against this background, this study aims to provide a fact-based and transparent framework to support a concerted dialogue among concerned parties. The main objective of this report is to provide a conceptual framework, supported by data and analysis, to facilitate an objective conversation about refugees. To this end, the study sheds some light on conditions faced by Syrians inside and outside Syria, analyzes their patterns of mobility based on these conditions, and provides reasoned conjectures about possible future patterns of such mobility in a scenario-dependent manner. More specifically, a five-step integrated analytical strategy is adopted.

- **The first step (Chapter 1)** considers international experience, which helps to identify important factors in analyzing refugee movements ((that is, push and pull factors). Given the paucity of data and the lack of empirical research in this area, the analysis adheres to descriptive findings that rely on case studies.
- **The second step (Chapter 2)** provides measurements of these factors in the case of Syria and host communities (Lebanon, Jordan, and Iraq). Conditions inside Syria are measured by means of on-the-ground surveys by partner UN agencies and remote sensing-techniques (e.g. satellite images and radar sensors), with social and traditional media verification in Syria. Conditions outside Syria are measured by using UNHCR-led vulnerability surveys (Vulnerability Assessment of Syrian Refugees in Lebanon- VASYR, and Vulnerability Assessment Framework -VAF in Jordan), as well as a World Bank conducted verification survey.
- **The third step (Chapter 3)** estimates the relative importance of the above-mentioned factors in explaining the spontaneous returns that have taken place so far in the Syrian context. Estimations employ various econometric approaches (e.g., linear probability and logit models), and machine-learning-based specifications such as decision trees.

Figure 0.8. A Five-Step Integrated Analytical Strategy



- **The fourth and fifth steps (Chapter 4)** analyze the role that several factors can play in increasing or decreasing the spontaneous return of Syrian refugees in the future. As this approach is prone to significant uncertainty, a scenario-based approach, where factors that can affect refugees' decisions can vary, is adopted to present the range of outcomes. The results are produced by using a simulation model that builds on The Toll of War (World Bank 2017b) and emphasizes a rational, forward-looking decision-making procedure that guides the mobility of all Syrians.

This report focuses solely on voluntary mobility of refugees. The analysis presented in this report adheres strictly to international norms and practices of refugee returns, which put the voluntary movements of refugees at the center. Any forms of policies that may involve actions against refugees' will and safety are renounced and not analyzed in this report. In fact, both the empirical analyses and the simulation work are firmly grounded in this principle. The former considers only the spontaneous returns that have taken place from 2012 until March 2018. The latter employs a mobility model with perfect foresight, where agents make mobility decisions given their constraints—border policies, economic conditions, and security conditions. This approach also provides more useful policy implications as the incentives of refugees, and their rational responses, are captured in a bottom-up manner.

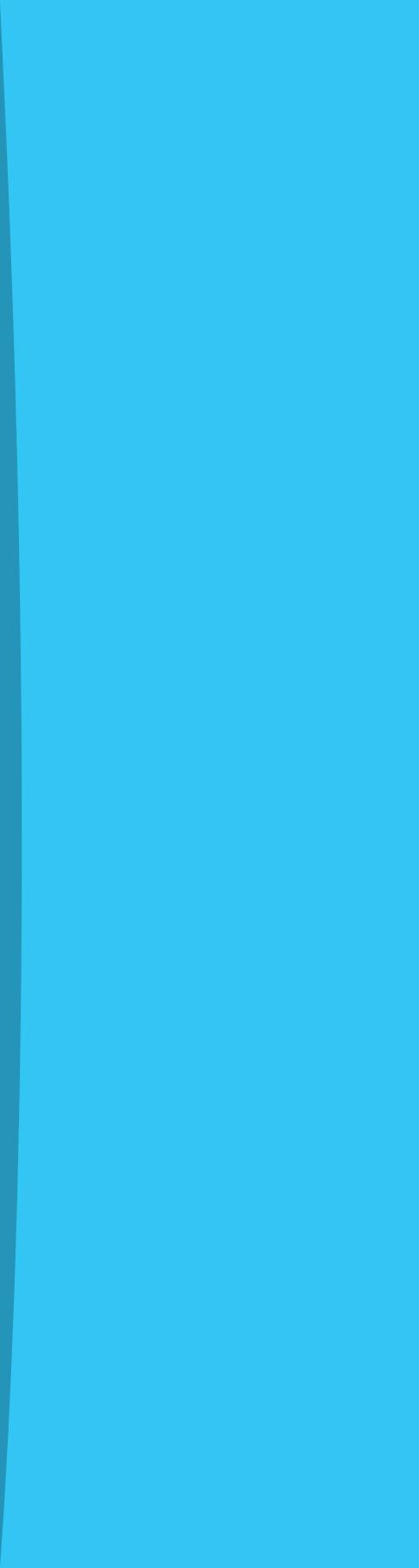
Given the immense complexity surrounding the refugee mobility issue, the report leaves several equally, if not more, important topics for future work. The analytical complexity of refugee situations forced the report to narrow its focus to be able to help dissect the complexity around the return of refugees. In addition, data shortages were more daunting in areas such as IDPs in Syria and refugees in Turkey. Thus, this analysis focuses on the refugee mobility issue through the five steps described above in Lebanon, Jordan, and Iraq, and leaves the study of displaced Syrians in Syria, Turkey, and Europe for the future. Similarly, the highly pertinent topic of how the host communities are affected by the arrivals of refugees, and more broadly by the Syrian conflict, is scheduled to be analyzed in a forthcoming study "The Regional Economic and Social Impact of Syrian Conflict," which will benefit from the methodology and findings of this report.

Chapter 1

Refugee Returns through a Global Lens

The overview of international experience points at key areas of concern for analyzing refugee returns and shows the complexity of the problem. The discussion in this chapter focuses on providing general trends in return experience globally and categorizing factors that may influence decision-making regarding returns. Overall, the complex nature of the problem and absence of empirical evidence, two factors that reinforce each other, limit understanding of the mechanisms that drive return decisions. Nevertheless, several key observations provide the necessary guidelines for analyzing Syrian refugees' mobility.





Chapter 1:

Refugee Returns Through a Global Lens



The return of refugees, when feasible and undertaken under the right conditions, is often supported by all who are involved in a refugee situation. Of the three durable solutions to refugee displacement, which are refugee return, third country resettlement, and local integration, “voluntary return in safety and dignity” has always been pursued by the United Nations High Commissioner for Refugees (UNHCR), intergovernmental organizations, and governments as the preferred and, in some respects, the optimum durable solution for all stakeholders. When refugees return home under the right conditions, first and foremost, a durable solution for refugees is reached. In addition, host states are relieved of the responsibility of hosting them; likewise, the international community and donors are relieved of long-term funding commitments to assist them; and the country of origin is, in principle, content to have its citizens return and to reconcile pending issues that may threaten peace and stability.

Return is not an end in itself, but it can provide an effective resolution to a refugee situation if implemented properly. Return programs are predicated on a general presumption that refugees will mostly return voluntarily, either in an organized manner or spontaneously, once the conditions of violence or persecution precipitating their flight have ended. Realistically, however, many refugees may not return home and others require near-term solutions when circumstances in the country of origin are not yet conducive to voluntary repatriation. In such instances, the other durable solutions, along with interim measures may be necessary. Return is the preferred solution because it reduces the pressure for both third-country resettlement, which is politically more complex and usually costlier, and local integration, which often occurs informally in conditions of protracted exile.

Despite their importance, refugee returns have not been comprehensively studied. A systematic analysis of global refugee returns is hampered by the complexity of the problem and the paucity of data.¹² On the one hand, refugees are rational (and emotional) actors that utilize available information to frame return decisions as comparisons of conditions in exile and in their country of origin. Movements are calibrated accordingly, with refugees and their families sometimes choosing to stage their return, engage in cyclical back and forth movements, or move where social networks and livelihood prospects are best, even if this means settling in areas within their country of origin, yet away from their homes of record. Given vastly differing profiles of refugees—a factor that is driven by the fact that violence displaces all types of people, not only specific segments of the society—these factors generate further heterogeneity of mobility patterns among refugees, which is difficult to aggregate and compare. Additionally, the complexity of such behaviors and the fact that often they

take place in “gray areas” where monitoring and record-keeping are often not possible, translates into an acute absence of data. Together, these two factors have limited our understanding of return phenomena to (often) anecdotal and descriptive analyses, which are not usually comparable across cases.

This chapter provides a summary of the key findings from international practice of return. The first section describes the legal and normative context adopted by the international community to limit adverse practices and promote mechanisms aligned with protection of refugees’ well-being. The next section provides an overview of aggregate return statistics in the context of broader displacement trends. The final section analyzes the factors that are associated with return (e.g., pull and push factors) by using findings from case studies and descriptive evidence. Unless otherwise stated, all references to refugees in this report refer to those under UNHCR’s mandate. UNHCR’s mandate applies to all persons outside of their country of origin for reasons of feared persecution, conflict, generalized violence, or other circumstances requiring international protection, and owing to that fear cannot return. It applies to emergency and non-emergency situations, camp and non-camp refugee populations and includes asylum seekers, stateless persons, and returnees. UNHCR does not have a general or exclusive mandate for internally displaced persons and shares complementary functions with the United Nations Relief and Works Agency (UNRWA) regarding Palestinian refugees.¹³

1.1. The Legal and Normative Context for Returns



Since the end of the Second World War, the principle of “voluntary return” has been at the core of international norms and regulations regarding refugees. The principle international legal instruments dealing with refugees, the 1951 Convention Relating to the Status of Refugees and its 1967 Protocol, do not directly address the question of refugee repatriation except in terms of the overriding principle of *non-refoulement* (not forcing refugees or asylum seekers to return to a country in which they are liable to be subjected to persecution) and in relation to the conditions over which *cessation* of refugee status is warranted. Article 1C of the Convention defines the situations and conditions that trigger the withdrawal or cessation of refugee status, among which are voluntary return to and re-establishment in an origin state,¹⁴ centering attention thereafter on the importance of determining whether such return movements are truly voluntary.¹⁵ The 1950 Statute of the Office of the UNHCR¹⁶ also charges the Office with “seeking permanent [i.e. durable] solutions” to the problem of refugees, inter alia by calling on governments to cooperate with the High Commissioner by “assisting the High Commissioner in (her/his) efforts to promote the voluntary repatriation of refugees.” It is worth noting that “return” within this legal context refers to reentry into the country of origin and not to a specific home of record.

The parameters of return practice evolved over decades. UNHCR's role and responsibilities with regard to voluntary repatriation have been developed over decades through texts, instruments, and practice. As early as 1961, the UN General Assembly passed Resolution 1672 (XVI) requesting the High Commissioner to "use the means at his disposal to assist in the orderly return of Algerian refugees in Morocco and Tunisia to their homes and [to] consider the possibility, when necessary, of facilitating their resettlement in their home land."¹⁷ In 1980, UNHCR's special competence for refugee return was reaffirmed and codified as part of the ExCom that year.¹⁸ Five years later, ExCom 1985 significantly developed the doctrine of voluntary repatriation, reiterating and further detailing the basic principles.¹⁹ And in 2003, the UNHCR's *Framework for Durable Solutions for Refugees and Persons of Concern* further articulated the international commitment to UNHCR's mandated responsibility to facilitate return.

Although returns can take place spontaneously, large-scale voluntary returns are often assisted. The current international approach distinguishes between three types of returns: i) self-organized or unassisted returns, ii) facilitated large-scale voluntary returns, and iii) promoted returns, as a potential last stage of a returns process. In the first case, which is often called "spontaneous return," return movements are driven by the planning and initiatives of refugees themselves. UNHCR does not provide direct assistance but sometimes offers counseling to returning refugees wherever possible, available, or desired. The largest unassisted returns movements include those since 1989 in Afghanistan, Rwandan returns from Eastern Zaire in 1997, Angolans returning after the 2003 Luena Accords, and most of the returns to date in South Sudan. Overall, about 33 percent of all returns between 2006 and 2014 were unassisted.²⁰ At times refugees return unassisted because they lack information on programs, they may be pressured to move urgently back to home areas, or they fear losing refugee status and prefer to move to their origin countries outside of official channels. They may also choose to return unassisted when UNHCR elects to not facilitate return over concerns that refugees are "pushed" out of asylum countries or when conditions remain insecure in origin countries.

"Voluntary assisted returns" refers to repatriation with the voluntary agreement of refugees, organized by the UNHCR and usually assisted with international support. Examples of large assisted return movements include Cambodians returning from Thailand in 1992-1993, Mozambicans return in 1992-1996, and Afghans returning from Pakistan in 2002. In comparison, "promoted return" involves logistical and other support to refugees who are encouraged to return by various factors. In these cases, and when UNHCR judges the return environment as free of the conditions that prompted forced displacement initially, UNHCR will proactively assist prospective and actual returnees with information and logistical support. Examples include Cambodian refugees in the 1980s, but also those from Bosnia and Herzegovina after the 1995 Dayton Peace Accord, some of the Burundian refugees from Tanzania post-2002, and Liberian refugees post 2015.

The complex logistics of large-scale voluntary repatriations are organized within the framework of tripartite agreements. As reaffirmed in the Conclusions of UNHCR's ExCom 1985, large-scale voluntary returns have been managed by means of agreements between UNHCR under whose aegis the agreements are made, along with

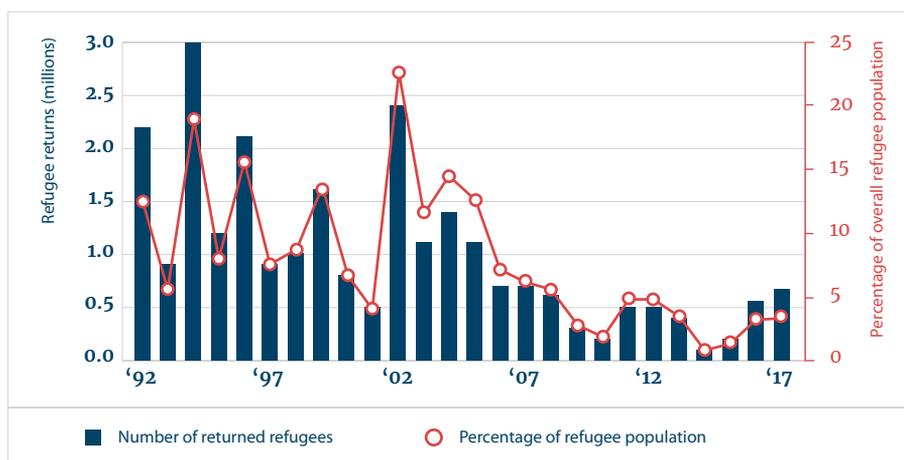
the country of origin and the host country (or countries). Refugees are also consulted. The most coherent example of coordinated voluntary return was the International Conference on Central American Refugees (CIREFCA). This process, which ran from 1987 until 1994, developed a wide-ranging Plan of Action and included Tripartite Agreements for reintegration and political dialogue which facilitated the voluntary repatriation of almost 135,000 Salvadorian, Nicaraguan, and Guatemalan refugees. Since the early 1990s, UNHCR has assisted in over 17 major voluntary repatriations, supporting millions of refugees during their voluntary return to their countries of origin.

Tripartite agreements outline specific responsibilities for all signatories to ensure the voluntary nature, safety, and dignity of the repatriation. Designated responsibilities of the governments (host and origin) often include facilitation of the repatriation; refugees' rights to return to their former places of residence or a choice to return elsewhere within the origin country; the physical, legal, and material safety of refugees and returnees; unhindered access by humanitarian and development actors to refugee populations before, during, and after the repatriation process; continued provision of protection and assistance to those refugees who choose not to repatriate; establishment in the country of origin of administrative and judicial measures to support reintegration; and logistical arrangements (such as security escorts, exemption of refugee goods from customs duties, and establishment of repatriation commissions).²¹

1.2. The Numbers of Returns



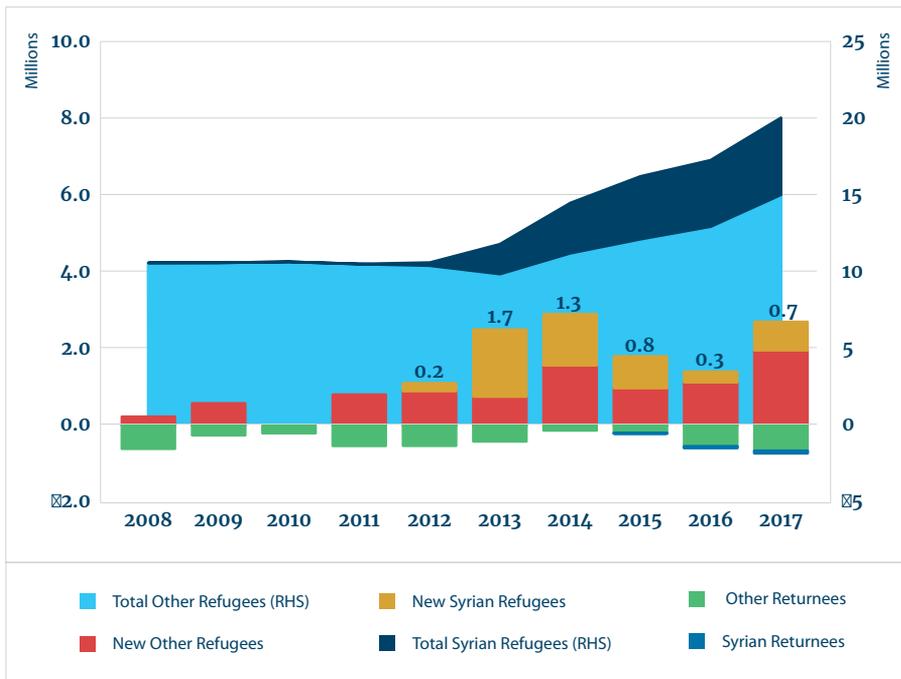
Although refugee returns can provide a durable solution, statistics reveal relatively low aggregate numbers of returns over time compared with the total number of refugees. According to the UNHCR,²² 2016 and 2017 were exceptional years for refugee returns, compared to preceding years. Unusually large numbers of refugees returned to their countries of origin totaling 552,200 and 667,400, respectively (Figure 1.1). The largest returns comprised 384,000 returnees to Afghanistan in 2016 and 282,800 returnees to Nigeria, mainly from Cameroon and Niger, in 2017. More than 80 percent of the returnees over this period received UNHCR assistance for the return, although support varied widely from the provision of information to more substantive packages of reintegration support. The number of countries or areas to which refugees returned included 40 countries in 2016 and 43 in 2017. However, overall numbers of refugees climbed to historic levels over the period. Moreover, returns averaged about 400,000 per year over the last decade (2008-2017), compared to an annual average of 970,000 in the preceding decade and over 1 million per year in the 1990s – the so-called “decade of repatriation.”²³

Figure 1.1. Slowdown in Refugee Returns

Source: UNHCR Global Trends: Forced Displacement in 2017.

The number of newly displaced refugees has dwarfed that of returnees. In 2017, about 2.9 million people, nearly 4.4 times the size of returnees, became refugees (Figure 1.2). By the end of the year, the global refugee population was at 25.4 million, the highest known total to date and an increase of 2.9 million from 2016.²⁴ The number of refugees under UNHCR's mandate increased for the sixth year in a row, to a total population at the end of the year just shy of 20 million. The corollary of the low return rates and the high displacement rates is ever longer protracted refugee situations. An estimated 11.6 million refugees (65 percent of those under UNHCR's mandate) are currently in protracted displacement, driven by a combination of lengthened civil conflicts, an inability (or unwillingness) of states to afford protection for returnees, and enduring state fragility in key refugee-producing areas.²⁵ A World Bank study estimated that the average duration of exile for current refugees is 10.3 years.²⁶

From 2012 onward, the Syrian conflict became a major driver of displacement, quickly becoming the largest refugee population, globally. The number of refugees under UNHCR's mandate nearly doubled after 2012, and more than half of this increase was generated by the conflict in Syria. In 2013, the number of newly registered Syrian refugees (1.7 million) was more than double the total number of registrations in the rest of the world, and 2014 and 2015 saw comparable new refugee numbers. Given the active conflict situation, however, the return of Syrian refugees back home has been negligible compared to returns elsewhere. The following subsection will analyze characteristics of returns by looking at refugee populations other than Syrian.

Figure 1.2: Refugee Stocks and Flows, Syrian vs. Non-Syrian, Millions

Source: UNHCR Global Trends: Forced Displacement yearbooks.

Notes: Data for "New refugees" was missing for 2010; thus, it may not necessarily be zero.

1.3. The Determinants of Return

Refugee return is not a monotonic or linear event: it often includes an iterative, staggered, or cyclical process. Evidence of Iraqi refugees hosted in Syria and Jordan (before the war in Syria), and Somali refugees in Kenya, points to complex strategies followed by refugees in spontaneous returns. The behavioral patterns are by no means random or unorganized, which the term 'spontaneous' misleadingly suggests. One or two members of refugee households return informally from host countries for short periods to, among other things, assess the scope for more permanent return of the household or community that will permit the re-establishment of livelihoods and housing where this is possible, safeguard and re-establish entitlements to property pending more permanent return, or assist family members who have remained behind.

Just like any other groups of individuals, refugees act rationally, facing a set of constraints, to ensure the well-being of themselves and their families. Refugees are rational actors, and they use available information to frame decisions to stay or

return as comparisons of security, kinship and social networks, and socio-economic conditions in exile and the country of origin.²⁷ Movements are calibrated accordingly, with refugees and their families sometimes choosing to stage their return, engage in cyclical back and forth movements, or move where social networks and livelihood prospects are best even if this means settling in areas within origin countries, yet away from their homes of record.²⁸ South Sudanese and early Afghan returns reveal patterns of staged and cyclical movement. Liberian, Cambodian, Tamil, Angolan, and later Afghan returns exhibit aspects of refugees attempting to synchronize movements with extended social networks and tendencies to gravitate toward urban centers.²⁹ All things being equal, these behaviors are part of the sophisticated repertoire of responses refugees deploy when considering return.³⁰

Adverse conditions can lead to unconventional coping strategies. When conditions are not ripe, refugees may remain in exile, despite an increasing ‘push’ from host countries, or from international donors for refugees to leave. In parallel, they may develop coping strategies such as family subdivision. South Sudanese and, in earlier times, Afghan refugees used a strategy of temporary or permanent geographical dispersal of family members between exile and return locations (and sometimes resettlement countries as well), to maximize and diversify access to livelihoods and services and enhance remittance income to support priorities for household well-being.³¹ Moreover, in many refugee situations ongoing mobility or circular movements are key livelihood strategies that contribute to sustainable solutions and reconstruction, and often draw on transnational networks that predate the conflicts that caused the displacement. The case of the Somali refugee diaspora and their use of remittances to support both refugees and returnees is well documented.³² Similarly, Tamil refugees from Sri Lanka also used their diasporic networks as a risk-sharing mechanism.

Trends in spontaneous returns point to a few structural factors that are commonly considered by refugees in optimizing their return decision. The pace and scale of return primarily depends on how refugees perceive structural conditions such as security, livelihoods, access to basic services, and the potential for survival in exile or in reintegration in the country of origin in a comparative sense, that is, they compare conditions in countries of asylum and the country of origin at the same time, continuously. While there is little evidence on how the porosity of borders and ease of cross-border movement affect these trends, there are often additional factors that facilitate the process. The following subsections study these factors in more detail because the success of any voluntary repatriation model relies on its ability to consider such rational decision-making from refugees.

Peace, security, and protection

Assisted voluntary return schemes are usually predicated on political agreements and peace accords that are expected to end the conflicts. In the case of Bosnia and Herzegovina, the Dayton Peace Accord was constructed on the principle of reversing ethnic cleansing and was essential to the return of refugees. But in most cases the international political imperatives that drive many return programs are often conceived without regard to history, and in a technocratic way that ignores the national and local

political realities, which may have precipitated displacement and certainly govern the scope for successful return.³³ For example, there is often an imposed urgency on return, by donors, the host countries, and sometimes also the country of origin (for example the desire to expedite return for elections in the newly established South Sudan), that does not always allow time for violence to fully cease or peace-building measures to gain a foothold. The cases of Afghanistan and Iraq, two countries that closely mirror conditions for return to Syria, as well as South Sudan, illustrate how protracted conflict continues alongside the push for return with appalling consequences for the returnees as well as for those who remained—conflict, continuing instability, human rights violations, secondary displacement, and fragile governance and development. The divergent political aspirations of returning communities that may have precipitated conflict and the rival interests of local political leaders and militias highlight the need for effective peace-building processes, stability, rule of law, reconciliation, compensation, and restitution as the means to facilitate return. Left unaddressed in settlement talks, these aspects of physical, material, and legal security for refugees will continue to constrain voluntary return and immiserate those who do repatriate.

However, spontaneous returns can also take place to areas or countries that are far from peaceful and stable or are in post-conflict recovery. On average, spontaneous and unassisted returns take place in security conditions that are inferior to those under voluntary and assisted programs.³⁴ Yet, the former type of return still involves substantial numbers of returnees. Afghanistan, Angola, Liberia, South Sudan, and to a lesser extent Iraq, provide examples where early spontaneous returns have taken place, usually preceding the execution of assisted voluntary return schemes under Tripartite Agreements, and where the overall number of spontaneous returns, at least initially, exceeded those assisted through such return programs. However, this is not always the case. For Bosnians returning to Bosnia and Herzegovina from Germany, the United Kingdom, and other European countries of refuge, there was little spontaneous return. Refugees themselves did not consider it safe to return before the introduction of the voluntary repatriation program. The additional role of information flows about conditions and return options, as well as the behavior of social networks among the displaced, is just now becoming clear as precipitants to return movements or decisions to remain in exile.³⁵

A sense of security requires not only the absence of an active conflict but also the absence of explicit or implicit threats from government, militias, and other social groups. The fear of persecution and retribution is an effective deterrent to return, which may not be obvious during a small-scale spontaneous return phase but becomes apparent in episodes of large-scale returns. Returnees may experience adverse resentment from those who remained, or conversely returnees may exhibit disparagement toward those who stayed. These attitudes may be played out in job discrimination, create obstacles to restitution of land and property, add to social marginalization, and affect the emergence of local powerbrokers. Overall country-level trends in return may obscure the way that local social, ethnic, and religious conditions affect the modalities of reception and the effectiveness of livelihood restoration strategies and reintegration. These dynamics highlight the role of everyday diplomacy and “vernacular reconciliation.” Overall, social factors, social networks, and local Civil Society Organizations (CSOs) play a prominent role in the ability of returnees

to reintegrate and re-establish livelihoods and make sure conflict-related grievances do not escalate into a new round of violence. Refugee apprehension over security conditions is broader than fears of being caught in the cross-fire of active conflict. Anxieties over the presence of gangs, remnants of militias, capricious treatment by authorities, and a loss of control over their lives constitute powerful economic, social, and physical considerations for those deciding whether to return. Assuming a cessation of hostilities will assuage refugee concerns over security overlooks these other trenchant aspects of well-being.

Livelihoods and access to employment

Other things being equal, refugees prefer to live in locations that present better livelihood opportunities, just as other rational individuals do. Refugees consider alternative actions (e.g., migrate, search for jobs, etc.) and make decisions that are the best for themselves and their families and friends. In practice, they face more constraints, such as the absence of formal work permits, and given the poor conditions they live in, access to information may be more limited than that for an average, so they may not be fully informed about legal rights and limitations. Such comparison of alternatives applies directly to job market conditions as well. At the margin, a better livelihood opportunity in the host country or in the country of origin should tilt refugees' mobility decisions in favor of that country to some extent.

However, simplistic extrapolations of this abstract comparison mechanism do not hold well when reaching policy conclusions. It is sometimes assumed that a general deterioration of living conditions and declining economic opportunities in countries of asylum, reduction or withdrawal of international assistance, and the diminishing quality of rights protection, all of which result in increased insecurity for refugees, can induce repatriation. The negative stance of many host countries, it is argued, may also be a significant lever on spontaneous refugee return and organized voluntary repatriation. All these factors play a part in some return cases (e.g., the case for Afghan refugees in the Islamic Republic of Iran and Pakistan). But factors vary from case to case and there is a lack of rigorous analytical research of the cause-effect relationships either in correlations between individual factors and return or in multivariate investigation.

Many international return experiences suggest a more nuanced relationship between livelihoods and return. One perspective on how host country treatment affects the potential for return concerns the extent of adaptation into the host society. Perhaps counterintuitively—though not definitive—local adaptation does not necessarily work against the decision of refugees to repatriate. Even where large-scale local integration appears to have occurred, most refugees may still return home if the conditions are right even after decades in exile. Cases in point are the more than 300,000 apparently settled and integrated Angolan refugees returning from Zambia; the large numbers of Afghan refugees returning from the Islamic Republic of Iran and Pakistan where they were well adapted to the local economy in Peshawar for example, in the 1990s and later (albeit not permanently as we now know); and South Sudanese refugees returning from Sudan and Uganda prior to and after independence.

The incidence of poverty among refugees can be critical in stimulating or constraining return. The relationship between poverty and return is not straightforward. Among Liberian refugees returning from Ghana, those from higher socio-economic groups, many of whom had maintained a foothold in Liberia even in exile, more easily accomplished repatriation and economic recovery than poorer socio-economic groups and those whose household units had become fragmented during displacement. For the better-off socio-economic groups, remittances from the diaspora population provided initial capital for new income-generating activities and a returnee's personal contacts often played a crucial role in access to shelter, food, employment, and financial assistance. Poverty appears to have constrained return for poorer groups: there appears to be a correlation between their poor socio-economic status, their limited livelihood strategies in exile, and concerns about establishing a new economic basis upon return where their vulnerability is exacerbated as a consequence of their repatriation. Yet, it is important to note that in some cases poverty may also be a driver of return, a feature of Iraqi refugees' spontaneous return from Syria in the period 2007-2010. There is evidence from many return situations, for example, South Sudan and Somalia, that refugee households plan a gradual process of return to minimize risks: not all family members return at the same time, and they use kinship networks to facilitate remittances.

The very same factors that empower refugees in host countries can also enable them to return to their countries of origin. Education, employment, and training in the country of asylum, all of which may be perceived to facilitate local integration, may actually help equip refugees to undertake sustainable return. The case of Cambodian refugees returning from Thailand provides evidence to this effect. Those who had been employed by non-governmental organizations (NGOs) and international organizations or who had engaged in trade with local Thai traders, as well as other camp residents, had amassed some assets and had learned technical and organizational skills that they could use upon their return. Similarly, those who had benefited from vocational skills training programs were better placed to develop their livelihoods upon return. Interestingly, all these groups had been those longest resident in camps, suggesting that the duration of stay may have helped them to acquire skills and assets. What is also clear is that opportunities for integration in the host country strengthen the ability of refugees to make adaptations involving either a staggered return or the geographical dispersal of household members that diversifies access to livelihoods, services, or other priorities when the main household unit does return. These opportunities contribute both to undertaking a return if and when refugees deem that conditions in the country of origin are conducive and to ensuring household well-being in the medium term after return.

Housing, land, and property rights

Asset restitution is an important and often necessary condition for return; yet, it is also one of the most daunting post-conflict problems to resolve. The extent to which life in exile affects the propensity to return segues to wider considerations of the reception and treatment refugees receive when they return home. Access of refugee households to livelihood opportunities back home is often intertwined with

their ability to restore their documentation and reclaim assets such as property and agricultural land. The prospects for recovering these assets is a key factor that influences the refugee decision to return to the country of origin. The exact relative importance of asset restitution is, however, also determined by several other factors including, where relevant, access to financial resources (e.g., small and medium enterprise [SME] funding), the scope to diversify economic activity, the level of ethnic or sectarian tensions, and the degree of development in housing and land markets.

Restitution of assets is also central to reconstruction programming and to a just return. For refugees returning to both urban and rural areas, the ability to reclaim their land or obtain access to land elsewhere, or compensation where their restitution is impossible or limited (the situation in Bosnia and Herzegovina), lies at the crux of return decisions and is crucial to prospects of re-establishing livelihoods. These conditions appear to have been an incentive for both the substantial ‘spontaneous’ and assisted returns by Afghan refugees in the early 1990s, for Angolan refugees reclaiming their land on return from Zambia from 2002 onwards, and for refugees returning after the Comprehensive Peace Agreement (CPA) in 2015 to what became South Sudan—although, as noted, the situation in South Sudan quickly unraveled. In Bosnia and Herzegovina, these conditions were also vital, supplemented by a very extensive program of reconstruction of war-damaged housing. Beyond the restitution of land as a material and productive asset, restoration of land entitlements may also help to underpin the principle of a “just return.”

Infrastructure and services

Like livelihoods, access to infrastructure often has complex implications for return. The legacy of war is most evident in the destruction of infrastructure and services, which may be a deterrent to the timing of return (if not to the principle of return itself), for example in Bosnia and Herzegovina. There are, however, examples of refugees spontaneously returning to countries after the cessation of hostilities where destruction is widespread—Angola and Liberia for example. Experience suggests that reconstruction and rehabilitation of infrastructure, public buildings such as schools, repair of services (e.g., roads, water supply, and irrigation systems), and housing are critical but often take years to accomplish, well after refugees have returned spontaneously or through voluntary assisted repatriation. This was the case in Bosnia and Herzegovina which parallels Syria in terms of levels of economic development, urbanization and the scale of displacement and destruction. Large-scale, voluntary, and assisted repatriation from western-European countries was rapidly implemented after the Dayton Accords even though post-war destruction remained widespread and there was no “pre-condition” of long-term commitment of donors to heavily invest in reconstruction. Conversely to kick start this process, community-driven Quick Impact Projects (QIPs) are a useful tool in parallel with a focus, in the early phases of return, on a few transformative programs that can be delivered at scale and that have impact and durability.

Discerning a pathway to autonomy is a foundational underpinning to successful recovery and the motivation to repatriate. Becoming forcibly displaced is a profoundly

disempowering and disenfranchising experience. As part of the comparative measure of push and pull factors that characterize repatriation decisions, refugees often cite agency as a critical enabling factor for return movements. Community-driven QIPs that employ localized decision-making processes have been used to increase autonomy among refugees contemplating return and among those that have recently arrived in origin countries. The twin goals of such programs are to deliver community-level infrastructure and services and to allow residents and refugees within a community to decide on the use of public and donor funds to improve their lives.

Post-conflict reconstruction and service restoration cannot be reduced to a mere technical process; they have important political and distributional relevance.

Where reconstruction and service restoration tackle the grievances of social and economic exclusion, which often contribute to conflict and refugee exodus, they may help to mitigate further conflict. If unaddressed, economic and social exclusion can be important contributors not only to livelihood failure but also to governance and political fragility after return, observed in countries such as Afghanistan and South Sudan. It may also lead to secondary displacement or failed return. Conversely, in the case of Bosnia and Herzegovina these grievances were addressed albeit through a very contrived power-sharing constitutional arrangement that took place alongside a reconstruction process. This process largely acceded to the physical separation of ethnic communities whose previous intermixing had been destroyed by the conflict. As such, the political overlay of the Dayton Accords consolidated a new demographic reality that halted active conflict while creating difficult return conditions for the displaced.

Coordination among donors and implementing partners is essential for a successful return and reintegration program that is driven by reconstruction and service restoration.

Both local and area level and large-scale regional development programs can be vehicles to assist return and reintegration, and at the same time provide a common approach for donors and NGO implementing partners. This can be achieved if the programs are designed: with a clear focus on reintegration of the displaced; in response to the demand and with the involvement in planning of both returnees and populations that remained; and with adequate funding. Useful examples include the Seila Program in Cambodia and the National Solidarity Program in Afghanistan, both in the early 2000s, and, at least for the first few years after its inception in 2012, the Local Governance and Service Delivery Project (LGSDP) in South Sudan.

The role of international assistance in return

The record of international assistance for refugee return is not uniform—neither within countries at different periods nor across countries. Each situation of return is characterized by a unique array of complex factors that must be resolved. Key policy, strategic, and operational factors that transpire from international assistance for refugee return are:

- **The political economy of peace-building**
 - Assisting the recovery of countries emerging from conflict and the return

of refugees by adopting a broad “political economy” analysis of fragility, the drivers of conflict and forced displacement, and issues related to the return and reintegration of the displaced.

- Sustaining long-term investment in the politically complex strategies for conflict reduction, reconciliation, and peace-building.

- **Programming and coordination of return and reconstruction**

- Ensuring that the operationally driven focus of repatriation programs does not divert attention and funding from the long-term processes of recovery, reconstruction, and reintegration, as well as the creation of a sustainable development environment.

- Coordinating return with the macro- and micro-economic and spatial development planning strategies of countries of return.

- Securing stakeholder partnerships with development partners including international financial institutions (IFIs) and the World Bank, regional bodies, and civil society among others.

- Ensuring logistical and operational coordination, joint programming, and partnership and donor alignment around reconstruction and reintegration strategies. This is part of the emergent value of “nexus” approaches to displacement crises among humanitarian and development actors found, most notably, in Ukraine at present.³⁶

- Anticipating the likelihood of early and large-scale spontaneous returns, which can derail carefully planned voluntary assisted return programs, but that also require assistance.

- Recognizing the importance that returnees place on information about the conditions in areas of return.

- Giving due attention to monitoring indicators that provide disaggregated data on the implementation and impact of return and reintegration strategies and programs.

- **Urban planning and land and property restitution**

- Addressing the thorny issue of land rights and property restitution.

- Recognizing the reality that returnees increasingly settle in urban environments.

Internationally assisted peace accords influence the return of refugees in a complex manner, even before they are signed.

Peace accords—the cessation of conflict, demilitarization, and the formation of functioning post-war government—play an important part in re-establishing the international legitimacy of countries that have been engulfed by war. Their role in the dynamics of refugee return, and the associated tripartite voluntary repatriation programs is, however, plagued with complexity. In the case of the Luanda Accord ending the Angolan Civil War (1975-2002), several hundred thousand refugees returned in advance of the Accord. In the case of the Rome General Accords ending the Mozambican Civil War (1977-1992), refugees gradually returned in anticipation of the ending of the war.

Table 1.1. Determinants of return and lessons from international experience

Determinant	Lessons from International experience
1. Peace, security, and protection	<ul style="list-style-type: none"> • Assisted voluntary return programs work well (especially if they follow peace agreements) • However, some refugees return spontaneously while conflict is receding but not necessarily ended or if return programs are regarded as inadequate • Enable refugees to return to places of origin • Facilitate family reunification • Freedom of movement to ease access to employment • Enhance local protection capacities • Promote community-driven development (CDD) to resuscitate local social networks and social capital
2. Livelihoods and access to employment	<ul style="list-style-type: none"> • Returning refugees increasingly head for urban areas • Reconstruction, a leading sector in recovery, absorbs informal labor, re-generates livelihoods • Avoid reinforcing entrenched inequities through development investments • Supply chains can be crucial • Speed up regulatory apparatus • Promote employment for women
3. Housing, land, and property (HLP)	<ul style="list-style-type: none"> • Fast track mechanisms for identifying ownership to facilitate recovery and restitution of property and assets • Ensure protection of HLP rights for women
4. Infrastructure and services	<ul style="list-style-type: none"> • Ensure investments benefit residents as well as the recently returned • Restore local urban services (schools and health centers) • QIPs for key urban services • Reconnaissance and information systems to profile local needs and assets • Block grants to fund community-level projects • Neighborhood Capacity-building and partnership with CSO/NGO-implemented projects
5. The role of international assistance	<ul style="list-style-type: none"> • Political economy of peace-building and international funding • Programming and coordination of return, funding streams, and post-conflict reconstruction

Refugee displacement is often a regional phenomenon; agreements that lead to return are not. Many recent and contemporary refugee crises result in regional displacement across several neighboring countries rather than one host country, such as the Afghan refugee situations. While this has been the focus of much promising discussion as part of the New York Declarations Comprehensive Refugee Response Framework, there are only two instances in the last 40 years where regional agreements have underpinned refugee return. The 1989 *Comprehensive Plan of Action* for Indo-Chinese Refugees was established as an international regional framework for cooperation at a time when asylum conditions for Vietnamese and Cambodian refugees in Southeast Asia were in crisis. In the same year the International Conference on Central American Refugees, known by its Spanish acronym CIREFCA, was agreed as

a regional framework to establish a peace process and to tackle the similarly large crisis of refugee (and in this case also IDP) displacement in Central America resulting from civil wars in Guatemala and Nicaragua. These comprehensive agreements principally reflect national and international interests in establishing peace, the status quo ante, and the return of displaced populations. The complexity of establishing a common nexus of interests among many diverse stakeholders inevitably militates against such regional agreements, hence their limited use. Table 1.1 summarizes the information in this sub-section.

1.4. Asymmetries in Return



The complexities that render return difficult to predict are aggravated by the fact that “refugees” comprise a vastly heterogeneous group of human beings. International experience shows that return is neither a finite event nor a fixed destination but is better understood as an often long-drawn-out process of mobility and adaptation. Refugees are purposive and rational (and emotional) actors and their decision, and modalities of return, are better understood as a process of adaptation and optimization strategies, not necessarily an end-state solution. For returning refugees the aim is to accomplish their own versions of durable (i.e., sustainable), but not necessarily permanent, solutions to the different circumstances in which they find themselves. Return is typically enacted after comparing information about conditions and prospects in the host country—security, economy, services, and housing/land—with those in the country of origin. Each person faces a different combination of these factors and has a different set of priorities. The following subsection focuses on two asymmetries that elaborate on this complexity. First, that refugees may not necessarily return to where they came from. Second, that the burden of return is not equally distributed across genders, with women facing distinct challenges.

Destinations of return: where is home?

Refugees decreasingly return to their places of origin, even when accompanied by reintegration assistance, but rather to cities, which often triggers further urbanization. Returning refugees, particularly younger refugees, increasingly head for the cities in their countries of origin, irrespective of the level of urbanization. Although growing numbers of refugees have fled from cities and towns and might logically be expected to return to them, significant numbers also come from rural areas. However, many rural refugees do not—as anticipated in assisted voluntary return schemes and reintegration strategies—go back to the rural communities they hailed from. If and when they do return, it is mainly to urban locations. Examples of cities whose growth is significantly driven by the influx of returnees, and/or IDPs are Kabul in Afghanistan (where some 70 per cent of the population may be returnees and/or IDPs), Juba in South Sudan, Monrovia in Liberia, Luanda in Angola, and Abidjan in Côte d’Ivoire. Some estimates suggest that the substantial majority of the 330,000 returning refugees and

1 million IDPs settled in Juba, almost doubling the city's population from an estimated range between 400,000 and 600,000.³⁷ Kabul's urban population increased from a high estimate of 2 million in 2001 to a conservative estimate of 4.5 million in 2010 – again mostly fueled by refugees and IDPs although there is no breakdown of the figures.³⁸

Refugee returns accentuate substandard urban conditions. Increasing numbers of displaced/returnees to cities and towns are attracted by the following factors: familiarity with urban environments in exile, since most refugees now live in urban areas not camps; the expectation of better security; and likewise, the expectation of better access to services and economic opportunities than in rural areas, even with assisted return. With an accelerated process of permanent urban settlement, the unsatisfactory urban conditions in many countries of return are compounded since most of those returning to urban areas live alongside the urban poor in slums and informal settlements. In these settlements, housing is frequently substandard and tenure insecure, services inadequate and overstretched, livelihood opportunities few and marginal, and the physical environment is often vulnerable to natural hazards. While many of the problems that affect returnees (refugees and IDPs) also affect the urban poor more generally, additional challenges often confront returnees to urban environments. They can be further disadvantaged by a lack of required documentation, limited social support networks that assist with return and access to labor markets, and a lack of access to land. They may often face harassment or discrimination for several reasons: their ethnicity; competition for scarce resources; the fact that they fled rather than remained to endure conflict; or a weak rule of law in the early stages of peace and reconciliation.

“Returnee displacement” is an increasingly common phenomenon. Large numbers of refugees returning to Bosnia and Herzegovina, Iraq, and South Sudan have gone back to their homes and towns and attempted to reintegrate where they previously lived in ethnically mixed communities. But the legacy of ethnic cleansing in Bosnia and Herzegovina, and fresh conflict, sectarian and inter-ethnic violence in Iraq and South Sudan, has severely diminished security conditions, subjecting returnees (and co-ethnic stayees) to secondary displacement to mono-ethnic enclaves and regions in ostensibly (re-)united countries. Over 1.9 million IDPs in South Sudan³⁹ have exemplify this pattern of secondary displacement of returnees following the post-independence power struggle and conflict. In Afghanistan refugees returning to their rural areas of origin have also subsequently migrated to cities primarily to seek better protection from ongoing violence and severe human rights violations, as well as to enhance their livelihood opportunities. Including returnees, in the last 18 months alone nearly one million Afghans have become internally displaced.⁴⁰ In Iraq, internal conflict and violence have also precipitated very large-scale internal secondary migration of both returning refugees and those who remained, totaling some 2.6 million IDPs.⁴¹ But in this case it is conflict between ethnic and religious groups rather than generalized violence and human rights violations, as in Afghanistan, which has produced, in effect, mono-ethnic and sectarian cities and regions replacing previously mixed localities. In Bosnia and Herzegovina, a similar but slower, non-violent separation of ethnically remixed Bosnjak, Croat, and Serbian returning refugees has taken place.⁴² This experience presages a potentially similar outcome for refugee return in Syria where not only ethnicity, but political orientation may play a role in repatriation patterns.

Gender and return: a double burden

Return entails new and additional hardships and challenges for women. They may have had fewer opportunities than men to acquire new skills or capital savings in exile; they generally have less power and influence than men about the decision to—and modalities of—return. With fewer resources and lower social status, upon return women and female-headed households may find it difficult to secure livelihoods, ensure the restitution of or access to housing, land, and property, and access other essential services.

Changes in household roles and social structures in exile also complicate women’s experience of return. The case of Chilean women refugees returning home at the end of the Pinochet dictatorship in the 1990s provides a poignant example of the impact of changing domestic power structures. Women were often more adaptable in exile and engaged more readily in new livelihoods; these roles were reflected in the changing balance of household roles and power between men and women. On return, the households reverted to more traditional, male dominated social and family structures and roles: this placed significant social and psychological pressure on how refugee women adapted to return.

Gender concerns highlight the importance of distinguishing the needs of different demographic and social groups within the returning populations. Returnees are not homogeneous. Different communities and households have different needs, varying levels of social and economic vulnerability and coping capacities, often conditioned by where they return to. They will achieve satisfactory thresholds of economic self-sufficiency, social well-being, protection and human rights, if at all, through different means and at different times.

1.5. Concluding Remarks



The overview of international experience so far points at key areas of concern for analyzing refugee returns, and it also shows the complexity of the problem. The discussion in this chapter focuses on providing general trends in return experience globally and categorizing factors that may influence the decision-making regarding returns. Overall, the complex nature of the problem and absence of empirical evidence, two factors that reinforce each other, limit understanding of the mechanisms that drive return decisions. Nevertheless, a number of key observations provide the necessary guidelines for analyzing Syrian refugees’ mobility. These observations are the following:

- **Four broad categories of conditions are identified to shape return significantly. *Peace, security and protection:*** scope of peace and reconciliation measures, adequate rights protection, access to justice, and trust in local actors. This may also include the ability to enjoy administrative and legal security, freedom

from arbitrary arrest, conscription, and equal effective access to administrative services and documentation (identity) restoration. **Livelihoods and economic opportunities:** economic and social absorption capacity of areas of return, and access to resources including land, land rights and financial resources. This also includes intangible aspects like human capital and social networks. **Housing, land and property:** ownership of assets in country of asylum or home country, the likelihood of asset restitution, prevailing conditions of appropriation and property rights. **Infrastructure and access to services:** scale of physical and infrastructure destruction, strategies and funding of reconstruction/restoration; access to adequate services and housing; social programs, education and health services.

- **While formal peace agreements provide the context for large-scale refugee returns, spontaneous returns to places that are far from peaceful and in post-conflict recovery are not uncommon.** Experiences in Afghanistan, Angola, Liberia, South Sudan, and Iraq show that trends in spontaneous return depend on how refugees perceive structural conditions such as security, livelihoods, and the potential for reintegration. Evidence of Iraqi and Somali refugee return shows that the process is not unilinear but often iterative, staggered, and cyclical. Conversely, peace agreements that “settle” conflicts are sometime not enough to catalyze large-scale returns.
- **Poverty in the country of asylum may be a driver of return but, perhaps counterintuitively, the opposite may also be true.** The incidence of poverty in exile, and (broadly) standards of living, and the extent to which refugees have pursued livelihoods and built up skills, capital, and assets can be critical in stimulating or constraining return. Inclusion of refugees in the economic life of host countries can provide the basis for a more durable and flexible repertoire of responses to return movements. Poverty may be a driver of return, for example, Iraqi refugees from Syria 2007-2010. However, refugee groups with higher socio-economic status may have a greater propensity to return earlier than socio-economic groups impoverished by displacement; for example, Liberian refugees. In a related fashion, after protracted exile the loss of skills, or the lack of skills to meet new economic conditions may constrain return or propel returnees to urban areas with better livelihood opportunities.
- **Returning refugees decreasingly return to their places of origin, even with reintegration assistance.** Two characteristics are evident in many contemporary return processes. First, refugees from rural origins increasingly return to the cities in their countries of origin because of better access to services and economic opportunities and increasing familiarity with urban environments in exile. Examples include Kabul, Juba, Monrovia, and Luanda. Second, sizable secondary (internal) displacement of returning refugees is the legacy of the factors that precipitated refugee displacement, for example in Bosnia and Herzegovina, Iraq, and South Sudan.
- **Return entails new hardships and additional challenges for women.** They may have had fewer opportunities than men to acquire new skills or capital savings in exile; and they generally have less power and influence than men about the decision to return. Upon return women may find it difficult to secure livelihoods,

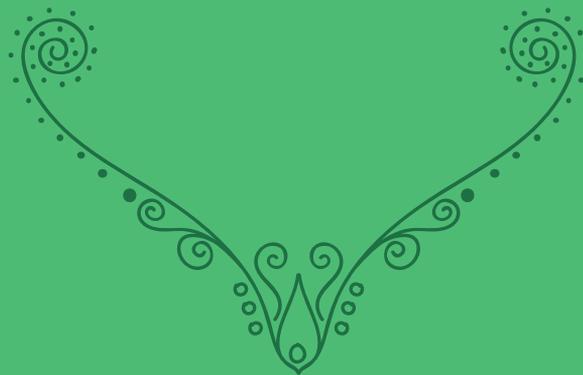
ensure the restitution of, or access to housing, land and property, and access other essential services.

The next chapter analyzes the conditions faced by Syrian refugees using these guidelines. The complexity described by the overview of international experience shows that each refugee situation is different. Thus, effective programming of international assistance to refugees entails a careful analysis of each situation separately. The next chapter provides a description of conditions, to the extent possible in an empirical manner, in the four broad categories described above. These will then be used by following chapters to assess their relative importance, as revealed by the return of Syrian refugees so far, by using a suite of statistical techniques.

Chapter 2

Economic and Social Context for Syrians

This chapter assesses the conditions faced by Syrians inside and outside Syria along the four dimensions distilled from international experience (peace, security, and protection; livelihoods and employment; housing, land and property rights; and access to basic services). For each of these four dimensions, several narrower categories are identified and analyzed using multiple sources of data including needs assessments and vulnerability assessments organized by UN agencies, official sources of data, and World Bank assessments of damage and functionality. Data sources lend themselves to comparison between conditions within Syria and those outside Syria in some cases, especially in vulnerability/needs related issues as they were covered by surveys both in Syria and in host communities, albeit not identically. However, they do not always support such comparisons, forcing the analysis to pursue second- or third-best approaches for some issues, such as monetary poverty.





Chapter 2:

Economic and Social Context for Syrians



International experience suggests four broad categories of factors, at origin or in countries of asylum, that can influence refugees' mobility decisions. Chapter 1 distills these four categories of factors—from many sources—that shape the return calculus of refugees: (1) peace, security, and protection; (2) livelihoods and access to employment; (3) housing, land, and property rights; and (4) infrastructure and publicly provided services. For many of the individual factors that fall into one of these four broad categories, the magnitude and direction of impact on returns is complex; their effect may not be monotonic depending on various other conditions. It is important, therefore, to account for a large set of factors before any causal relationship is attributed to the role played by any specific factor.

This chapter provides an assessment of the conditions faced by Syrians in the four designated categories of factors in Syria, Lebanon, Jordan, and Iraq. Unlike the previous World Bank reports on Syria (e.g., *The Toll of War*), the starting point of the analysis here is the nature of a specific factor as directly observed by a Syrian citizen. For instance, for a core service like education, the first layer of the analysis is about the availability of the service (that is, a functional school that can reasonably admit students and is reasonably accessible). Only in the second layer are other factors investigated (for instance, identification of the reason that a school is not functional, including but not limited to physical damage to infrastructure, absence of teachers, or absence of supplies). Although it is not always supported by data, when possible, special attention is paid to provide a three-way comparison of conditions faced by Syrians: conditions in Syria before the conflict, conditions in Syria currently (latest available), and conditions faced by Syrian refugees in countries of asylum.

2.1. Data and Methodology



There are considerable data constraints in assessing conditions faced by Syrians, especially in relation to the current situation within Syria. In the absence of comprehensive household survey data, this analysis relies on disparate sources of information, some based on surveys, others collected for programming purposes by humanitarian agencies and yet others on data collected for sectoral damage assessments. More specifically, the following sources of information from partners and official sources are used:

- **For conditions in countries of asylum**, numerous sources are used. For Jordan, UNHCR-led Vulnerability Assessment Framework (VAF), UNHCR registration data of Syrians in Jordan (2018), Jordan Labor Market Panel Survey (JLMPS) (2016), Jordan Department of Statistics (DOS) Job Creation Surveys (2016), and Employment and Unemployment Surveys (Q1 2018). For Lebanon: Vulnerability Assessment of Syrian Refugees (VASyr), UNHCR registration data of Syrians in Lebanon (2018). For Iraq: UNHCR Multi-Sector Needs Assessment (MSNA) III report (2017), which is based on the survey conducted in September 2017 and the UNHCR registration data of Syrians in the Kurdistan Region of Iraq (2018) and a representative socioeconomic survey of all residents of Kurdistan (2018).
- **For conditions in Syria**, it was not possible to acquire a comparable and geographically comprehensive time series. Aggregate tabulations for pre-conflict and most recent labor market indicators are from Syrian labor force surveys (2009 and 2007) from the Central Bureau of Statistics, the Syrian Center for Policy Research and World Development Indicators (2017). For living conditions and vulnerability assessments, the following resources are used: Humanitarian Needs Assessment Programme (2018), UNHCR-led MSNA (2017), UNICEF WASH survey (2017), Urban Community Profiling Surveys from UN-Habitat (2016), market prices from WFP (2018), Education Management Information System (EMIS) from Syrian Ministry of Education for the school year 2009/2010, trade statistics from UN-COMTRADE (2016), agriculture surveys from FAO (2017), and water supply statistics from NPM.

A novel database of physical damage and functionality of facilities was created for the purposes of this study. Remote-sensing-based techniques were used to assess physical damage to infrastructure and housing and facility damage. To this end, optical imagery at 30-50cm from Digital Globe and Airbus satellite platforms and NASA's visible infrared imaging radiometer suite (VIIRS) were employed to generate data series of physical damage, and human activity around facilities in 15 cities and six sectors (Table 2.1). Traditional and social media were also used to confirm these damage and functionality assessments. These city-level assessments were then extrapolated to 14 governorates by using conflict intensity and baseline asset inventories.

The remote-sensing-based damage estimates are second-best solutions. The damage assessment is based on actual physical conditions, as of July 2018. The actual damage inflicted by the conflict may be higher, since there may be some reconstruction in areas of these cities. In addition, the analysis presented here does not capture variations in the quality of the housing units and considers all building categories mostly identical across cities, based on the limited available data. Similarly, the satellite imagery used in this analysis relies on vertical damage and cannot capture lateral damage. Nevertheless, when combined with cross-verification through traditional and social media, this approach provides a systematic approach to taking stock of damage that does not suffer from differences between focal point reporting or surveyor judgment. In subsequent sections these data sources will be used to provide a comparison of conditions faced by Syrians in Syria, Lebanon, Jordan, and Iraq.

Table 2.1. Studies' coverage comparison

Determining Factor	Lessons From International Experience
1 Peace, security and protection	<ul style="list-style-type: none"> • Assisted voluntary return programs work well (especially if they follow peace agreements) • However, some refugees return spontaneously whilst conflict is receding but not necessarily ended • Enable refugees to return to places of origin • Facilitate family reunification • Freedom of movement to ease access to employment • Enhance local protection capacities • Promote community development (CD) to resuscitate local social networks and social capital
2 Livelihoods and access to employment	<ul style="list-style-type: none"> • Returning refugees increasingly head for urban areas • Reconstruction a leading sector in recovery, absorbs informal labour, re-generates livelihoods • Supply chains can be crucial • Speed up regulatory apparatus • Promote employment for women
3 Housing, land, and property (HLP)	<ul style="list-style-type: none"> • Fast track mechanisms for identifying ownership to facilitate recovery and restitution of property and assets • Ensure protection of HLP rights for women
4 Infrastructure and services	<ul style="list-style-type: none"> • Restore local urban services (schools and health centres) • Quick Impact Projects (QIPs) for key urban services • Reconnaissance and information systems to profile local needs and assets. • Block grants to fund community level projects • Neighbourhood Capacity-building and partnership with CSO/NGO-implemented projects
5 The role of international assistance	<ul style="list-style-type: none"> • Political economy of peace-building and international funding • Programming and co-ordination of return, funding streams, and post-conflict reconstruction

2.2. Peace, Security, and Protection



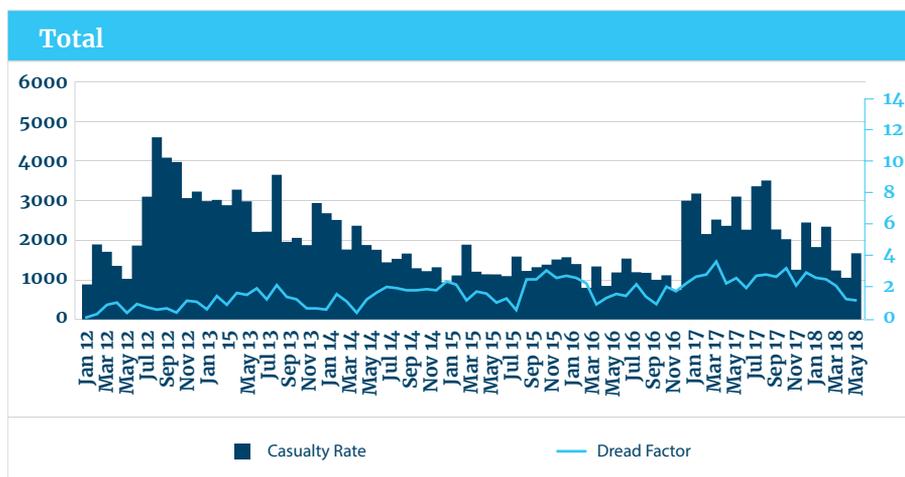
The Syrian conflict, now in its eighth year, has gone through a series of political, diplomatic and military transformations over time. The early phases of the Syrian conflict, from March 2011 to June 2012, comprised typically moderate to severe clashes between the Syrian army and locally organized small group formations within major urban environments. Increasingly, tanks, artillery and air force bombings were used within highly populated urban environments, including some of the largest Syrian cities. Although fighting had intensified, the period from June 2013 to January 2014 witnessed a mostly strategic stalemate between the opposing forces. 2015 saw new Syrian Government offensives, involving a heavy utilization of armor, artillery, and air force as well as open intervention by the Russian Federation. The intensity of conflict reached new heights in 2017 as the Syrian Arab Army aimed to re-consolidate territory by means of new offensives, which continued in 2018 (Figure 2.1).

For the first time since the onset of the crisis, there are expectations of a reduction in hostilities in the future. Although the tragic possibility of renewed fighting and large-scale displacement in certain areas cannot be ruled out, the incidence of large-scale violence is expected to decrease within the next 12 months. Parties to the Astana talks and a United Nations-sponsored Geneva process continue to push for de-escalation. Even in the absence of a negotiated settlement, the trajectory of the war has consolidated territorial control under forces loyal to the Syrian government, though that consolidation today may be best described as fragmented.

Yet, rarely is the absence of fighting a sufficient condition for people to feel safe. A negative peace, or the simple absence of violence, is not sufficient to engender a feeling of safety, especially for refugees. Fears over conscription; an inability to regain access to homes, land, and property; the lack of justice mechanisms that ensure accountability for past transgressions and future threats; and vetting procedures by security forces are among the reasons that delay return. Necessary improvements in pull factors like these, factors with direct bearing on the decision to return, are frequently ignored in political settlements, as they were after conflicts in Cambodia, South Sudan, Burundi, Iraq, and Bosnia and Herzegovina. These factors can also be easily overlooked by international technical assessments of physical damage and the economic impacts of war.

In this section, the analysis will focus on the security perceptions of Syrians. To put the current conditions into perspective, refugees' own assessments about their safety and freedom of movement once they return are analyzed. The underlying survey data is provided by HNAP (2018) and perception surveys of refugees by UNHCR. They also worry that legal obstacles could make it extremely difficult to resume their lives. Special attention is paid to the disproportionately adverse conditions faced by Syrian women and children.

Figure 2.1. Conflict Events and Verified Casualties



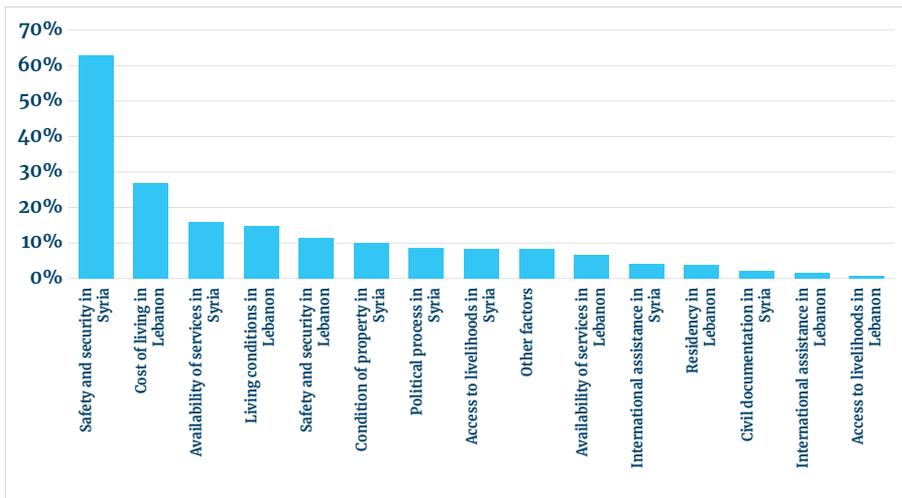
Source: World Bank staff calculations based on multiple data sources.

Notes: Dread factor comprises the monthly weighted sums of tank, artillery, and air strikes at light, medium, and heavy incidence levels.

2.2.1. Status Quo: The Absence of a Positive Peace

Syrians, especially refugees, are worried about persecution and the lawlessness that may endure well past any moderation of the conflict. Most refugees anticipate arbitrary arrests, frequent document checks, and active discrimination against those that opposed the current government if they reenter areas of the country controlled by Damascus. The 2017 VASyr survey of Syrian refugees in Lebanon, for instance, found safety and security in Syria was by far the most important pull factor in the return decision, cited by 63 percent of respondents; no other factor had a response rate exceeding 16 percent. More recently, the UNHCR's fourth regional survey on Syrian refugees' perceptions and intentions on return to Syria (2018), which covers refugees in Egypt, Lebanon, Jordan, and Iraq, found that safety and security in Syria was by far their most important concern regarding return: among refugees not intending to return to Syria within 12 months, 45 percent of the reasons provided to explain their intentions were related to the prevalence of indiscriminate violence or the risk of targeted reprisals. Refugee apprehensions over security conditions are broader than fears of being caught in the cross-fire of active conflict. Concerns over military service, conscription, or recruitment and fear of arrest and detention and/or retaliation upon return are among the frequently reported obstacles to return. Assuming a cessation of hostilities will assuage refugee concerns over security overlooks these other trenchant aspects of well-being.

Figure 2.2. Considerations for return to Syria (Syrian refugees in Lebanon)



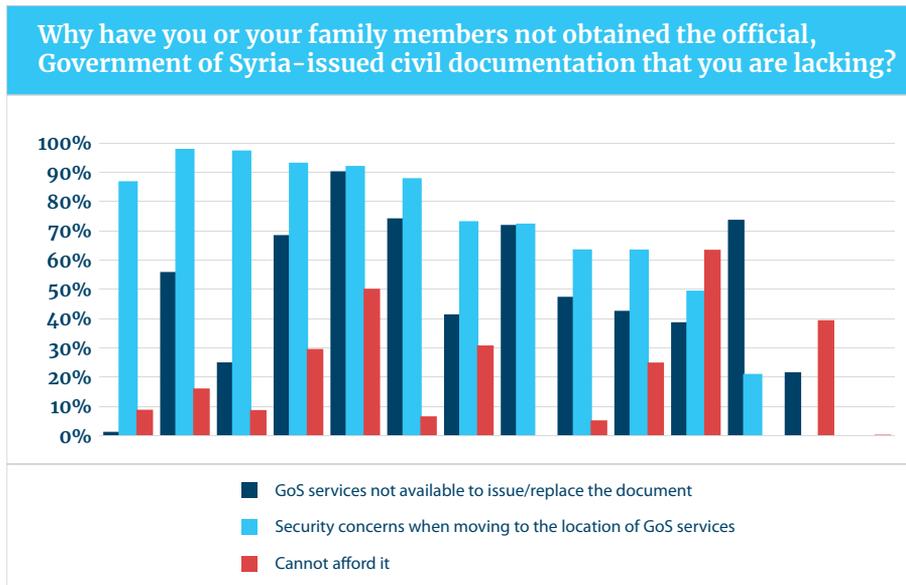
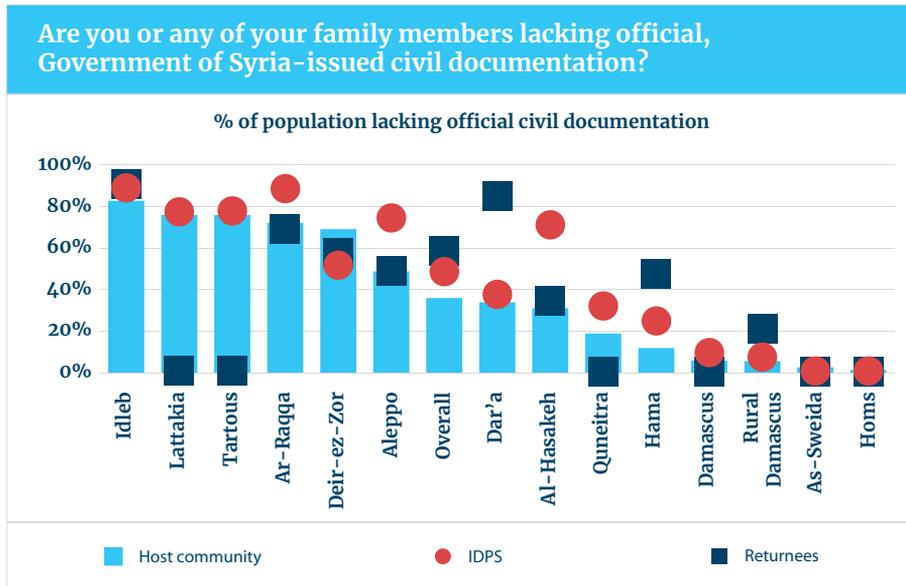
Source: World Bank calculations based on VASyr 2017.

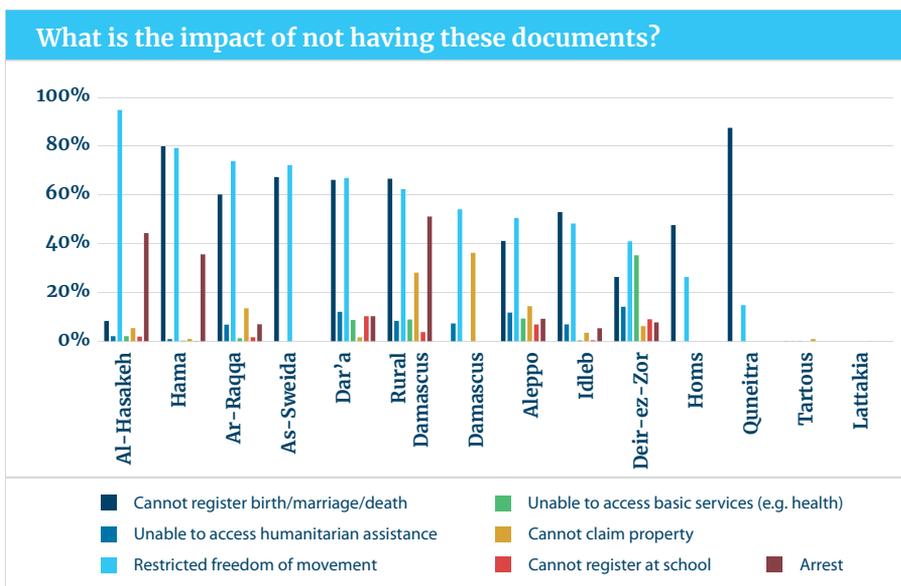
Concerns about the mandatory military conscription for men aged 18-42 remained in place by mid-2018.

This policy not only drove the departure of many young men and their families from Syria in the first place, it actively discouraged their return. Recent legislation has further complicated this issue. As of 2017, fines of up to \$8,000 could be levied on male youth that do not register for military service within three months of turning 18. The law is retroactive and those that fled Syria before 2017 may be fined and required to fulfill their service obligation. Those that refuse military service may be imprisoned for one year and pay the equivalent of \$200 for each year after the starting date of their original conscription period as a penalty. If returnees are unable to pay these fines, assets may be seized until payments are made in full. The prospect of military service, large fines, and the seizure of assets is one of the key obstacles keeping many young men and their families in exile. By the time of this report's preparation, some amendments to these policies were anticipated but were not announced/implemented yet.

In Syria, lack of civil documentation and insecurity feed each other. Around 40 percent of the Syrians surveyed as part of the HNAP (2018) lack some official civil document, such as a birth, marriage, or death certificate, national identification card, family booklet, or passport (Figure 2.3). However, this condition varies drastically across governorates. Whereas more than 8 out of 10 residents lack some official document in Idleb, in the governorates of Homs and As-Sweida, almost the entire population was able to obtain the desired documentation (around 99 percent). Lack of access was also grave for the populations of Lattakia, Tartous, and Ar-Raqqa (around 75 percent for all three governorates). In addition to geography, a person's displacement status also affects the ability to obtain civil documentation.

Figure 2.3. Security and Civil Documentation Nexus





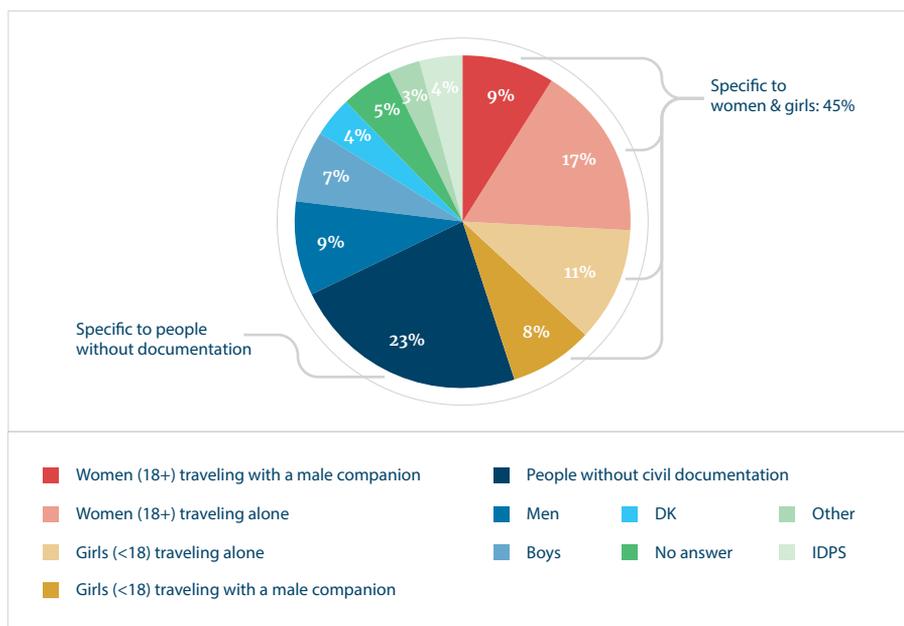
Source: HNAP (2018), World Bank staff calculations

Notes: Returnees refer to IDP returnees in this case.

Almost 60 percent of the IDP-returnees and half of the IDPs reported that they could not acquire at least one civil document, while for the host communities the figure drops to 35 percent. Additionally, a significant difference in outcomes for these three population groups can be observed within the same governorate. Notably, almost 85 percent of the returnees in Dar'a lack some form of civil documentation, while the figure for both the host community and the IDPs in the same governorate is around 35 percent. Similarly, IDPs in Aleppo and Al-Hasakeh are affected at a far greater extent (74 and 71 percent respectively) than the other two groups in their governorate (around 30 and 48 percent respectively).

On one hand, reduced access to civil documentation results from insecurity during travel, lower administrative capacity, and higher costs. Syrians attribute the marked lack of access to insecurity during travel (63 percent), unavailability of government services (43 percent), and prohibitive cost of the documents (25 percent). Around 10 percent report that the process is too lengthy, also 10 percent mentioned that they did not attempt to obtain the document at all and around 5 percent report that discrimination or officials' abuse prevented them. Except for Damascus and Rural Damascus, security concerns during the travel required to acquire the official documentation ranked consistently as the top reason for its lack for every governorate. In fact, more than 90 percent of the respondents in Al-Hasakeh, Ar-Raqqa, As-Sweida, Dar'a, Hama and Quneitra mentioned it as a constraint. Unavailability of government services is particularly important in Ar-Raqqa (90 percent), As-Sweida (72 percent), Hama (74 percent), Idleb (69 percent) and Rural Damascus (74 percent). The inability to afford the fee for the documentation appears to be an important factor for the residents of Deir-ez-Zor, Ar-Raqqa, Damascus, and Aleppo.

Figure 2.4. Groups perceived with the greatest restrictions to movement in Syria, percent, 2016



Source: UCP, 2016.

On the other hand, the absence of civil documents makes Syrians more insecure.

Official documents play important roles in the everyday lives of Syrians: absence of a document could mean restriction of movement, lack of access to basic services or humanitarian aid, and even arrest. Overall, around 45 percent of Syrians reported that their inability to obtain official documentation curtailed their freedom of movement, 36 percent stated that it led to inability to register a life event (birth, marriage death), an unexpected 9 percent claimed that it led to arrest, and around 7 percent mentioned it affected their ability to claim property or get access to humanitarian aid. The highest impact to the freedom of movement was experienced in Al-Hasakeh (95 percent), Ar-Raqqa, and As-Sweida. In Quneitra and Hama 7 out of 10 of those who were missing at least one official document were subsequently unable to register a life event. Notably, 35 percent of the affected residents of Deir-ez-Zor could not access health care as a result; this effect however is not observed in any of the other governorates. Similarly, significant numbers of respondents attributed their arrest to lack of documentation in the governorates of Rural Damascus (51 percent), Al-Hasakeh (44 percent), and Hama (36 percent), while for the rest of the country this outcome is mentioned far more rarely.

Syrian women are disproportionately affected by insecurity. The conflict has exacerbated an already restrictive environment for women in Syria, reinforcing patriarchal traditions and attitudes. Syrian women face greater risks in access to livelihoods as well as personal and family security. In particular, women's already legally

restricted mobility has been further affected by rising concerns for safety and honor in the existing fragile and conflict-affected environment (Figure 2.4). This is particularly challenging as this environment also requires women to access services and markets or support systems at a greater rate than prior to the conflict since men mostly engage outside the home, are on the frontlines, or have become victims of armed conflict (i.e. disappeared/killed). Assessments from inside Syria are showing that 12-17 percent of households are headed by women, up from 4.4 percent in 2009, with men in the family away or missing, injured, or perished in combat (CARE 2016a). This has provided new channels of empowerment, albeit at a high cost as the shift in roles adds on to the continuous responsibilities related to household and child care.

The lack of security, economic and social opportunities, and protection measures has intensified exposure to gender-based violence (GBV) among women and girls. Reports point to a major surge in the number of reported rape cases against women in Syria, from 300 in 2011 to 6,000 in 2013 (Euro-Mediterranean Human Rights Network, 2013). These are only the known cases claimed and the crime is likely to be underreported. Forced abductions of young women and girls at checkpoints have also been reported to spread shame and stigma upon their release (as weapons of war along with sexual violence). As a result, the fear of sexual violence and its consequences is one of the leading causes of displacement of many families. With weak-to-no enforcement and no legislation protecting women against violence (including domestic violence and marital rape), cases of gang rape, forced marriage to armed group fighters, trafficking and sexual enslavement have all increased in scale and scope. Exacerbating the situation is the lack of services for survivors of violence, and few opportunities to overcome the stigma and alienation. An overwhelming majority of those surveyed (70 percent) across the country agree that there is a lack of clinical care for rape survivors. Only in Damascus is that figure below 50 percent.

Many families are resorting to negative coping mechanisms that have specific implications for women and girls. Syrian families adopt many mechanisms to cope with conflict. Among the most frequent —after reliance on aid and NGO support—is child marriages. Historically, child marriage was higher in Syria than its neighboring countries. Thirteen percent of girls were married by age 18 and 3 percent by age 15 years compared to 6 and 1 percent, respectively, in Lebanon and 8 and 0 percent, respectively in Jordan (UNICEF, MICS 2006).⁴³ Adolescent fertility rates were high at approximately 45 births per 1,000 women age 15-19 in 2010 and have only dropped to 40 in 2016, which is still higher than the regional average of 39 seven years ago. To date, and according to internal reporting, the share of marriages among female minors has surged from 7 percent in 2011 to around 15 percent a year later (2012) and hovering at 30 percent in 2015 with many of the forced marriages among girls to armed men to protect their families (Syrian Center for Legal Research 2016 and 2017 reports). It is further estimated that around 60 percent of child marriages go unreported (Syrian Center for Legal Research, 2016). Getting married earlier curtails a girl's education, minimizes opportunities for girls to access decent work and increases their risk of domestic violence including spousal rape (HRGJ 2016). Moreover, the mortality rates among infants increases by 60 percent when mothers are under the age of 18.⁴⁴ As before the conflict, there are no effective legal protections against domestic violence or criminalization of marital rape or rape and limited-to-no mechanisms available for

women to file complaints. Generally, there is a lack of services to support survivors of domestic violence, although the first official shelter for battered women was opened in 2008 (World Bank 2009).

In the absence of adequate safety conditions, Syrians endure protracted displacement both inside and outside the country. The context for hosting Syrians in Jordan, Lebanon, and Iraq continues to include limited and unbalanced growth, heavy burdens on public services, and high unemployment rates among host populations and refugees, particularly among youth and women. Exhaustion of financial means and spirals of negative coping strategies for refugees are increasing, with the majority of them living in poverty. Constraints on residency, employment, and freedom of movement in Jordan, Lebanon, Turkey, and increasingly in Iraq, have increased Syrian refugees' vulnerability to exploitation. Yet, by July 2018, 85 percent of Syrian refugees surveyed as part of the Fourth Regional Survey on Syrian Refugees' Perceptions and Intentions on Return to Syria by UNHCR reported that they have no intention to return within 12 months.

2.3. Livelihoods and Access to Employment



International experience shows that economic opportunities at origin can influence returns positively but the effects of conditions in host countries are more complex. Chapter 1 argued that, other things being equal, refugees prefer to live in locations that present better livelihood opportunities. However, simplistic extrapolations of this observation are often misleading. A general deterioration of living conditions, declining economic opportunities in countries of asylum, and reduction or withdrawal of international assistance do not always induce repatriation. The factors that empower refugees in host countries can also enable them to return to their countries of origin. Education, employment, and training in the country of asylum, all of which could be perceived as supporting local integration, may help equip refugees to undertake sustainable return.

This section provides an overview of current economic conditions in Syria and in host countries. The analysis investigates the livelihoods conditions in three dimensions: first, an analysis of the evolution of broad economic activities in Syria and Syrian refugees' business opportunities in host communities. Next, the job market conditions faced by Syrians in Syria and in host communities are analyzed. In this case, special attention is paid to institutional factors, e.g. labor market regulations. Finally, an attempt is made to compare poverty statistics within Syria with those of Syrians in Lebanon and Jordan. The analysis of these issues is constrained by data limitations, which bind at different degrees in different issues; therefore, some aspects are discussed in detail, while others are not.

2.3.1. Economic Activity

In addition to public or philanthropically driven actions, the livelihoods and economic well-being of most Syrians depend on the level of broad economic activity. The ability of Syrians to find jobs and make a living largely depend on the extent to which economic systems can operate to connect producers with consumers and other producers. This section assesses these conditions by using currently available data, which lacks up-to-date national and fiscal accounts and micro data on economic activity but includes trade statistics from UN-COMTRADE and comprehensive agriculture surveys from WFP-FAO.

Conditions in Syria

The Syrian economy suffered heavy losses that were inflicted through multiple channels during the conflict. The destruction of physical capital, casualties, forced migration, and breaking up of economic networks has had devastating consequences for Syria's economic activity. By using data available in early 2017, World Bank (2017b) report "The Toll of War" estimated that Syria's GDP contracted by 63 percent between 2011 and 2016. Oil GDP declined by 93 percent during the same period, while the non-oil economy contracted by 52 percent due to the severe destruction of infrastructure, reduced access to fuel and electricity, low business confidence, and disruption in trade. Estimates of economic activity within Syria are hampered by the paucity and low quality of data, which is driven by the difficulty of measuring highly informal transactions. Relatively better quality of data is available for trade statistics as mirror records from trade partners can be used. A more detailed discussion of this topic follows.

Transportation statistics clearly reveal the collapse in economic activity. Syrian railways carried about 3.5 million people per year with more than 8.5 million ton of freight in 2010. The war exacted a heavy toll on the rail infrastructure, and only very limited operations have been resumed, with 3,294 passengers on the Hijaz Railway, and 600 thousand tons of goods carried in 2017 (Figure 2.5).⁴⁵ Passenger traffic (and numbers of flights) had seen significant growth in the years preceding the crisis, reaching a maximum of about 2.5 million arrivals (and a similar number of departures) in 2010. With the onset of violence, passenger traffic fell to less than half a million in 2013, with modest growth in the years following (Figure 2.6).

Although naval infrastructure remains undamaged, Syria's shipping sector has been dramatically impacted by reduced demand. Syria is served by two primary ports along its Mediterranean coastline, in Lattakia and Tartous. These ports served as gateways into the Syrian economy, and as hubs for the transit of goods onwards into Iraq and other neighboring countries. While the conflict has not touched either port, both have seen steep declines in total activity, with current activity at only around one-third of pre-crisis levels (Figures 2.7 and 2.8). The use of the ports for transit has practically ceased, while exports and imports are only at 23 percent and 40 percent of their 2010 levels, respectively. Additionally, the Tartous port was impacted by the collapse in phosphate exports due to the conflict and the destruction of the rail network. It is now used as a military naval facility.

Figure 2.5. Transported Merchandise through railway

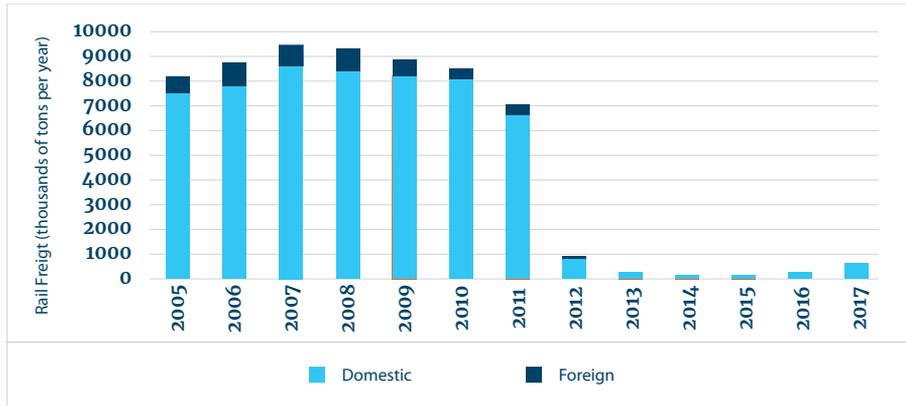


Figure 2.6 Aviation Passengers



Figure 2.7. Number of containers at Lattakia Port

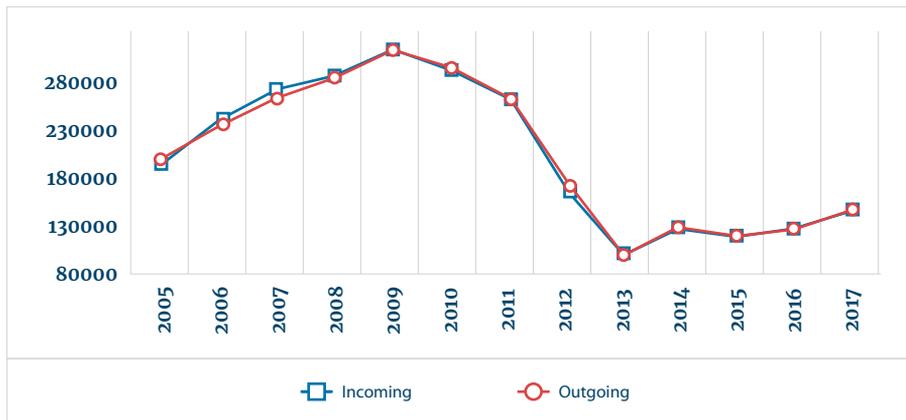
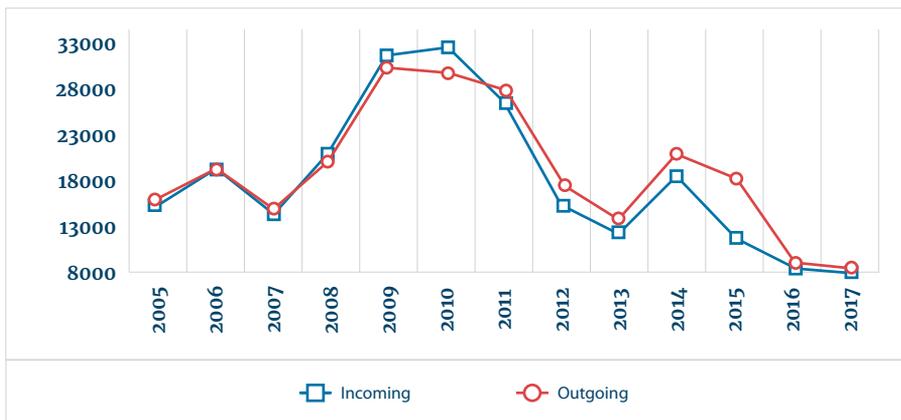


Figure 2.8. Number of containers at Tartous Port

Source: Syrian Ministry of Transport

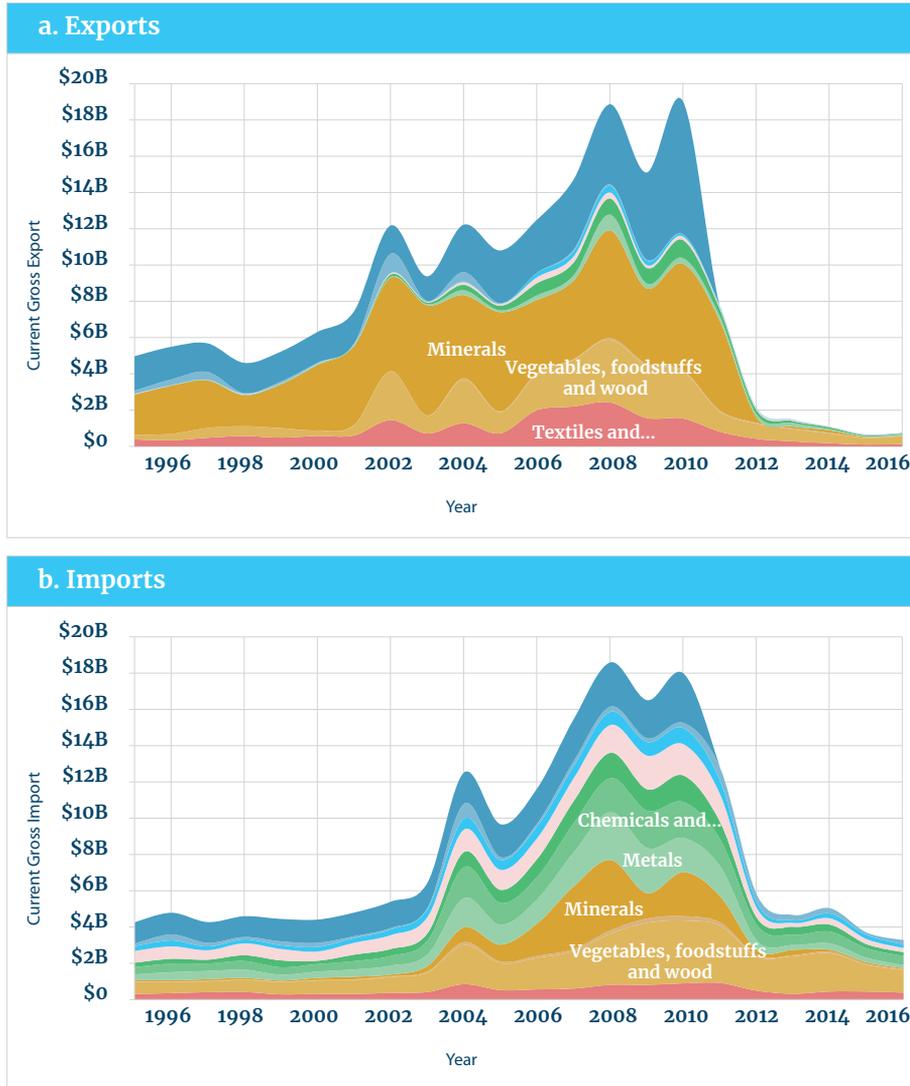
Trade statistics confirm the extent of the economic collapse: Syria's exports have crashed since the commencement of the conflict.

The latest UN-COMTRADE data shows that Syrian receipts from exports fell from a value of US\$19 billion in 2011 to US\$749 million in 2016—just over 10 percent of the earlier level (Figure 2.8). In 2010, Syrian exports were highly concentrated within two main sectors: travel and tourism (32.5 percent basket share) and crude petroleum (22.3 percent basket share). In that year, the crude oil destination markets were mainly Italy and Germany. By 2014, crude oil exports had dropped to US\$52 million and Syria was exporting crude oil only to India. By 2016, there were no official crude or refined oil exports resulting in the drop of Syria's total export value by almost 10-fold. Not all sectors suffered a collapse in exports though. Syria's exports of virgin olive oil increased from US\$57.8 million (0.3 percent basket share) in 2010 to US\$65 million (9 percent basket share) by 2016. The exports of anise, fennel, etc. have also slightly increased from US\$73 million (2.8 percent basket share) in 2010 to US\$78.6 million (17.5 percent basket share) in 2016.

The conflict slashed Syrian exports to all destinations; but some were slashed more radically.

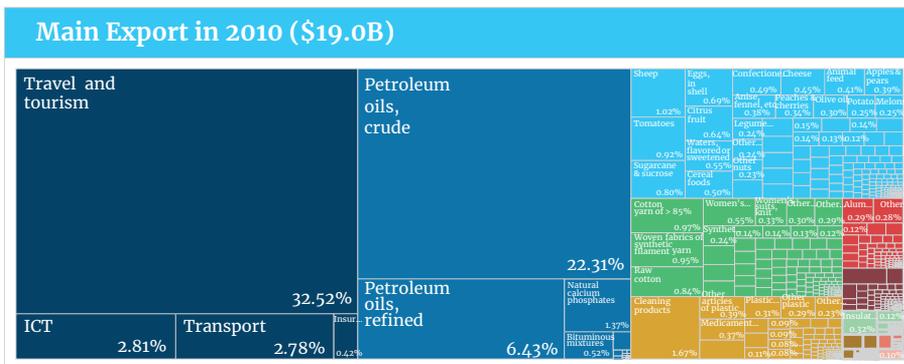
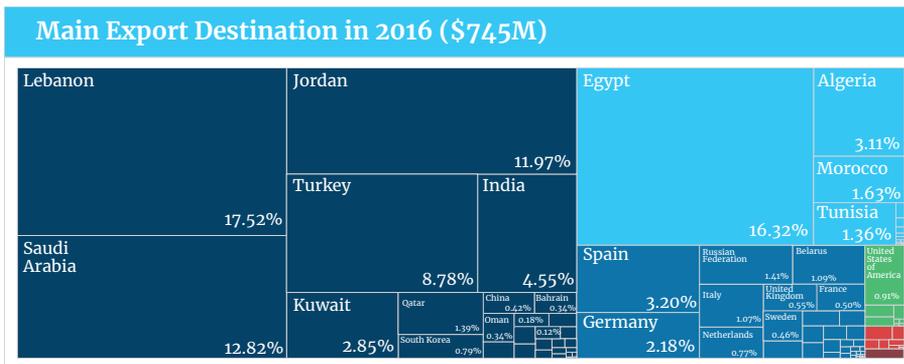
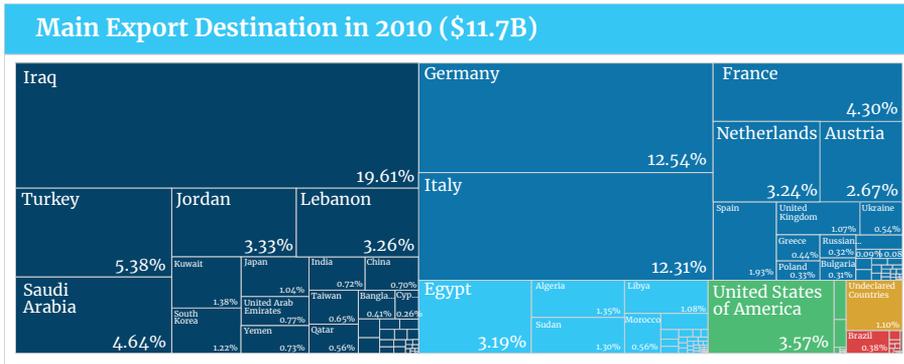
In 2010, the top five destinations for Syrian exports of merchandise were Iraq (19.6 percent), Germany (12.5 percent), Italy (12.3 percent), Turkey (5.4 percent), and Saudi Arabia (4.6 percent). Together, they accounted for about US\$6.4 billion export revenues. By 2016, however, they totaled less than US\$0.2 billion. Some other markets shrank less dramatically. The exports to Egypt fell from US\$374 million in 2010 to US\$122 million in 2016. The latter comprised mainly agricultural products such as apples and pears (27 percent), spice and other oily seeds (25 percent), pitted fruits (11 percent), and natural resources like refined copper (8 percent) and non-retail pure cotton yarn (7 percent). See Figure 2.9. It is important to note that, these outcomes could be driven by necessity (e.g., the result of economic forces) or by choice (e.g., policy decisions like procurement restrictions, see Box 2.1).

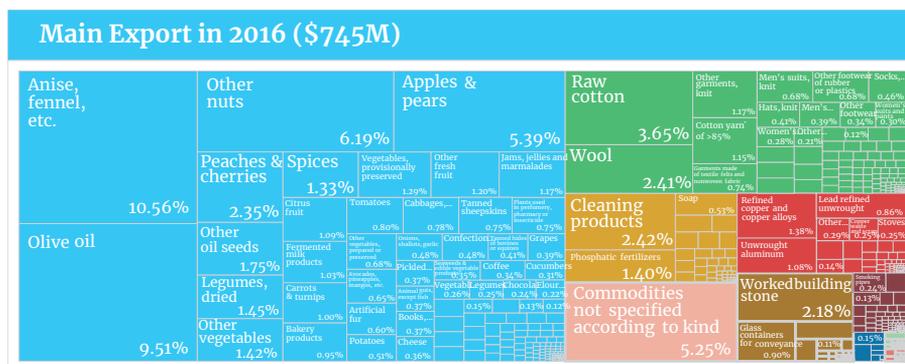
Figure 2.9. Dynamics of Syrian trade before and during conflict



Source: *Atlas of Economic Complexity, MIT* (accessed in September 2018)

Figure 2.10. The composition of Syrian exports by type and destination, 2010 vs. 2016

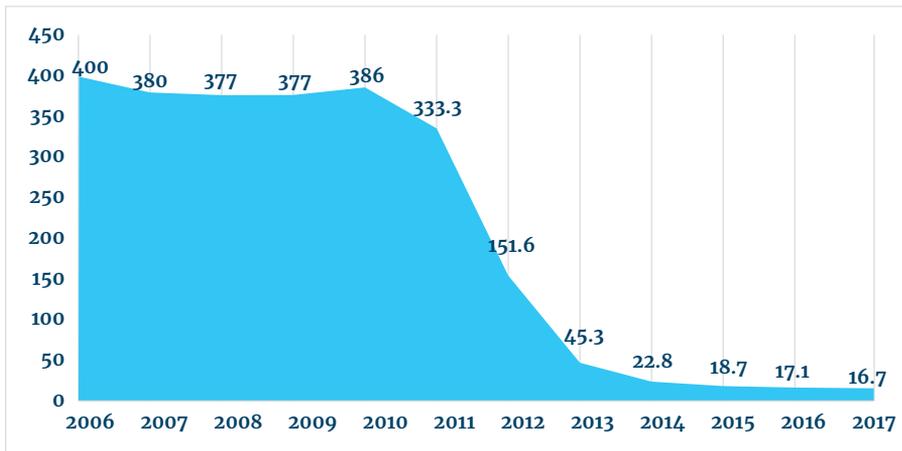




Source: Atlas of Economic Complexity, MIT (accessed in September 2018)

Syria's oil production was particularly hit by conflict. Since 2011 the oil sector has been in disarray, with the country facing a shortage of refined products and oil exports all but ceasing. Despite averaging roughly 400,000 b/d from 2008-2010, as of May 2015 Syrian oil production was less than 25,000 b/d due to the ongoing conflict, a drop of over 90 percent in production. In 2002, the all-time peak production stood at 677,000 b/d, and fell to a nadir of 15,000 as of February 2018 (Figure 2.11). In total, Syria has 2.5 billion barrels of proven crude oil reserves. Daily petroleum consumption in 2013 stood at 224,000 b/d. Pre-conflict, the oil and gas sector accounted for roughly one-quarter of government revenues; revenues that have largely dissipated with the collapse of production and exporting. While the country was exporting a modest 36,000 b/d in 2010, by 2012 domestic demand outpaced supply, and Syria became a net oil importer.

The country's refining capacity was already less than adequate before the conflict; during the conflict, half of its refining capacity was lost. Syria has two state-owned oil refineries, one in Homs and the other in Baniyas—overseen by the Syrian Petroleum Company, the country's largest SOE oil company—with a combined capacity of roughly 240,000 b/d as of 2015. This capacity met only roughly three-quarters of pre-conflict Syria's refined products demand. With damage resulting from the conflict, the country's actual refining capacity stands closer to 120,000 b/d, roughly 50 percent of its pre-war capacity. 'Artisanal,' or improvised, oil refining in the vacuum left by defunct oil refineries have caused significant environmental degradation and public health crises in regions of Syria. In late January 2018, the Government of Syria signed an energy cooperation framework giving the Russian Federation exclusive rights to produce oil and gas in Syria, also stipulating rehabilitation modalities for damaged oil-sector-infrastructure, serving as an energy advisory, and training a new generation of Syrian oil workers. In addition to repairing the substantial damage to Syria's two existing refineries, the Islamic Republic of Iran announced plans to construct a US\$1 billion oil refinery with a capacity of 140,000 b/d in Homs after the war.

Figure 2.11. Syrian Oil Production in Barrels a Day (in thousands)

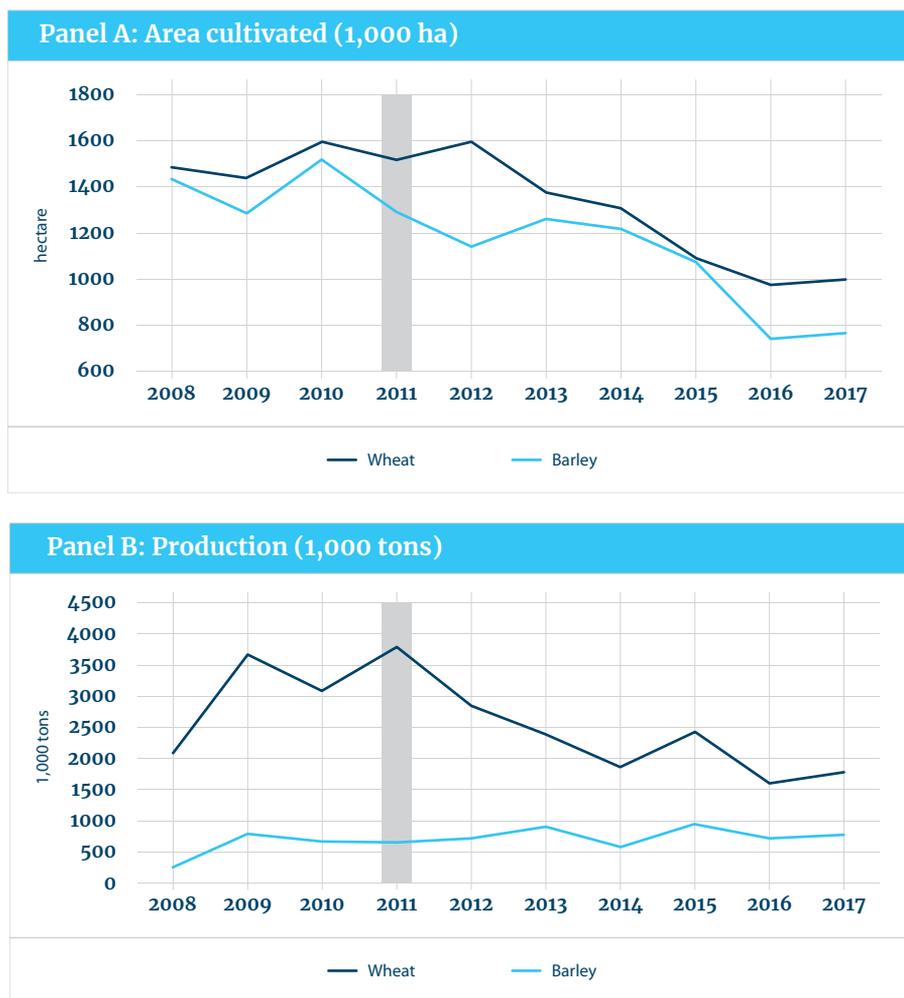
Source: <https://www.ceicdata.com/en/indicator/syria/crude-oil-production>

Conflict shaped agricultural activity in multiple ways, including effects through land-use change, market prices, and availability of inputs and labor.

The reduction in agricultural activity has been widespread and affected crops (particularly barley and wheat), vegetables, and fruit production. Cultivated land under crop decreased from an average area of 4.7 million ha (85 percent of the total cultivated land) between 2005 and 2010 to an average of 4.2 million ha (64 percent of the total cultivated land) between 2011 and 2015. Fallow land increased by 56 percent in the same period, reaching 1.5 million ha between 2011 and 2015. The production of barley and wheat, which together accounts for approximately 60 percent of the cultivated land in Syria, dropped significantly since 2011. The cultivated area of wheat declined from 1.6 million ha in 2010 to 1 million ha in 2017, a decline of 38 percent (Figure 2.12). This caused a reduction in the production of wheat of approximately 1.3 million tons. Wheat yield also declined from 1.93 tons/ha in 2010 to 1.79 tons/ha in 2017. The decline in the cultivated area accounts for approximately 60 percent of the decline in wheat production while the reduction in yields accounts for approximately 40 percent of the decrease in wheat production since the start of the Syrian conflict. This indicates that the sector's infrastructure and capability in areas where wheat production takes place were significantly affected, by the conflict. Limited access to basic inputs including seeds and fertilizer and damaged/reduced collection centers⁴⁶ significantly impacted barley production in Syria.

Vegetable production was also affected by the conflict, but the reduction in cultivated area was relatively smaller compared to the impact on crop land.

The total area used to grow lentils, chickpeas, fava beans, and peas declined from a peak of 235,000 ha in 2011 to 203,000 ha in 2017, a reduction of 14 percent (Table 2.2). The production of lentils declined significantly from 2011 to 2016 but experienced an increase of 25 percent from 2016 to 2017. Chickpea production continues to

Figure 2.12. Cereal production declined significantly in Syria

Source: World Bank Staff using FAO data.

decline, from 74,000 ha in 2011 to 56,000 in 2017. It is worth noticing, however, that the area used to grow fava beans and peas increased from 17,000 ha and 4,000 ha in 2011 to 19,000 ha and 5,000 ha in 2017, respectively. The cultivated area of summer crops and vegetables including cotton, sugar beet, watermelon, and tomato was also significantly affected by the war. The area used to grow cotton declined from an average of 193,129 ha between 2005 and 2010 to an average of 104,677 ha between 2011 and 2015, a reduction of 46 percent (Table 2.2). During the same period, the decline in cultivated area was 57 percent for sugar beets, 27 percent for tomato, 37 percent for watermelon, 19 percent for maize, and 11 percent for potato.

Table 2.2. Average cultivated area (Ha) of main summer crops, vegetables and fruit trees, Syria

	Summer crops and vegetables	Average 2005–2010 (ha)	Average 2011–2015 (ha)	Percent Change: 2005–2010 vs. 2011–2015
Summer crops and vegetables	Cotton	193,129	104,677	-46
	Sugar beet	26,540	11,493	-57
	Tomato	14,365	10,479	-27
	Watermelon	28,416	17,962	-37
	Maize	52,580	42,384	-19
	Potato	32,282	28,891	-11
Fruit Trees	Olive	601,716	693,920	15
	Grape	54,544	38,626	-29
	Apple	47,708	52,084	9
	Pistachio	56,444	60,114	7
	Almond	62,990	71,591	14

Source: World Bank Staff calculations using FAO data.

Cultivation of fruit trees increased despite the conflict. The cultivated area of fruit trees increased by 12 percent from 2005–2010 to 2011–2015, reaching 1.05 million ha or 18 percent of the total cultivated land in Syria. Among the main fruit trees, olive, grapes, apple, and pistachio experienced the most significant increase in cultivated area since the conflict started. Total average surface area of olive increased by 15 percent, reaching 693,920 ha on average between 2011 and 2015, which represents 66 percent of total surface area cultivated with fruit trees. From 2005–2010 to 2011–2015, the area utilized for apple production increased 9 percent, pistachio 7 percent, and almond 14 percent. The total average surface area allocated for grapes, however, decreased 29 percent during this period.

There was a significant change in yields for crops including vegetable and fruit trees since the war started in Syria. Average annual yields for maize, chickpea, lentil, sugar beet, watermelon, olive increased from 2005–2010 to 2011–2015. For instance, maize average yield increased from 4,930 kg/ha during 2005–2010 to 5,648 kg/ha during 2011–2015, an increase of 15 percent. However, there was a significant decline in yields for cotton, tomato, grapes, almond, and pistachio during this period. For instance, cotton average yield decreased from an average of 3,641 kg/ha between 2005 and 2010 to 3,041 kg/ha between 2011 and 2015 and tomato yield decreased from 43,228 kg/ha during 2005–2010 to 35,034 kg/ha during 2011–2015, a decrease of 19 percent in yield. The significant decline in yield for key crops is related to the damage to agricultural infrastructure as well as to out-migration from rural areas, which reduced labor availability.

Box 2.1. Public Procurement in Syria

In theory, public procurement can shape trade and economic activity during conflict, however, access to meaningful and comprehensive information on public procurement has been limited. This study reviewed relevant laws and regulations enacted after 2011 and analyzed 1511 tenders from different areas (Damascus, Qamishli, Al-Hasakeh and Kobani, Aleppo, and Homs) published in 2017 and 2018 through government and UN agencies procurement websites, as well as relevant published articles. While more procurement/tender notices are published through government websites, tender documents, evaluation results, and contract award notices are often not published.

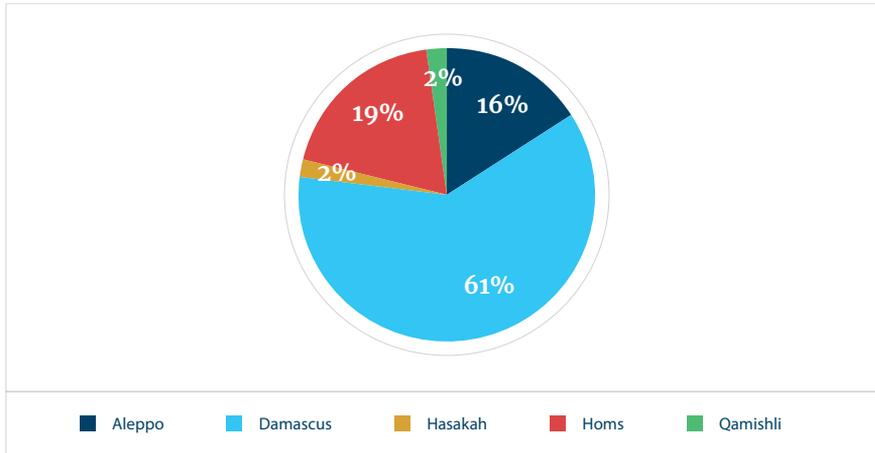
Ninety-six percent of the tenders were controlled by the Syrian Government at the sub-central/municipal level. The available data does not include estimated costs or contract values, so it is not possible to assess whether the latter distribution would change for larger contract values. Figures below show a distribution of the 1511 tenders/contracts by geographic area and service delivery sector. The distribution of tenders by sector did not vary significantly over geographic locations. Health and power had the highest shares of tenders in most areas followed by education, however, in the absence of information on estimated costs/contract values, such distribution could be misleading.

The analyzed tenders were mostly competitive, with some explicitly comprising nationality-based limitations. Twenty-eight contracts were awarded on a single source basis in Damascus, Aleppo, and Homs primarily in the power sector but also in the health and water sectors. The awards were mainly directed to Chinese, Iranian, and Russian companies but awards to Egyptian, Lebanese, and Turkish companies were also noted. When competitive methods were used, it was not possible to assess to what extent there was an obvious favoritism through directing the procurement opportunities to certain companies/countries. However, there were a few instances where the tender notices specifically mentioned that participation is restricted to Iranian companies and others that excluded goods manufactured in Turkey.

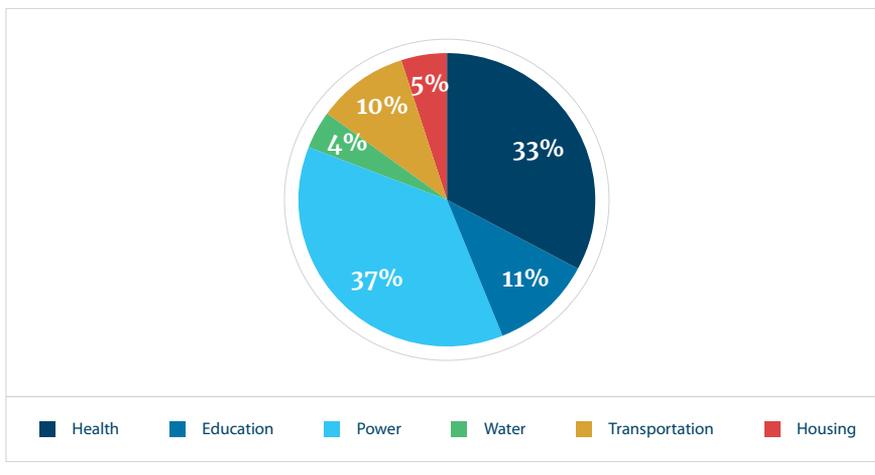
The core procurement legislation (Law No. 51) has not changed, however, several related laws were enacted. An important step in the wider procurement legal framework is the enactment of the Public Private Partnership (PPP) Law # 5 of 2016, which addresses some key issues regarding PPPs in a comprehensive manner. It may play a role in reconstruction operations, whenever that may happen. Also, the enactment of Law #107 of 2011 (Local Administration, which authorizes procurement of certain projects at the local level; enacts decentralization) and Law #10 of 2018 (which governs the allocation of land, including possibly for development projects) are important developments; the latter is analyzed in more detail later in this section.

Box 2.1. Continued

Number of tenders by geographic area, 2017-2018



Number of tenders by sectors, 2017-2018



Livestock production was affected by the conflict, but the changes in the size of the herd and production differed by animal type. In Syria, from 2005-2010 to 2011-2015, there was a decline in the total number of cattle and sheep raised, and in milk production from both cattle and sheep. During the same period, however, cattle meat production increased about 6 percent compared to a decline of 12 percent in sheep meat production. On the other hand, the number of goats raised increased 40 percent, goat milk production increased 38 percent, and goat meat production increased

52 percent. In addition, poultry farming decreased 20 percent and fish production collapsed, falling from 15,799 MT from 2005-2010 to 5,802 MT in 2011-2015, a reduction of 63 percent in production. The number of beehives and honey production stayed about the same during this period.

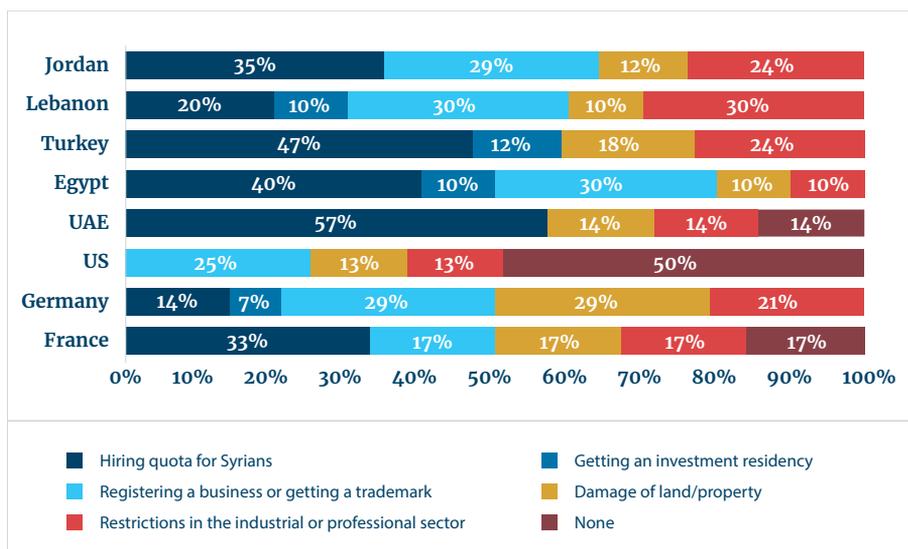
Conditions in Countries of Asylum

Although no official information is available, anecdotal evidence points to a remarkable tendency amongst Syrian refugees to establish businesses wherever they are. Displaced Syrians' entrepreneurship potential can be categorized in three basic ways: First, entrepreneurs (including those with a social capital orientation) with capital and a viable firm; second, potential investors with capital but not presently operating a business; and third, investors who may have had a business but have very little capital and if operating are doing so in a very constrained manner. Within this framework, most of the action to date has been in the first category. There have been some very modest efforts in the last category, and no more than talk in the second category.

Some Syrian firms simply relocated to their markets. In terms of entrepreneurs with capital and a viable firm, there are many examples in Egypt, Jordan and Turkey of firms originally based in Syria that have relocated based on existing markets they have and capital they have been able to preserve through monetary or physical means. In Turkey it is estimated there are 10,000 such formal and informal firms. Similar movement took place in Jordan and Egypt, proportionate with the number of refugees. For example, the small Jordanian border town of Mafraq has 160 Syrian merchants. Official data showed in 2013 that there were 499 businesses with Syrian shareholders.⁴⁷ This kind of entrepreneurial behavior is found often with refugees and economic migrants. For example, recent work by Aston University notes that in the UK ethnic minorities and economic migrants have double the rate of entrepreneurship compared with the residual population.

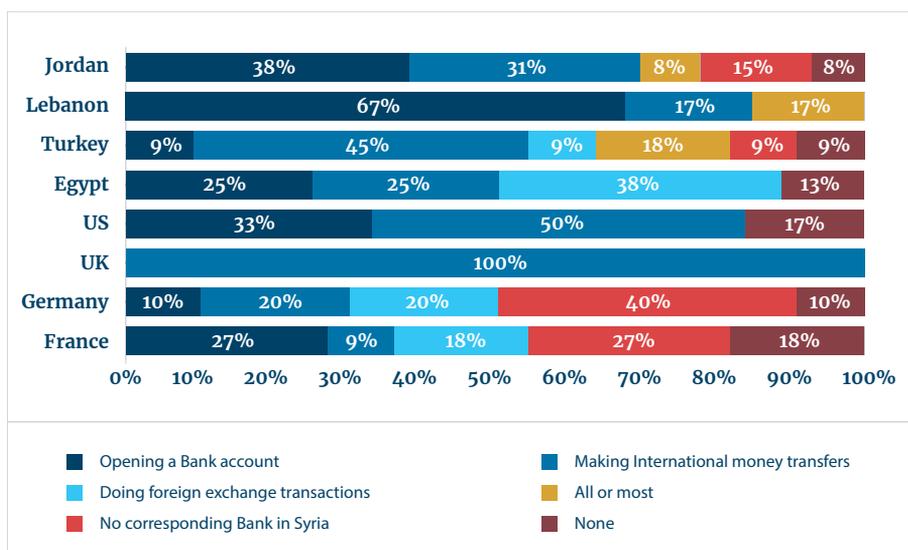
Syrian diaspora businesses face distinct challenges. In 2017 the World Bank conducted a survey of the Syrian diaspora business community,⁴⁸ with 185 responses from investors, business owners or those who belonged to senior management, asking them about the major challenges they faced. Figure 2.13 shows the results for Jordan and Lebanon, and other countries are included for comparison purposes. Overall only 29 percent felt they were treated the same as host country firms. Leveling the regulatory playing field is an important area they identified. These issues range from getting a business license to getting a driver's license and they vary across countries. In Jordan, the hiring quota for Syrians was reported to be a major obstacle by 35 percent of respondents. In both Lebanon and Jordan, registering a business was reported to be

Figure 2.13. Obstacles to business



Source: World Bank

Figure 2.14. Obstacles around financial transactions



Source: World Bank

one of the most important obstacles (30 percent and 29 percent, respectively). Mobility issues for business people are also an important challenge. In every country, most respondents indicated visa and travel documents was a problem. This is especially a problem for firms engaged in exports, which need to connect with their markets.

In Jordan, Syrians are not allowed to register a standalone enterprise without a Jordanian partner and are prohibited from owning businesses in several sectors.

According to instructions issued on behalf of the Prime Minister's office in March 2018, similarly to other businesses, Syrians are not allowed to register a home-based business without a Jordanian partner, except for camp residents, who are able to register their business independently but are prohibited from selling their products outside the camp. Additionally, Syrian-owned home-based businesses are not allowed to receive small business grants from NGOs. Jordan Investment Commission's instruction prohibits foreigners from owning businesses in key areas including food preparation, handicrafts, tailoring and hairdressing (areas where women are traditionally active).

The financial sector generates several specific challenges. The displaced are often caught up in a complex web of financial rules and regulations designed to prevent money laundering and anti-terrorist financing: banks are required to "know their customer." In some cases, displaced people find it hard to comply with these requirements. What this means is it becomes hard for them to open bank accounts, make international payments for goods, or obtain trade financing or any other form of credit. In Lebanon, 67 percent of respondents reported opening a bank account as a major obstacle against their businesses. In Jordan, this was limited to 38 percent of respondents. In comparison, making an international transfer is the second most important problem (31 percent), which is somewhat less problematic in Lebanon (17 percent). (Figure 2.14)

Despite these obstacles, the diaspora firms survive, and many are successful. Many of the diaspora are interested in making further investments in host countries either directly (24 percent) or through some form of intermediary (52 percent). The diaspora is equally willing to invest in Syria. About 70 percent of those that had businesses in Syria indicated a willingness to return, if conditions change. With a gradual easing of some of these constraints faced by Syrian entrepreneurs, potential investors with capital who are not currently operating a business and those investors who may have had a business but now have little capital, can also become active investors again.

2.3.2. Employment

A systematic analysis of job market conditions is hampered by the absence of comprehensive data in both Syria and in host communities for Syrian refugees.

In Syria, the latest official statistics regarding aggregate employment trends are from 2015 and lack granularity. Thus, the analysis uses HNAP surveys to complement official statistics. In host communities, informality of refugee work is the main problem. To cope with that, multiple sources of data have been used. These include UNHCR-WFP Vulnerability Assessments, Jordan Labor Market Panel Survey (JLMPS) (2016), Jordan Department of Statistics (DOS) Job Creation Surveys (2016), and Employment and

Unemployment surveys (Q1 2018). The data for Iraq is extracted from UNHCR-led MSNA III report (2017), which is based on the survey conducted in September 2017 and the UNHCR registration data of Syrians in the Kurdistan Region of Iraq (2018).

Conditions in Syria

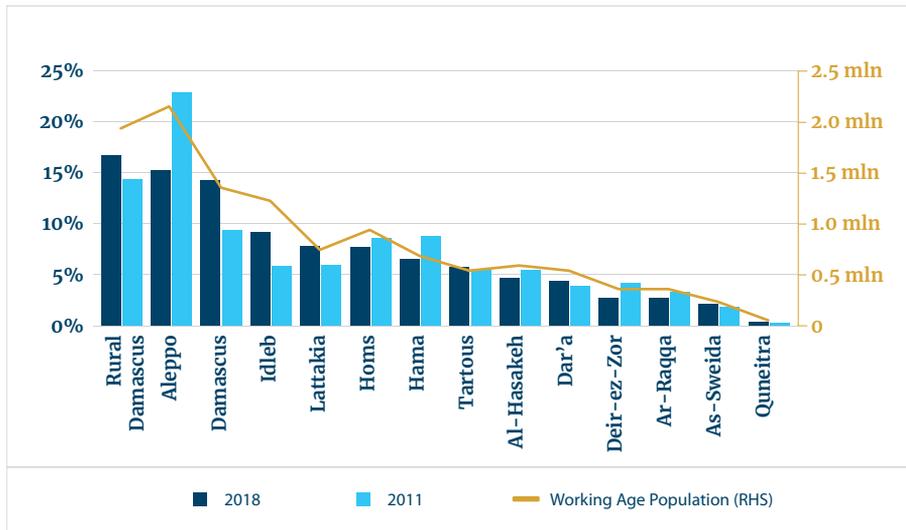
Forced displacement and economic collapse have translated into dramatic changes in scale and composition of employment opportunities in Syria.

An estimated 2.4 million net jobs were lost from 2010 to 2015 (Central Bureau of Statistics- CBS). The figure only accounted for government-controlled regions and was therefore a lower estimate for destroyed jobs.⁴⁹ Construction and industry were the sectors that suffered the greatest loss as 8.5 percent and 10.7 percent of workers were employed in these two industries, respectively, compared to 16 percent in 2010. This decline corresponded to a total of around 1.15 million lost jobs in construction and industry, accounting for 47 percent of total net jobs destroyed between 2010 and 2015. Agriculture also decreased its employment share from 14.3 percent in 2010 to 9.5 percent in 2015 accounting for a loss of 19.5 percent of net jobs. Services on the other hand increased its employment share from 25 percent to 46 percent but still shed around 41,000 jobs (1.67 percent of total net jobs destroyed).

Since the onset of the conflict, the unemployment rate increased despite significant reductions in the labor force.

In the decade preceding the conflict, Syria had a large (and increasing) share of the population entering working age, and thus, the size of the labor force would have continued to increase in absolute terms. However, according to World Development Indicators (WDI), between 2010 and 2015, the working age population decreased by around 1.8 million, leading to a decrease of around 930 thousand individuals in the labor force. Despite such a dramatic decrease in potential job-seekers, and as employment opportunities shrank more dramatically, unemployment increased. Estimates varied widely for unemployment rates. The Syrian Centre for Policy Research (SCPR) (2015) estimated it at around 57.7 percent at the end of 2014.⁵⁰ Using WDI labor force figures and employment figures from CBS, unemployment was estimated to be also around 46 percent.⁵¹ On the other hand, an ILO estimate of the overall unemployment rate reported in the WDI data was only 15 percent in 2015. Further, recent employment to population ratios from HNAP (2018) data suggest that unemployment rates are in the low range which is partly due to the significant presence of underemployment or occasional work. Due to the large variation in estimates, the exact figure on the extent of the increase in unemployment rates remains unknown. Nonetheless, it is clear from the data that unemployment has become a bigger challenge since 2010, and that it has primarily affected females, especially the youth (Figure 2.18).

Figure 2.15. Syrian Governorates' Shares in Total Employment, 2011 and 2018



Source: HNAP (2018) and CBS (2011)

Note: Employment also include the underemployed defined as occasional work

Figure 2.16. Syrian Governorates' Shares in Total Employment, by Gender, 2018

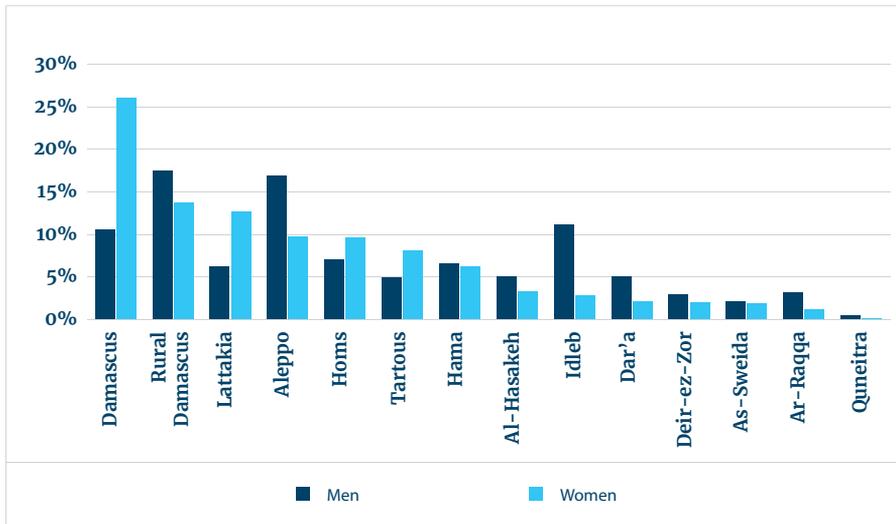
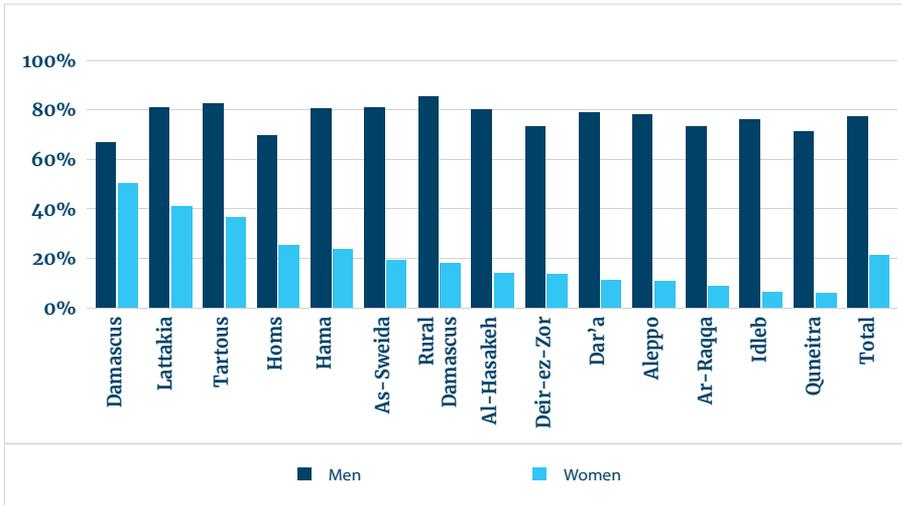
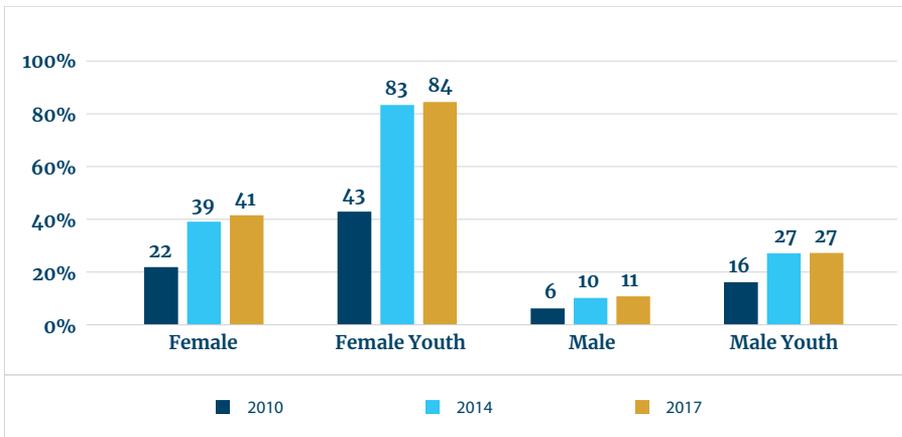


Figure 2.17. Employment to Working-Age Population Ratios by Governorate and Gender, 2018



Source: HNAP 2018, Authors' calculations

Figure 2.18. Unemployment Rate in Syria, by sex, age (youth 15-24), percent, 2010-2017



Source: WDI

By 2018, the uneven incidence of conflict across the Syrian land has been fully manifested in a spatial translation of employment dynamics. With the displacement of people, economic activity was also displaced. However, that happened at a slower scale as economic activity often has inputs that are less mobile, such as land and networks. Overall, conflict led to lower employment and high unemployment in high-conflict intensity areas as security concerns dominated other economic considerations. In the meantime, it led to somewhat higher employment in relatively safer areas as displaced people poured in. However, not all displaced people could possibly be absorbed rapidly; thus, unemployment also soared in those IDP receiving areas. According to 2018 HNAP data, Rural Damascus, Aleppo, and Damascus had the highest employment shares at around 15 percent, while Quneitra, As-Sweida, Ar-Raqqa, and Deir-ez-Zor had the lowest at around 2-3 percent (Figure 2.15).

In Syria, women's participation in the economy was extremely low and deteriorating in the years prior to the conflict. By 2010, female labor-force participation (LFP) rates in Syria was 13 percent (the second lowest rate in the world; the first one was in Yemen), having dropped from around 20 percent a decade earlier (WDI). For young women, LFP dropped to 9 percent in 2010. While LFP was also declining for men, their share was significantly larger at 73 percent for men above 15 years of age and 50 percent for young men.

Conflict has had differential and nuanced effects on economic participation of women. The recent HNAP numbers show that the employment to working age population of women (those that remained within Syria) has increased to 21.4 percent in Syria by 2018. But this aggregate number hides an interesting nuance. In areas with lower incidence of conflict, women have become relatively more active economically, filling in for the missing men. Damascus, Rural Damascus, and Latakia retained an important share of the employed Syrian women among the governorates in 2018. In contrast, in areas with high incidence of conflict, women were further isolated from economic participation. Al Hasakeh had one of the highest labor force participation rates for women among the governorates at 31 percent in 2010, mainly engaged in services and agriculture industries. In 2018, however, its share in the overall employment of Syrian women was only 3 percent. Ar-Raqqa, Idlib, Dar'a, Deir-ez-Zor, As-Sweida, and Quneitra also employed less than 3 percent of the working women in Syria.

The conflict has further exacerbated the high unemployment rates among young women, and women in general. Overall, the female unemployment rate increased from 22 percent in 2010 to 41 percent in 2017, which compares to men at 6 percent in 2010 and 11 percent in 2017 (Figure 2.18). Massive lay-offs and closures of a significant number of factories and firms, high informality as a coping mechanism and significant movement of people and economic activities from conflict zones into relatively stable and safer ones resulted in increased joblessness and high regional inequality in labor market outcomes. Women were particularly affected in the agriculture sector, where the share of female employment dropped an average of 60 percent from 2001 and 2017.

Conditions in Countries of Asylum

Multiple sources of data have been used to compare the labor market outcomes of Syrian refugees in host countries with the citizens of that country, their situation in Syria pre-conflict, and to the best extent possible, the current status quo in Syria. As such, due to differences between the datasets, labor market indicators are calculated differently for the three host countries: Jordan, Lebanon, and the Kurdistan Region of Iraq.

Jordan

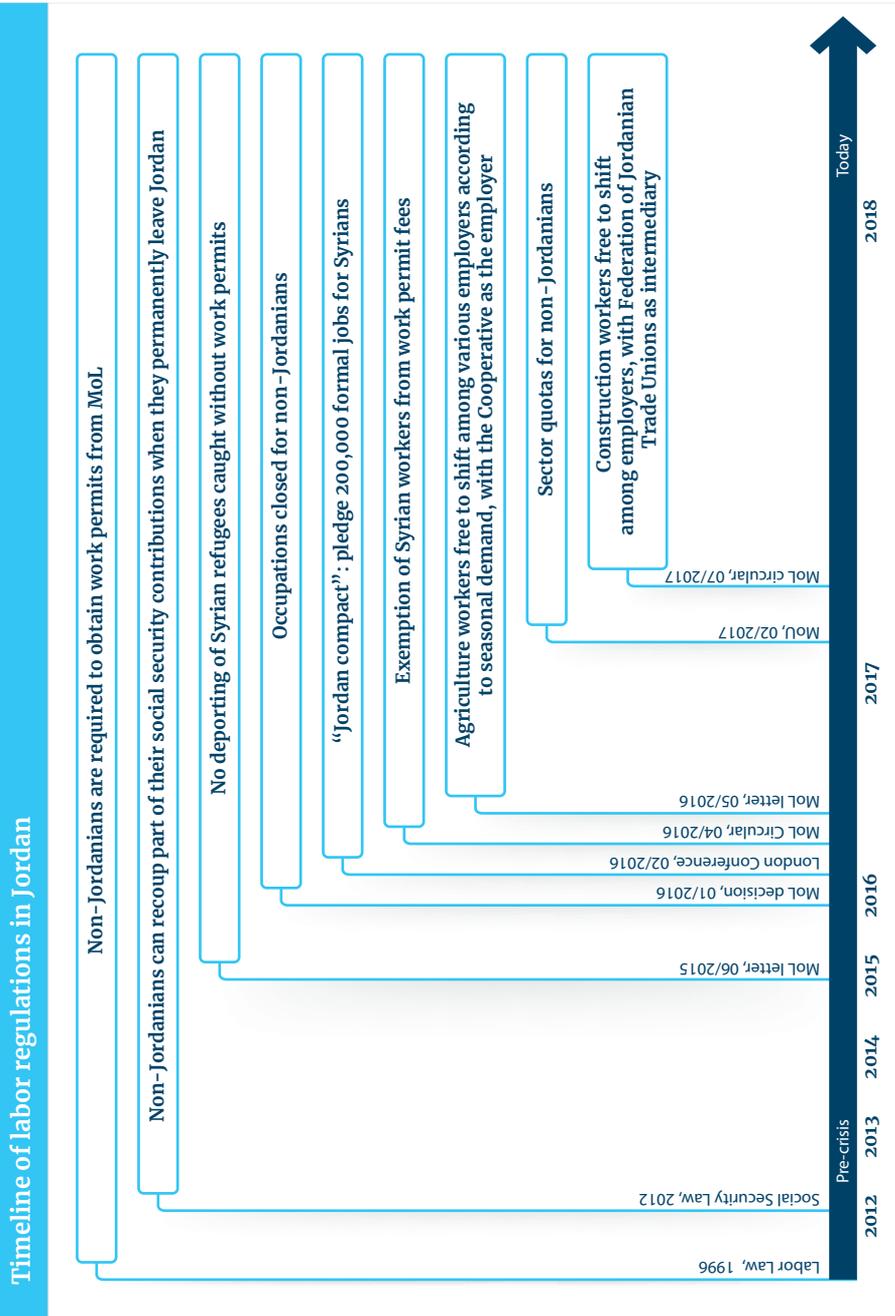
The Jordanian Labor Law prioritizes hiring Jordanian nationals over foreigners unless the required skill is not found among national job seekers. Foreign workers who meet this condition must obtain permission to work from the Ministry of Labor (MoL), at the risk of being deported or detained.⁵² However, as of June 2015, Syrian refugees found without work permits are no longer being deported.⁵³ Under these circumstances, the benefits of holding a work permit for Syrians consist of protection under the Jordanian Labor Law (including the right to a work contract and minimum wage).⁵⁴ and avoiding detention.

In the context of the refugee crisis, closed occupations and sector-quotas are used to promote “Jordanization” of the labor force. While these mechanisms were developed during the crisis, they apply to all foreign workers regardless of refugee status. Occupations closed to non-Jordanians are laid out in a MoL decision dated January 4, 2016. Open sectors include manufacturing, construction, and agriculture,⁵⁵ while closed sectors include sales, education, hairdressing, and most professional sectors such as engineering and medicine.⁵⁶ In addition, sector quotas are delineated in a series of Memoranda of Understanding (MoUs) and range from 5 percent of foreign workers in the Curative Industries, to 85 percent in semi-automatic bakeries. In closed occupations and beyond specified quotas, employers are prohibited from hiring qualified Syrians or other non-Jordanians even when qualified Jordanians are not available. Employers, however, find ways to evade these regulations by either hiring workers informally, obtaining permits for them under an “open” occupation, or adding Jordanian “ghost workers” to the payroll.⁵⁷

Besides quotas and closed occupations, the Government has taken measures to ease access of Syrian refugees to formal employment. In February 2016, as part of the “Jordan Compact”, the Government of Jordan pledged to provide formal work opportunities to 200,000 Syrian refugees. To facilitate the work permit application process, most financial costs associated with work permits for Syrians have been temporarily waived,⁵⁸ and they are exempted from a series of medical check-ups. While prior to the initiative, documentation was a serious barrier to work permit access for Syrians (work permits require a passport to register), Syrian refugees are now able to use their identity card from the Ministry of Interior. An estimated 105,404 work permits were issued from January 2016 to June 2018. 29 percent of these permits were issued in the agriculture sector, 43 percent in construction and 11 percent in manufacturing. Syrian women have obtained only 4 percent of the total permits issued nationwide to Syrians as of August 2018.⁵⁹

Nevertheless, refugees often work informally. Despite the Government's efforts to increase the number of work permits as part of the Jordan Compact, many Syrians in Jordan preferred to work informally. Costs associated with social security contributions are frequently a motivation for this, which is also behind the high informality rate of Jordanian workers.⁶⁰ Another obstacle to formal employment is the standard work permit system, which ties the worker to a single employer-sponsor.⁶¹ Regulations laid out in the Instructions of 2012⁶² prohibit workers from leaving their employer without explicit agreement from the latter, leaving workers vulnerable to exploitation. Furthermore, agriculture and construction, the sectors in which Syrian workers are most active, are both inherently short term and informal.

The MoL has adapted work permit regulations to address the short term and informal nature of jobs in agriculture and construction. As of May 2016, Syrian agriculture workers no longer need a contract with an individual employer/sponsor and can submit their own application and work permit fees through an Agricultural Cooperative.⁶³ Under this scheme, workers are free to shift among various employers, with the Cooperative listed as the employer on the work permit. In 2017, a similar scheme was established for construction workers, using the General Federation of Jordanian Trade Unions as the intermediary between workers and the MoL.⁶⁴ However, workers shift across sectors on a seasonal basis (e.g., between agriculture and construction), which is not possible under the existing schemes.⁶⁵



Sources: Jordan Labor Code (1996); MoL letter dated 7 June 2015 (Ref. No L/1/6868) and MoL letter dated 1 March 2016 (Ref. No. L/1/2389); Circular 98/2017 dated 16 March 2017 (Ref. No. TM/1/1/481); Circular 126/2017 dated 10 April 2017 Ref. No. TM/1/1/6486; Jordan Social Security Law of 2012, Article 11; MoL letter dated 8 Feb. 2016 (Ref. No. L/1/1449), MoL letter dated 14 April 2016 (Ref. No. L/1/4945); MoL letter dated 22 May 2016 (Ref. No. L/1/6751); Circular 249/2017 dated 23 July 2017 (Ref. No. TM/1/1/13997)

The authorities' efforts to amend work permit regulations seem to have a positive impact on Syrian refugees' employment.⁶⁶ Sources on employment estimates vary widely for Syrian refugees in Jordan, ranging from 20 percent to 50 percent depending on the year the surveys were conducted. The most recent data from the UNHCR survey of 2017 (VAF) estimates that half of the Syrian refugee working age men were employed in the last seven days,⁶⁷ 13 percent wanted to work but could not find a job, 9 percent were registered as full-time students, while the remaining 13 percent did not wish or were unavailable to work.⁶⁸ Unemployment, though, is still relatively high for Syrian refugee men. In 2017, it reached 20.5 percent, slightly higher than Jordanian men's unemployment rate of 16 percent. On the other hand, Syrian men prior to the conflict in 2009 had a much lower unemployment rate of 5.8 percent nationally and even lower in Dar'a at 3.5 percent where a large share of Syrian refugees come from.

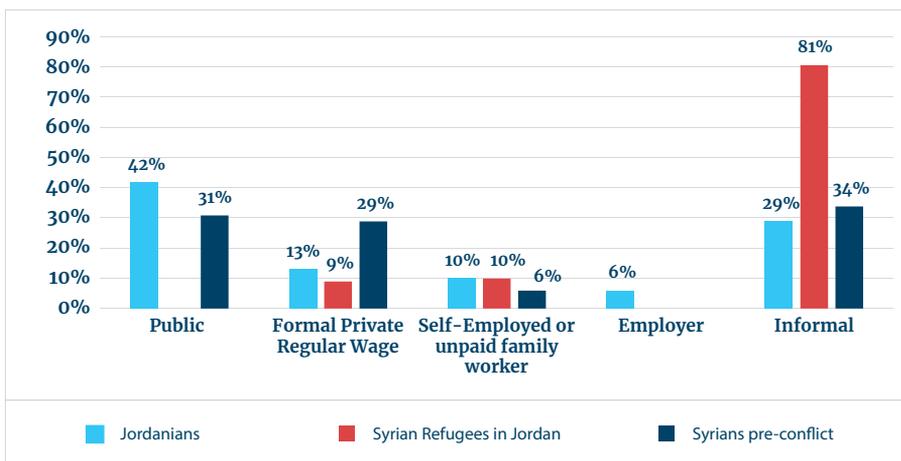
Data does not provide evidence for greater economic participation of refugee women in Jordan. The refugee work force in Jordan consists largely of men and the small share of women joining the labor force face high unemployment rates. In 2017, around 78.5 percent of UNHCR registered Syrian refugee women did not want to or were unavailable to work in the past seven days and were not students.⁶⁹ Only 5 percent of UNHCR registered Syrian refugee women were employed, 8 percent wanted to work but could not find employment and 8.5 percent were full time students. Out of the 13 percent of women that joined the labor force, 60 percent were unemployed (Figure 2.19). This is in contrast to men, of whom 63 percent participated in the labor force and 20.5 percent were unemployed; however, it is similar to the rate that was prevalent in Syria pre-conflict in 2009 at 13 percent and the estimated current rate in Syria (12 percent). It is also only slightly lower than the current rate of Jordanian women (15.2 percent in the first quarter of 2018). See Table 2.3.

A large share of Syrian refugee men remains employed informally without obtaining work permits or lacking contracts. Estimates from VAF showed that only 34 percent of employed Syrian men have a work permit obtained mostly through employers or unions depending on the sector and regulations (Figure 2.3.17). JLMPS estimated a higher share of 43 percent⁷⁰ which still suggested that 57 percent of employed Syrian refugees did not have a work permit despite the ease of new regulations. Indeed, the JLMPS data showed that Syrians were mostly informal⁷¹ (81 percent), either with private regular wages (53 percent) or with irregular wages (28 percent). This is in contrast to Jordanians, who were either formally employed in the public sector (42 percent), in formal private regular wages (13 percent), self-employed or employer (16 percent). Around 29 percent were informally employed or working in irregular wages. Prior to the conflict, in 2007, the situation was similar to present day Jordan, where Syrians were also either employed in the public sector (31 percent), formally employed (29 percent), or informally employed (34 percent), with the remaining few employed by family, self-employed, or employers (Figure 2.19). Informality though was much higher in Dar'a at 50 percent.

Table 2.3. Labor Force Participation and Unemployment Rates, Estimates from Various Sources

	Syria (2009)	Syria (2017 or latest)	Dar'a (2009)	Syrian Refugees in Jordan (2017)	Jordanians (2018)
Men LFPR	71	79.1	67.8	63.3	57.4
Women LFPR	13.3	11.9	6.91	13.1	15.2
Men UR	5.78	11	3.48	20.5	16
Women UR	23.7	41	9.9	59.9	27.8

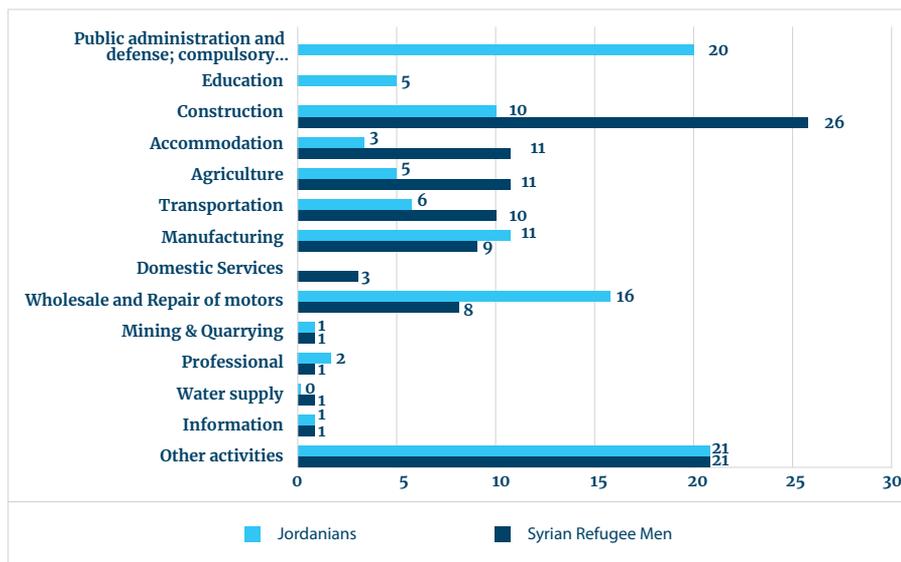
Sources: Data on Syria 2009 are based on CBS, those for 2017 or latest available number are based on the WDI, and data from Syrian refugees in Jordan are based on the VAF 2017 and for Jordanians on the Jordan DOS 2018

Figure 2.19. Work status of Syrians, Syrian Refugees in Jordan, and Jordanians

Source: LMPS 2016 data, CBS LFS 2007, Authors' calculations

The construction sector employs the largest share of working Syrian refugee men in Jordan, as was prevalent in Dar'a before the conflict. According to VAF, 26 percent of employed Syrian refugees in Jordan were working in construction, while the others were spread out in agriculture (11 percent), accommodation (11 percent), transportation (10 percent), manufacturing (9 percent), and other activities (Figure 2.20). In comparison, only 6 percent of Jordanian men were employed in construction in 2018. In Dar'a, prior to the conflict in 2007, Syrian men were also working largely in the construction industry (37 percent) suggesting that Syrian men were able to transfer their work skills to the country they sought refuge in had they the chance to do so. A quarter of Syrians in Dar'a were also working in services.

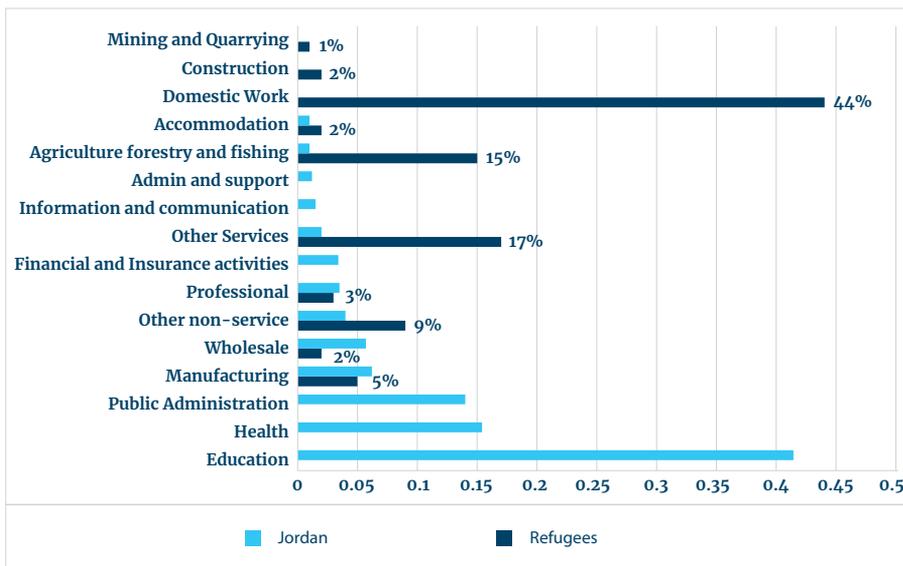
Figure 2.20. Sector Share of Employed Male Syrian Refugees and Jordanians



Source: VAF 2017 and Jordan DOS, Authors' calculations

Syrian refugee women who work are mostly engaged in domestic services, followed by agriculture; both sectors not desired by Jordanian workers. Around 44 percent of Syrian refugee women worked in domestic services and 15 percent in agriculture. On the other hand, in 2018, Jordanian women mostly worked in education (41 percent) and human health and social work activities (15.4 percent). Almost none were working in agriculture (0.9 percent, see Figure 2.21). Overall, net job creation in the agriculture sector in 2016 in Jordan was negative although its economic growth in the first quarter of 2018 was positive at 6.4 percent.

Figure 2.21. Sector Share of Employed Female Syrian Refugees and Jordanians



Source: Jordan DOS Q1 2018, VAF 2017, World Bank staff calculations.

Lebanon

Before the outbreak of the conflict, the Syrian workforce was in high demand in Lebanon, especially in specific sectors facing labor shortages. In 1993, Lebanon and Syria implemented a bilateral agreement for Economic and Social Cooperation, where nationals of both countries were granted the freedom to stay, work, and carry out economic activities in both countries.⁷² In practice, this allowed many Syrians to work in sectors for which there was little or no supply of Lebanese labor.

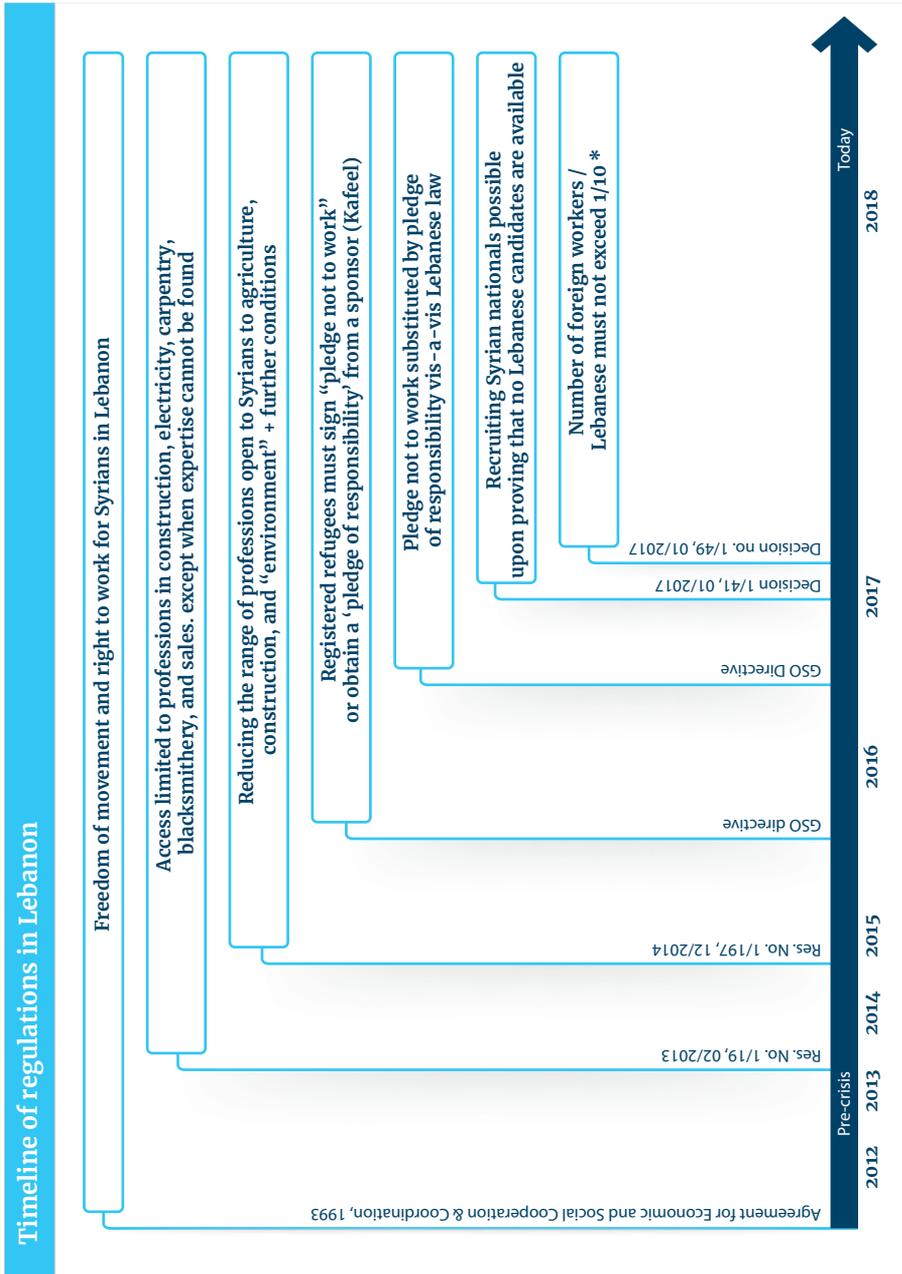
Following the onset of the Syrian conflict, Lebanese authorities closed a growing number of sectors to foreign labor.⁷³ Article 9 of Decree No. 17561 issued in 1964, regulating foreign labor in Lebanon, stipulates that each year the Minister of Labor issues a decision specifying the jobs and professions that are restricted to Lebanese nationals. In February 2013, the Ministry of Labor (MoL) issued Resolution No. 1/19 which restricts a number of fields to Lebanese nationals including all kinds of administrative and banking jobs, jobs in the education sector, engineering, nursing, pharmacy, medical laboratories, liberal professions (e.g. medicine and law) and other, de facto limiting Syrian nationals to professions in construction, electricity, carpentry, blacksmithery, and sales (a work permit would still be necessary to work in these sectors). Exceptions were granted for candidates who (i) have expertise that cannot be found among Lebanese applicants; (ii) have resided in Lebanon since birth; (iii) are born to a Lebanese mother; or (iv) are managing a company registered in Lebanon.

While Syrians and other foreign nationals are still able to set up and run their own business activities (even under full foreign ownership), anecdotal evidence points towards a recent Government crackdown on Syrian businesses.⁷⁴

Sector limitations were adjusted over time. In December 2014, MoL issued Res. No. 1/197, de facto further reducing the range of professions open to Syrians to agriculture, construction, and cleaning. Displaced Syrians in Lebanon have largely worked in construction, agriculture, and environmental sectors, where they are allowed to work. Given difficulties in monitoring such a large work force, however, many work without contracts or other work agreements, with occasional crackdowns. In January 2017, Decision No. 1/49 was put in place, stipulating that the number of foreign workers per company must not exceed 1 foreigner per 10 Lebanese workers. Domestic workers, Palestinian refugees, and agricultural workers who work for individuals on the basis of one worker per 5,000 square meters, are exempt from these restrictions. Modified ratios apply to cleaning companies (maximum 10 foreigners for each Lebanese), and construction or equivalent work (maximum 1 foreign worker for every Lebanese worker). Decision No. 29/1 issued in 2018 removed previously adopted exemption for Syrian nationals.

Although Syrian refugees can obtain work permits at a reduced fee, they often remain informal for other reasons. Syrians can obtain work permits at the reduced fee of 120,000 Lebanese pounds, but as they often work in highly informal environments, doing so is not always desirable. In addition, paying full contributions to the National Social Security Fund while receiving only limited social security coverage, further reduced the appeal of formal work. According to the MoL, in 2017, only 1,775 work permits were issued to Syrian nationals (366 new permits and 1,409 renewals), whereas 42,717 work permits were issued to other non-nationals (12,398 new permits and 30,319 renewals).

Most Syrian refugee men in Lebanon are either employed or looking for a job (68 percent of working age population), compared to only 10 percent of Syrian refugee women. While low participation of women is characteristic of most labor markets in the MENA region, it should be noted that the labor force participation rate of Syrian refugee women in Lebanon (10 percent) is lower than their Lebanese counterparts (18 percent). It is also slightly lower than that of Syrian women pre-crisis (13 percent), but higher than what was prevalent in Aleppo and Homs prior to the conflict (Table 2.4). Reported reasons for idleness vary for Syrian refugee men and women. For women, the primary reasons cited for not working were cultural (29 percent), followed by the need to take care of children and other dependent family members (24 percent and 23 percent), and the lack of skills and experience (19 percent), whereas for men the primary reasons cited were having dependent family members and children (21 percent and 25 percent), the absence of employment opportunities (19 percent), lack of skills and/or experience (17 percent), and medical conditions or injuries (15 percent) (Figure 2.22). Unemployment rates for Syrian refugee women were also extremely low at 2.7 percent as compared to their Lebanese counterparts (18 percent) and pre-conflict rate of 23.7 percent.



Sources: Agreement for Economic and Social Cooperation and Coordination Between the Lebanese Republic and the Syrian Arab Republic (1993); Res. No. 1/19, 02/2013; Res. No. 1/197, 12/2014; Decision 1/41, 01/2017; Decision no. 1/49, 01/2017

* domestic workers, Palestinian refugees, and agricultural workers who work for individuals on the basis of one worker per 5000 square meters are exempted, modified ratios apply to cleaning companies, where there is a maximum ratio of 10 foreigners to one Lebanese, and construction or equivalent work where there can be one foreign worker per Lebanese worker.

Table 2.4. Labor Force Participation and Unemployment Rates

	Pre-Conflict in Syria (2009)	Pre-Conflict in Homs (2009)	Pre-Conflict in Aleppo (2009)	Current Syria (2017 or latest)	Syrian Refugees in Lebanon (2017)	Lebanese (2010)
Women LFPR	13.3	5	9	11.9	10	18
Men LFPR	71	70.2	70.3	79.1	68	71
Men UR	5.8	3.2	3.6	11	12.7	9
Women UR	23.7	12.3	9.85	41	2.7	18

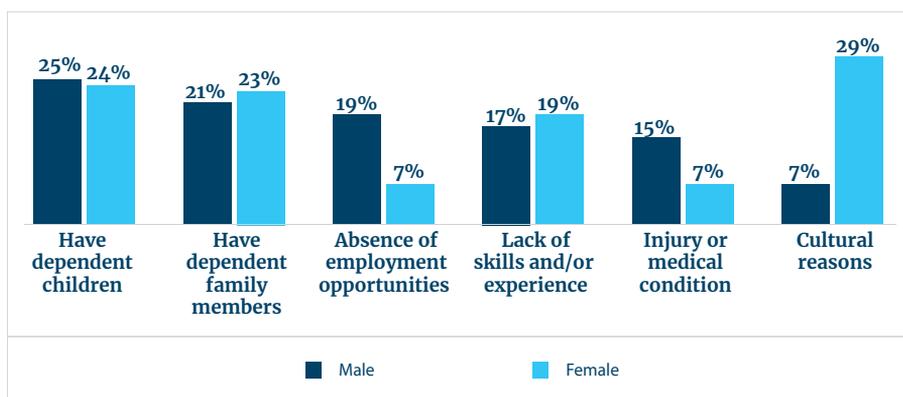
Sources: Pre-conflict data in Syria are based on CBS, data on Syrian refugees in Lebanon are based on the UNHCR 2017 VASyr data for Lebanese is based on the 2010 Employer-Employee Survey, data for current Syria is based on the WDI.

Unemployment for Syrian refugee men in Lebanon is lower than what is prevalent in Syria due to the conflict but is higher than the pre-crisis rate. Unemployment for Syrian men in Lebanon is estimated at 12.7 percent (defined as number of individuals aged 15-64 who were not employed during the past 30 days but sought work). It is slightly higher than the observed rate of the Lebanese (9 percent). On the other hand, Syrian men prior to the conflict in 2009 had a much lower unemployment rate of 5.8 percent nationally and even lower in Homs and Aleppo at 3.2-3.6 percent where a large share of Syrian refugees come from (Table 2.4).

Most Syrian refugees in Lebanon are involved in construction and agriculture.⁷⁵ Employed men (aged 15-64) are mainly involved in construction (33 percent), agriculture activities (22 percent) and services (16 percent) (including hospitality, restoration, transport, domestic work, hairdressing etc.), while some are engaged in manufacturing activities (8 percent).⁷⁶ In comparison, the sectoral distribution of employment for Lebanese workers is very different: half (46 percent) work in services, followed by around a third (27 percent) working in trade.⁷⁷ The sectoral distribution however is not very different from the regions where Syrian refugees were coming from prior to the conflict. As for women, Syrian refugees in Lebanon were mainly involved in agriculture (55 percent), followed by services (24 percent), with a small number (8 percent) employed in professional services.

Syrian employment in Lebanon is also characterized by underemployment and low wages, especially of female refugees. On average, employed individuals aged 15-64 work 14 days per month, with a small difference between women and men (13 days for women versus 14 days for men), which indicates significant underemployment when compared to the standard 22 working days/month. Average monthly income for working adult refugees is estimated at US\$193, which represents around 43 percent of the minimum wage in Lebanon at US\$450 per month. Despite being employed for nearly the same number of working days, men earn US\$206 per month (46 percent of minimum wage), while their female counterparts earn as little as US\$158 per month (35 percent of the minimum wage). Men working in agriculture earned more than

Figure 2.22. Main reported reasons for inactivity by gender for Syrian Refugees in Lebanon



Source: UNHCR VASyr, 2017

double the amount of the female counterparts (US\$12.4 per day versus US\$6 per day). Figure 2.22 shows that female Syrian refugees list cultural reasons as the top reason for economic inactivity, followed by having dependent children or family members.

Iraq (Kurdistan Region)

The Kurdistan Regional Government (KRG) has issued no restrictions on Syrian refugees' labor force participation. Syrian refugees can work in the private sector if they have official residency issued by the Ministry of Interior. The KRG's administration's official policy is that Syrians registered with UNHCR, or who have a residency card, have free access to employment.⁷⁸ Similarly, no official employment ratios are imposed for Syrian refugees vis-à-vis Kurdish Iraqis. Instead, the Ministry of Labor and Social Affairs observes workplaces and the level of Kurdish Iraqi national hiring on an ad hoc basis: if the ratio of foreigners to locals becomes too skewed in any business or organization, the ministry may issue an informal warning concerning foreign hires.⁷⁹

Employment of Syrian refugee men in the Kurdistan Region of Iraq is slightly higher than in Jordan and Lebanon, but women's employment remains low. This is consistent with the less-strict labor regulations in effect in the Kurdistan Region of Iraq. In around 74 percent of households, a male member aged between 15 and 59 was reported to work during the last seven days of the survey. The share of employed men in all regions in the Kurdistan Region of Iraq is high and above 50 percent, with Sulaymaniyah city district having the highest employment rate at 82 percent. High employment rate of Syrian men is corroborated by the representative survey data collected in mid-2018 according to which almost 90 percent of economically active men are employed. This contrasts with women, as only five percent of women aged between 15 and 59 are currently working. In the Kurdistan Region of Iraq, women's labor force participation in general is low at 15 percent irrespective of nationality.⁸⁰

The representative data also shows Syrian women's labor force participation rate of 14 percent. Further, prior to the conflict, in Aleppo, where most Syrian refugees came from, the labor force participation rate of women was also low at 9 percent in 2009. Their unemployment rate was relatively lower than other regions at 10 percent. Men's unemployment rate was also low in Aleppo at 3.65 percent.

The main economic activity Syrian refugees in the Kurdistan Region of Iraq are engaged in is agriculture, followed by construction. Around 38 percent of Syrian refugee households rely on agricultural labor wages, and 24 percent on construction labor wages. Around 47 percent in Dahuk are involved in agricultural activities, while that share is lower in Irbil at 31 percent and in Sulaymaniyah at 29 percent.⁸¹ As such, even though employment rates are relatively high for Syrian refugee men, they are mostly engaged in low-skill or manual jobs. On the other hand, prior to the conflict, Syrian men in Aleppo worked in many industries. In 2007, 25 percent of Syrian men in Aleppo were employed in manufacturing, 22 percent in hospitality and restaurants, 15 percent in agriculture, 14 percent in construction, and 13 percent in services. In the Kurdistan Region of Iraq, male employees are also involved in many economic activities, but mainly in public administration and defense and compulsory social security (29 percent), followed by wholesale and trade (14 percent) and construction (11 percent); agriculture's share is only about 6.5 percent.⁸²

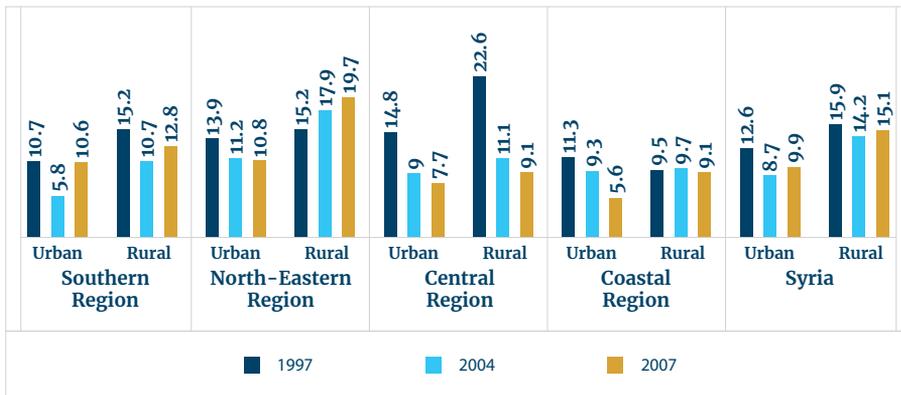
2.3.3. Monetary Poverty

While the well-being of Syrians and Syrian refugees is a multi-dimensional concept, monetary poverty provides a simple and intuitive indicator of welfare. Household welfare is assessed along both monetary and non-monetary dimensions. In Syria, pre-crisis monetary poverty was estimated based on several standard methods, but current estimates often follow a second-best or third-best approach in the absence of micro data. This creates a problem of comparability between the poverty assessments for Syrians in Syria and Syrian refugees in neighboring countries. This section considers these issues in more detail.

Conditions in Syria

Lack of data within Syria limits the ability to measure the poverty rate for the country, but all indicators point to a significant deterioration in living standards. Years of conflict have taken a toll on household welfare through a variety of channels such as displacement, injury to working-age adults or loss of employment, disruption of basic services, inflation and lack of basic goods, and disorganization of markets. Recent micro-data on per capita expenditure, the usual measure of household welfare, are not available from Syria, which makes it difficult to definitively know the current level of poverty within the country. In a previous exercise, the 2016 poverty rate was extrapolated using a simple method that linked known historical information on the relationship between GDP per capita growth rate and poverty. It suggested a drastic increase in extreme poverty, as high as 66 percent in some scenarios.⁸³ This section provides a fresh update of the poverty level of Syrians seven years after the onset of the conflict.

Figure 2.23. Syrian Extreme Poverty Rate by Region, 1997 – 2007



Source: UNDP 2005, 2011

Before the conflict, the extreme poverty rate⁸⁴ in Syria was on average relatively low but exhibited large regional variation, the North-East being significantly poorer.⁸⁵ In 1996-97 the national extreme poverty rate was 14.3 percent, declining to 11.4 percent by 2003-04. In 2006-07 poverty rose slightly to 12.3 percent, partially reversing the gains between 1997 and 2004.⁸⁶ Underneath the aggregate poverty rate there was a large variation in the headcount ratio across regions and between urban and rural areas. Rural areas are consistently poorer than urban centers and the urban-rural divide had grown since 1997. Poverty was concentrated in the North-Eastern region, especially in rural areas.⁸⁷ The poorest part of the country in 2007 was the rural North-East with a headcount ratio of 19.7 percent, seven percentage points higher than the next area (12.8 percent in rural areas of the Southern region). While only 44 percent of the total population lived in the North-East, it accounted for 56 percent of the extreme poor. The least poor area in 2007 was the Coastal region with an extreme poverty rate of 7.7 percent (see Figure 2.23).

The gap among regions was also widening prior to the conflict: poverty was increasing in poor regions. The Southern and Central regions enjoyed significant declines in poverty between 1997 and 2004, which drove poverty reduction for overall Syria in 2003-04. The rural North-East was the only area that experienced an increase in poverty between 1997 and 2004. Only the Southern region (the urban South in particular) and the rural North-East experienced increases in the poverty rates between 2004 and 2007, which explains the increase in poverty in Syria as a whole. The most plausible explanation for this is the drought that predominantly affected the rural North-East region and the resulting out-migration from these areas to the Southern urban region, compounded by the large influx of Iraqi refugees to the urban South.⁸⁸

Table 2.5. Current Extreme Poverty in Syria and for Refugees in Host Countries

Location	Extreme poverty rate (percent living below the Syrian extreme poverty line)
Syria 2007	6 – 20
Syria 2016	55 – 67
Syrians in Jordan 2017	51 – 61
Syrians in Lebanon 2017	37 – 50

Source: UNHCR VAF in Jordan, VASyr in Lebanon and World Bank calculations.

The current conditions in Syria are much worse. The 2017 exercise placed the extreme poverty rate in Syria in 2016 between 55 and 67 percent depending on various growth scenarios,⁸⁹ while an independent estimate suggested 69 percent of Syrians were living in extreme poverty in 2015.⁹⁰ Table 2.5 summarizes national extreme poverty estimates for pre-crisis Syria, present day Syria and for Syrian refugees living in Jordan and Lebanon. Pre-crisis poverty ranged from 6 percent in the urban areas of the Coastal region to 20 percent in the rural areas of the North-Eastern region. While the comparability of the estimates is somewhat limited, under all assumptions and sensitivities it is clear that poverty for Syrians everywhere is higher today than it was before the crisis. Box 2.2. provides a more detailed discussion on food insecurity, a clear correlate of extreme poverty, in Syria. There are some suggestions that poverty in Lebanon might be slightly lower (37-50 percent) than in Jordan (51-61 percent) or Syria currently (55-67 percent), but limitations on comparability means this cannot be concluded definitively, and it remains the case that at least two in five refugees in Lebanon is poor and possibly closer to half.

Box 2.2. Food Insecurity in Syria

About 5.5 million Syrians are food insecure and require some form of food assistance according to WFP. Food insecurity is one of the most critical issues facing Syria today. The displacement of more than 6 million people is a large contributor to food insecurity together with high food prices, reduced land access, limited jobs and income, and increasing climate variability. IDPs, female-headed households, and returnees are the most food insecure. About a quarter of Syrian households cope with limited access to food by purchasing poor quality and low quantities of food. Nearly half of households reduced the number of meals consumed in a day.

It is not only that food is lacking but the nutritious foods are not being consumed. Iron, vitamin A, and zinc deficiencies together with limited protein intake have long-term human development impacts for today's children. Data show that 27.5 percent of Syrian children under five years of age were stunted in 2012. Also the prevalence of anemia among women of reproductive age (15-49) increased by 2 percentage points from 2012 to 33.6 percent in 2016.

Food prices are very high but slowly falling due to better market integration across Syria as supply routes and roads are reopening and also due to improved security. Commodity prices are more than seven times higher than before the conflict erupted. According to WFP, the average price has fallen by 40 percent of a WFP-equivalent-standard-food basket since it was at its highest in 2016.

At a time when security is improving, agriculture production has been hit by severe climate variability. This includes reduced rain, hail, and elevated temperatures at the time when more than 800,000 IDPs and 23,000 refugees have been returning to their home governorates. Many of the returnees have a background in farming. Cereals, such as wheat, have been especially hard hit this year and the 2018 production was only 1.2 million tons compared to the pre-conflict period of 4.1 million tons average per year (the drought in Al Hasakeh was severe during a large part of those years, the region that produced 45 percent of the country's cereals). Industrial crop production such as sugar beet, cotton, and tobacco is also low compared to pre-conflict years. Also, horticulture has been hard hit by the conflict, sanctions on imports, and climate variability. Livestock and tree crops are very slowly being revived.

Food and agriculture related infrastructures are still not being rehabilitated, for example, food factories, irrigation structures, machinery and factories, silos, and warehouses. There is also a need to increase access to quality inputs, everything from seeds to fertilizer; many farmers are not even using fertilizers. Given the low harvest in 2018 there will likely be less seed available for planting in 2019. The loss of infrastructure and machinery also reduce employment and job generation opportunities. The limited livelihood options result in low disposable income. Finally, many more households are female-headed as men are less present due to forced migration or mortality.

Box 2.2. Continued

The MoA estimates that agriculture accounts for 60 percent of the Syrian GDP, roughly three times more than before the conflict. The 2019 outlook is more promising as the rain that was collected in the reservoirs in early summer of 2018 can be used for supplementary irrigation of crops in spring of 2019.

Sources: The state of food security and nutrition in the world 2018 by WFP et al. 2018.

Conditions in Countries of Asylum

Assessing the degree of refugees' impoverishment in a manner that is comparable to that of current or pre-conflict Syria is a challenging task. The sources of the recent data for Syrian refugees are the 2017 Vulnerability Assessment Framework (VAF) in Jordan collected by UNHCR and the 2017 Vulnerability Assessment of Syrian Refugees (VASyr) in Lebanon collected by UNHCR, UNICEF and WFP.⁹¹ To compare the poverty rates in the two settings and make them somewhat comparable to the last known national poverty estimates for Syria (2007/08), this analysis makes several adjustments. First, the 2007 Syrian extreme poverty line is converted to local currencies of Jordan and Lebanon using Purchasing Power Parity (PPP) exchange rate. Next, the lines are expressed in 2017 prices by applying the consumer price index (CPI) series of the respective countries. These are purchasing power equivalent poverty lines in local currency in 2017. Per capita expenditure from the 2017 VASyr and VAF surveys are compared against these poverty lines to estimate the poverty rate for Syrian refugees. These poverty rates can be compared, with some caveats discussed later, to the 2007 poverty rate of Syrians in Syria.

The extreme poverty rate of Syrian refugees is significantly higher than in pre-crisis Syria. In 2007, the poverty line in Syria was 2,183 Syrian pounds per person per month in local currency,⁹² and the share of people living below the poverty line was 12.3 percent (the extreme poverty rate). In PPP terms, the poverty line was \$95.45.⁹³ The purchasing power equivalent poverty lines in 2017 were PPP \$118.43 in Jordan and PPP \$119.8 in Lebanon.⁹⁴ Two-fifths of refugees living in Lebanon and almost three-fifths of refugees in Jordan are poor by the pre-crisis Syrian standard (Table 2.6). Refugees in Jordan appear poorer than in Lebanon, consistent with an analysis of 2013 data which also found a higher poverty rate in Jordan, albeit with a different poverty line.⁹⁵

Comparing poverty estimates between pre-crisis Syria and the host countries is also problematic. Even after adjusting for prices between countries and across time to estimate a purchasing power equivalent poverty line, there are other issues that make comparing poverty estimates between pre-crisis Syria and the host countries difficult. First, there are concerns about whether refugees in host countries are truthfully reporting their consumption. It is not obvious which direction any bias will go; refugees may understate their expenditures to demonstrate that they are in poverty and in need of assistance, but they may also overstate consumption to demonstrate the high cost of living and a shortfall in their ability to meet it.

**Table 2.6. Poverty Rate of Syrian Refugees by Host Country, 2017
(pre-crisis Syrian poverty line)**

	Pre-crisis Syria (2007)	Jordan (2017)	Lebanon (2017)
Poverty line (LCU)	SYP 2,183	JD 52.8	LBP 99,374
Poverty line (\$PPP)	95.5	118.4	119.8
Poverty rate (%)	12.3	55.8	42.5
Poverty rate (90% of per capita expenditure)		60.6	49.6
Poverty rate (107% of per capita expenditure)		51.9	38.6
Poverty rate (110% of per capita expenditure)		50.5	36.9

Source: UNDP, VAF, VASyr and World Bank calculations

Second, the expenditure questions in VASyr and VAF are less detailed than the original questionnaire in the Syrian national survey. Research has shown that when a fewer number of items are asked about, or groups of items are used, total aggregate expenditure is lower than when expenditures on items are asked for one-by-one or from a longer list.⁹⁶

To address these concerns, this analysis performed sensitivity checks. To account for the ambiguities specified above, poverty rates were calculated for cases with total expenditures being 7 and 10 percent higher (to account for difference in survey questionnaires and possible underreporting), and if total expenditure was 10 percent lower (to account for possible exaggeration of living costs). If many households are clustered just below or above the poverty line, these adjustments will have a large impact on poverty rate. With these adjustments, estimates of poverty range from 51 percent to 61 percent of refugees living in poverty in Jordan and 37 percent to 50 percent in Lebanon. Although these estimates are sensitive to the assumptions and methodological choices discussed before, the standard of living of Syrian refugees living outside the country is clearly worse than it was in pre-conflict Syria. The war has forced a significant proportion of Syrians to live under material conditions that would have been deemed unacceptable by earlier Syrian standards. Moreover, the lowest rate of the likely range in Jordan remains slightly higher than the highest rate of the likely range in Lebanon, suggesting that refugee poverty is indeed lower in Lebanon than in Jordan, although to what extent is less clear.

2.3.4. Social Assistance

Conditions in Countries of Asylum

The assistance offered to the refugees through UNHCR and its partner organizations has evolved with the scale and duration of displacement. What began as predominantly an emergency response has morphed into a long-term program focused on building resilience and fostering stabilization. The first phase of the response, lasting from the beginning of 2012 to mid-2013, focused largely on protection and emergency response to the increasing refugee population. The initial plans focused only on the registration of the people crossing the border and providing the core set of basic needs.

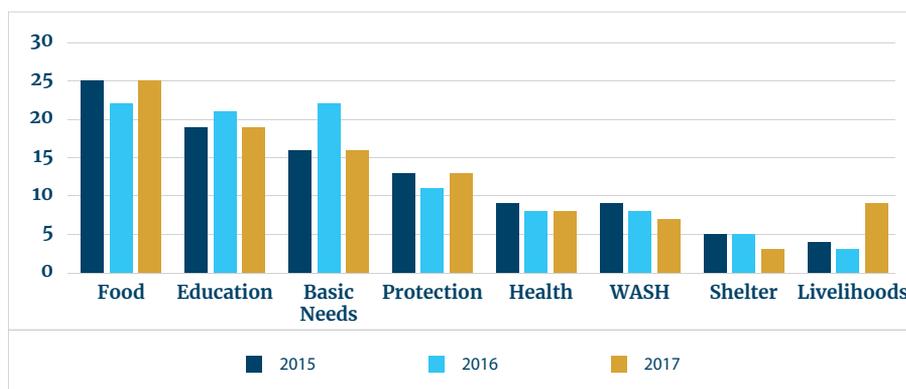
As the scale of the crisis ballooned, UNHCR launched the first Regional Response Plan (2013 RRP) in 2012, which allowed it to coordinate the needs of the UN and other partner agencies. While the first phase of the RRP centered on protection, the scope was broadened in the second phase to address the impact on host governments and communities, promoting social stability and supporting local infrastructure/institutions (such as waste management and health service delivery).

The third phase of the response, from 2015 onwards, marked a departure on how the response was formulated. UNHCR, jointly with UNDP, developed the Regional Refugee & Resilience Plan (3RP) which kept the focus on international protection while aiming to build resilience and address the stabilization needs of affected communities. The inclusion of a “durable solution” in the 2018 3RP marks a strategic shift, highlighting not only the need to meet immediate protection and assistance needs, but also ensuring a pillar toward finding a long-term, durable solution to protracted displacement, which is not intended towards local integration but dignity in exile and voluntary return.

The 3RP is the largest organizing platform in the international community’s response to the regional refugee crisis. The 3RP is a nationally-led process, incorporating in full the Lebanon Crisis Response Plan (LCRP) and Jordan Response Plan (JRP). It is implemented by UN agencies, NGOs, and host country governments. The two co-leads of the 3RP—UNDP and UNHCR—together coordinate the activities of more than 270 implementing partners. In each country, assistance is provided in eight sectors: protection, health, WASH, shelter, livelihoods, food security, basic needs and education. The type of assistance provided in each sector also varies by whether the refugee is in a camp or outside of a camp.

The type and volume of assistance has increased in line with the increase in the registered refugee population and their needs. Those receiving food assistance increased from nearly 1.4 million in 2013 to over 2.5 million in 2017, and the number of Syrian children enrolled in formal education rose from 215,000 to 930,000. The number of healthcare consultations, child protection services, employment programs, sanitation facility upgrades and other services provided by 3RP partners have also increased as the needs have grown.

Figure 2.24. Sector as Percent of 3RP Funding



Source: UNHCR

There has also been a gradual shift from in-kind assistance towards cash transfers (conditional or unconditional).

The number of individuals receiving cash assistance increased to 1.85 million individuals in 2017 from just over 400,000 in 2014. In 2018, 582,000 families, approximately 2.9 million people, were targeted for cash assistance, while 2.3 million were targeted to receive food assistance (cash, voucher, or in-kind). There has been a corresponding decrease in the provision of in-kind support, such as basic relief items (a standardized set of daily household and other items often provided to refugee populations in many contexts, particularly where refugee camps exist). The 2017 plan aimed to provide core relief items in-kind to over 200,000 households across the region, but this figure dropped to 90,000 vulnerable households in 2018. Furthermore, specific support to households during the winter period has increasingly moved from in-kind to cash-based assistance.

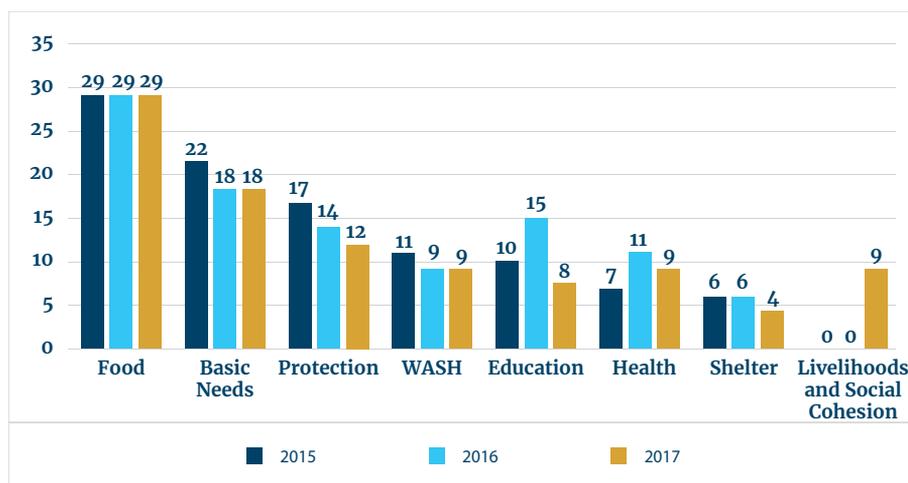
While the response has continued to evolve, the relative share of funding across sectors has remained relatively constant.

Figure 2.24 shows that food assistance, usually in the form of cash vouchers, accounted for almost a quarter of the allocated funds between 2015 and 2017. The second largest sector is education, typically accounting for just under 20 percent of the response. 2017 saw a significant increase in the percentage of received 3RP funding allocated to livelihoods, from 3 percent in 2016 to 9 percent in 2017. This change reflects a shifting priority among donors and implementers to focus more on sustainable solutions for refugees, with access to employment being a key component.

The exact composition of the sectors varies from country to country. The response across the 3RP countries has evolved according to the political, economic, and social context and other factors affecting the operating environment in each country, including resources and the capacity of agencies. While differences exist across contexts, refugees are generally facing a high degree of vulnerability arising from the

cumulative effects of poverty, unemployment, limited access to quality basic services such as health and education, and in many cases a tenuous legal situation.

Figure 2.25. Share of total 3RP funding in Jordan (by sector)



Source: UNHCR

Jordan

The bulk of the assistance in Jordan is directed to food assistance to mitigate food insecurity or vulnerability to food insecurity of Syrian refugees (Figure 2.25). WFP provides regular, unconditional food vouchers and, less often, in-kind food assistance. In 2017, in-kind food assistance was provided to over 260,000 Syrians and vulnerable Jordanians; cash-based assistance provided to over 500,000 people.⁹⁷ Basic-needs support takes the form of winterization assistance, cash assistance, and basic needs kits to refugees and vulnerable Jordanians. In 2017, monthly multipurpose cash assistance reached an average of 143,000 Syrians and 5,800 Jordanians.⁹⁸ Livelihoods and social cohesion was added as its own sector in 2017, reflecting the evolution of the response towards a more sustainable model.

Cash assistance has become a regular part of humanitarian assistance in Jordan. UNHCR supports only the most vulnerable families (approximately 23 percent of the non-camp population) as defined by the Vulnerability Assessment Framework (VAF). This includes 32,800 families, mostly Syrian but also refugees of other nationalities. From February 2015 to May 2017, UNICEF distributed unconditional Child Cash Grants (CCG) to assist approximately 15,000 of the most vulnerable Syrian refugee families with children under the age of 18 living in host communities. The WFP voucher program was introduced for those living in host communities in 2012 and later in Zaatari camp, allowing them to shop in certain supermarkets for their preferred foods (Luce 2014).

Eligibility for UNHCR assistance is determined by the vulnerability score defined by the Vulnerability Assessment Framework (VAF). The VAF is a comprehensive framework consisting of a set of common indicators of vulnerability, a standardized data collection tool (Home Visit form), agreed ‘thresholds’ of vulnerability (low to severe), and a central database to capture and securely share vulnerability data. VAF indicators are collected at UNHCR registration and during home visits by UNHCR and VAF data collection partners. Data is regularly updated, creating a ‘vulnerability profile’ for each refugee household. Once eligibility is established based on an initial home visit, it is verified every two years.

A survival minimum expenditure basket (SMEB) and family size are used to determine the value of the cash transfers. For example, in 2018, the minimum expenditure basket (MEB) for a family of four is estimated at 387 Jordanian dinars (JD) per person per month, and the total size of the transfers (UNHCR and WFP combined), was 196 JD. Winterization support is also provided to eligible cases determined by the MEB, VAF eligibility criteria, and the assessed shelter needs. In 2017, the full standard level of assistance was \$277 for family size of up to 3 and a top-up, capped at \$453, for households with seven or more members.

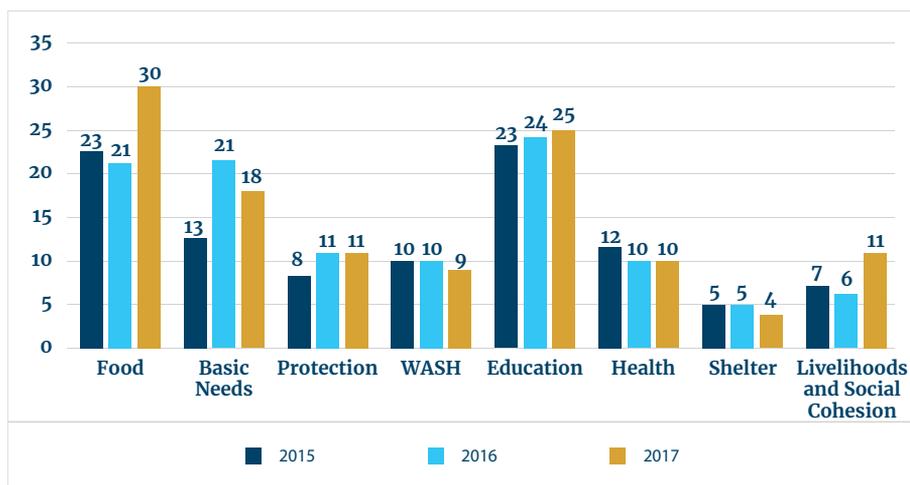
Lebanon

The education sector absorbs a larger share of the 3RP funding in Lebanon. The Ministry of Education and Higher Education (MEHE) has waived school fees for all Lebanese and non-Lebanese children attending public school, while partner organizations have assisted in school rehabilitation and curriculum development. Between 2016 and 2017, there was a significant increase in the share of funding allocated by the Lebanese Crisis Response Plan (LCRP) for food, which is mostly given in the form of cash transfers. (See Figure 2.26)

In Lebanon, UNHCR uses the Proxy Means Test targeting methodology to determine eligibility for cash assistance. It is derived from VASyr-reported expenditure data and applied to the UNHCR registration data. The model is updated annually with the most up-to-date data and a refinement of methods. UNHCR also conducts validation of beneficiaries with an aim to ensure that the right person is in possession of the right card.

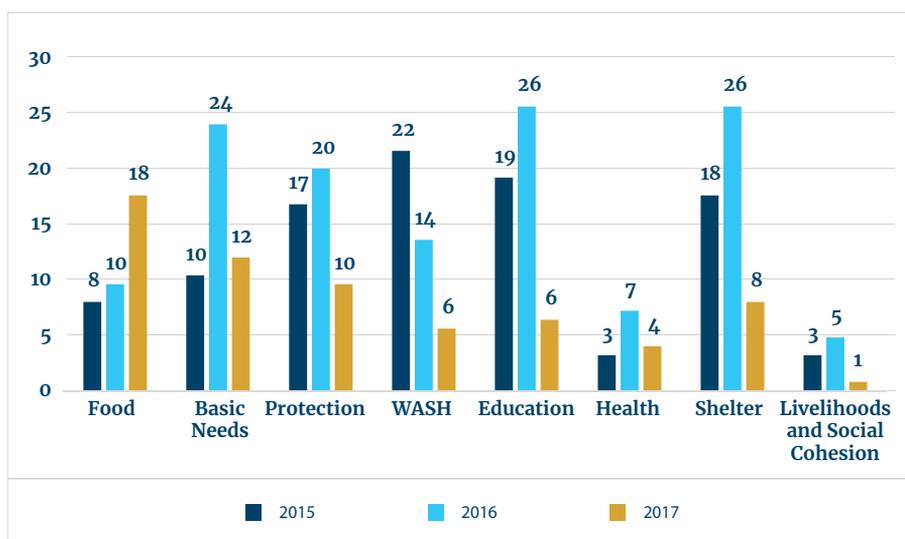
The transfer amount is determined by the estimated minimum expenditure basket that captures what a Syrian refugee household in Lebanon requires to cover basic needs for a dignified way of living. The MEB stands at \$517 for a household of five members. The basket consists of food, water, sanitation, health, NFI, shelter, education, transportation, and other services. However, the size of the cash grant is largely set by the amount of resources available. Winterization support is also provided to highly vulnerable refugees. The amount of assistance is tiered, with the largest support flowing to refugees who are not receiving any other assistance.

Figure 2.26. Share of total 3RP funding in Lebanon (by sector)



Source: UNHCR

Figure 2.27. Sector funding (percent of total)



Source: UNHCR

Kurdistan Region of Iraq

International organizations and humanitarian agencies are the most common source of assistance for Syrian refugees in Kurdistan. Almost a third of Syrian refugees in Kurdistan are covered by cash assistance from these sources, and a fifth has received cash or in-kind transfers. Cash or in-kind transfers from friends and relatives, both within and outside Iraq, constitutes the next most important sources of support, with approximately a fifth of Syrian refugees relying on informal networks for support.

There is no information on the size or the frequency of the transfers, so it is difficult to determine their relative contribution to the overall household budget. But subjective assessment suggests that the level of support received is inadequate. Only 4 percent of refugees agree that the support received during the past 12 months was sufficient to meet the household's basic food needs.

2.4. Housing, Land, and Property Rights



International experience shows that refugees' ability to reclaim their properties is crucial for return; yet, it is also one of the most challenging problems to resolve.

Assets like houses and land often underlie the sense of "belonging." In addition, livelihood opportunities are often linked with access to such assets, especially in rural areas. Thus, the prospects for recovering these can be a key driver of return for refugees. However, this is also a daunting issue to resolve since such assets are often damaged, looted and/or occupied by others, often by people who have different ethnic/sectarian profile and proving ownership may not always be possible because of informality or destroyed records. In this section, the analysis will focus on the accessibility of assets in two dimensions: first, the prospects of having access to housing shelter regardless of ownership issues and, second, the property rights issue surrounding the housing and land ownership.

Housing and Shelter Conditions in Syria

Syria is a highly urbanized country. Prior to the conflict, Syria was rapidly urbanizing, with 56 percent of the population living in urban areas, most of which are rain-fed agricultural regions, including the basin of the Euphrates River, or along interior trade routes. The two largest cities, Damascus and Aleppo, accounted for nearly 37 percent of the urban population and 20 percent of the total population. According to the 2010 Syrian census data, there were 4,128,941 conventional dwelling units across 14 governorates.

The conflict further intensified the rural-urban migration. Starting from the mid-to-late 1990s, Syria experienced rural-to-urban migration spurred by drought and

environmental degradation. Around 40,000 to 60,000 families migrated from rural to urban areas each year because of droughts. The conflict provided a major boost to migration. Today, it is estimated that around 72.6 percent of the population (13.7 million people) lives in urban areas in Syria, and these urban areas have undergone dramatic demographic change as a result of the conflict. Those directly impacted by the conflict, like Homs and eastern Aleppo, have been experiencing an exodus of residents that have fled violence, destruction, and the collapse of basic services. Other areas, with promising relative security and consistency of services, have experienced large influxes, with the net result being a significant concentration of population (internally displaced persons (IDPs) and hosts) in urban areas.

In conflict-affected cities, physical destruction has been extensive. The conflict in Syria has severely impacted the housing sector, with a significant share of residential units that have been partially damaged or fully destroyed, housing investment disrupted, quality of living space deteriorated, and land and property rights severely challenged. At the city level, data have been collected through algorithm-based analysis of satellite imagery. Table 2.7 provides the total number of buildings affected by the conflict, partially and totally damaged. On average, about a fifth of all residential buildings in the 15 cities covered in this study suffered damage, about a quarter of which were fully destroyed. The overall damage was highest in Al-Qusayr (29.4 percent) and Dar'a.

Housing damage reported here suggests some reconstruction activity, unevenly distributed across cities. In Aleppo, approximately one-third of housing areas have undergone possible reconstruction operations (including debris removal) since August 2016. Still, as of June 2018, at least 20.9 percent of housing remains unimproved across the city, requiring further investment of time, equipment, and materials. Of note is the large area within the Old City, which suffered 100 percent damage of housing structures during the conflict. While 15 percent of that area has been cleaned up, 85 percent still awaits repair or reconstruction. It is estimated that more than 18,000 buildings (out of approximately 88,360) remain damaged, with 3,693 (medium estimate) destroyed. In contrast, the damage ratio in Homs has practically remained unchanged when compared with 2014 data—in part due to additional destruction that has occurred during this period, and also due to very recent bulldozing of heavily damaged structures to make room for new construction. Of note are the neighborhoods of Karm Shamsham and Deir Ba'alba, both of which suffered 100 percent damage of housing structures during the conflict. While 3 percent and 22 percent of the respective areas have been cleaned-up, this means that 97 percent and 78 percent, respectively, still await repair and reconstruction.

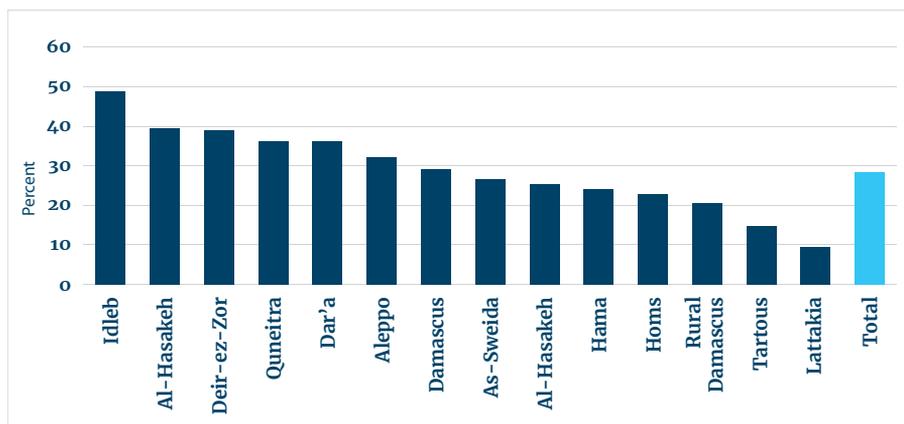
Conflict driven physical damage has been translated into significant restrictions for Syrians' access to housing and shelter. The available data from household surveys and community focal points paint a picture that is similar but more nuanced compared to the remote-sensing-based damage assessments. Overall, a majority of the dwelling stock in more than a third of neighborhoods is reported to have sustained some damage. As a result, houses are not available for rent in most communities. Thus, only in a minority of communities can households afford the rent, even though they are living in structures that have sustained some damage that do not provide adequate protection from weather and that are not served well by public services.

Table 2.7. Total number of buildings affected by the conflict, by city:

	Baseline # of buildings	No Damage	Partially Damaged	Destroyed	Damage Ratio (%)
Afrin	1195	1192	0	3	0.3
Al Bab	1196	1067	104	25	10.8
Aleppo	88360	69882	14785	3693	20.9
Al-Qusayr	1315	928	310	77	29.4
Dar'a	9348	6634	2172	542	29.0
Deir-ez-Zor	5712	4395	1058	259	23.1
Douma	5578	4047	1228	303	27.4
Homs	41941	31322	7911	2708	25.3
Idleb	5896	4959	736	201	15.9
Kobani	5673	5111	450	112	9.9
Menbij	3402	3178	180	44	6.6
Qamishli	8341	8341	0	0	0.0
Ar-Raqqa	6409	5817	478	114	9.2
Tadmur	1364	1067	239	58	21.8
Yabroud	727	727	0	0	0.0
Total (15 cities)	186457	148667	29651	8139	20.3

Source: World Bank staff calculations

The conditions for access to housing reflect not only supply-side problems (e.g. damage), but also demand side (e.g. IDP inflows or outflows). The Housing Deprivation Index shown in Figure 2.28 uses the 2017 MSNA focal points data to summarize the average deprivation on 10 different housing dimensions, such as lack of heating or leaking during the rain. Implicitly, damage done to housing stock will be reflected in these amenities, although it will only indirectly capture insufficiency of the overall housing stock. Across the country, the average deprivation is 28 percent. The worst conditions are in Idleb (consistent with it being one of the most affected governorates in both damage and IDP inflows), where houses on average lack 6 of the 10 amenities surveyed. Other governorates with most deprivation include Ar-Raqqa (40 percent), Dar'a (36 percent), and Deir-ez-Zor (39 percent). The least deprivation is in Lattakia (10 percent) and Tartous (15 percent).

Figure 2.28. Housing Deprivation Index, 2017

Source: 2017 MSNA and World Bank analysis.

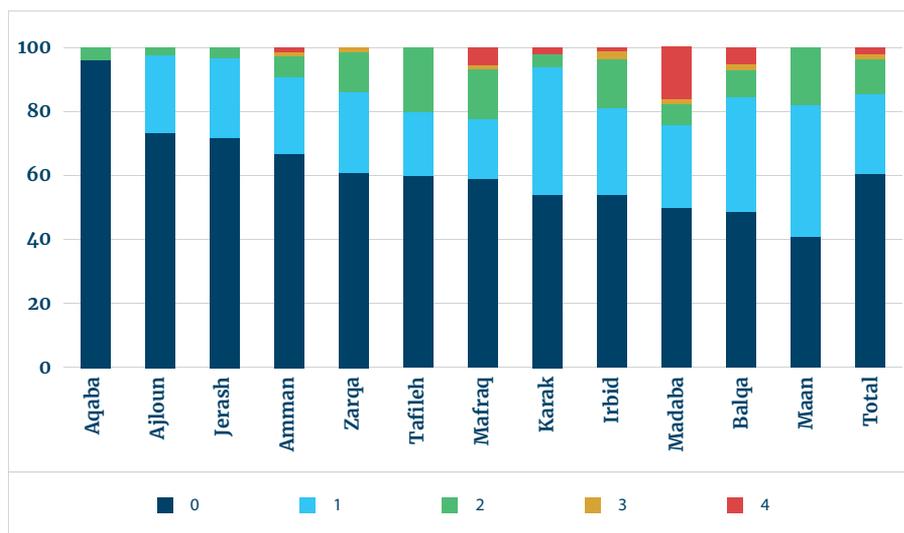
Note: Deprivations surveyed included lack of insulation from the cold, leaking during rain, limited ventilation, overcrowding, lack of internal privacy, unable to secure house, lack of cooking facilities, lack of bathing facilities, lack of lighting, lack of heating and whether there is any other common inadequacy. The Index is the average number of deprivations (out of 10) in each governorate.

Access to Housing and Shelter in Countries of Asylum

A clear majority of Syrians in Jordan, Lebanon, and Kurdistan live in rented dwellings. The quarter or so who do not are living with friends or relatives or in temporary structures like tents and abandoned buildings.⁹⁹ In Kurdistan, more than 90 percent of Syrian refugees live in rented dwellings. Even those who live in rented houses or apartments are not well-served by public services. Unreliable electricity supply, lack of access to piped drinking water and sanitation facilities among renters is common in Jordan and Lebanon, as well as in Kurdistan (electricity and sewage disposal).

However, there may be some differences in refugee housing quality between Lebanon and Jordan. Figure 2.29 shows the number of housing problems for Syrian refugees living in each Jordanian governorate, out of a possible total of four (substandard roofing, substandard electrical features, poor quality wall materials and poor-quality roofing materials). Outcomes vary by location, but in all but two governorates the majority of households report no housing problems, while relatively few households report more than one problem. Across all governorates the average number of household reporting housing problems is 15 percent. The data for refugees living in Lebanon are not exactly the same, but refugee households report an average of 44 percent from eight different housing problems (unsealed windows, leaking roof, rot, damaged walls, damaged plumbing, unusable toilet, unusable bathroom, lack of electrical features).¹⁰⁰ While this may suggest that housing quality for refugees in Jordan is better than for those in Lebanon, it might also be the case that a higher percentage of possible problems in Lebanon reflects that there are more potential problems to report, or that some of the problems in the Lebanon list are less severe and not contained in the Jordan list. As such, it is difficult to make a confident comparison.

Figure 2.29. Number of Housing Problems for Syrian Refugees in Jordan by Location



Source: 2017 VAF.

Note: Number of problems from substandard roofing (yes/no), substandard electrical features (yes/no), poor quality wall materials (taken as neither brick nor reinforced concrete) and poor-quality roofing (taken as tarp or wood).

It is difficult to compare housing conditions across countries where Syrians reside.

Common indicators are not available, and the total number of potential housing problems differs across surveys (Table 2.8). However, on average, those still living in Syria report 28 percent of possible housing problems (out of ten), while refugees living in Lebanon report an average of 44 percent of possible problems (out of eight) and those in Jordan report only 15 percent (out of four). Syrian and Lebanese data are most comparable, both in terms of number of potential problems and in overlap of problems. The results suggest that while housing conditions are not ideal in Syria, they are likely worse on average for refugees living in Lebanon, comparable to the worst conflict-affected areas in Syria (Idleb, 49 percent; Ar-Raqqa, 40 percent; Deir-ez-Zor, 39 percent; and Dar'a, 36 percent).

Table 2.8. Percentage of Housing Problems in Syria and for Refugees in Host Countries, 2017

	Residents in Syria	Refugees in Lebanon	Refugees in Jordan
Number of housing problems in data	10	8	4
Percentage of housing problems reported	28	44	15

Source: 2017 MSNA for Syria, 2017 VASyr for Lebanon, 2017 VAF for Jordan.

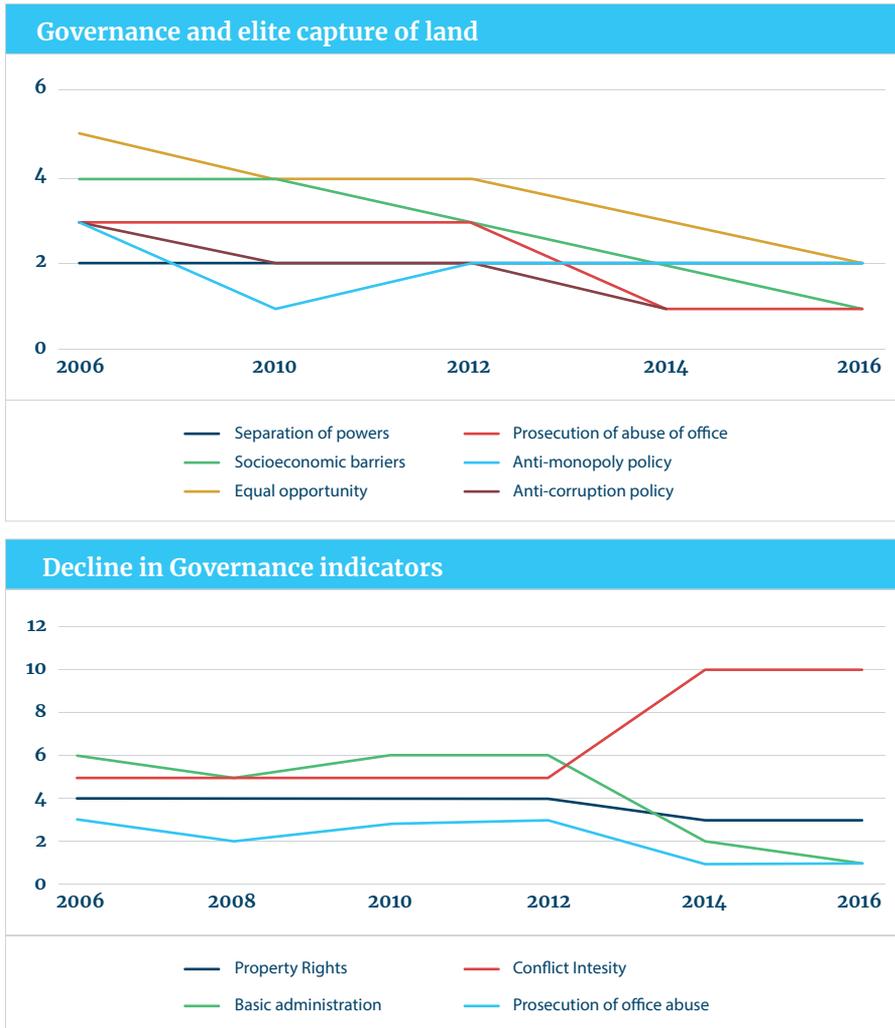
Institutional Aspects of House and Land Ownership in Syria

Before the conflict, a large portion of the Syrian population lived under informal housing arrangements recognized de facto but not de jure by the state. This tacit consent to informal housing arrangements was expressed through the provision of basic services to residents. The Central Bureau of Statistics (CBS) estimated the percentage of informal housing units at roughly 38 percent nationally and around 40 percent in the Damascus governorate in 2004. An estimated 32 percent of the total urban population resided in informal settlements in 2013, with the percentages rising to 40 percent in Damascus and 46 percent in Aleppo (UN Habitat 2013).

Pre-conflict land administration was characterized by unfulfilled policies, administrative neglect and elite capture. With roughly 62 percent of land classified as state land (Forni 2001), the state had a strong role in land administration. However, the Government of Syria (GoS) had no single, comprehensive land policy, but land administration was a feature of a number of other policies. Such policies included public land distribution and ceilings on ownership of agricultural land, the latter of which resulted in roughly 22 percent of cultivable land being confiscated and partially redistributed to farmers (Sarris 1995). But these policies proved unable to prevent the growth of landlessness (Forni 2001). Despite formal recognition of a diverse land tenure system in law, the continuation of informal practices complicated security of tenure.

Low levels of private land registration and use of parallel systems of transactions persisted due in part to administrative neglect. According to unofficial estimates by the Ministry of Local Government in 2011 only around 50 percent of land was officially registered. Plans for automation and simplification of registration procedures were interrupted by the conflict. Public services related to private land transactions were characterized by corruption. Only around 20 percent of state land was registered, and inventories were outdated (UN Habitat), providing considerable opportunity for disputes over ownership and usage. Considerable amounts of land remained administered under customary norms, including dispute resolution (UN Habitat 2013; NRC 2016).

Figure 2.30. Governance indicators during conflict



Source: Bertelsmann Transformation Index

Land administration practices had no overt confessional overtones but exclusion from land ownership resulted from other policies.

A census taken in 1962 in the Al-Hasakeh area of northeastern Syria led to an estimated 120,000 ethnic Kurds being stripped of Syrian citizenship. The loss of citizenship made these citizens legally stateless. This legal status effectively prevented those affected from registering land in the land registry (HIC-HRLN 2011), pushing many transactions into the informal sector subsequently undermining security of tenure. Around 500,000 Palestinians refugees were also registered as refugees in Syria, many of whom lived in camps with unclear land tenure rights.

Popular practices at times undermined the accuracy of the land registries and weakened the security of land tenure. Land passed through inheritance was not always registered after subdivision among heirs, undermining the accuracy of the private land registries. Land transactions were sometimes facilitated through powers of attorney without being recorded in the land registry. Married couples did not routinely register land titles jointly, though joint registration with numerous shares spread among family members was common. Pressure on agricultural lands was at the root of illegal occupations and conflicts between land owners and would-be cultivators, which were complicated by unclear tenure rights due at least in part to the emerging problem of squatters on private land (Forni 2001).

Elite capture affected both public and private lands. Prior to the conflict political and economic power was concentrated in a group of elites who benefited from access to land through a number of mechanisms, including non-transparent management of public lands; expropriation of land for military and security purposes; allocation of agricultural land then converted to construction land; and construction of housing in peri-urban areas. Rural land was at risk of takeover by elite private interests by designating areas as military or government zones leading to expropriation without adequate compensation (Unruh 2016). Since the start of the conflict governance indicators linked with elite capture, based on a relatively weak starting point, have generally declined (Figure 2.30).

Measures of protection of property, basic administration and combatting corruption have declined during the conflict. Security of tenure has declined during the conflict through several channels. Paper land registries have reportedly been damaged or destroyed. For example, the land registry for the Homs governorate was destroyed by fire in 2013 and possibly the one in Menbij (The Syria Institute 2013). There are allegations that deliberate destruction of land records has become an objective of some military forces as has demographic re-engineering along confessional lines (Unruh 2016). Destruction of land registries could be used as a tool for preventing return of displaced persons, as it would create legal confusion overland tenure rights.

The conflict has led to distress sales of land, particularly by individuals fleeing violence. This has led to a market for purchase and sale of land and property of displaced persons, which has been accompanied by a proliferation of fraudulent sales based on fake documentation (Unruh 2016). Both good-faith and bad-faith transactions take place involving land of displaced persons, with the fraudulent sometimes formalized in land records (NRC 2016). Disputes over property occupied by armed groups are also becoming more common (NRC 2016).

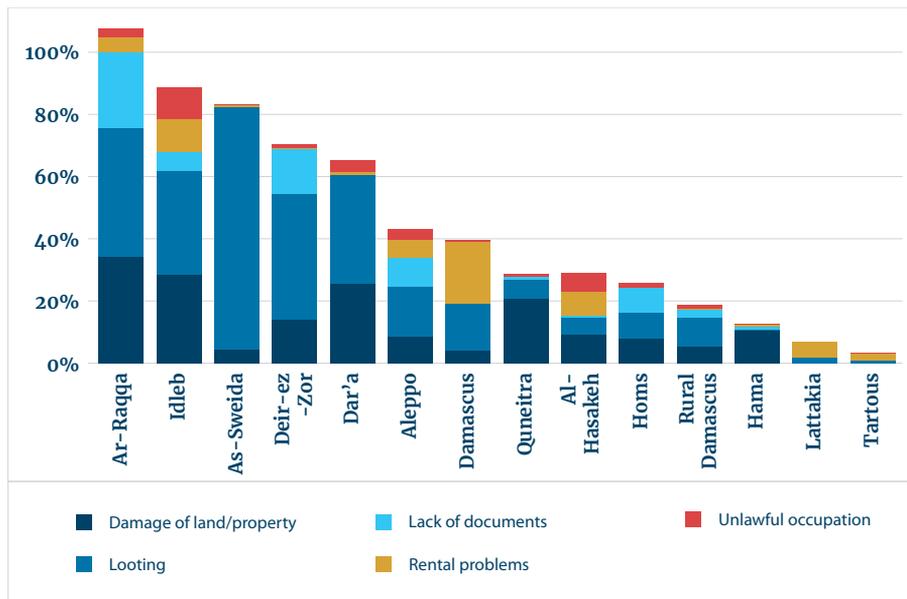
Confiscation of private land and housing has been widespread throughout the conflict. Such action normally targets land and housing belonging to minorities and displaced persons. Confiscation of property was a regular stream of revenue for IS and helped fill the void in revenue due to losses of oil production and sale. Confiscation of property accounted for a relatively large part of IS revenues. For example, IS documents from Deir-ez-Zor governorate showed that 44 percent of revenues came directly from confiscation of private property (Al-Tamimi 2015).

The top housing-related concern for Syrians is connected to looting in most governorates, followed by concerns over damage. The 2018 HNAP surveys show that most Syrians see looting as the primary housing related concern in As-Sweida (80 percent), Ar-Raqqa (42 percent), Deir-ez-Zor (41 percent), Idleb and Dar'a (both 34 percent). Damage to land and property was a concern for more than one-third of the respondents in Ar-Raqqa and more than one in four respondents in Idleb and Dar'a (Figure 2.31.). In contrast, for Damascus, Rural Damascus, As-Sweida, Tartous, and Lattakia war-related damage did not feature prominently in the responses, garnering percentages in the low single digits. The primary issue for the respondents in Damascus is rental problems (20 percent). Another problem that seems to have a strong geographic component is lack of documents. This features as an important concern in Ar-Raqqa (24 percent), Deir-ez-Zor (15 percent), and in Aleppo and Homs (10 percent).

Concern about looting appears to affect (IDP) returnees mostly. About 43 percent of all returnees mentioned looting as a significant problem, while only 19 percent of IDPs and 15 percent of the host communities brought it up (Figure 2.32). Looting is the primary concern for As-Sweida, where two-thirds of the host communities, 90 percent of the IDPs and virtually all the returnees that mentioned a concern chose this one. This issue seems to be very salient for Ar-Raqqa, Dar'a, Deir-ez-Zor, and Idleb (around 35 percent for each governorate), and to a lesser extent for Aleppo and Damascus. The most striking disparity between returnees and host communities are observed in Rural Damascus and Dar'a, where more than 90 percent of the returnees report concerns over looting.

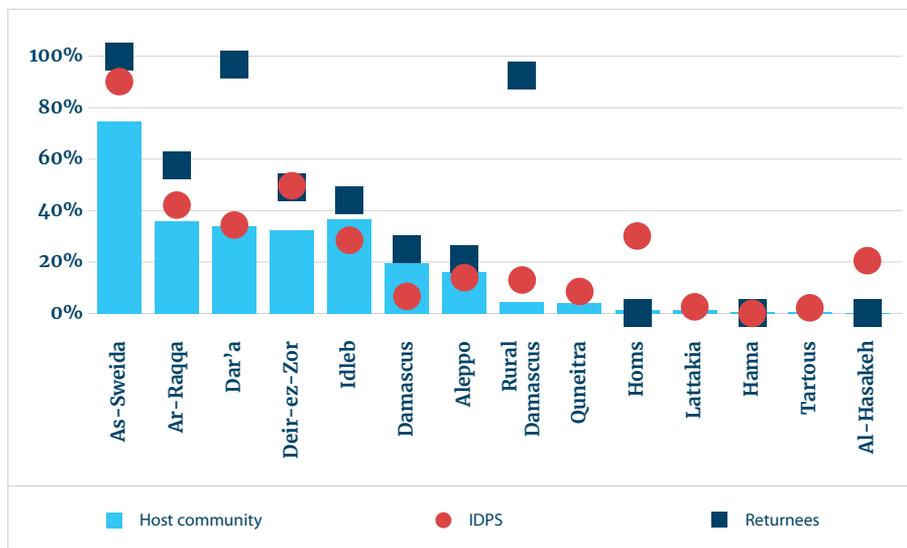
Lack of documentation related to land and property appears to be a regionally concentrated concern. Concerns about lack of land and property related documentation come out strongly in the governorates of Ar-Raqqa (21 percent) and Deir-ez-Zor (20 percent) and, to a lesser extent, Aleppo, Idleb, and Homs (11 percent, 8 percent and 5 percent respectively). Indeed, the respondents in the rest of the governorates seldom brought up this issue. On average returnees were more likely to face this problem (9 percent compared to 4.4 percent of IDPs and 5 percent for the host community). However, the IDPs in Ar-Raqqa and Homs fared worse compared to the other two population groups in their governorate (see Figure 2.33).

Figure 2.31. Survey responses to: what are the concerns related to housing, land and property that you are facing?



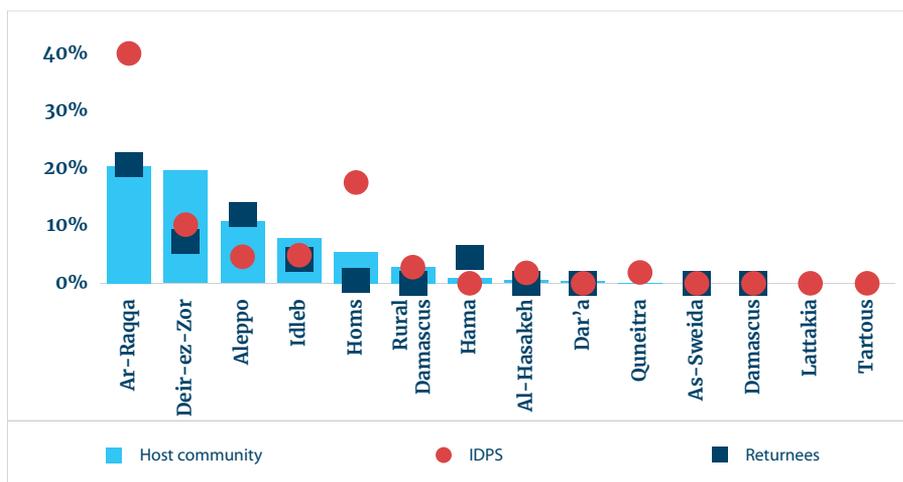
Source: H NAP, 2018

Figure 2.32. Survey responses to: concerns related to looting private property.



Source: H NAP, 2018

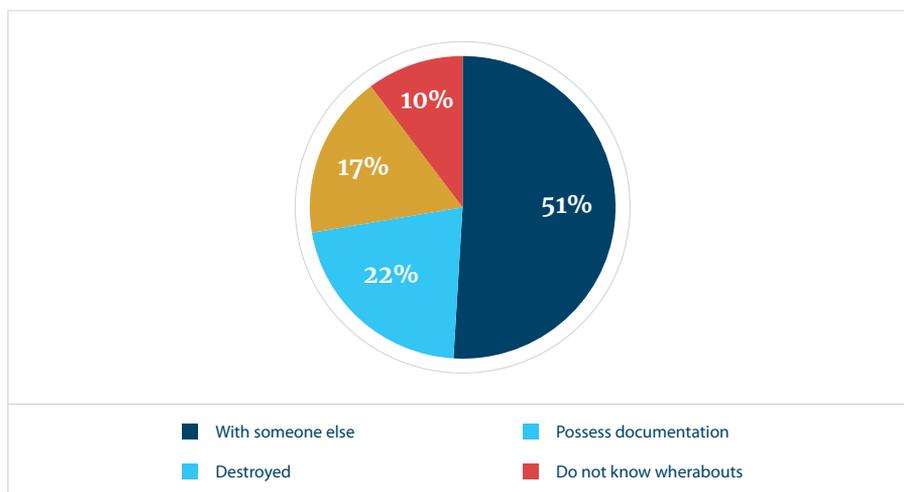
Figure 2.33. Survey responses to: concerns related to lack of documents



Source: HNAP, 2018

Refugees, if/when they return, are likely to face more challenges than the IDP-returnees captured by the surveys in Syria. Surveys within Syria may not fully reflect the challenges faced by Syrian refugees for several reasons. First, the number of refugee-returnees are relatively small compared to Syrians inside and outside Syria. Second, the refugee-returnees often do not prefer to be identified as such for security reasons. Third, those who have returned are a likely to be a self-selected group of people that may have different characteristics than those who have not yet returned. Fourth, reported land ownership is relatively high among refugees. According to an NRC survey, over two-thirds (70 percent) of refugee households in Lebanon and the Kurdistan Region of Iraq reported ownership of residential dwellings, while 83 percent of surveyed households in Jordan reported ownership of land and other property.

Providing documentary evidence of ownership is likely to be a challenge for many refugees. Lack of documentary evidence proving land rights puts land tenure at particular risk. Over 80 percent of refugee household respondents reported having formal evidence of ownership or other rights to property, including land title and lease contracts (UNHCR Refugee Household Survey, March 2017). But only 50 percent of respondents from the NRC Survey reported possessing title documents. Other reported proof of tenure included sales contracts, notarized documents and utility bills. However, of those reporting the existence of ownership documents, more than 80 percent do not have access to the documents (Figure 2.34). In the Kurdish Region of Iraq, over 70 percent of surveyed refugee households reported their documents are with someone else. Furthering confusing tenure rights, roughly 70 percent of the respondents in the NRC Survey stated that documents proving their ownership were actually in the name of another person, such as extended family members. Missing and unclear documentation is likely to lead to competing claims for property in the post-conflict setting. See Figure 2.34.

Figure 2.34. Status of land tenure documentation

Source: NRC Refugee Household Survey 2017

Land tenure security may be further weakened through changes to the legislative and regulatory framework applicable to land (Table 2.9). Numerous changes have been made to the legislative and regulatory framework governing land administration (NRC 2016). Roughly one-third of GoS legislation and regulations have been adopted during the conflict, with implications for land in areas within, and outside of, GoS control. Changes cover land registration, tenancy, zoning, and planning. Clearance from security services is now required for private land transactions, and the GoS can suspend transactions in conflict areas, effectively shifting them to temporary registries located in GoS-controlled territory. The GoS has also signaled an initiative to digitize existing land registries. In Homs, residents received notices that objections to the accuracy of digitization would need to be received in person at service centers within four months. These changes may, in particular, undermine tenure security for displaced persons. They also may further complicate any attempt at post-conflict land restitution, and thus reconciliation.

Table 2.9. Syrian Legislation with Potential Implications for Refugees and IDPs (As of June 2018)

Legislation number and name	Summary of potential concerns for refugees and IDPs.
<p>Law No. 10 issued on 4/2/2018 “Permitting the Establishment of New Development Areas Within the General Organizational Plan of Administrative Units”</p>	<p>Law No.10 Year 2018, allows for the establishment of one or more urban development zones within the general organizational plan of administrative units (the governorate, the city, the village and the municipality as defined in the Local Administration Law LD.#107 Year 2011) in all Syrian departments. The new law is based on controversial LD.# 66 Year 2012 which created two urban development zones in Damascus as its scope of application is in Damascus only, whereas the scope of application of law No.10 Year 2018 is the rest of Syria. Concerns over law No.10 Year 2018 follow from the following points:</p> <ul style="list-style-type: none"> • Short and inadequate period for land owners (whose property not listed in the real estate record) in the area to be redeveloped to prove their ownership in the urban development zones (30 days from notification -Article 2 2). GoS has promised to extend it to one year, but this has not yet been done. • Difficulties in proving ownership in some areas since several of Syria local land registries have been destroyed during the war and only 50 percent of Syrian land was officially registered even before the war. • Relatives of absent land owners up to the fourth degree or their legal representatives could submit proof of ownership to local authorities on behalf of absent land owners, however, 70 percent of refugees lack basic identification documentation, according to the Norwegian Refugee Council. Moreover, appointment of a local agent to submit the land ownership documents requires the use of a proxy or a power of attorney to be sent by refugees from abroad which is subject to screening and security clearance of several security agencies in Syria (often denied for people in the “black list” or those from certain areas). GoS has promised to waive the requirement of security clearance for the power of attorney, but it has yet to happen. • The law does not adequately deal with the right to adequate housing for the residents of informal settlements in the area to be redeveloped. No certainty in the law about substitute houses to be offered to informal residents of the developed area, which frustrates the objective of an urban development project which is to provide adequate housing for all formal and informal residents of the area to be redeveloped, a right guaranteed by several international instruments (ICESCR, Pinheiro principles and many others). There are serious concerns that urban planning is used to justify the eviction and demolition of informal settlements.

<p>Law No. 33 of 10/26/2017 “Reconstitution of Damaged or lost Cadastral Records”</p>	<p>The law regulates the restructuring of lost or partially damaged property documents or records, through a set of administrative and judicial procedures that lead to the issuance of a replacement of the damaged or lost real estate document. Concerns regarding the implementation of Law No.33 Year 2017 are as follows:</p> <ul style="list-style-type: none"> • The administrative reconstitution of the lost or damaged property document is done by the directorate of cadastral affairs alone without supervision of the judiciary. • The judicial reconstruction of the land document requires, in case of complaint, the presence of the objector or his/her legal representative before the real estate judge. This is impossible for many Syrian IDPs and refugees considering the constraints on legalization of power of attorney and the relatively short term (six months) for recording the objection against the initial reconstitution decision of the real estate judge. • Moreover, it is going to be nearly impossible to reconstitute destroyed land documents and land registries in destroyed areas considering the large-scale destruction. The possibility of reconstructing social verification mechanisms to re-establish property rights in the future will be very difficult as individuals will have to be located and their property information triangulated with individuals from the same location. Consequently, refugees will not return if they lost their houses or became unable to prove their property rights and recover them.
<p>Legislative decree No. 66 issued on 9/18/2012 “Master Planning of Two Areas in Damascus” as amended by Law No. 10 Year 2018</p>	<p>The declared objective of the decree is to “redevelop areas of unauthorized housing and informal settlements [slums]” inside Damascus. Legislative Decree 66/2012 enables local government to expropriate land, change the allowed land use and develop it through a public private partnership (PPP). Within a certain timeframe, original owners can apply for compensation, which is based on the original value of the property, without benefiting from the value increase. Moreover, many IDPs and refugees due to their absence, have missed the application deadline for claims and lost their property rights. There are serious concerns that residents of informal housing in the area will not be granted any substitute houses nor would they be compensated. They do not have a formal title, and therefore they will not be considered as formal owners having a right to compensation but may rather be treated as renters. Renters will receive compensation equivalent to two years of rent only. Many refugees are unlikely to return without a house or property to return to.</p>
<p>Legislative decree No. 63 issued on 9/16/2012. related to “Police Powers”</p>	<p>This legislative decree provides that during its investigations of crimes against the State’s internal or external security, and offenses set forth in Act No. 19 of July 2, 2012 (the counterterrorism law), security agencies may request in writing to the Syrian Minister of Finance to take the necessary precautionary measures against the movable and immovable property belonging to the accused. Many IDPs are unlikely to return if their property is confiscated during their absence or if they face the significant risk of persecution, restriction of freedom or movement, arbitrary arrest,</p>

Legislative decree No. 40 of 5/20/2012 “Construction’s Violations Removal” also known as “Informal Settlement Law”

The main objective of the legislative decree 40/2012 is to prohibit further construction in destroyed informal settlements. It ordered the destruction of all unauthorized buildings after its publication and provided for fines and prison sanctions to be imposed on all persons convicted of involvement in illegal construction, including officials who failed to prevent the violation of the law.

The main concern regarding law # 40/2012 is that it has primarily sanctioned displaced informal house owners whose houses were partly damaged or fully destroyed during the war. They will not be able to reconstruct their homes, return and regularize them, as they would be severely punished, if they do so and their rights, if any, will be restricted to financial compensation. This constitutes a significant hurdle to the return of refugees if they are not allowed to reconstruct their destroyed informal homes. Additionally, new urban development legislations does not properly address housing needs and rights of informal owners.

Private property remains at risk of expropriation and confiscation. Government forces are alleged to have confiscated property from displaced persons (U.S. Department of State 2015). The GoS has targeted land supporting illegal (unregistered) housing, long tolerated by the GoS, for expropriation, particularly those with populations deemed supportive of the opposition. Urban planning codes have been changed to allow replacement of informal housing in rebellious areas with high-value real estate projects (Sayigh 2016). Areas in which conflict has occurred, such as As-Sweida and Dar’a, have also been subjected to large-scale state expropriations. The GoS now has the power to confiscate agricultural land holdings over established limits, without compensation or adequate appeal procedures, including through a Counterterrorism Court, established in 2012 and has the power to seize the property and assets of persons detained on charges of terrorism.

2.5. Infrastructure and Publicly Provided Services



International experience suggests a complex and nuanced relationship between refugee returns and access to services and infrastructure. Other things being equal, better access to services and repaired infrastructure should provide additional incentives for return. However, other things are usually not equal. There are cases where damage to infrastructure and lacking services delayed return, for example in Bosnia and Herzegovina; and there are also examples of refugees spontaneously returning to countries after the cessation of hostilities where destruction is widespread—for example in Angola and Liberia. In any case, it is important to take stock of service

availability and infrastructure damage, either for return or for assessing the well-being of the populations that are affected by those conditions. In this section the analysis will investigate such conditions faced by Syrians inside and outside Syria in several categories: health, education, water, solid waste management, energy, and transportation.

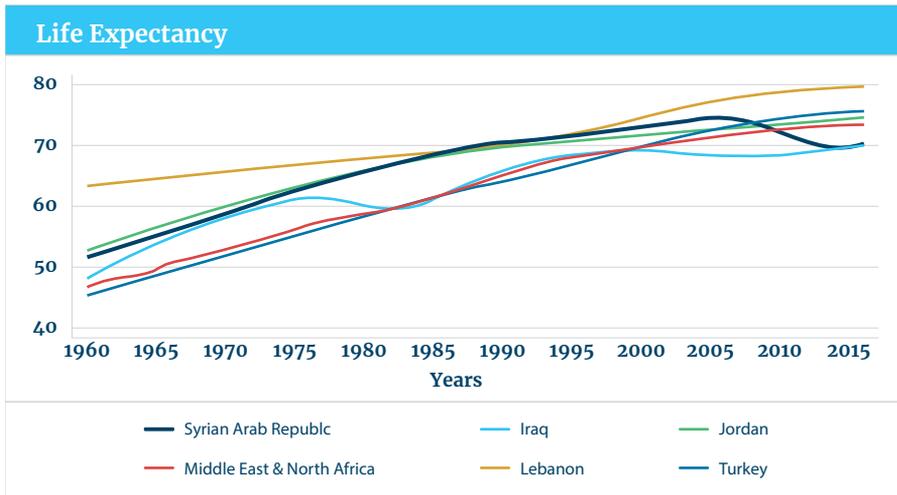
2.5.1. Health

Syria's health indicators have noticeably deteriorated over the conflict and stand currently below their pre-crisis values as well as below comparative countries.

While life expectancy increased since the 1960s, this growth has depreciated with the onset of armed conflict in Syria decreasing by approximately 6 percent from 2008 to 2016 (Figure 2.35). Life expectancy in Syria stands at around 70 years, well below its pre-crisis figure of 75 years and below comparative countries and the MENA average of 73 years. Similarly, improvements in infant mortality, estimated at 14 infants per 1,000 live births, have stagnated.

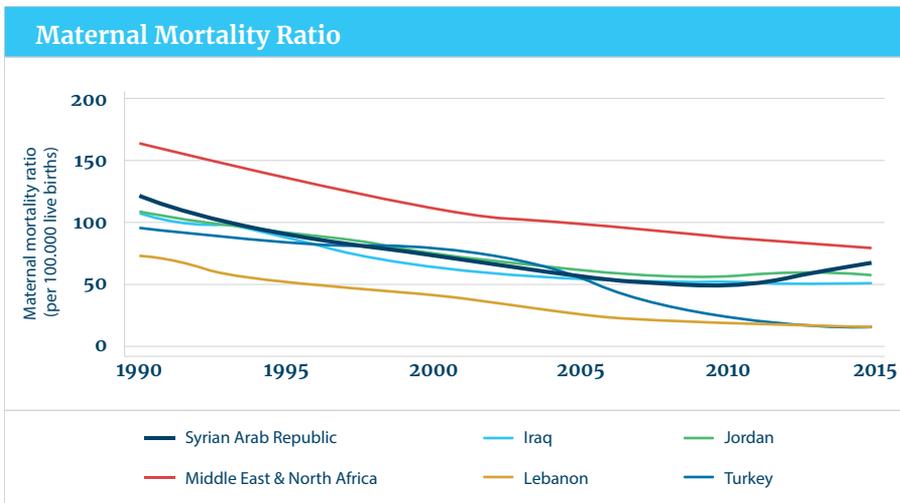
The crisis imposed a disproportionate cost on women's health. Maternal mortality ratio in Syria for instance is stated at 68 deaths per 100,000 live births in 2016, significantly worse than the pre-crisis value of 49 deaths per 100,000 live births in 2010¹⁰¹ (Figure 2.36). Maternal mortality in conflict is particularly exacerbated by limited access to maternal health services due to safety, financial, and geographical restrictions, as well as the general collapse of the health system and disruption of routine health service delivery. The leading direct causes of maternal mortality were identified as being hemorrhage, thromboembolism, pre-eclampsia/eclampsia, maternal sepsis, and obstructed labor.¹⁰²

Figure 2.35. Life Expectancy, 1960 – 2016



Source: World Bank Development Indicators, 2017

Figure 2.36. Maternal Mortality Ratio, 1990 – 2016

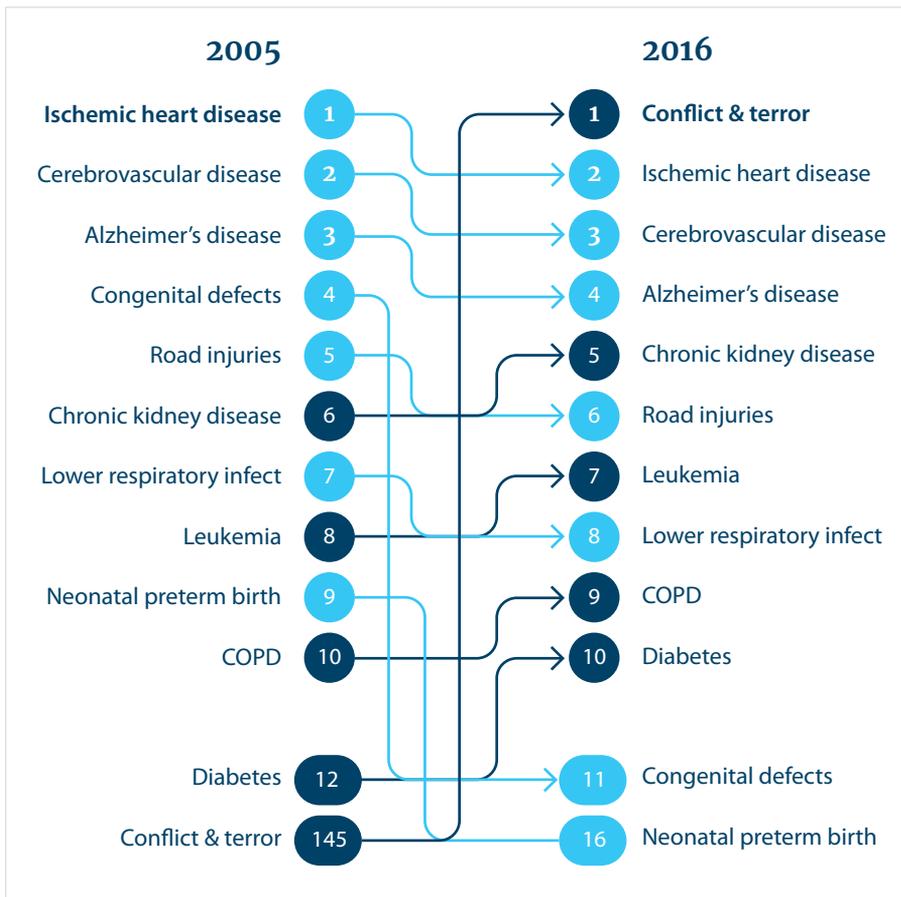


Source: World Bank Development Indicators, 2017

Women are also at a disadvantage in refuge. Data from Lebanon show significant setbacks in neonatal and maternal mortality indicators (this excludes deliveries outside the hospitals). As of 2017, the neonatal mortality rate has increased from 3.4 per 10,000 in 2012 to 4.9 per 10,000, with the rate among displaced Syrians (seven per 10,000) at almost double that among Lebanese (3.7 per 10,000). Similarly, the maternal mortality ratio increased from 12.7 per 100,000 in 2012 to 21.3 per 100,000, with the rate among displaced Syrians (30.4 per 100,000) being double that among Lebanese (15.8 per 100,000).

The most direct impact of the war has obviously been the conflict-driven loss of lives. According to the latest Institute of Health Metrics and Evaluation (IHME) assessment, conflict and terrorism is the leading cause of death in Syria in 2016, increasing from being the 145th cause of death in 2005.¹⁰³ Indirect death due to war injuries and lack of medication is reported to have increased because of the conflict with estimates ranging between 200,000¹⁰⁴ deaths to 300,000.¹⁰⁵ Despite the ongoing conflict, Syria is in the Delayed Degenerative Diseases (DDD) stage of the epidemiological transition, with non-communicable diseases (NCDs) such as ischemic heart disease and cerebrovascular diseases remaining the leading causes of death. The World Health Organization (WHO) indicates that approximately 46 percent of mortality in 2014 was attributed to NCDs. Chronic kidney disease, leukemia, chronic obstructive pulmonary disease (COPD), and diabetes are among the top 10 causes of mortality in Syria (Figure 2.37). This is in line with the pre-war epidemiological profile of Syria where 77 percent of all mortalities were caused by non-communicable disease (NCDs).¹⁰⁶ While NCDs are manageable, their impact is deadly if appropriate medications and treatment are not available. This highlights the need to consider the needs of the Syrian population beyond direct injuries due to war.

Figure 2.37. Top 10 causes of death, 2005–2016



Source: Institute of Health Metrics and Evaluation, 2018

In terms of morbidity, NCDs accounted for 8 of the 10 top causes of Years Lived with Disability (YLDs) in the latest IHME assessment. In fact, in 2016 low back pain, sense organ disease, migraine, skin disease, depressive disorder, and anxiety disorder accounted for the top six causes of disability in Syria along with diabetes and other musculoskeletal diseases respectively occupying the eighth and ninth top causes of disability.

The conflict has also led to the reemergence of some preventable communicable diseases such as measles, mumps, polio, and leishmaniasis. Latest figures from May 2018, report high incidences of leishmaniasis (770 new cases in May alone mostly concentrated in Idleb, Aleppo, Deir-ez-Zor, and Hama), measles (182 new cases), brucellosis (136 new cases), pertussis (47 new cases), mumps (24 new cases), and tuberculosis (11 new cases).¹⁰⁷

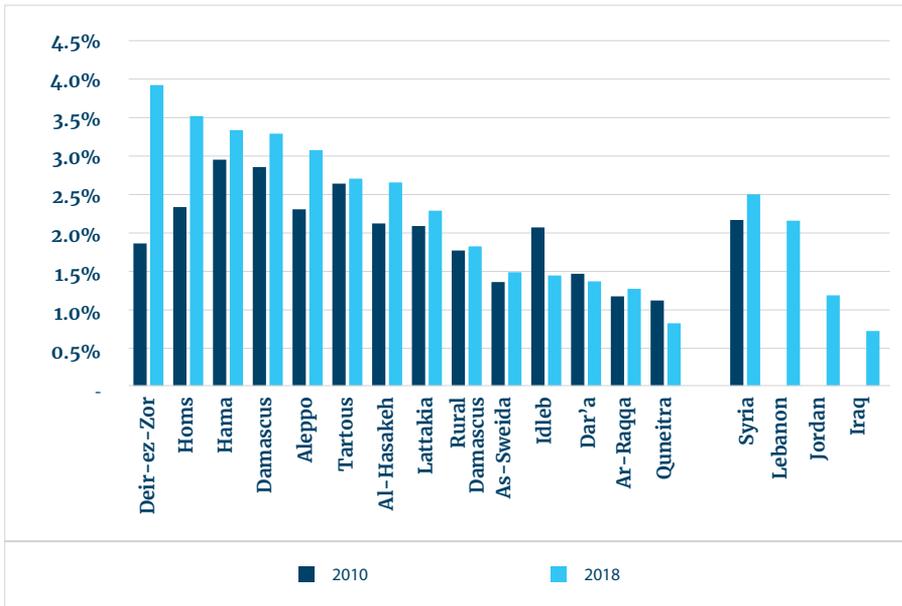
This study has developed a novel approach to compare the accessibility of healthcare services to Syrians inside Syria with that of Syrian refugees in host countries. To this end, access to healthcare services is defined in terms of three factors: (i) access to healthcare infrastructure; (ii) access to human resources for health; and (iii) access to financial coverage for healthcare services. More specifically:

- **Access to healthcare infrastructure** is measured in terms of both the ratio of hospital beds per 1,000 population and the ratio of health units per 1,000 population. Both ratios are then normalized and added to form an *infrastructure access indicator* where ratios are weighted equally.
- **Access to Human Resources for Health** is measured in terms of the ratio of physicians per 1,000 population and the ratio of nurses/midwives per 1,000 population. Like the infrastructure indicator, both human resource ratios are normalized and added to form a *human resources access indicator* where ratios are weighted equally.
- **Access to Financial Coverage** is measured in terms of the availability of financial resources to cover the cost of care for Syrians inside and outside Syria. For regions inside Syria, it is assumed that the controlling group will maintain the pre-crisis national policy of providing coverage for healthcare service. Coverage is therefore considered to be 100 percent in regions inside Syria. For host countries, financial coverage is determined according to local policies towards refugee coverage.¹⁰⁸

The three access indicators listed above are then combined and weighted to form a health accessibility index. The index represents overall access to health services for Syrians. The weights attributed to each indicator in the index have been determined based on the latest Urban Community Profiling (UCP) surveys by UN-Habitat¹⁰⁹ which highlights the main barriers to healthcare for Syrians inside Syria. According to the results of the UCP, 50 percent of respondents listed lack of availability of health infrastructure as the main barrier to accessing healthcare, followed by 25 percent of respondents listing lack of human resources as the main barriers to accessing healthcare, and finally the remaining respondents (25 percent) listing lack of financial coverage in Syria as the main barrier to accessing healthcare.

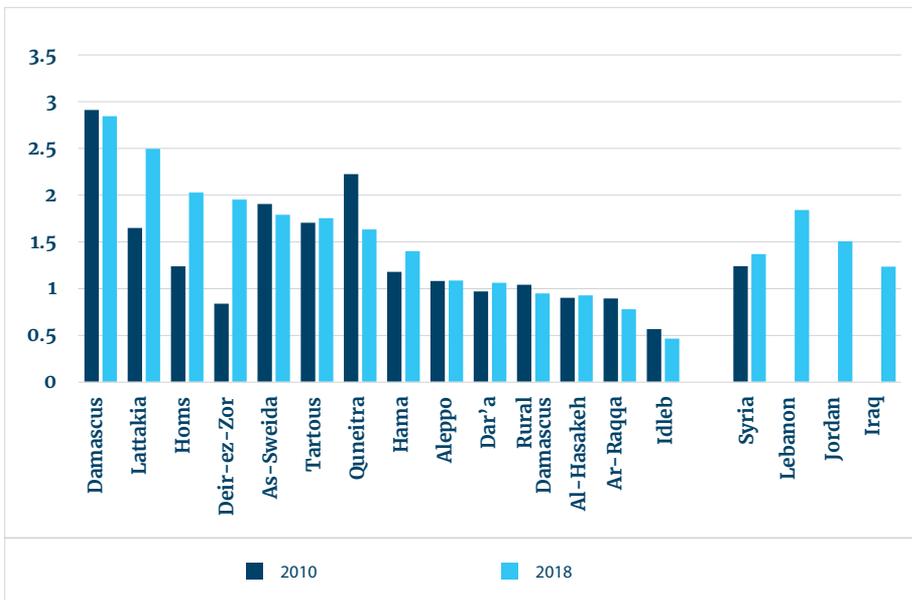
In the absence of comprehensive micro-data, multiple sources of data were used in a second-best fashion. This analysis relies on several sources of data including official data from the Ministry of Health in Syria, as well as survey data from UN agencies for studies conducted inside Syria and in host countries.¹¹⁰ The figures are also quality-checked using satellite imagery, social media data, and phone usage data. It is important to note as well that the ratios depend on population size which also varies between 2010 and 2018. In fact, population size, which is used as a denominator in the access ratios, is seen to have decreased in many governorates between the years 2010 and 2018. This implies that, even in cases where a nominal decrease in asset numbers is seen, the access ratio might still increase or remain constant because of decreases in population.

Figure 2.38. Hospitals per 1,000 persons - 2010 vs. 2018



Source: World Bank

Figure 2.39. Hospital beds per 1,000 - 2010 vs. 2018



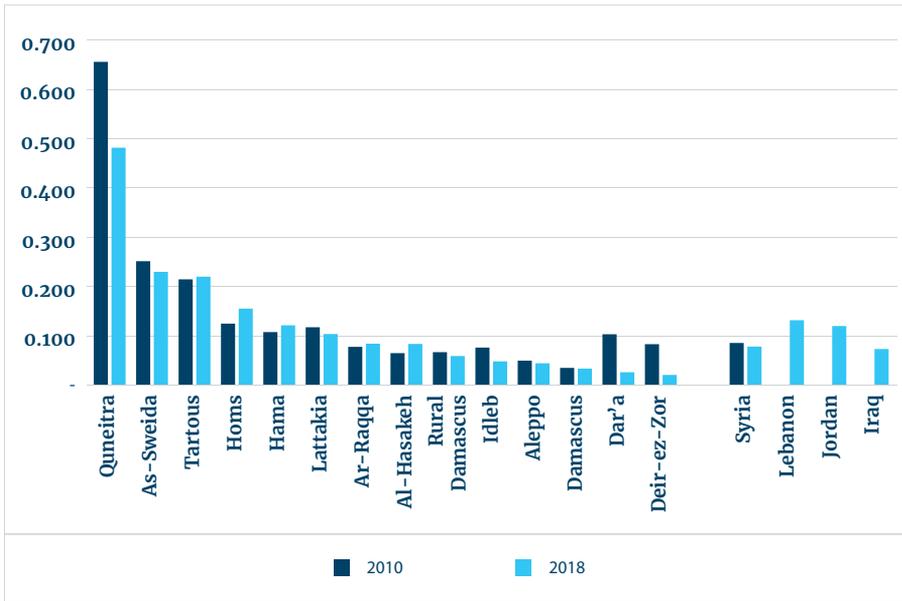
Source: World Bank

Results show that the conflict-driven reduction in functioning infrastructure was somewhat overshadowed by conflict-driven displacement. In general, the ratio of hospital beds per 1,000 persons in Syria in 2018 remains almost the same (1.368) as pre-crisis levels in 2010 (1.236) but remains lower than access ratios in Lebanon (1.839) and Jordan (1.504), and similar to that in Iraq (1.232). However, a simple ratio of hospital beds to population is misleading as both factors- hospital beds and population size- are affected by the crisis. This indicates that decreases in the nominal values of hospital beds might be compensated for with a decrease in the population served. To get a better understanding of the situation, governorate level analysis shows a wide variation in access to hospitals between the different regions with the governorates of Idlib, Ar-Raqqa, Rural Damascus, Quneitra and As-Sweida witnessing the largest drop in hospital beds for the population served (Figures 2.38. and 2.39). Other governorates that witnessed severe violence such as Aleppo and Dar'a show an increase in access to hospitals primarily due to a decrease in the size of their population.

There has been a clear reduction in access to health units in Syria. The ratio of health units per 1,000 persons in Syria, on the other hand, has decreased from 0.085 in 2010 to 0.078 in 2018. This is lower than the values observed in Lebanon (0.132) and Jordan (0.120), but higher than Iraq (0.073). At the governorate level in Syria, there is wide variation in access to health units with the most significant decrease observed in Dar'a (0.103 to 0.026), Quneitra (0.656 to 0.481), and As-Sweida (0.251 to 0.230) (Figure 2.40).

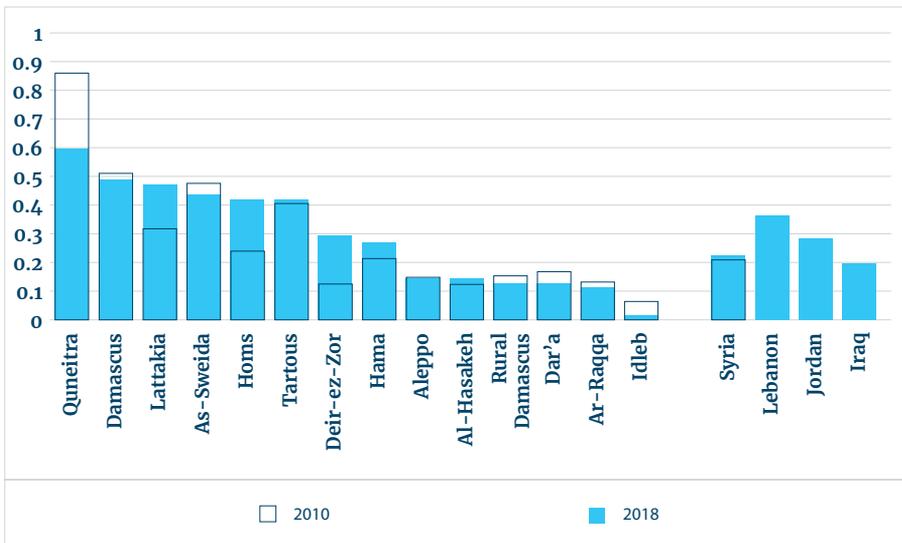
Overall, standard indicators like beds per unit of people, by themselves, do not provide a convincing assessment of healthcare access. Combining hospital and health unit indicators, the results of the analysis show that the overall health infrastructure accessibility remained almost the same in Syria between 2010 (0.209) and 2018 (0.230). Governorates like Deir-ez-Zor, Latakia, Homs, and Hama show an increase in access to health care infrastructure while Quneitra, Idlib, As-Sweida, and Dar'a show a decrease in access to infrastructure. When compared to host countries in 2018, Syria still has lower access to infrastructure than Lebanon (0.369) and Jordan (0.291), but higher than Iraq (0.199). (Figure 2.41). These findings show that standard indicators, where the numerator (population) tends to remain rather stable, cannot be relied upon when analyzing cases where there are discrete changes in population, like conflict and forced displacement. Next, this can be offset by considering the human capital dimension, which follows.

Figure 2.40. Health Units per 1,000 – 2010 vs. 2018



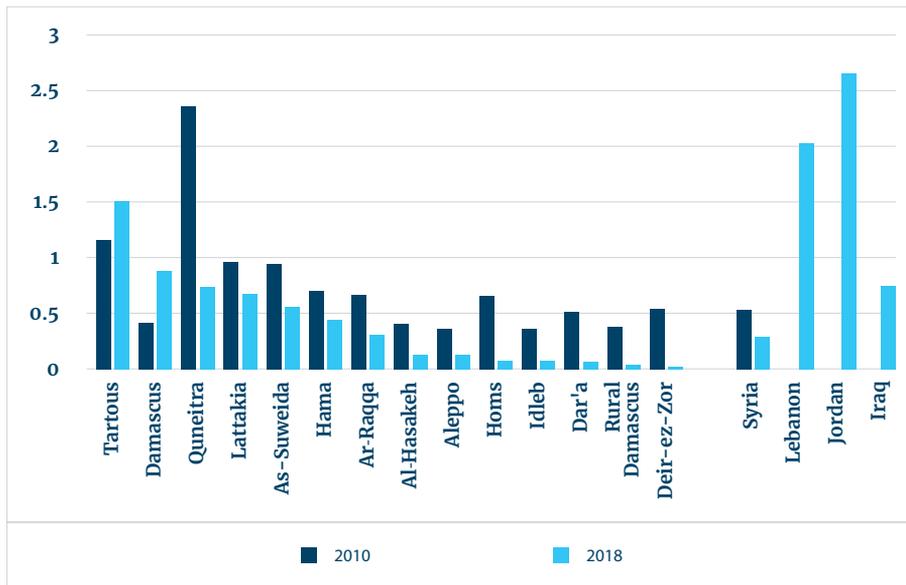
Source: World Bank

Figure 2.41. Infrastructure Access Indicator, 2010 vs. 2018



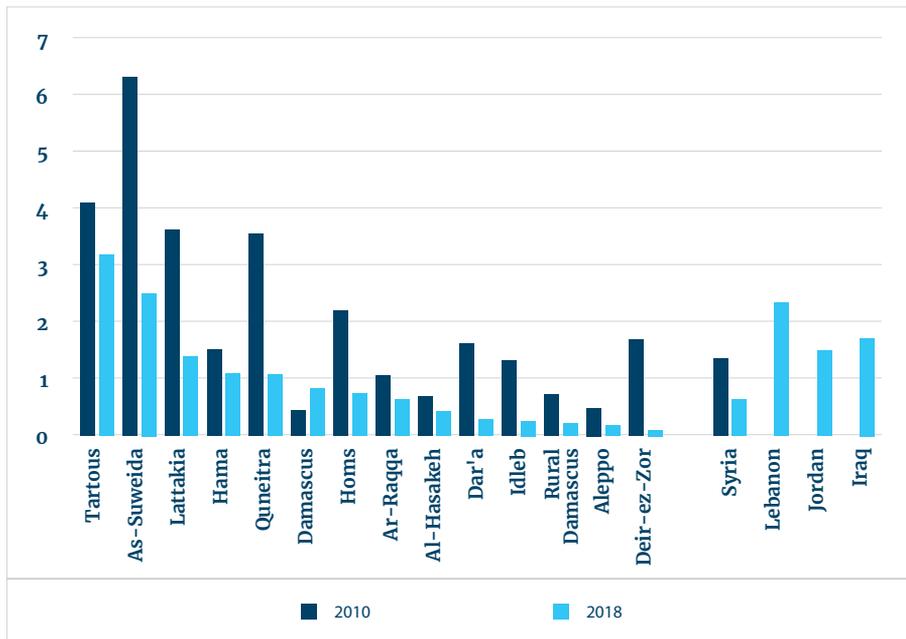
Source: World Bank

Figure 2.42. Physicians/1,000 – 2010 vs. 2018



Source: World Bank staff calculations using multiple sources.

Figure 2.43. Nurses & Midwives/1,000–2010 vs 2018

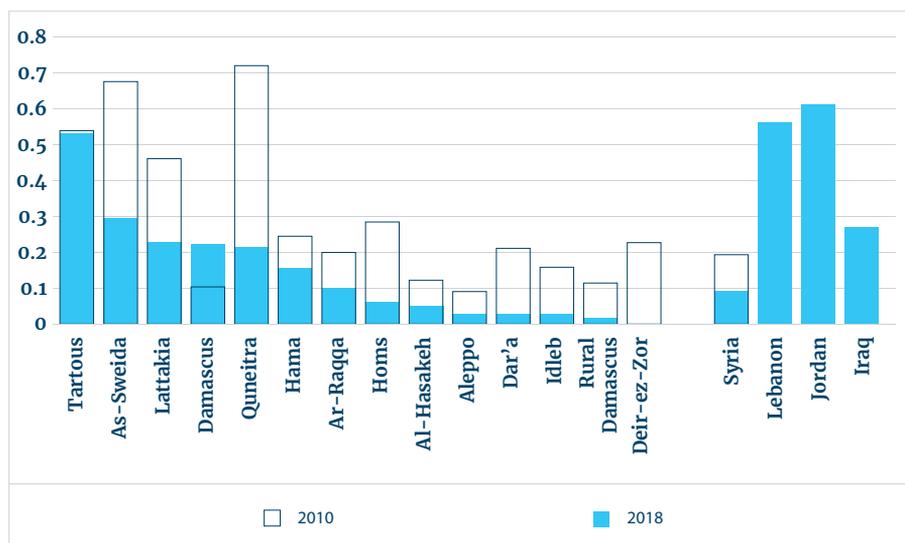


Source: World Bank staff calculations using multiple sources.

The impact of conflict on human resources for health has been dramatic. Data show that the conflict has halved the number of physicians in Syria, from 11,305 in 2010 (0.529 per 1,000 population) to 5,889 physicians (0.291 per 1,000 population) in 2018. Similarly, the number of nurses and midwives dropped from 29,126 (1.362 per 1,000) in 2010 to 12,915 (0.639 per 1,000) in 2018. Comparatively, Lebanon, Jordan, and Iraq have much larger ratios of physicians per 1,000 persons (2.023, 2.648, and 0.748 respectively) as well as nurses and midwives per 1,000 persons (2.356, 1.506, and 1.727 respectively). (Figures 2.42 and 2.43). The human resources for health indicator normalizes and combines both the number of physicians per 1,000 and the number of nurses and midwives per 1,000. When combined together, the indicator places current Syria (0.095) well below its human resources of health availability values in 2010 (0.198). The most notable decreases in the indicator are seen in Dar'a (from 0.168 to 0.025), Homs (0.289 to 0.063), Aleppo (0.095 to 0.027), As-Sweida (0.675 to 0.296), Rural Damascus (0.723 to 0.214), Quneitra (0.723 to 0.214), and Deir-ez-Zor (0.227 to 0). Furthermore, according to this indicator, Syria (0.095) is comparatively well below Lebanon (0.562), Jordan (0.612), and Iraq (0.269). All governorates show a significant decrease in physicians except for Damascus and Tartous, while the number of nurses dropped in all governorates (Figure 2.44).

Financial coverage for healthcare in host countries (averaging around 55%) is volatile and below that of Syria (if assumed at 100% given existing financial coverage policies). The lower coverage in host countries is likely due to limited donor funding to cover all the health needs of Syrian refugees. Results from the latest UN surveys, including the VASyr in Lebanon and the VAF in Jordan, are used to estimate the extent to which financial coverage is provided to Syrian refugees in host countries. Responses from the surveys indicate that, in relation to primary health care, approximately 65 percent of respondents did not see financial coverage as a barrier to accessing services. On the other hand, when it comes to hospital care, 45 percent of respondents did not indicate financial coverage as a barrier to accessing services. Financial coverage for primary care and hospital care, weighted equally, form the financial coverage indicator which holds the values 1 for Syria and 0.55 for Lebanon, Jordan, and Iraq. This indicates that Syrians have less access to financial coverage for health care in host countries than in Syria and that financial coverage is perceived more as a barrier to healthcare by refugees than inside Syria.

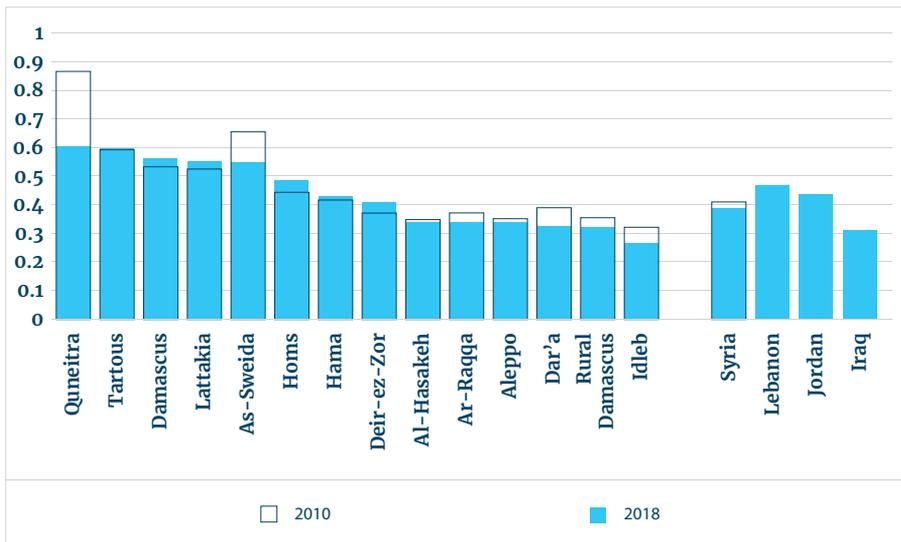
Health accessibility index exhibits large variations across governorates. As indicated earlier, the health accessibility index combines the three indicators; infrastructure human resources for health indicators, and financial coverage together to come up with a unified access index. Tables 1 and 2 in annex to this chapter provide the accessibility indices for all governorates for 2010 and 2018 respectively. At the national level, the overall healthcare accessibility index within Syria remained relatively constant standing at 0.39 in 2018 compared to 0.4 in 2010, mainly due to the decrease in the size of the population served. The population of Syria dropped from 21,377,000 in 2010 to 20,226,627 in 2018. However, there is still a wide variation in the health accessibility index between governorates with As-Sweida, Quneitra, Dar'a, Idleb, Ar-Raqqa, and Rural Damascus showing a decrease in their health accessibility index compared to other governorates (Figure 2.45). When compared to host countries, Syria

Figure 2.44. Human Resources for Health Indicator

Source: World Bank.

today has lower accessibility index (0.389) compared to Jordan (0.436) and Lebanon (0.462) but higher than Iraq (0.304). At the governorates level, governorates that witnessed the highest levels of conflict show a lower health accessibility index than host countries, namely Idleb (0.267), Rural Damascus (0.318), Dar'a (0.319), Ar-Raqqa (0.319), Aleppo (0.330), and Al-Hasakeh (0.334).

Figure 2.45. Health Accessibility Index, 2010 vs. 2018



Source: World Bank

Household and community surveys suggest that having access to infrastructure alone does not always translate into having access to service. The 2017 MSNA survey shows that health care facilities are within relatively easy reach for most of the households, with almost 80 percent of households living within 30 minutes of a facility. However, almost a third of households did not seek treatment when one family member was sick, and several did not use the facilities because they were not functional or qualified personnel were not available. Only in Damascus and Rural Damascus are less than half of the surveyed health services available on average in communities (Figure 2.46 and note). Health service deprivation was particularly bad in Al-Hasakeh (70 percent of services not available on average), Ar-Raqqa (77 percent), Deir-ez-Zor (84 percent), Idleb (74 percent), and Quneitra (84 percent).

Many communities are reporting moderate to serious problems in terms of health concerns, infectious diseases and non-communicable diseases (NCDs). Figure 2.45 shows a Health Deprivation Index, which is based on 0.5 of the average health outcomes deprivation (from surveys), 0.25 of the service availability deprivation (from surveys), and 0.25 of the infrastructure and resource adversity (from the above analysis). Only Lattakia and Tartous (35 percent) and Damascus (38 percent) are below 40 percent of aggregate deprivation. Deprivation is highest in Dar'a and Idleb (60 percent).

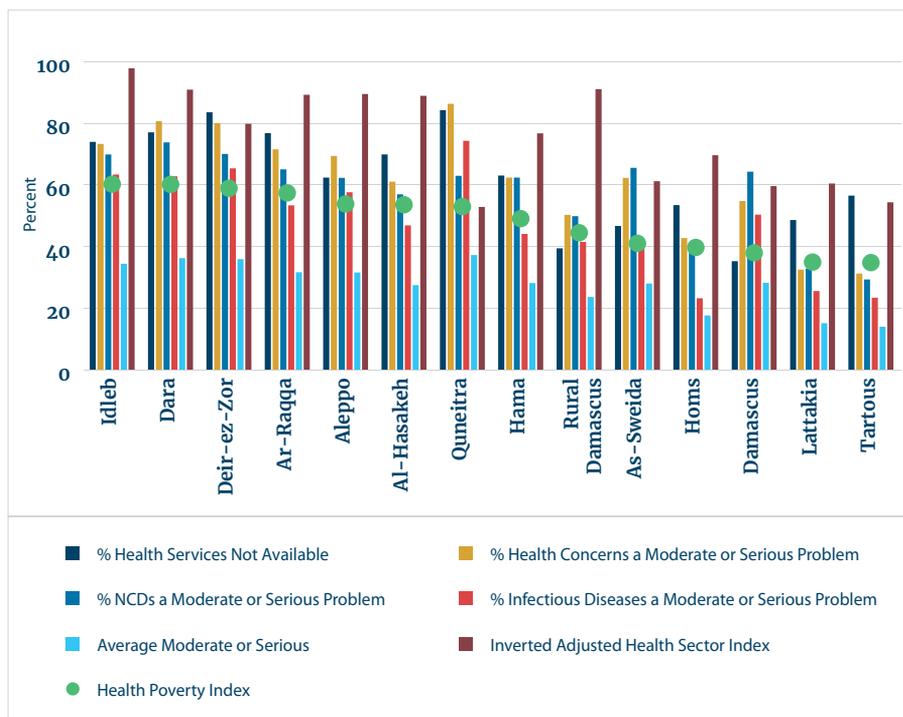
2.5.2. Education

Less than a decade ago, Syria was on the verge of achieving the education targets under the Millennium Development Goals (MDGs). Primary net enrollment rates in school year 2009/2010 were at 93 percent, same as the MENA region average and higher than that of middle-income countries (90 percent). Similarly, the net enrollment rate at the secondary level was 67 percent for the same year, above the MENA regional average of 60 percent. The gender parity index was 0.98 at the primary level and 1.01 at the secondary level. Student learning outcomes in Syria were below international averages, but higher than in most MENA countries.

The war has deprived millions of Syrian children of education in addition to claiming the lives of tens of thousands of children. The conflict has had a devastating effect on Syrian children. The number of children killed since the start of the conflict has been estimated at a quarter of all deaths (Guha-Sapir et al., 2018). A whole generation of children has received inadequate education: at least one-third of school-age children are out of school (UN OCHA, 2018a). About 150,000 teachers have left the formal education system, representing more than a third of pre-war education employees. In addition, about 40 percent of education facilities have been damaged, destroyed, or have been occupied by parties to the conflict or serve as shelters to IDPs. There are about 5.8 million school-age children within Syria, or about 28 percent of the overall population currently residing in country.

Host countries continue to make a significant contribution by opening their national education systems to refugee children and removing barriers to access. Of the 1.9 million refugees who have sought shelter in Lebanon, Jordan and Iraq, nearly half are school age children. Trends show stability in enrollment since 2014/2015 inside Syria and progress in host countries—a positive course considering the unprecedented magnitude of the Syria crisis and the extremely difficult and ever-shifting circumstances. Still, there is a long way to go so that all education needs are met. Around 2.5 million school-age Syrian children remain out of school in Syria and in the host countries. Barriers to access and effective learning for Syrian children and youth are complex and extend beyond the education sector to a wide range of economic, social, and cultural issues. For many displaced families, the financial cost of education for their children is too high. School fees, transportation, and expenses for learning material accumulate and school quickly becomes unaffordable for households. Attending school also implies high opportunity cost for youth. Teenage males often drop out of school to work and support their families, while an increasing share of girls get married under age 18 (UNICEF 2018). Cumulative psychosocial effects and protracted trauma and a lack of safety at home and in school are also key concerns.

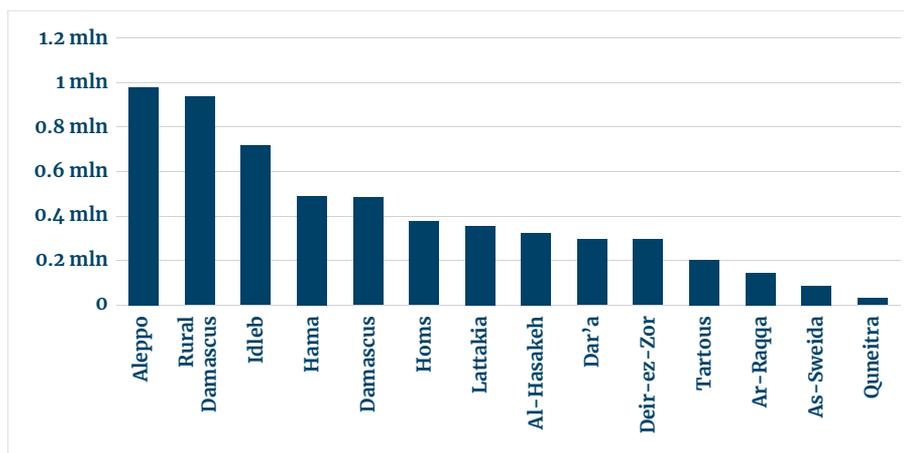
Figure 2.4.6. Health Services, Outcomes and Deprivation, 2017



Source: 2017 MSNA and World Bank analysis.

Note: Health services include prosthetics, family planning, skilled birth delivery, ante-natal health, surgery, mental health, pharmacy of essential drugs, psycho-social support, dialysis, treatment for malnutrition, integrated management of childhood illnesses, leishmaniasis disease care, management of chronic diseases, elderly health services, non-infectious disease care, clinical care for rape survivors, physical rehabilitation, and other health services. Health concerns include war-related injuries, non-war-related injuries, pregnancy or delivery complications, malnutrition, communicable diseases, non-communicable diseases, war-related burns, non-war-related burns, dog bites, scorpion and snake bites, long-term impairments, mental health disorders, PTSD, lack of medical staff, and lack of medical supplies. Infectious diseases include watery and bloody diarrhea, typhoid, upper and lower respiratory infections, influenza, tuberculosis, STDs, diphtheria, tetanus, rabies, meningo-encephalitis, hepatitis, skin infections, eye infections, and other infectious diseases. The inverted and adjusted Health Sector Index is two-thirds of the infrastructure (hospitals and beds) and one-third of human resources (nurses and doctors), inverted (1 minus this positive index). The aggregate Health Deprivation Index is 0.5 times the average health concerns, infectious diseases and NCD rates, 0.25 times the inverted and adjusted Health Sector Index and 0.25 times the percentage of health services not available.

Figure 2.47. Number and share of 5-17 years-old Syrians by governorate, 2018



Source: April 2018 HNAP.

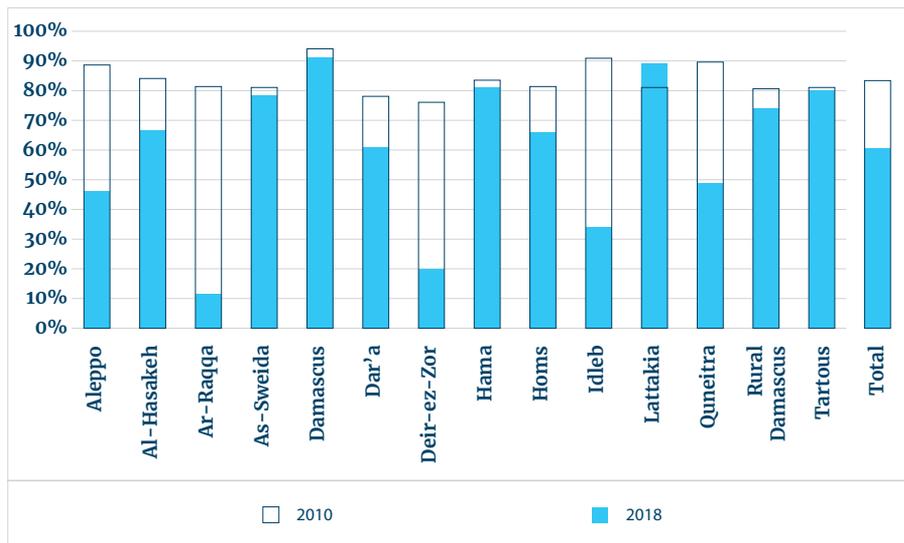
Note: The reference population used in the HNAP 2018 is 19.2 million. The share of children (in percentage) is shown in the horizontal axis in brackets.

Conditions in Syria

The conflict has altered the demographic distribution of Syrian children and their school enrollment ratios alike.¹¹¹ The total number of 5 to 17 years-old Syrians currently residing in Syria is estimated to be between 5.3 and 5.8 million, about 31 percent of the population in 2018. Almost half of all children in that age group live in Aleppo, Idleb, and Rural Damascus (Figure 2.46). Around 30 percent of school-age children are internally displaced within Syria. In Damascus city (192,000 internally displaced children), rural Damascus (390 000), Idleb (292 000) and Lattakia (126,000), more than 40 percent of all children are internally displaced. In Syria, the conflict has significantly decreased enrollment rates in most governorates. Overall, between 2010 and 2018 the enrollment rate for the age group 5-17, decreased from 85 percent to 61 percent.¹¹²

There is a large heterogeneity in enrollment rates by governorate but not by gender. Figure 2.48 shows enrollment rates of school-age children by governorate in 2010 and in 2018. Aleppo, Ar-Raqqa, Deir-ez-Zor and Idleb governorates faced the largest decreases in enrollment between 2010 and 2018. At the same time, Lattakia, Tartous, Damascus City, and As-Sweida have remained relatively stable. Overall, boys' and girls' enrollment seem equally affected by the conflict. Girls have lower enrollment rates in Ar-Raqqa and Al-Hasakeh, Homs, and Lattakia but differences in enrollment do not exceed 3 percentage points. The largest difference in enrollment by gender is in Damascus City, where there is a 6 percentage point difference, in favor of girls (HNAP 2018 data).

Figure 2.48. Enrollment rate of school-age population by governorate in Syria, 2010 and 2018

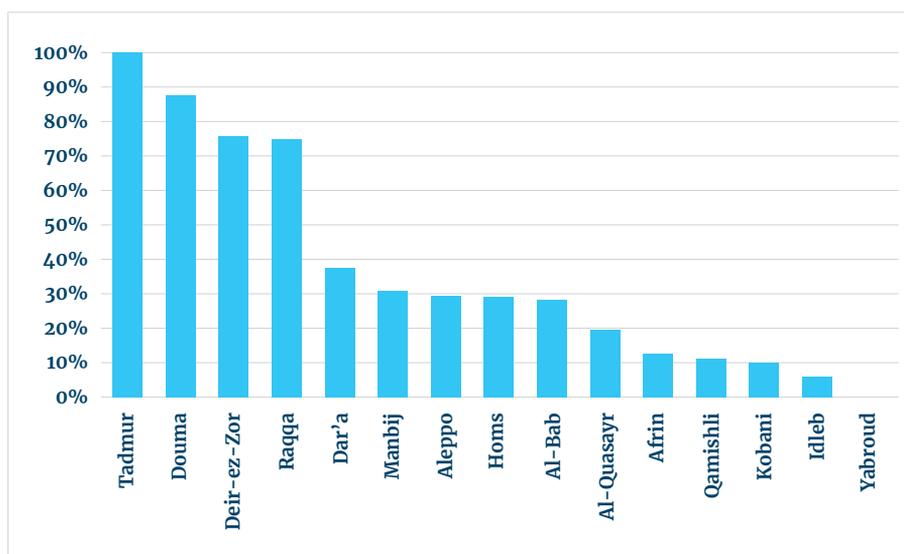


Source: Estimates for 2010 rely on the Ministry of Education (MOE) Education Management Information System (EMIS). Estimates for 2018 rely on UNICEF estimates for the 2016/2017 school year.

Internally displaced children are particularly affected by the conflict. As of September 2018, an estimated 2 million out of 5.76 million school-age children were displaced inside Syria (UNICEF estimates). While enrollment rates specifically for internally displaced children are not available, qualitative reports suggest that their enrollment rates are significantly lower. Internally displaced children are at a particularly high risk of dropping out of education and they typically face higher hurdles to access education services. Displaced children are often required to take official placement examinations determining their education levels before being allowed to register in school. Due to the large number of IDPs, some schools are unable to accommodate displaced children even when they provide all necessary documentation.

Quality of teaching has suffered drastically as well. The Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA) conducted in Idleb, Rural Damascus, Rural Aleppo and Deir-ez-Zor in 2016 found that less than 10 percent of grade 3 students can read and perform basic mathematical tasks at the corresponding grade level. Trends in national examinations for grades 9 and 12 inside Syria reveal a significant decline in both access and quality of education. The number of grade 9 examination candidates decreased by 34 percent between 2011 and 2017, and grade 12 candidates by 42 percent over the same period. The number of candidates who passed the exams for grades 9 and 12 also decreased by 39 percent and 23 percent, respectively. These results illustrate the massive quality challenges facing the education sector, in addition to the challenge of ensuring access to education for all school-age children.

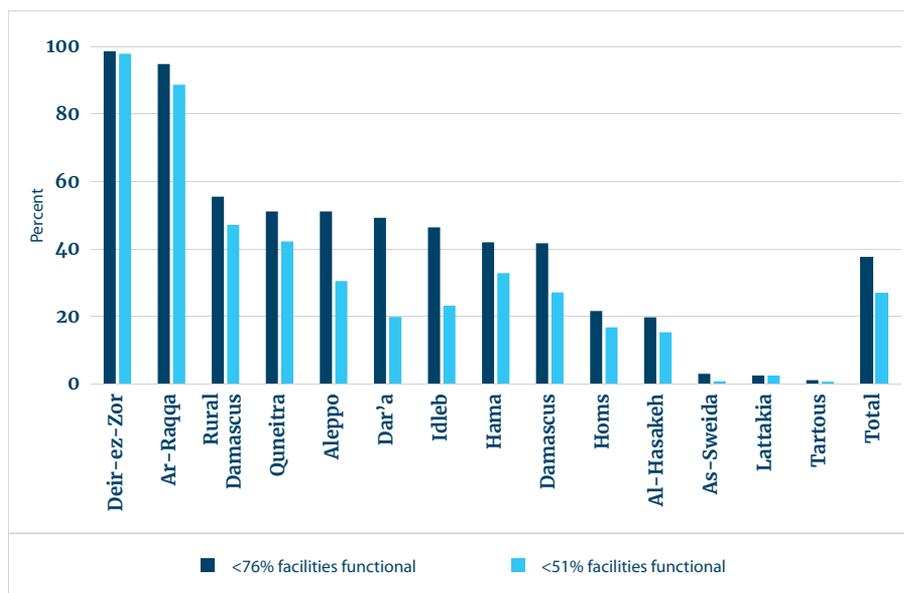
Figure 2.49. Share of non-functioning education facilities in Syria, by city



Source: World Bank staff calculations.

School destruction and/or non-functioning schools are the primary driver of low enrollment rates. Education facilities have been targets during the conflict. Schools have also been used as military quarters and informal shelters for displaced households. Figure 2.49 shows that in cities like Tadmur, Douma, Deir-ez-Zor and Ar-Raqqa the large majority of schools are not functioning. In many cities about a third of education facilities are not operational, whereas cities such as Yabroud, Idleb, Kobani and others are less affected, and most education facilities are functional. 2017 MSNA focal point surveys confirm significant disruptions to educational facilities (Figure 2.50), particularly in Ar-Raqqa, where 95 percent of community focal points report less than three quarters are functional and 89 percent report less than half are functional, and in Deir-ez-Zor almost all communities report that less than half of the facilities are functional.

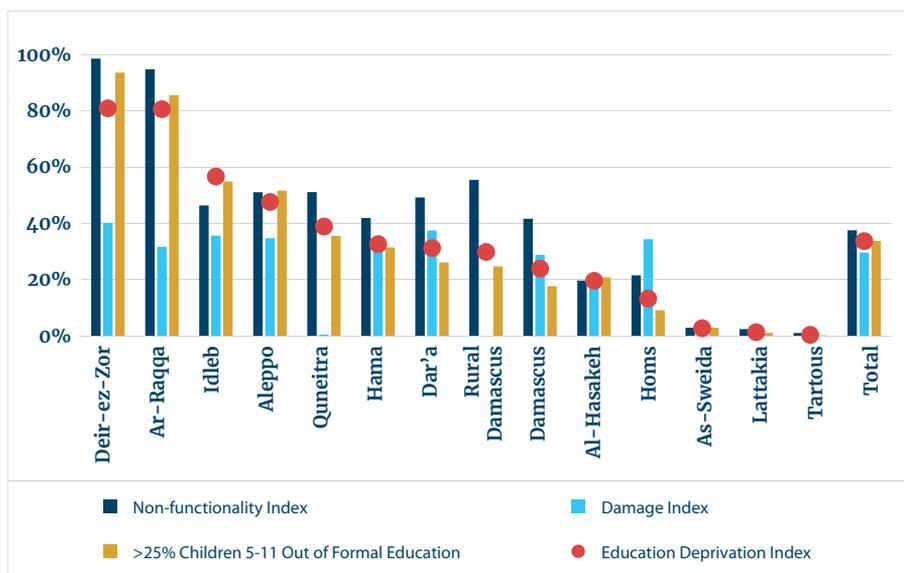
Figure 2.50. Survey Responses to Educational Facility Functionality, 2017



Source: 2017 MSNA.

Additional drivers of education service delivery problems in Syria include teacher shortage and lack of learning materials. The number of teachers in the formal education system has decreased since 2011/12 by more than half, to less than 200,000 teachers in 2017. An additional 300,000 education personnel need assistance in Syria. In the 2017 Multi-Sector Needs Assessment (MSNA) conducted by OCHA, 45 percent of communities in Syria indicated teacher-related needs as the priority educational need. Teacher stipends/incentives are often insufficient to meet families' basic needs and thousands of teachers continue to work voluntarily, particularly in contested areas. Children are often learning without textbooks and/or learning materials, in very poor learning spaces, especially in UN-declared besieged and hard-to-reach areas and for only a few hours a day. The prolonged conflict extends into the classroom as part of the contest for legitimacy. Depending on the spheres of influence, education services are provided by the government, opposition groups, or non-governmental and international organizations. In areas controlled by the government, students follow the pre-war curriculum, while facilities overseen by opposition groups implement revised versions of the Syrian curriculum. Both the government and the opposition groups operate a large share of their schools on a double-shift model (WOS 2016).

Figure 2.51. Education Deprivation Index, 2017



Source: 2017 MSNA, World Bank staff calculations.

Note: Education Deprivation Index is $0.7 \times$ Children Out of Formal Education + $0.2 \times$ Facilities Functional + $0.1 \times$ Damage Index.

Children also drop out because of child labor or child marriage. Over 2,100 (40 percent) of communities surveyed in Syria consider the need for children to work or help the family as one of the key reasons for being out of school.¹¹³ In 82 percent of surveyed communities, respondents reported that child labor was an issue of concern. Boys are more likely to be involved in hazardous forms of labor and girls in domestic work. Also, children and particularly boys, often get involved in frontline combat roles, military training and support roles. Verified cases of the recruitment and use of children increased by 13 percent compared to 2016, with 961 cases (872 boys, 89 girls) verified. Ninety percent of the children served in combat roles (861) and 26 percent (254) were below the age of 15 (United Nations, 2018). Children and their families may resort to child marriage as a negative coping strategy to respond to economic difficulties and protection concerns. In 69 percent of assessed communities, respondents reported child marriage as an issue of concern, with 20 percent reporting it as a common or very common issue.¹¹⁴ Psychosocial trauma and violence are reasons for school dropout. Teachers and students suffer from stress and psychosocial disorders due to the protracted nature of the crisis. Both children and teachers demonstrate psychosocial distress inflicted by conflict, including depression, anxiety and panic attacks. This increases their vulnerability and exposure to risks, including negative coping strategies.

Overall, physical damage, functionality status of schools, and ratio of children out of school provide a consistent picture across governorates. An aggregate Education Deprivation Index has been constructed for each governorate based on 0.7 times the average percentage of communities with more than a quarter of children aged 5-11 years out of formal education, 0.2 times the percentage of communities with less than three quarters of educational facilities functioning and 0.1 times the physical damage index. With school functionality and out of education indicators correlating so closely, the aggregate Education Deprivation measure ranks governorates in a very similar manner (Figure 2.51).

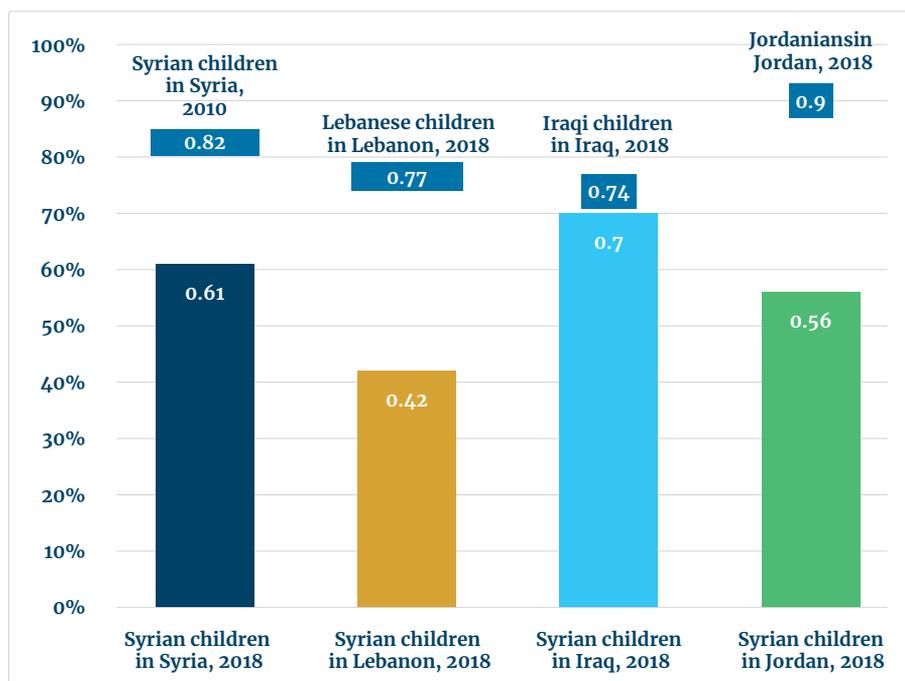
Conditions in Countries of Asylum

Despite substantial efforts to include refugee children in the education system, Syrian refugee children are enrolled at low rates in host countries. Lebanon has almost doubled the size of its national public education system in five years to accommodate non-Lebanese children. As a result, a remarkable 264,970 non-Lebanese children were enrolled in public schools in the 2017-18 school year. In Iraq too, most of public schools in Iraq opened registration for refugee children for first grade at the beginning of the school year in October 2017. In Lebanon, 43 percent of school-age refugee children do not have access to either formal nor non-formal education. The corresponding share is 31 percent and 4 percent in Jordan and Iraq, respectively. In Iraq, outside of camps, only 46 percent of school-age children attend school, reaching 71 percent in camps. In 2014, only about 5 percent of Syrians aged 15 to 17 were registered in formal secondary school in Iraq. School enrollment rate of Syrian refugee children in Lebanon and Jordan are even lower than the enrollment of Syrian children inside Syria.

Refugee children have lower enrollment than those in Syria. Two-thirds of refugee children in Mashreq live in Lebanon where school-age enrolment is only 42 percent, considerably lower than the 77 percent Lebanese enrollment rate. Refugee children living in Jordan have a slightly lower enrollment rate than currently in Syria, at 56 percent, which is also significantly lower than for Jordanian children (90 percent). Only in Iraq are refugee enrollment rates both higher than currently in Syria (70 percent) but also close to the local non-refugee enrollment rate (74 percent). However, the enrollment rate of Syrian children in Iraq only includes in-camp children; out of camp children have a significantly lower enrollment rate (Figure 2.52).

Similar as for children inside Syria, child labor and marriage are prevalent in host communities. Attending school implies high opportunity cost for youth and sending children to work is often a necessity to guarantee a household's survival (Basu and Van 1998).¹¹⁵ Teenage males often drop out of school to work and support their families (UNICEF 2017). In Lebanon, 20 percent of children between the ages of 15 and 17 reported working¹¹⁶ (9.9 percent for girls and 30 percent for boys), compared to 2.3 percent for children 5-14 years old (0.7 percent for girls and 3.8 percent for boys) (UNHCR, UNICEF and WFP 2017). Also, child marriage, defined as a formal marriage or informal union before age 18, is a reality for both boys and girls, although girls were disproportionately affected. In Lebanon, 22 percent of the Syrian refugee girls aged 15 to 19 were married (VASyr 2017).

Figure 2.52. Comparative Enrollment Rates for School-Age Children in Pre-Crisis and Present Day Syria and Host Countries



Source: Data for Syria: Estimates rely mainly on the Ministry of Education (MOE) Education Management Information System (EMIS). Data for Lebanon/Jordan/Iraq: UNICEF calculation based on UNHCR data portal, 3RP monthly updates and UNICEF Syria Crisis Situation Report. The enrollment rate of Syrian children in Iraq only includes in-camp children. Out of camp children have a significantly lower enrollment rate.

The cost of education appears to be one of the main reasons preventing parents to send their children to school. For many displaced families, the financial cost of education for their children is too high. The cost of transportation, clothing, and expenses for learning materials accumulate and school quickly becomes unaffordable for households. In Lebanon, 39 percent of parents with children age 6-14 report that the cost of education is the main reason for not enrolling their children in school (UNHCR, UNICEF, and WFP 2017). Thirty-five percent of refugee households reported that they reduced education related expenditure as a coping strategy following financial distress. In Iraq, for the age group 13-18 the main reason for not going to school were also related to the cost of education. An important dynamic in terms of enrollment among Syrian refugees was that they typically did not return to school once they left.

2.5.3. Water and Sanitation

Syria's water supply systems before the conflict, like other systems in MENA region, were characterized as being predominantly urban, modern, and complex.

There were high coverage rates and high-quality service prior to 2011. Over 90 percent of urban and 80 percent of rural households had access to piped water in the home. In urban areas per capita water use was in the range of 120–170 liters per day.¹¹⁷ Over 95 percent of urban households were also connected to a sewerage network with about 70 percent of waste water being treated. Even in rural areas 80 percent of households had access to piped water, with only a small minority relying on other sources such as wells, springs, or water tankers. Over 95 percent of rural households also had access to improved toilet facilities.¹¹⁸

Urban and rural systems were state-owned, state-managed and heavily subsidized. They required high operational costs (especially for water pumping) and a mix of qualified human resources working in complex engineering harmony. However, the water sector in Syria faced typical sector challenges pre-crisis including inadequate preventive maintenance and challenges in connecting some neighborhoods in the rural areas (e.g., Idleb) to the public water supply. Most regions experienced regular shortages and rationing of drinking water was common in major cities, particularly in the summer months. Losses in municipal networks of 30–40 percent were common due to poor maintenance of distribution networks. Illegal connections, low tariffs, and high collection transaction costs meant that cost-recovery for drinking water services was consistently low (World Bank 2017b). The tariff structure was based on consumption blocks for households and on flat rates for public institutions and productive activities. More than two-thirds of households fell into the lowest block and less than 4 percent of subscribers were in the highest block of domestic consumption. In 2009, households in the lowest tariff band paid only US\$0.06 per cubic meter. Tariffs were set by the Central Government and applied uniformly throughout the country. Even though they were increased every three years, their levels remained very low for water services and sewerage charges were negligible.

There were already signs of a deterioration of water services before 2011. Over the decade running up to the conflict there was a sharp rise in the number of people having to buy water from tankers rather than directly from the utility. This points both to the declining ability of utilities to meet demand, and to a proliferation of alternative sources to supplement utility supply. These alternative supplies mark a shift in the structure of service delivery, in which unregulated water from private boreholes form an increasing share of supply.

Conditions in Syria

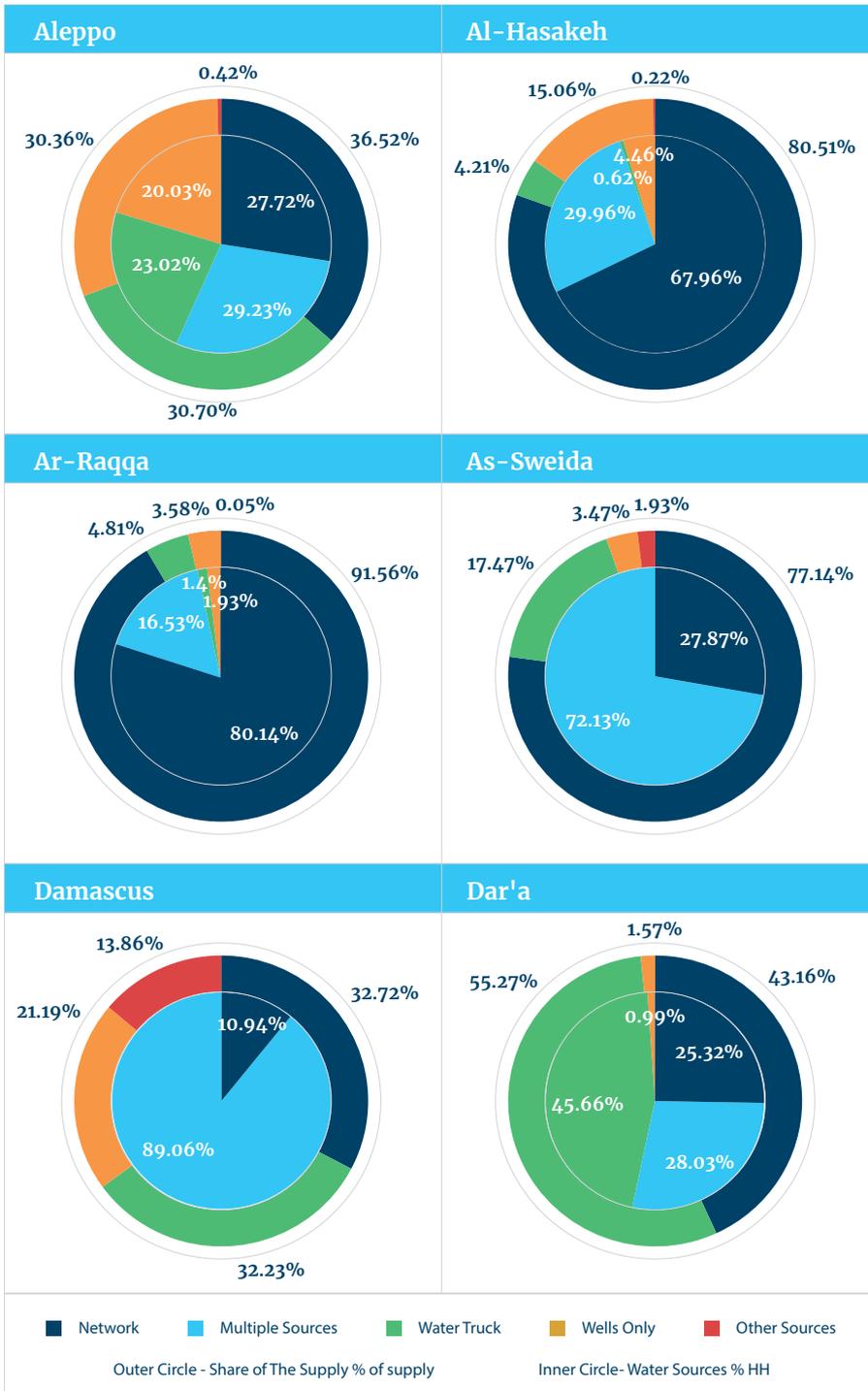
Violence and conflict have damaged infrastructure, disrupted distribution and changed patterns of water supply and demand. Shelling, bombing and ground conflict has destroyed infrastructure installations (intakes, pumping stations and treatment plants) and caused widespread damage to piped water supply networks. Despite active attempts to keep services running by state and non-state actors, access

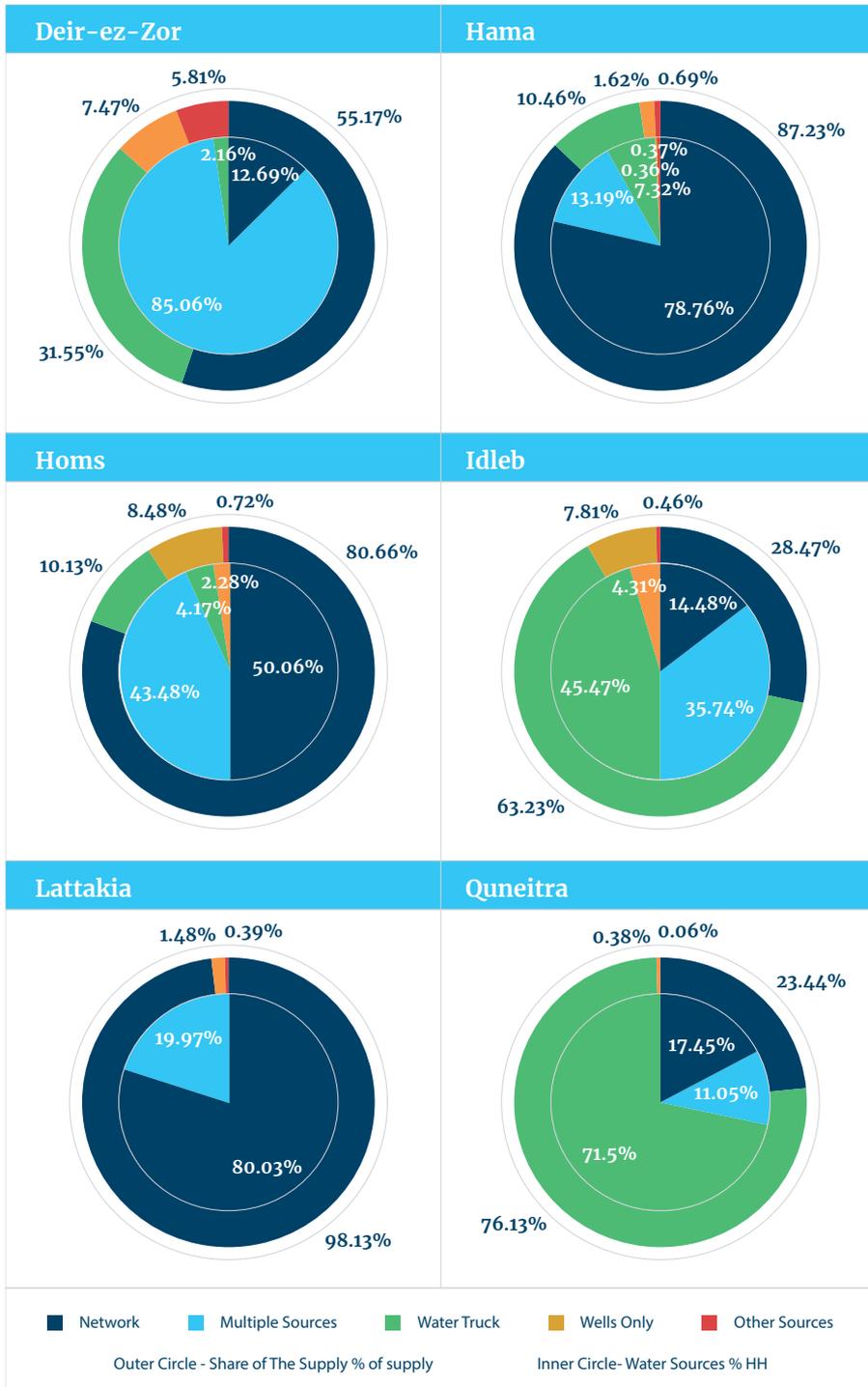
to services has deteriorated dramatically in cities that have not been in Government control. These cities and the governorates that they are in now face a chaotic mix of dilapidated utilities, and alternative service delivery arrangements from wells and tanker trucks supported by an array of internal and external actors.

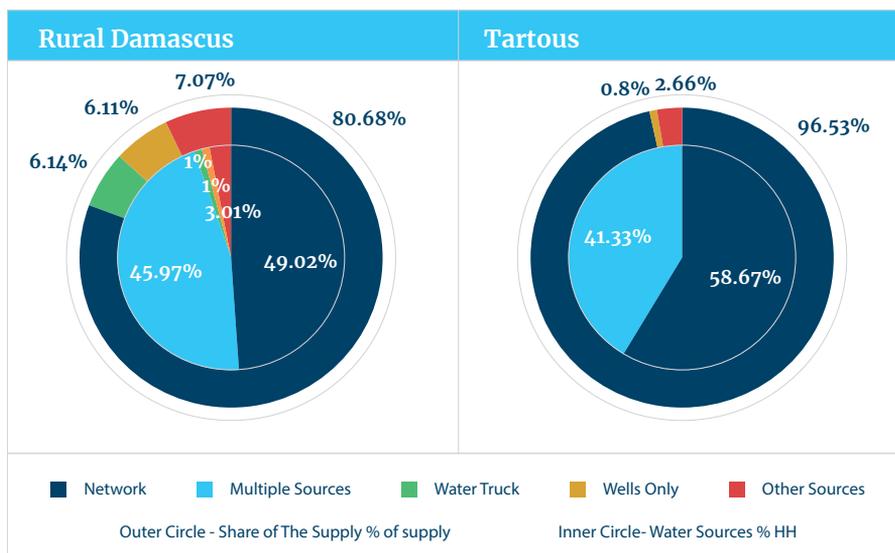
Aleppo has experienced the greatest deterioration in WSS services of all towns in Syria. Where prior to the conflict Aleppo had near universal coverage a recent household survey reported that only 3 of 10 households can rely on the water network. Due to widespread damage to the water network and associated infrastructure 70 percent of households have had to shift to using wells, water tankers and other local coping mechanisms. Despite many relief actors' efforts to access to and improve infrastructure in the city of Aleppo most WSS infrastructure is only partially functional. The city of Al Bab, also in Aleppo governorate experienced widespread destruction of WSS infrastructure and in Kobani over 70 percent of the infrastructure was not operational.

In eight other governorates services have deteriorated sharply. In addition to Aleppo, network water service coverage has decreased by around 60 percent in Ar-Raqqa, Dar'a, Idleb, and Quneitra. In the governorates of Deir-ez-Zor, Al-Hasakeh, Hama, Homs, and Rural Damascus levels of piped coverage have deteriorated sharply with up to half of households cut off from access to piped water. Over 30 percent of households across these governorates are now entirely dependent on water provided by trucks, with a further 15 percent dependent on wells and springs. The damage assessment also reported very high levels of destruction and non-functionality of WSS infrastructure in the cities of Douma, Idleb, and Al Qusayr.

Figure 2.53. Structure of Water Supply by Governorate (2017) –







Source: Needs and Population Monitoring (NPM) - Humanitarian Response (NPM)

Alternate sources of drinking water supply, including groundwater wells, tanker trucks, and humanitarian agencies have grown significantly. The increase in alternate non-network sources used by households, such as wells and tankers, is an indication that there is widespread damage to networks. From the 2018 UNICEF household survey data it is clear that the number households able to rely on the water network for water has dropped even since 2017. This is particularly true in the north, northwest, and southeast of the country. Supply disruptions to besieged areas have left residents reliant on groundwater wells at times. Although much of the rest of the infrastructure was undamaged, reduced functionality is a significant problem for all the assessed cities. The alternative service providers that have sprung up to fill gaps in service delivery provide expensive (>US\$10 per m³) tankered water of often unregulated quality.

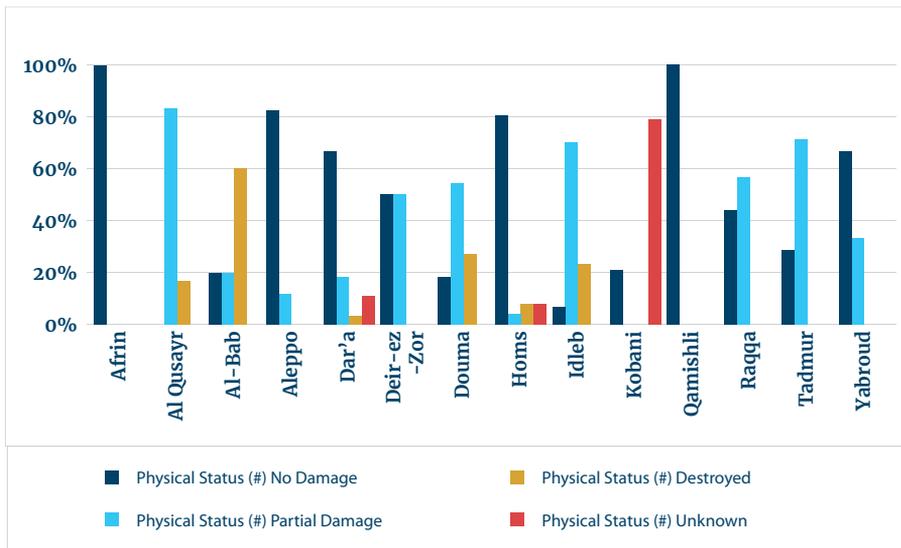
Wells were the most common WSS asset and the most likely to be damaged or destroyed. Of the 413 WSS assets assessed by the damage assessments across 15 cities, just over a quarter (26 percent) had suffered damage. Most of the damage was to wells, over half of which had been affected. Just under a quarter of all water towers and tanks had also been damaged. Other WSS infrastructure such as water treatment plants, sewage plants, dams, pumping stations, reservoirs and offices had not sustained much damage, however many had decreased or no functionality. The main damage reported as at May 2018 is presented in Table 2.10.

Table 2.10. Total Damage Inventory numbers

Asset type	Baseline	Completely Destroyed	Partially Damaged	Unknown	Total Damage Count	Percentage of Damage by Asset Type
Well	179	11	45	18	56	51 %
Water Tower/Tank	163	5	20	4	25	23 %
Water Treat. Plant	9	1	5	0	6	6 %
Sewage Treat. Plant	6	0	4	1	4	4 %
Dam	4	0	2	0	2	2 %
Dike	0	0	0	0	0	0 %
Levee	0	0	0	0	0	0 %
Other Drainage Structure	14	0	2	1	2	2 %
Pumping Station	31	0	10	3	10	9 %
Storage Reservoir	4	1	0	0	1	1 %
Water/San. Office	3	0	3	0	3	3 %
Total	413	18	91	27	109	
%		4 %	22 %	7 %	26 %	

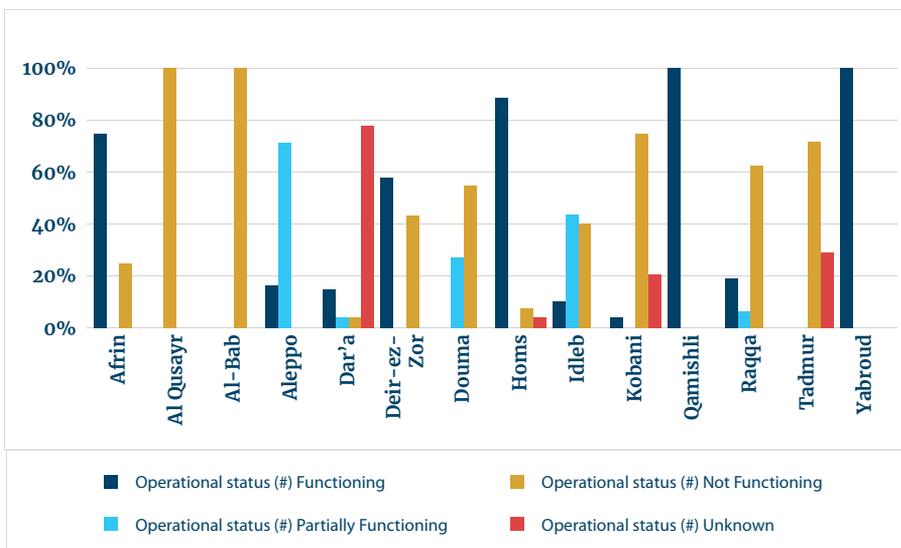
The state of piped water and sewerage networks, which comprise a substantial share of water supply systems is unknown. The analysis in this report could not assess the damage to water and sewerage networks using remote sensing as these are underground. In the absence of reliable estimates, it rated damage to specific assets in each city and whether these were functioning (see figures 2.54 and 2.55). While these assets may not have been directly targeted by violence, the level of non-functionality may be the result of the network damage. Equally, the destruction of one treatment plant would render the distribution network non-functional.

Figure 2.54. Damage to WSS Infrastructure



Source: World Bank staff calculations

Figure 2.55. Operational Status of WSS Infrastructure



Source: World Bank staff calculations

Water infrastructure depends on power infrastructure. The water sector is also severely affected by damage to the electricity needed to pump water and to run treatment plants. Water supplied from wells and/or through the distribution network requires pumping; pumping requires electricity. The functionality of water services is therefore directly correlated to the status of the electricity grid and/or the availability of generators and fuel. Lack of electricity was the main reason for water network outages, with damage to pumping stations and piped networks being the second most common reason. Due to this vulnerability, and because wells use much less electricity for water pumping, many cities were forced to develop a back-up plan relying on point-source wells especially during long episodes of public water network outages.

In addition to physical damage, biological and chemical pollution of water sources is also likely. Not much is known about water pollution in Syria. Pollution—especially biological contamination—can follow failure of waste water treatment plants and increased illegal dumping of septage. Chemical contamination of water sources, flowing into reservoirs and leaching into aquifers, can follow illegal waste dumping, the burning of toxic materials (domestic/industrial), and residues of military munitions. There are reports of discharge of untreated wastewater and sewage, damage to urban sanitation networks, use of chemical agents, and depleted uranium munitions in areas including Damascus, Idleb, and al-Hasakeh (Oakford 2017). The adoption by ISIS of small-scale, rudimentary techniques for producing petroleum and *mazout*—a low quality fuel oil—in Al-Hasakeh and Deir-ez-Zor has led to widespread land pollution that may contaminate critical groundwater supplies (Simpson and Philips 2015; Warrick 2016). With no available data, the impact of these practices has not been assessed yet.

With a large-scale displacement, the water management systems also suffer from human resource shortages. Many highly educated researchers, water managers, and engineers left the country, while millions of farmers with expertise in soil and water management were displaced. Although the state administration has managed to retain technicians and employees in dams, pumping stations, and other critical infrastructure, their numbers are greatly reduced. The Ministry of Water Resources—along with other Ministries—is understaffed, with a severe shortage of skilled workers and experts. The Ministry reportedly lacks the people and expertise for strategic water resources and investment planning, policy development, fund raising, and project management. Ministries, utilities, and technical organizations (those engaged in water management) are experiencing shortfalls in technical, financial, and administrative capacities, and struggle to maintain basic functioning in the areas they are able to reach. There is no effective, overall policymaking or strategic plan in place for water, WASH, agriculture or industry, either for the conflict period or any post-conflict reconstruction. Many large dams and water sources are either under or threatened by rebel control. However, the government in Damascus has been able to negotiate water releases, where necessary, to maintain supplies. The state’s ability to enforce regulations is highly degraded, contributing to the proliferation of illegal wells (Muller et al. 2016). The state’s weakened financial and administrative capacity is also a significant challenge. Highly constrained public finances limited investment during the conflict and curtailed options for reconstruction. Several interviewees noted that degraded administrative capacity will greatly complicate the identification, selection, and implementation of reconstruction projects, and management of related finance.

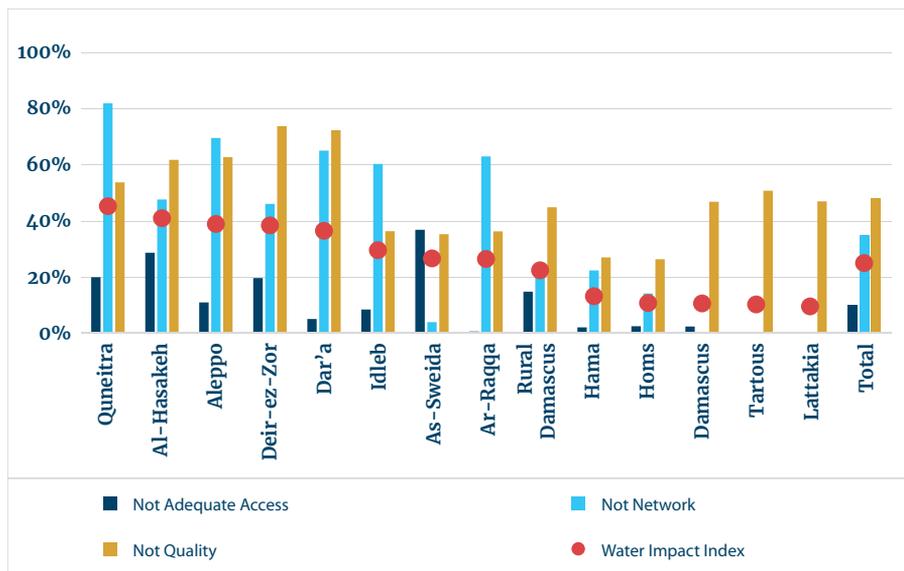
With the breakdown of the public water supply systems, informal private providers have filled the large supply gap. Tanker trucks are most concentrated in Idleb and Aleppo governorates, and rarer in Lattakia and Al-Hasakeh where municipal networks are more functional (REACH 2016). Water is most commonly delivered by the truckload, with households often sharing the costs of delivery, and prices are high as traders pass on logistical costs and security risks to consumers. These providers are likely to operate in cartel-like structures, reflecting a prominent aspect of war economy. A market survey in May 2017 found that prices ranged from 250 Syrian pounds (SYP)¹¹⁹ per cubic meter (m³) in Idleb to 1760 SYP m³ in Badama, with median prices highest in northeast Syria at 570 SYP m³ (REACH 2017), greatly exceeding the official tariff.¹²⁰ Most private sector operators are informal, and the water they sell is often untreated or stolen from public networks. State regulation of the price and quality of water for sale has been largely ineffective.

Humanitarian actors and agencies have been active across the country, providing chlorine tablets, water kits, and operating water tankers since early in the conflict. As of May 2017, UNICEF reported that its emergency interventions reached 1.1 million people, with a further 3.1 million reached by repair and rehabilitation interventions (UNICEF 2017). International Crisis Response Group (I)WASH engineers have made critical contributions in collaboration with technicians and engineers from state utilities and water authorities to deliver services in conflict-afflicted areas, including repairs to the Tabqa Dam in early 2017. In many areas, the UN system and NGOs have substantial field organizations and have effectively taken over the delivery of WASH services. In principle, these organizations are well positioned to support post-conflict WASH delivery. In practice, however, the missions of humanitarian organizations do not always have the mandate to support the institution-building, cost-recovery, and long-term sustainability of water utilities.

Overall, despite the efforts of humanitarian actors, surveys confirm the problems with access to water have deepened. A 2017 survey by UNICEF show that most households receive less than two hours of water supply per day. Consequently, more than two-fifth of households do not have enough water to meet household needs. Only 36 percent of households receive water primarily from the public network. Others rely on private suppliers, wells, or bottled water. While access matters, the quality of water supplied is also of concern, since contaminated water can lead to a high burden of infectious disease. The incidence of diarrhea is very high in Syria, with a majority of households reporting at least one member contracting diarrhea in the previous six months. In a sign of the unreliability of existing water a large share of Syrian households (44 percent) treat drinking and non-drinking water differently.

Many Syrians lack adequate access to piped water or even other basic improved water supplies. Figure 2.56 shows those without adequate access by governorate, which is an average of those without water for two or more consecutive days in the last 30 days and those self-reporting not having enough water (the two measures are very similar in most places). Lack of access is particularly high in As-Sweida (37 percent), Al-Hasakeh (29 percent), Deir-ez-Zor and Quneitra (20 percent). Moreover, even when households have full access, in many places it is not usually from the piped network—most households in Aleppo, Ar-Raqqa, Dar'a, Idleb and Quneitra are not getting piped

Figure 2.56. Water Deprivation Index by Governorate, 2017



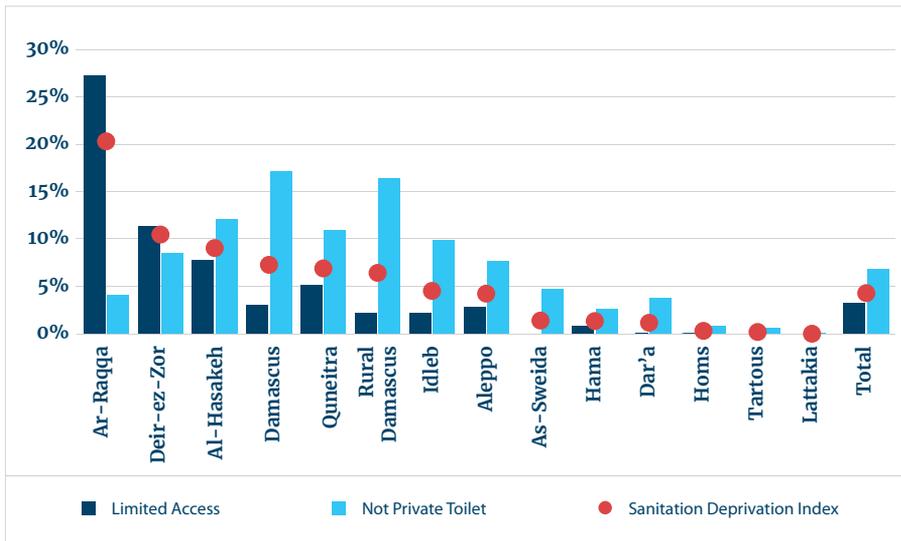
Source: UNICEF 2017 WASH Survey and World Bank analysis.

Note: Not adequate access is a simple average of those experiencing two or more consecutive days without water in the last 30 days and those reporting not enough water for their needs in the last 30 days. Not network means that piped water is not the main source. Quality is a simple average of those differentiating between drinking and non-drinking water and the average time for which the network was not running if a household has piped water. The aggregate Water Impact Index is $0.5 \times$ Not Adequate Access, $0.3 \times$ Not Network and $0.2 \times$ Quality.

water. Finally, the quality of water is also often affected, meaning that the household is treating their drinking water differently from their non-drinking water (by treating it). This is particularly so in Al-Hasakeh, Aleppo, Dar'a, Deir-ez-Zor, Quneitra, and Tartous. Combining these three indicators (50 percent of inadequate access, 30 percent of non-network, and 20 percent of quality) into an aggregate Water Impact Index shows many regions where the household deprivation index is greater than 25 percent, including Ar-Raqqa (26 percent), As-Sweida (27 percent), Idlib (30 percent), Dar'a (37 percent), Deir-ez-Zor (38 percent), Aleppo (39 percent), Al-Hasakeh (41 percent), and Quneitra (45 percent).

Access to a toilet facility is also a problem, although not as affected as other services. In Ar-Raqqa (27 percent) and Deir-ez-Zor (11 percent), a significant number of households have limited access to a toilet (Figure 2.56), where limited access means all or some of the household do not have access to a functioning toilet. However, among those that do have full access, it is sometimes shared or communal, especially in Damascus (17 percent), Rural Damascus (16 percent), Al-Hasakeh (12 percent), and Idlib (10 percent). The overall Sanitation Deprivation Index, which weights access by 0.7 and non-private by 0.3, indicates that households in Ar-Raqqa fare the worst (20 percent), primarily due to lack of access. The index is less than 10 percent in all other governorates, emphasizing that sanitation outcomes are better than for most other dimensions of welfare.

Figure 2.57. Sanitation Deprivation Index by Governorate, 2017



Source: UNICEF 2017 WASH Survey and World Bank analysis.

Note: Limited access means either none or not all of the household have access to a functioning toilet, while not private means the toilet is shared with other households, communal or public. The Sanitation Deprivation Index is $0.7 \times \text{Limited Access} + 0.3 \times \text{Not Private Toilet}$.

Conditions in Countries of Asylum

Lebanon has for many years struggled with inadequate water and sanitation services. The state of Lebanon's water sector today is a cumulative reflection of 15 years of civil war, two decades of post-conflict under-investment and an unprecedented recent influx of refugees from Syria. Lebanon's already fragile water resources are buckling under extreme pressure. Even before the crisis, Lebanon's water governance was undermined by a lack of funds, administrative and technical staffing gaps, incomplete technical data, and weak structural incentives for good integrated water management (including weak tariff collection). Regulatory, legislative, and management initiatives targeted by the 2010 Water Sector Strategy are still incomplete, with capital projects still prioritized over other essential reforms. The sector is still struggling to finance and implement critical mechanisms for water quality and resource management, contingency planning, and supply.

The water sector has suffered from a drastic demand shock. The influx of more than a million displaced Syrians dispersed in hosting communities has challenged a system where one in five households still lacks even a basic water connection, where networks are fragile and unreliable, and where only 8 percent of sewage is effectively treated. Over 48 percent of water supplied by the public system is lost through leakage. Wastewater networks are extremely poor, and in some areas are non-existent. Over 92 percent of Lebanon's sewage runs untreated directly into watercourses and the sea.

The Ministry of Energy and Water (MoEW) estimates that more than two-thirds of all resources received since 2015 have been to support families displaced from Syria. Fewer Syrian families were able to afford rent in 2016 compared to 2015, which resulted in many evictions and therefore to a proliferation of small informal settlements. The number of informal sites rose within the last year to 4,312, a 34 percent increase in locations and a 30 percent increase in resident families. Needs are also particularly acute in urban settings of hosting communities where 12 percent of displaced Syrians live in non-residential buildings, such as worksites, garages, and shops, which are overcrowded and lack basic water and sanitation services. Twenty-three percent of displaced Syrians living in non-residential buildings reported not having enough water compared to 20 percent in informal settlements and 17 percent in residential buildings. Forty-two percent of displaced Syrians living in non-residential buildings do not have access to an improved toilet facility (flush toilet or improved latrine) compared to 57 percent in informal settlements and 16 percent in residential buildings.¹²¹

The Lebanon Crisis Response Plan 2017-2020¹²² estimated the cost for reinstating pre-crisis levels of water supply and sanitation services to host and refugee communities at US\$375 million. In 2017, more than US\$207 million was channeled to strengthen Lebanon's public sector, an increase of more than 20 percent since 2015. The Lebanese institutions have constructed and rehabilitated 280 km of public water supply distribution networks. In supporting government authorities, the United Nations, donors, and local and international NGOs have implemented programs, projects, and activities so that more vulnerable people in Lebanon are accessing sufficient, safe water for drinking and domestic use with reduced health and environmental impacts from unsafe wastewater management. This can only be achieved through strengthening institutional capacities from national to local levels. In 2017, a total of \$34 million was received, including 2017 tranches of multi-year projects (for water-sector-related projects that were either completed in 2017 or are ongoing into 2018), down from \$38 million in 2016.¹²³

Jordan is one of the most water scarce countries in the world. The country relies on both internal groundwater resources and a number of transboundary rivers as well as groundwater aquifers. Notably the Yarmouk (tributary of the Jordan River) has its sources in Southern Syria before entering Jordan. Jordan also relies heavily on fossil groundwater (shared with Saudi Arabia) that is pumped into the Disi pipeline from the south to central Jordan (predominantly Amman).¹²⁴ There is no basin wide agreement covering the whole Jordan basin for transboundary water, but there are agreements on a bilateral basis. Jordan and Syria have an agreement¹²⁵ on the Yarmouk River although Syria has been abstracting more than the agreement stipulates. The Yarmouk basin includes the city of Dar'a, where civil protests started in 2011. An unexpected outcome of the Syrian crisis has been that the conflict and ensuing migration in southern Syria has led to an observed increase in the flow of water in the Yarmouk River from Syria to Jordan. The fact that conflict started in Southern Syria has led to a decrease in water being used for agriculture, which has been documented through satellite imagery.¹²⁶

Jordan's water sector is highly energy intensive and has led to the accumulation of over US\$2.4 billion of energy related debt. In Jordan the water sector is a major consumer of energy (13 percent of Jordan's energy production) since much of the

water needs to be pumped to where it is consumed. Escalating energy costs, caused by the cut-off of Egyptian natural gas since 2009 and rising global energy prices, have resulted in the accumulation of US\$2.4 billion of debt for the Jordanian water sector. The sector also has high levels (40-50 percent) of Non-Revenue Water (NRW), which is water that is processed but lost to leakage or pilferage before delivery. Agricultural water is subsidized and agricultural irrigation practices relatively inefficient. Current levels of reuse of treated wastewater are still low but improvements are being made, much of which has been through the improvements and expansions of the As-Samra wastewater treatment plant, which treats most of the wastewater from Amman.

Catering to the water needs of people, citizens and refugees alike, has been a major challenge in Jordan. The Syrian conflict has exacerbated Jordan's problems in the water sector. The challenges include both assistance to the refugee population in camps and the increasing pressure on the infrastructure of the country's WSS services. According to the Jordan Response Plan (JRP) 2016-2018 the vulnerability in terms of water supply is extremely high, with 70 percent of the population (Jordanian citizens and Syrian refugees) receiving less than the national standard of 100 liters per person per day. The JRP attributes approximately 60 percent of this vulnerability to needs associated with Syrian refugees, thereby demonstrating that water supply challenges existed prior to the Syrian crisis.¹²⁷ Currently, water sources in Jordan are over-pumped, with high risk of salinization of the resource.

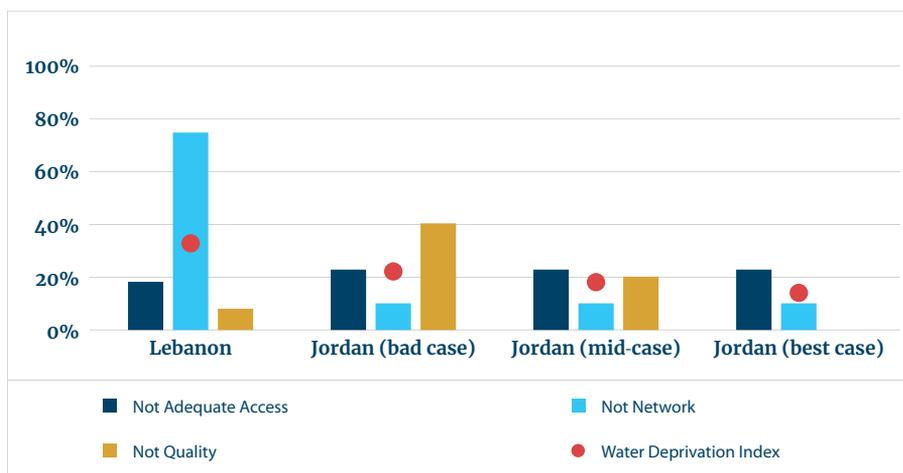
In host communities sanitation challenges have also increased and the long-term plans for sanitation in large parts of Jordan have become outdated. Treatment plants will soon not be able to cope with the increased sewage load. The Jordanian government has developed a number of proposed interventions to address the short-, medium-, and long-term needs of the sector. In the refugee camps sanitation solutions have largely been put in place but for some sites, such as the Zaatari camp, the location of the camp atop a major aquifer has raised the concerns about seepage and pollution of the aquifer. Over 60 percent of the population in Jordan is connected to a sewage network, although in parts of northern Jordan (where the concentration of Syrian refugees is the highest) the connection rate is just above 40 percent.¹²⁸ This makes the vulnerability of the refugees and host communities in the north higher than in other parts of the country. It should be noted that women are vulnerable, especially refugee women and Jordanian female-headed households. Vulnerability in refugee camps is associated with increased prevalence of GBV connected to the location of water and sanitation facilities.

The Kurdistan Regional Government (KRG) has provided access to publicly provided services, including water, for refugees and IDPs amidst economic difficulties. Most refugees and IDPs, together more than a quarter of the region's population, have been integrated into the local population at large, especially in urban areas. Only a third of the refugees and 20 percent of IDPs are still living in the 42 camps set up throughout the Kurdistan Region of Iraq. They have equal rights with the host population in these communities with regards to access to clean water, electricity, and security. However, the significant demand pressures created by the influx have affected the provision of health, education, and social protection programs to the population in general, as well as the provision of water, waste management, and electricity.¹²⁹ While

this level of settlement is an illustration of the commitment of the KRG to support refugees and IDPs under highly strained circumstances, further improvement in the well-being of the displaced—not to mention helping those still to come—will not be possible without additional resources from the international community and an improvement in economic conditions.

Water and sanitation deprivations can be analyzed for refugees living in Lebanon and Jordan in the same manner as was done across Syrian governorates, but not in the Kurdistan Region of Iraq. Levels of inadequate access to water—defined here as households reporting not enough water—are similar between those living in Lebanon (18 percent) and Jordan (23 percent). However, the great majority of refugees in Lebanon are not on the piped water network (74 percent), while only 10 percent of those in Jordan are not.¹³⁰ Despite most refugees in Lebanon not using network water, water quality is good, with less than 10 percent need to treat their drinking water. The degree of treatment in Jordan is not known. However, even if up to 40 percent of refugees in Jordan were treating water, the aggregate water deprivation index for those living in Jordan would still be better (22 percent) than for those living in Lebanon (33 percent) due to the much greater access to piped water, and could be as low as 14 percent in the best case, in which no one needs to treat water (Figure 2.58).

Overall, a comparison between the water access conditions inside Syria and those that are faced by refugees in countries of asylum paints a mixed picture. Current water and sanitation conditions vary, both between refugees and those still living in Syria, and between different host countries (Table 2.11). A greater proportion of refugees lacks access to enough water in Jordan (23 percent) and Lebanon (18 percent) than in present-day Syria (10 percent). In Jordan most refugees are using piped water, but a third of those in Syria are not, rising to three-quarters of those in Lebanon. However, water quality for those living in Lebanon is much better, with very few having poorer quality water, compared to 48 percent in Syria; quality information is not available for Jordan. Taken together, the water deprivation index is lower in Syria (25 percent) than Lebanon (33 percent), but likely lower again in Jordan (14-22 percent, depending on quality scenarios).

Figure 2.58. Water Deprivation Index for Refugees by Host Country

Source: 2017 VASyr for Lebanon and 2017 VAF for Jordan, except Not Adequate Access and Not Quality for Lebanon from LCRP June 2018; World Bank analysis.

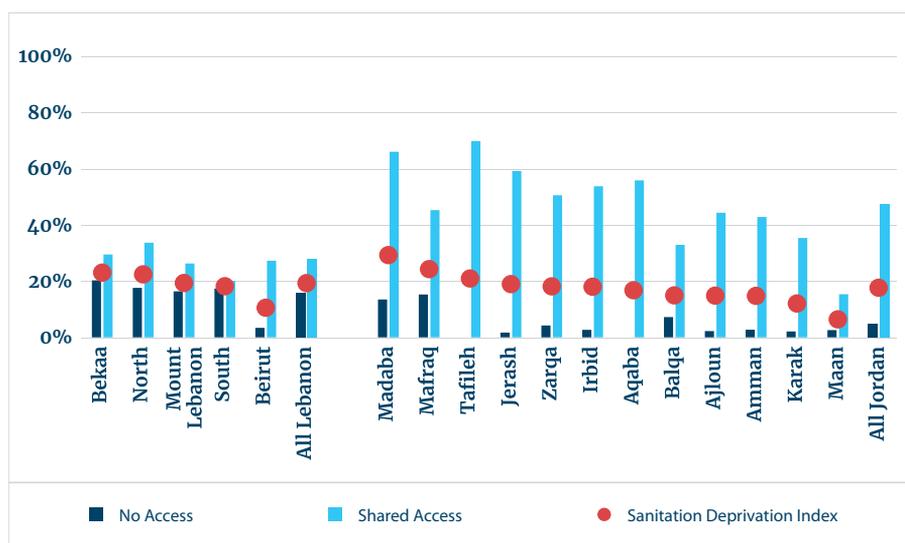
Note: Not adequate access is households reporting not enough water. Not network means that piped water is not the main source. Quality in Lebanon differentiates between drinking and non-drinking water (treating water to drink). Quality in Jordan is presented with three different scenarios; best case means no treatment, mid-case means 20 percent treatment, bad case means 40 percent treatment. The aggregate Water Deprivation Index is 0.5 x Not Adequate Access, 0.3 x Not Network and 0.2 x Quality.

Table 2.11. Summary of Water and Sanitation Conditions for Current Syria and for Refugees by Host Country, 2017

	Water				Sanitation		
	Inadequate Access %	Not Preferred Access %	Poorer Quality %	Water Deprivation Index %	Inadequate Access %	Poorer Quality %	Sanitation Deprivation Index %
Syria	10	35	48	25	3	7	4
Jordan	23	10	0-40*	14-22*	5	47	18
Lebanon	18	74	8	33	16	28	19

Source: UNICEF 2017 WASH Survey, 2017 VASyr, 2017 VAF, LCRP June 2018; World Bank analysis.

Figure 2.59. Sanitation Deprivation Index for Refugees by Host Country and Location, 2017



Source: 2017 VASyr and VAF; World Bank analysis.

Note: The Sanitation Deprivation Index is $0.7 \times$ Limited Access + $0.3 \times$ Not Private Toilet.

With respect to sanitation, those within Syria are clearly less deprived than refugees living in the host countries. The Syrian sanitation deprivation index is only 4 percent, with almost everyone having access to a non-shared latrine. By contrast, the deprivation index is at 18-19 percent in both Jordan and Lebanon; while access is high in Jordan, it is often to a shared toilet, while one in six refugees in Lebanon does not have access and just over a quarter share access.

The overall sanitation deprivation index is very similar between those living in Lebanon (19 percent) and those in Jordan (18 percent). However, the components of the index differ significantly. Far more refugees in Lebanon are likely to lack access to a toilet (16 percent on average) compared to Jordan (5 percent). However, most refugees in Lebanon do not have to share a toilet. Only 28 percent have shared access, compared to nearly half (47 percent) of those living in Jordan (Figure 2.59).

Table 2.12. Pre–conflict solid waste services, by city

City	Municipal Waste Generation	Disposal facilities
Idleb	74	landfill
Aleppo	1,967	landfill
Dar'a	73	landfill
Duma	83	open dump
Homs	602	landfill
Kobani	34	open dump
Ar-Raqqa	203	open dump
Al Qusayr	22	open dump
Menbij	75	open dump
Al Bab	47	open dump
Tadmur	38	open dump
Afrin	27	open dump
Quamishli	170	open dump
Yabroud	19	open dump
Deir-ez-Zor	159	landfill

Source: Based on population estimates per city using 2004 census data and a growth rate of 2.4 percent, and pre-crisis per capita waste generation rates from Sweepnet 2010. Disposal information based on information from Sweepnet 2010 and presentation of Ministry of Local Administration and Environment in 2006 <https://www.slideshare.net/AmirAlboukhari/solidwaste-management-in-syria>

2.5.4. Solid Waste Management

Before the conflict, solid waste services were still under development. Garbage collection services existed in most urban areas with 80-90 percent of the urban population and 60-90 percent of the rural population provided collection service.¹³¹ Most of the collection services in the urban areas were provided by municipal “cleanliness departments” with about 5 percent of the services nationally provided by private companies, including in cities such as Homs and Aleppo. There were 13 constructed landfills in the country with over half of those in operation under the responsibility of the cleanliness departments and some operated by the private sector. The landfills accommodated an estimated 20 percent of the waste in the country and had varying levels of control and quality of operation with few fully meeting engineering and operational standards.¹³² The remainder of the collected waste was disposed of designated open dumpsites near towns and cities and, to a lesser extent, burning of collected waste was undertaken. Only a few areas disposed of medical waste in proper medical waste incinerators (specifically Damascus)—the remainder

Table 2.13. Solid Waste Management Before the Conflict (2010)

	Baseline prior to the conflict
Municipal Waste Generation	4.5 million tons per year
• Domestic	3.8 million tons per year
• Industrial and commercial	0.7 million tons per year
Construction and demolition waste *	410,000 tons per year
Waste collection	90 percent-100 percent coverage in urban areas
Expenditures on waste collection	1000-1600 SP/ton (\$20-\$32/ton)
Waste disposal	80 percent open dumps 20 percent sanitary landfills
Expenditures on waste disposal	200-400 SP/ton (\$4-\$8/ton)

* Based on characterization of waste in 2004 national strategy that indicates 9.1 percent of MSW is demolition waste.

Source: data from Sweepnet, 2010 and presentation of Ministry of Local Administration and Environment in 2006. <https://www.slideshare.net/AmirAlboukhari/solidwaste-management-in-syria>

disposed of medical waste in open dumps and landfills.¹³³ Similarly, construction and demolition waste, which amounted to an estimated 410,000 tons per year,¹³⁴ also was commonly being disposed of in landfills without special handling. See Table 2.12.

Conditions in Syria

The conflict has significantly changed the character and quantity of solid waste to be managed. Municipal solid waste generation has declined due to a combination of lower consumption and depleted commercial activity. Lower overall waste generation is estimated to take place in all conflict-affected cities even in cases where the population has grown, for example in Idleb (24 percent less waste generated) and Al Bab (21 percent less waste generated) and is especially apparent in cities with a significant population decrease, such as Tadmur (100 percent less waste generated) and Al Qusayr (96 percent less waste generated) See Table 2.13 for pre-conflict quantity used as a baseline.

At the same time the conflict has led to large-scale generation of debris. The amount generated is orders of magnitude higher than both the construction and demolition waste generated before the conflict and the municipal waste currently being generated. For example, in Aleppo, based on an analysis of satellite images of damaged buildings, there is an estimated 14.9 million tons of debris.¹³⁵ Before the conflict it would have taken 200 years to produce the same amount of construction and demolition waste. Similarly based on current generation rates, it would take the population of Aleppo 62 years to produce the equivalent amount of municipal solid waste. See Table 2.11

Table 2.14. Solid Waste Generation and Debris Accumulation Estimates (2018)

City	Estimated municipal solid waste generation- tons per day (% of pre-conflict)	Estimated Debris Accumulation (tons)
Idleb	56 (-24%)	607,727
Aleppo	649 (-67%)	14,900,000
Dar'a	30 (-59%)	1,730,684
Duma	34 (-60%)	974,277
Homs	205 (-66%)	5,300,000
Kobani	23 (-32%)	358,208
Ar-Raqqa	54 (-74%)	374,401
Al Qusayr	1 (-96%)	246,575
Menbij	41 (-45%)	142,302
Al Bab	37 (-21%)	81,701
toTadmur	0 (-100%)	188,427
Afrin	14 (-51%)	1,472
Quamishli	109 (-36%)	-
Yabroud	7 (-62%)	-
Deir ez Zor	61 (-61%)	-

Source: Based on May 2018 population estimates per city and pre-crisis per capita waste generation rates adjusted to reduced consumption (53 percent reduction) and commercial activity (42 percent) based on composition of national GDP figures between 2010 and 2015 (World Bank 2017b). Estimates of debris based on building damage assessments (July 2018) using unit debris generation rates derived from an analysis of satellite images from Aleppo and Homs (World Bank 2017b).

Government-run solid waste services were immediately affected in conflict areas. The onset of the conflict increased fuel prices and limited the available budget, equipment, and labor, which quickly posed severe constraints on the ability of governments to provide waste services. Access to certain areas was also limited and this was exacerbated in those cities that relied on private contractors, who stopped operating in certain areas. For example, in Deir-ez-Zor in 2015, there was an 80 percent reduction (from 45 to 13) in government vehicles available for solid waste collection and a similar labor force reduction of 88 percent (from 300 to 37 workers), meaning that large parts of the city did not have collection service. See Table 2.15

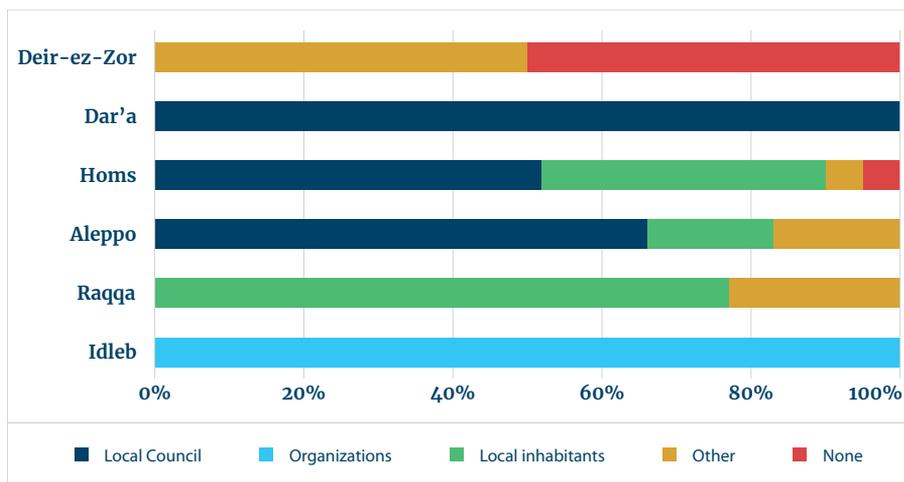
Table 2.15. Status of Solid Waste Services at the Height of the Conflict (2014–2015)

City	Collection Services			Disposal Services	
	Reduction in Government Vehicles	Reduction in Government Solid Waste Workers	Coll. Coverage (% of districts)	Accessibility to Official Disposal Site	Disposal Practices
Aleppo	67% (150 to 50)	80% (2,350 to 500)	N/A	No	Informal dumping grounds in and on fringes of city
Homs	38% (80 to 50)	32% (1,100 to 750)	67%	Yes	Official dumpsite
Deir- ez-Zor	60% (45 to 13)	88% (300 to 27)	45%	No	Informal and alternatives dumpsites; Euphrates River; in city streets.
Dar 'a	4 vehicles remaining	Reported significant decrease	37%	No	Improvised dumpsite

Source: UN-Habitat, *City Profiles (2014-2015)*.

As the conflict continued, waste collection services in many areas were assumed by other groups or not provided at all. Most commonly solid waste collection, where provided, is now being undertaken by local councils or directly by local inhabitants. In a sampling of 105 districts in conflict areas in 2017, 57 percent of the of the districts had collection services provided by local councils, while in 25 percent of districts local inhabitants provided their own services. A survey conducted in six conflict-affected cities showed that most collection services use simple collection equipment and are precarious in their reliability and sustainability, with no re-investment and a severely limited operational budget (Figure 2.60). The quality and coverage of the service has led to significant quantities of litter on streets, on average over 70 percent of the residents indicated there was a presence of litter and piles of garbage.

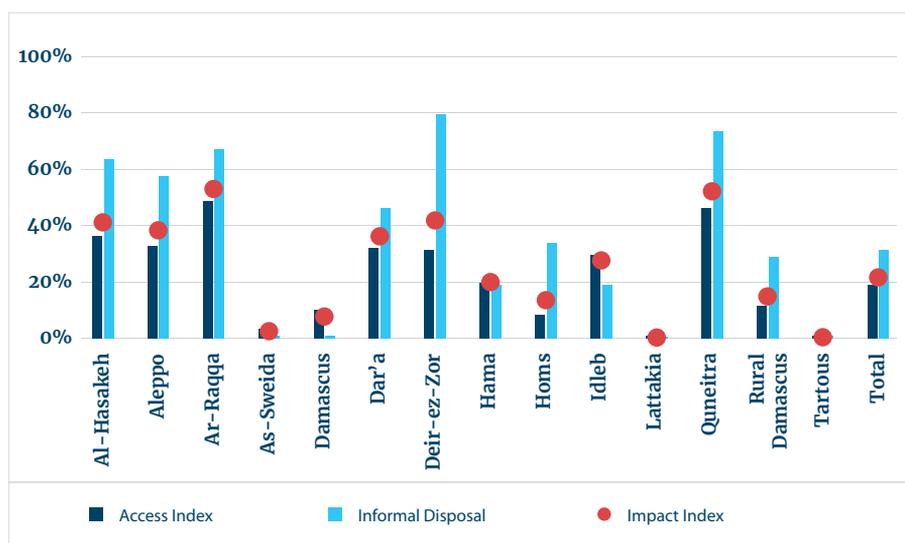
Figure 2.60. Arrangements for Solid Waste Collection (percent of districts), 2017



Source: Syria Dynamic Monitoring Report, February 2017; Information Management Unit. Based on a sampling of districts in each city.

Solid waste disposal has been impeded by the low coverage and quality of municipal solid waste collection services. The logistical and security challenges of waste transport in some cities is also preventing the use of the disposal sites that were established before the conflict. This has resulted in an increase of open dumping within communities (13-17 percent of sampled households in four cities); burning of garbage in communities (0-53 percent of sampled sub-districts in six cities) and has led to a rise in new dumpsites located outside of the urban area (50 -100 percent of sampled sub-districts in six cities).

Unsurprisingly, the greatest collapse of solid waste management services is observed in high conflict incidence areas. Nationally, across 61 districts in 14 governorates, 25 percent of households had neither private nor public access; of those who did have access, it was only public for 81 percent; and for 7 percent of them it was less than once a week. Consequently, the Access Index, which weights lack of access at 0.5, non-preferred access at 0.3 and infrequent access at 0.2 is 19 percent across all districts. Moreover, 32 percent of those with garbage collection said it was not disposed of in formal landfills or open dumpsites.¹³⁶ When combining access and disposal as an aggregate index (Figure 2.61), the greatest solid waste management deprivation was in Ar-Raqqa (53 percent) and Quneitra (52 percent), with Al-Hasakeh (42 percent), Aleppo (38 percent), Dar'a (35 percent), Deir-ez-Zor (41 percent) and Idleb (28 percent) also over 25 percent. The least deprived governorates are As-Sweida, Damascus, Lattakia and Tartous.

Figure 2.61. Solid Waste Management Deprivation Index by Governorate, 2017

Source: UNICEF 2017 WASH Survey and World Bank analysis.

Note: Access Index is 0.5 x lack of access (neither public nor private), 0.3 x non-preferred access (non-public) and 0.2 x infrequent access (less than once a week). The Aggregate Impact Index or "Solid Waste Deprivation Index" is 0.8 x Access index and 0.2 x Informal Disposal.

Services to manage debris largely did not exist before the conflict. Facilities to manage construction and demolition debris were very limited and it was largely disposed of by being mixed with municipal solid waste in landfills or dumpsites. Debris from armed conflict presents additional challenges in management and processing due to contaminants and unexploded ordinance that are not found in normal construction and demolition waste. Because of the large quantity, much of the debris has not been cleared and there is little evidence of debris management activities at the scale needed to begin tackling the problem. The available information has indicated that efforts have focused on debris clearance into informal dumps and disposal sites with some efforts at recovery of marketable items.

Conditions in Countries of Asylum

Access to good garbage collection is very high for refugees living in Lebanon and Kurdistan, whereas conditions in Jordan are not known. While the access to and quality of solid waste management for refugees in Jordan is unknown, refugees in Lebanon clearly enjoy much better access and quality than those still living within Syria, with 95 percent of the population with waste collection service in Lebanon and 25 percent in Syria. The formal public sector is able to provide the collection service in Lebanon, with only 2 percent of the population with service using private or NGO collection (Table 2.16).¹³⁷ This is in contrast to Syria where with the collapse of municipal

Table 2.16. Garbage Collection for Syrians and Refugees in Lebanon

Location	No Garbage Collection	Not Public Collection, if Collected
Syria	25 %	19 %
Lebanon	5 %	2 %

Source: UNICEF 2017 WASH Survey and 2017 VASyr.

services, most of the collection service is provided by NGOs, local councils or private entities. In the Kurdistan Region of Iraq, a higher share of refugees in non-camp settings is covered by municipal garbage collection than residents. Whereas only slightly more than half of residents live in a house where garbage is collected by the municipality or private contractors, virtually all refugees are covered by the services. That refugees live mostly in urban areas in rented dwellings likely explains the discrepancy.

2.5.5. Energy

Even before the conflict, Syria's electricity sector was in urgent need of investment and institutional reform. After experiencing relative stability in the 1990s, Syria's power sector was facing numerous and significant challenges by the mid-2000s including growing electricity demand; a widening gap between demand and supply that led to frequent load shedding; large network losses, both technical and non-technical; an insufficient domestic gas supply leading to scarcity and security issues; deteriorating sector profitability necessitating substantial government subsidies; and the struggle to attract private investment to mitigate the demand-supply gap. Considering these challenges, the GoS committed to reforming the sector's institutional framework in 2010, with the aim of attracting private financing for generation and distribution in order to improve sectoral efficiencies and address the gap between demand and supply. Before the conflict, the power system was managed by the Public Establishment for Electricity (PEE), which was divided into PEEGT (Generation and Transmission), and PEDEEE (Distribution and Exploitation of Electrical Energy). PEEGT was responsible for transmission including the 400-kV and 230-kV levels, while PEDEEE supervised the 66-kV, 20-kV, and 0.4-kV levels. As a result, PEEGT had 230-kV customers, that is, large industries and irrigation. All other customers were under the responsibility of PEDEEE. The conflict led to breakdown of this institutional mechanism.

Conditions in Syria

Syria's power sector assets suffered relatively limited damage, but nevertheless are largely dysfunctional. The remote-sensing-based assessment covered a total of 1,134 power sector assets across 15 cities. This included 15 power plants, three dams, 56 substations, 1,051 towers, seven transformers, and two administrative offices. Damage incurred by power sector infrastructure and assets in these 15 cities has been

Table 2.17. Total Power Sector Damage Inventory by City

Cities TOTAL									
Facility Classification	Pre-Crisis Baseline Number	Post-Crisis Damage and Service Data							
		Consolidated Damages Data for Governorate							
		Physical Status (#)				Operational Status (#)			
		No Damage	Partially Damaged	Destroyed	Unknown	Functioning	Partially Functioning	Not Functioning	Unknown
Power Plant	10	5	4	0	1	6	2	2	0
Dam	3	3	0	0	0	3	0	0	0
Substation	56	30	18	6	2	13	15	26	2
Tower	1051	707	61	51	232	86	307	130	528
Transformer	7	0	2	5	0	0	0	7	0
Admin Office	2	2	0	0	0	1	0	0	1
Total (2018)	1129	747	85	62	235	109	324	165	531
% Total		66.2%	7.5%	5.5%	20.8%	9.7%	28.7%	14.6%	47.0%

Source: World Bank staff calculations

significant, but relatively limited when compared to other sectors such as housing, education, and health. It is estimated that 7.5 percent of assets are partially damaged, and 5.5 percent of assets are completely destroyed. Although the remaining assets are reported to have no damage (with the exception of about 21 percent with unknown status), in terms of functionality, only 9.7 percent of assets were fully functioning, 28.7 percent partially functioning, and 14.6 percent not functioning. However, due to the restrictions of conducting a remote assessment with only limited data and on-the-ground presence, many assets were unable to be assessed, resulting in an unknown physical and operational status for 20.8 percent and 47.0 percent of assets, respectively. Much of the upstream assets (power plants, dams, sub-stations and towers) are either not damaged or partially damaged. The transformers seem to be either fully or partially damaged. Some electricity is also supplied by off-grid mini-grid solar systems and diesel generators, but it was not possible to quantify these activities. See Table 2.17.

The low functionality of power sector assets is also driven by shortages of skilled personnel, fuel, and necessary spare parts. While physical damage to the sector is a key driver of functionality decline, power sector functionality in many cases has been significantly hampered not by damage directly to the asset, but by other factors, including, but not limited to, insufficient personnel to operate the assets,

damage to interlinked downstream or upstream assets, interruptions due to conflict, the 'politicization of power,' and a lack of fuel supply and availability. For example, the Euphrates Dam in Ar-Raqqa, while physically undamaged, is experiencing impaired power production as only a few hundred qualified staff remain out of the roughly 2,500 necessary to keep the dam operating at full capacity.¹³⁸ In addition, villages outside of Menbij are currently only receiving two hours of power from the Tishrin Dam daily, as the lack of machinery and equipment necessary to repair the dam equipment result in low water levels that can only power the dam inefficiently.¹³⁹ The city of Kobane, meanwhile, has experienced power interruptions for a myriad of reasons, not limited to ISIS redirecting power from the Tishrin Dam away from Kobani in 2013, and employees of the Kobani Electricity Committee going on strike in September 2017 to protest low wages.^{140,141} Furthermore, institutional breakdown has caused delays of much-needed repairs and rehabilitation to sector assets that would restore their functioning. In addition, on the fuel supply front, it is the damage to Syria's oil and gas sector that may have resulted in operational breakdowns in the country's power network. The international trade sanctions imposed on the GoS have harshly curtailed the ability of the GoS to both acquire key, spare inputs, as well as attract much-needed foreign direct investment to the power sector.¹⁴²

There is a wide gap between the availability of electricity across different cities.

Table 2.18 shows the divergence of electricity access across the 15 cities covered in this study. Conflict intensive cities and opposition-controlled areas are often deprived of electricity access as their connectivity with other regions is broken. In Idleb, Dar'a, and Douma, electricity access is estimated for less than five hours a day, mostly from diesel generators. In comparison, electricity is available for most of the day in cities with undamaged (or repaired) grid like Deir-ez-Zor, Kobani, and Yabroud.

Table 2.18. Current City-Level Power Availability

City	Pre-crisis Availability	Current Availability in Hours (Reported)	Rationing Info (Reported)
Aleppo*	1,850MW - prewar capacity (shared)	On average 50 percent or 12 hours. This varies significantly by neighborhood, and there is a heavy reliance on generators.	12-14 hours in areas which have power. There are periodic interruptions, and some areas display alternating 2 hours of power then 2 hours rationed.
Dar'a	1,764MW - prewar capacity shared with Damascus	Approx. 17 percent or roughly 4.5 hours. There is a heavy reliance on generators.	Alternating 1 hour on, then 5 hours off while lines are being repaired in Dar'a
Douma	1,870MW - prewar capacity (shared)	Scarce, and completely reliant on generators with all towers and substations destroyed.	There was no power as of July 2018
Homs	1,424MW - prewar capacity (shared)	On average 30 percent or slightly over 7 hours, though this varies significantly by neighborhood. There is a heavy reliance on generators.	6 hours of cut power followed by 2 hours of power (March 2017).
Idleb	544MW - prewar capacity (shared)	Approx. 10 percent or almost 2.5 hours, primarily via generators.	Idleb is cut off from the national grid
Kobani	630MW - prewar capacity (shared)	Approx. 67 percent or 16 hours, though varies due to dam water level. Roughly 20 percent is provided by generators.	16 hours, but may vary depending on water level in river (dam)
Ar-Raqqa	990MW - prewar capacity (shared)	Approx. 33 percent-50 percent or 8-12 hours, though access varies significantly by neighborhood, with some not receiving electricity at all. There is a heavy reliance on generators.	2-3 hours of rationing around noon
Menbij	25-40MW is coming in from the dam depending on water level	Approx. 33 percent or 8 hours, with heavy reliance on generators. Some neighborhoods are devoid of electricity.	4PM to 12AM
Qamishli	25MW provided out of needed 140MW	Approx. 17 percent or 4 hours, with 72 percent of energy production coming from generators.	Approx. 4 hours per day on average

Source: World Bank staff calculations based on analysis from local interviews with key informants, Facebook, findings for satellite imagery, and local news sources including Al-Monitor.

Conditions in Countries of Asylum

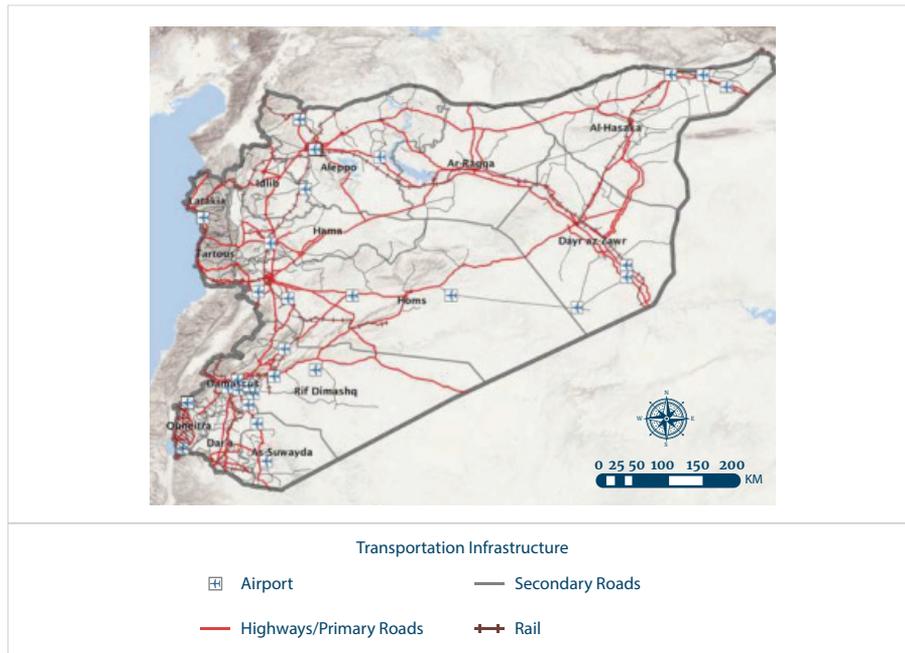
Increased energy demand due to the influx of Syrian refugees has placed added strain on Lebanon's already-strained power sector. Lebanon was subject to significant load-shedding even before the arrival of Syrian refugees, resulting in supply cuts of roughly three hours (12.5 percent) daily in Beirut, and up to 12 hours (50 percent) outside the capital, forcing locals to rely on diesel generators on a regular basis. While 715 MW of total capacity have been added since 2010, the arrival of Syrian refugees necessitates the addition of 486MW of additional power supply (inclusive of 15 percent technical losses during generation) to cover increased net demand. In total, 3,309,487 people need improved access to electricity. Lebanon currently has a peak demand of 3,400 MW, but only 2,720 MW installed capacity available at peak supply. Information on energy access and consumption is not available for refugees, but their access is almost certainly better than those currently within Syria. On average, between 2012 and 2016, Lebanese residents had roughly 14 hours daily (58.3 percent) of power consumption available to them, compared to the 9.12 hours a day average in Syria.

Jordan was already an energy-insecure country, importing 96 percent of its total energy consumption; the influx of Syrian refugees has put a substantial strain on service provision.¹⁴³ Total annual electricity consumption rose markedly from 4,296 GWh in 2009 to 6,560 GWh in 2014 (an increase of 34.5 percent), and liquefied petroleum gas (LPG) consumption increased from 300,000 p.a. tonnes to 366,000 p.a. tonnes during the same time period. The Government of Jordan forecast an additional 225MW of energy required between 2016 and 2018.¹⁴⁴ In November 2017, Jordan established the world's first refugee camp powered by renewable energy. The Azraq solar energy plant at the Zaatari refugee camp is a 12.9MW solar PV plant and allowed UNHCR to increase power provision to refugees' homes from 8 hours to the current 14 hours.¹⁴⁵

Supply of electricity reflects the inferior living conditions of Syrian refugees in Kurdistan. While all Syrian refugees are connected to the electricity grid, they received only about 9 hours of electricity per day on average, despite their living in urban areas. In comparison, residents of Kurdistan received 18 hours of electricity per day.

2.5.6. Transportation

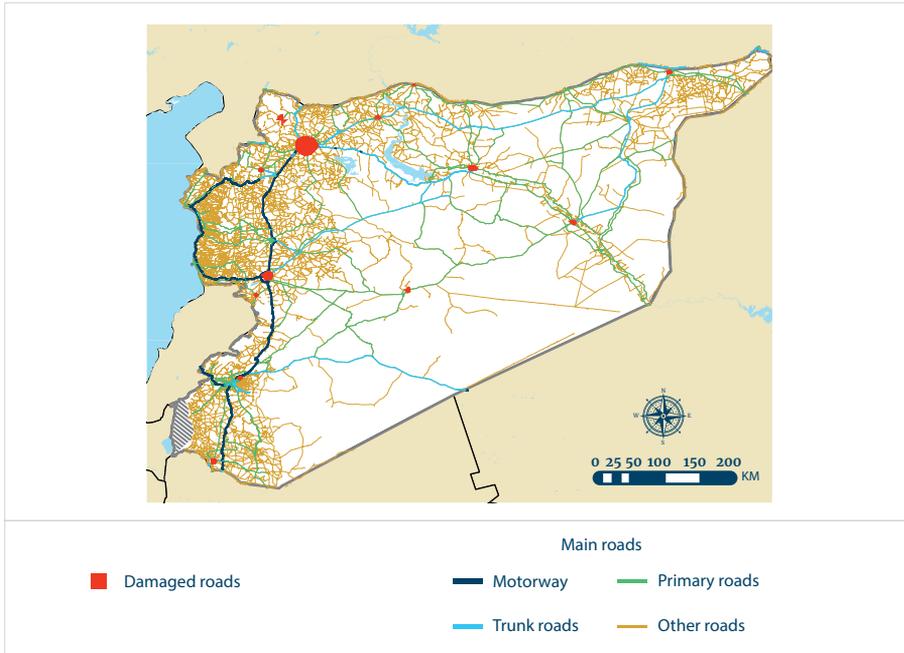
Syria's roadway network expanded rapidly before the conflict, to keep pace with the fast-growing economy and population. In the decade preceding the conflict, the road network grew by 10 percent, with which 70 percent of the network being asphalted (Figure 2.62). This increase was more than matched by an increase in the number of vehicles. Six years of economic reforms, including a reduction in import taxes, from more than 250 percent to 50 percent, and the introduction of bank credits for purchasing cars, created an unprecedented surge in the number of vehicles on the road. According the Syrian Central Bureau of Statistics, the total number of registered vehicles in Syria increased from 1.2 million in 2006 to 2.1 million in 2010 (World Bank 2017b).

Figure 2.62. Syria's Transport Infrastructure

Source: World Bank

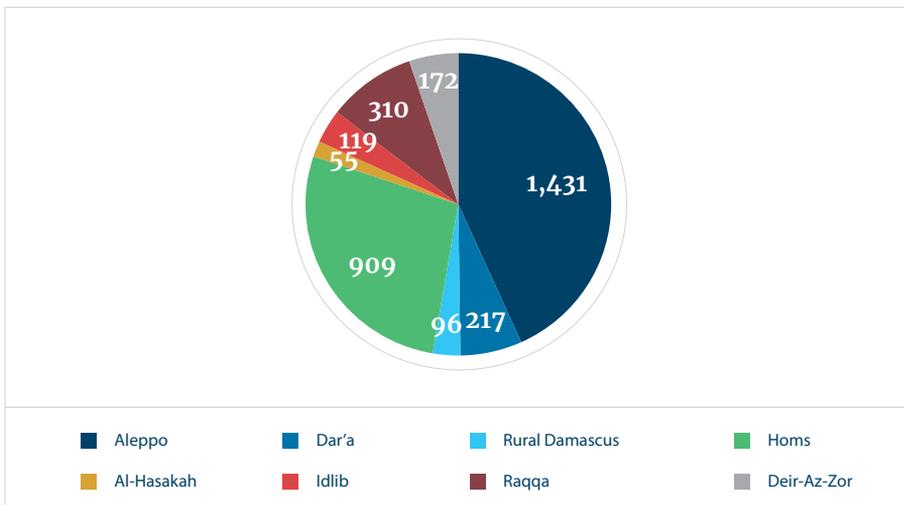
Syria's well-developed network of motorways is primarily located in the western half of the country. The Motorway System is a divided, multi-lane highway along the Damascus–Homs–Hama–Aleppo corridor, with extensions to the Mediterranean Ports of Tartous and Latakia, and to Jordan to the south and Lebanon to the west. At the time that violence broke out, the secondary road network was generally in good condition and additional road construction was underway to extend the major highway network to include a link from Latakia to Aleppo. Motorways and secondary roads have been assigned weight-load limits, and weigh stations operated to limit truck overloading. The eastern part of the country was only connected through two-lane roads due to the sparse of the population. In 2010, the total distance of the road network in Syria was 69,837 kilometers (km), of which 63,060 km was paved (including 1,103 km of expressways) (CIA 2018). M5 remains the most important motorway in the country. At 474 km in length, it functions as the backbone of the national network, connecting the border with Jordan in the south with Damascus, the capital, and continuing further north to Aleppo, the country's second largest city. Other cities connected by this motorway are Dar'a, An Nabk, Homs, and Hama. (Bank 2017) The Syria road network was highly impacted by the crisis and will be described further in the damage assessment section in this report.

Figure 2.62. Damaged Road Network



Source: OSM, World Bank

Figure 2.64. Damaged Roads



Source: World Bank estimates

Table 2.19: Damaged roads and percentage share of each city

Governorate	City	Roads Damaged Per City (m)	Bridges Damaged (m)	Roads Damaged Per Governorate (m)	Percentage of the total Damage
Aleppo	Afrin	5,640		1,431,878	44%
	Aleppo	1,352,576	7,027		
	Menbij	53,302			
	Kobani	20,360			
Dar'a	Dar'a	132,259		132,259	4%
Rural Damascus	Douma	95,617		95,617	3%
Homs	Homs	750,301		909,230	28%
	Tadmur	80,458			
	Al-Qusayr	78,471			
Al-Hasakeh	Qamishli	55,425		55,425	2%
Idleb	Idleb	119,375		119,375	4%
Ar-Raqqa	Ar-Raqqa	310,006	7,027	310,006	10%
Deir-ez-Zor	Deir-ez-Zor	172,414		172,414	5%

Source: OSM, World Bank

Current Conditions in Syria

Conflict has posed significant challenges to people's road connectivity and accessibility to basic social services, such as healthcare and education. The deterioration of accessibility is mainly attributed to three factors: (i) road damage, (ii) damage to social facilities; and (iii) population changes in size and distribution. Although only limited data are available, it is estimated that around 3,000 km of roads have been damaged in 13 urban areas (Figure 2.63). Although it is highly likely that the civil war damaged other roads, in other cities as well as in rural areas, due to data limitations this analysis assumes that all roads are passable except for the identified damaged roads.

While Syria's road network was severely damaged during the crisis, the impact of the damage was not homogeneous across governorates. Based on the recent damage results, eight governorates still present damage in roads and bridges, including: Aleppo, Dar'a, Rural Damascus, Homs, Al-Hasakeh, Idleb, Ar-Raqqa, and Deir-ez-Zor. Among these eight governorates, 43 percent of the damage is in Aleppo governorate, (95 percent of total damage is in the city of Aleppo), and 27 percent is in the governorate of Homs, (83 percent of total damage is in the city of Homs). Figure 2.64 represents the share of damaged roads per governorate based on Table

2.19. The total number of damaged roads per governorate is calculated as the sum of the damaged roads in the cities where damage data is provided.

The level of damage among the 14 studied cities varies from 0 percent up to 80 percent damage. In fact, the damage impact on the cities varies based on the conflict level the city experienced. In addition, reconstruction work had started up to two years ago in cities where financial capabilities were available and willingness to reconstruct strong. The percentage of damaged roads provides insights on the impact on connectivity within the cities, while the total number of kilometers damaged provides a view of the investment needed to reconstruct the damaged roads and bridge segments.

Reconstruction has been actively ongoing in the areas where there is limited or no conflict, and especially in areas where there is a will for reconstruction. Some roads, bridges and highways have already been reconstructed in the past two years across the different governorates of Syria, with a number of Syrian Government Investment Projects ongoing, including 195 projects in Damascus, 56 projects in Latakia, 75 projects in Tartous, 246 projects in Az Zabadani, 75 projects in Banyas, 170 projects in Hama, and more. In addition, comparing the damage assessments of 2017 and 2018, it is clear that the governorates are taking forward reconstruction works at different paces, depending on several factors, including security, budget, and willingness to reconstruct. Several bridges have been reconstructed since 2017, however, more bridges were damaged during the same period. The total number of kilometers of damaged bridges in 2017 was 12.6 km, but in July 2018 reached 14 km. In fact, since 2017, an additional 4.39 km of bridges were damaged in Ar-Raqqa.

Since Aleppo and Homs comprise a significant share of this damage , a deeper analysis is warranted. In Aleppo, with a total network of about 2,700 km, the transport sector has been improving, with nearly 1,800 km of roads experiencing some level of debris removal and/or repair since January of 2017. The current level of potential damage reaches nearly 1,400 km, a significant decrease from the early 2017 impact assessment of 3,100 km. The impacted roads cross all road types, from trunk roads to residential roads, with the eastern part of the city remaining the most heavily damaged. In Homs, which accounts for the second largest share of Syria's road damage, more than 750 km of the nearly 1,100 km of roads are impacted by damage. The situation is improving, with about 365 km of roads having been cleared since January 2017. The central and northern parts of the city remain the most heavily damaged. As in Aleppo, the damage reaches all road types, with more than 50 percent of most road classes being impacted, from trunk roads to residential roads.

To assess the implications of this damage for Syrians' connectivity, two measures are used. To measure the changes in connectivity and accessibility at city level, the following indicators are used: (i) number of kilometers of roads per person in 2011 and 2018; (ii) proximity to health centers within 30 minutes and proximity to schools within 10 minutes.¹⁴⁶ The analysis is focused on the urban areas where data on damage assessment has been provided. See Figures 2.65, 2.66, 2.67 and 2.68.

Figure 2.65. Accessible Road Density Per Area (km per 100 km²) in cities

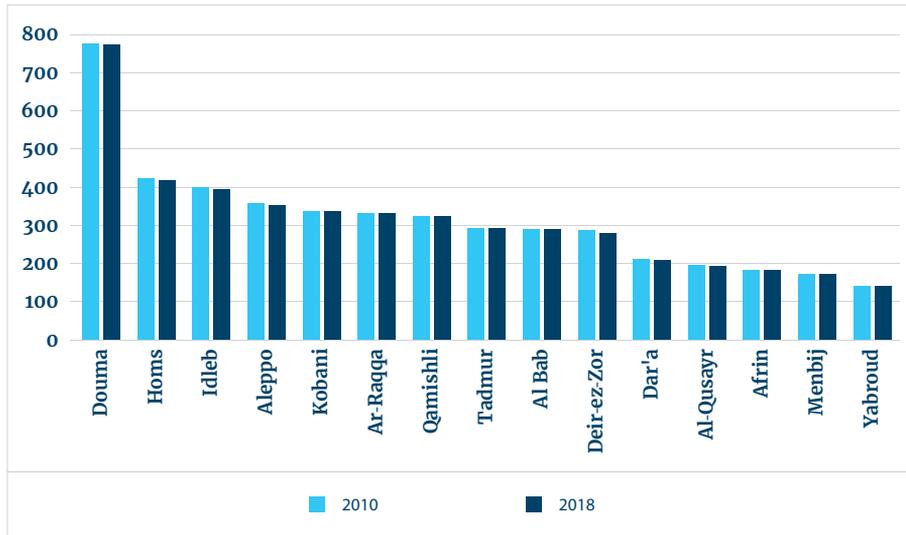


Figure 2.66. Population Density Per Area (people per km²) in cities

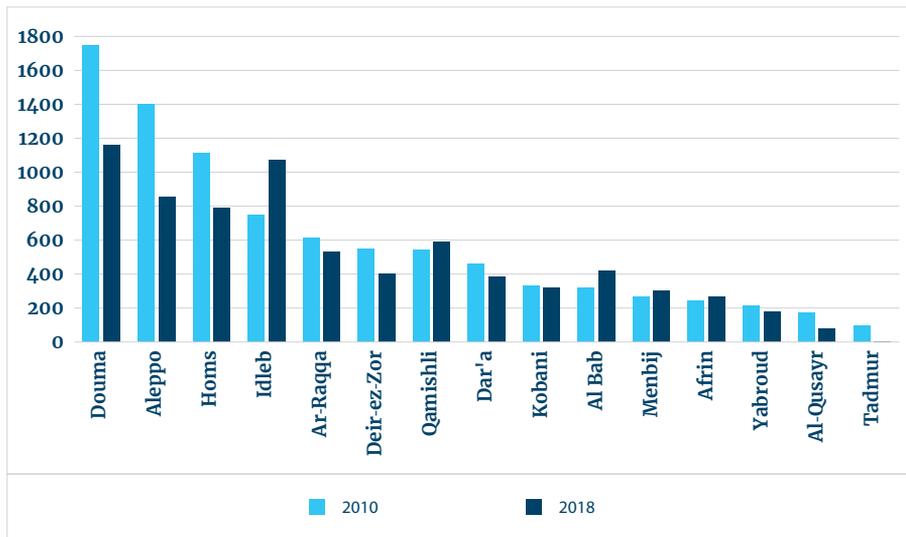
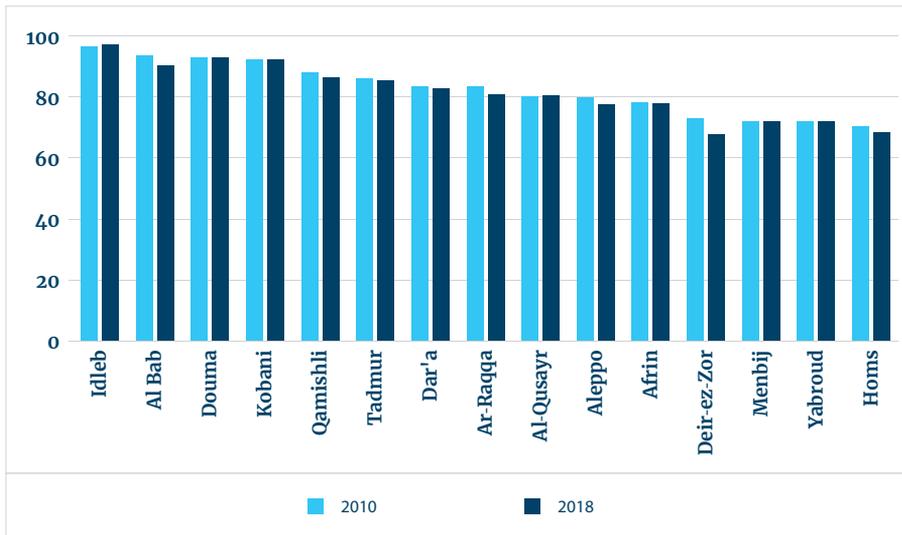
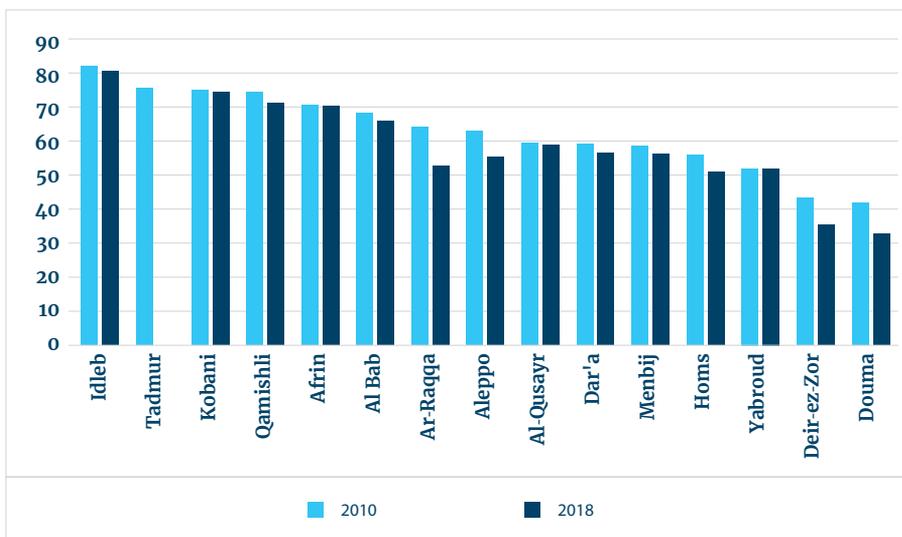


Figure 2.67. Percent of population within 30-min drive of a functioning healthcare facility in cities



Source: World Bank staff calculation

Figure 2.68. Percent of population within 10-min drive of a functioning school in cities



Source: World Bank staff calculation

Two factors explain the changes in proximity in a city: changes in road network and functionality of facilities due to damage and change in population due to displacement. In cities with high conflict intensity, Accessible Road Density has generally decreased between 2010 and 2018 due to the damage on roads. The density of accessible roads has experienced the highest decreases in cities that were severely damaged such as Aleppo, Homs, Dar'a, Douma and Al-Qusayr. The decrease is relative to the percentage of damaged roads per city. The population density has also decreased in affected cities while increasing in cities that are less affected such as Idleb and Qamishli. The population density therefore provides an indication of how many people got displaced. Tadmur is an example where the vast majority of population has fled. Homs, Douma, and Aleppo have also witnessed high decreases in population, while still having the highest population densities. Idleb, Qamishli, Menbij, and Al Bab have witnessed increases in their population density.

Population movements away from conflict-intensive areas to safer areas partially offset an otherwise drastic impact on proximity. Across the 15 cities studied, about 1.1 million people lacked good physical proximity to healthcare facilities in 2010; by 2018 the number of people lacking proximity had declined to about 837 thousand, due to the overall decline in population in these cities. However, compared to pre-conflict conditions, proximity in individual cities, expressed as a *share* of the population with good access, decreased quite significantly. The highest decrease was observed in the city of Deir-ez-Zor, by 5.3 percent, from a level that was already relatively low (73 percent) (Figure 2.71). While smaller, significant proximity declines are also observed in Ar-Raqqa, Aleppo, and Homs, where roads within the city were significantly damaged and where a large share of the healthcare facilities have ceased functioning. In some cities, such as Idleb, Kobani, and Al-Qusayr, accessibility is estimated to have slightly increased. In these cities, damage to roads and healthcare facilities has been more minor, and population is concentrated in areas that are proximate to healthcare facilities that remained functioning. The conflict has impacted physical proximity to education facilities much more than accessibility to healthcare services, due to the specific distribution of the road damage and due to more schools compared to clinics becoming non-functional.

Governorate level analysis shows more clearly the dual nature of access indicators (damage and mobility). Figures 2.67 and 2.68 show the results at governorate level. On the mobility side, as discussed above, Latakia, Idleb and Rural Damascus experienced significant population increases, which must have generated considerable demand for the road network. On the damage side, available or non-damage road density dropped substantially in Homs and Aleppo, followed by Ar-Raqqa and Dar'a. In these areas identified from both demand and supply aspects, the needs for road reconstruction are particularly high.

Proximity to a health facility has been hampered due to damaged roads and closure of hospitals. When health proximity is defined by the share of population who have 30-minute access to health facilities, about 14.9 million people, or 73.8 percent of the total population, are estimated to have proximity to health services in 2018. This is slightly lower than an estimate of 74.5 percent in 2010. Although this change in the share is relatively small, it is driven largely by a decline in the total population in Syria,

while the number of people who have health proximity decreased by over 1 million. There are many areas where health proximity was lost between 2010 and 2018 (Figure 2.71). It is estimated that 5.3 million people are still disconnected from functioning healthcare facilities in 2018. Health proximity differs substantially across regions, with accessibility deteriorated substantially in Aleppo, Quneitra and Ar-Raqqa (Figure 2.71). Clearly, proximity tends to be lower where the road network is less developed (i.e., road density is lower). See also Figure 2.73.

Proximity to school declined from 48.4 percent in 2010, to 44.6 percent in 2018.

A similar methodology as used in proximity to hospitals above was applied, with a threshold of 10 minutes assumed driving time (Figure 2.72). Not surprisingly, there is a similarity to health proximity: School proximity seems to have deteriorated, particularly in Aleppo, Ar-Raqqa and Idleb governorates. It also declined significantly in Homs.

While transport connectivity is a useful indicator, it is not synonymous with access to services in health or education. It is important to note that being close to a hospital or school does not necessarily guarantee benefiting from services offered there. It just shows that transportation per se is not a great determinant of service inaccessibility.

Figure 2.69. Accessible Road Density Per Area (km per 100 km²) by Governorate

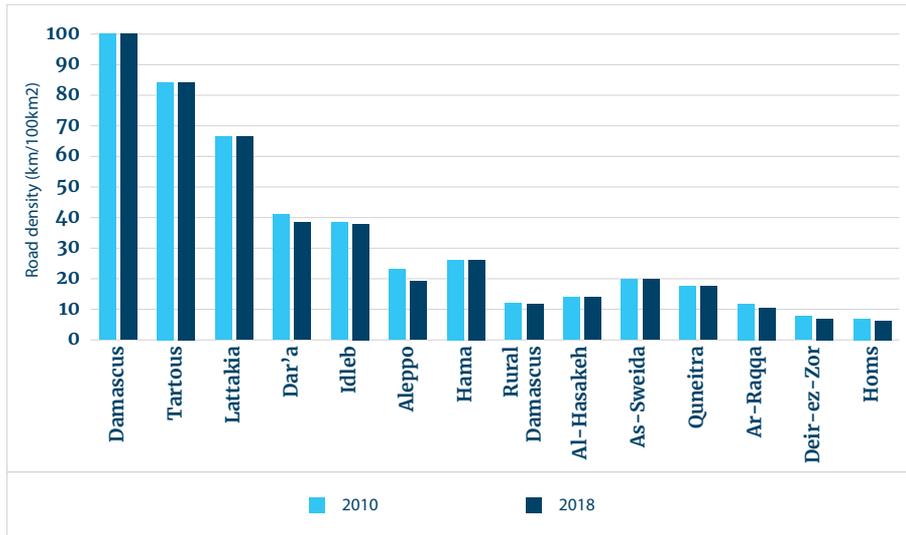


Figure 2.70. Population Density Per Area (people per km²) by Governorate

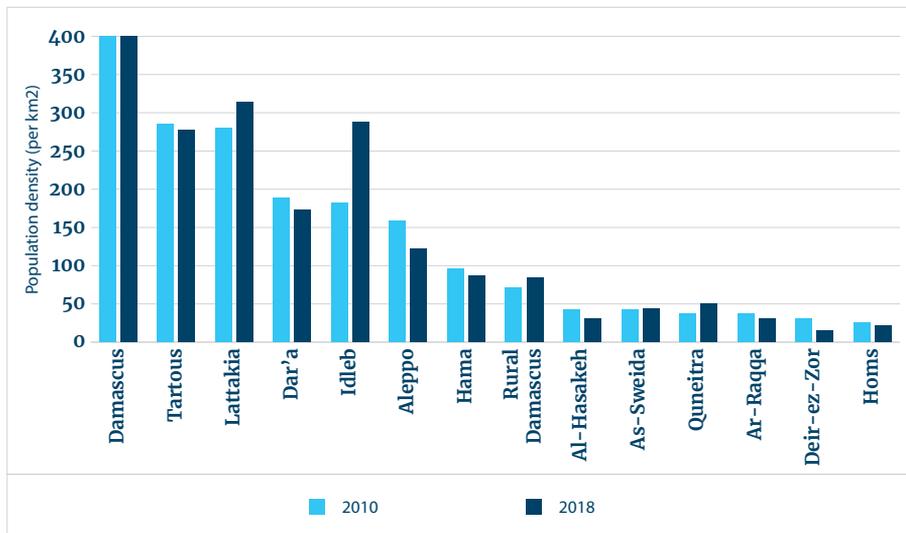


Figure 2.71. Percent of population within 30-min drive of a functioning healthcare facility in cities

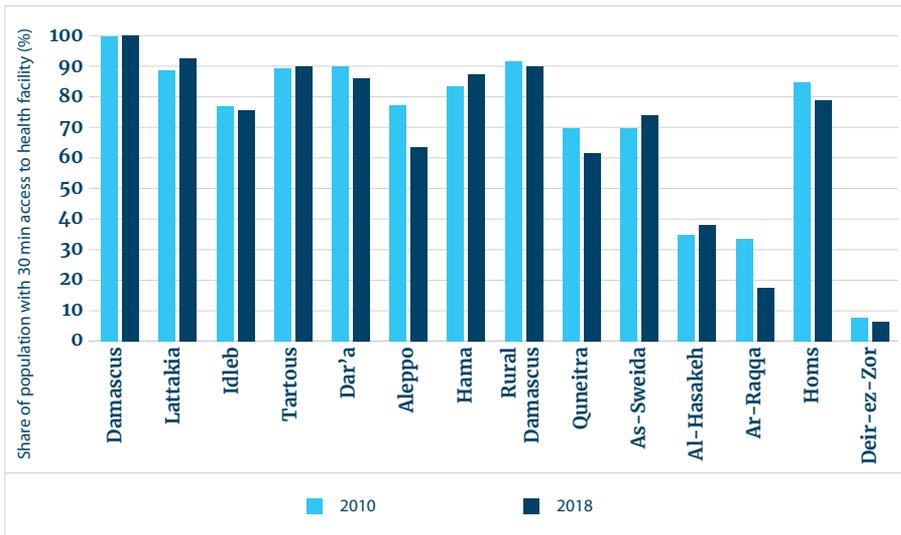
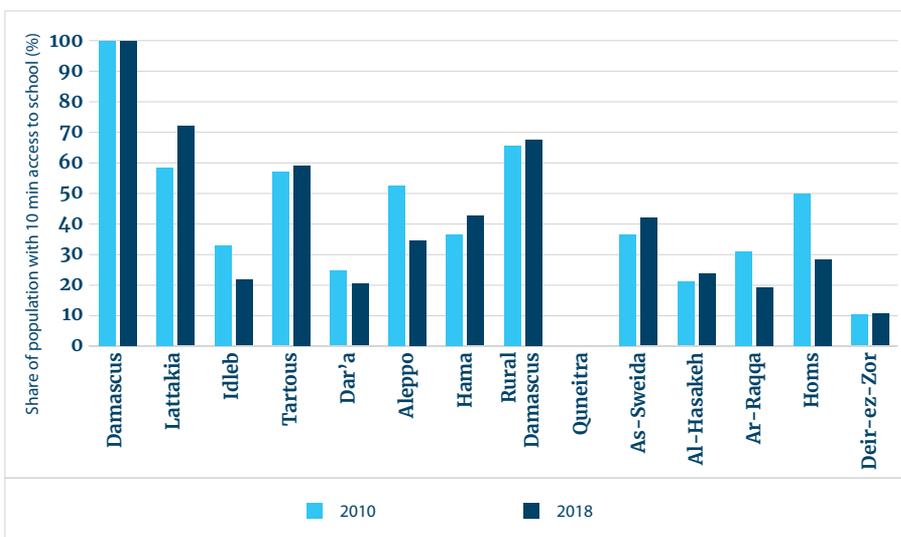


Figure 2.72. Percent of population within 10-min drive of a functioning school in cities



Source: World Bank staff calculation

Figure 2.73. Proximity Map

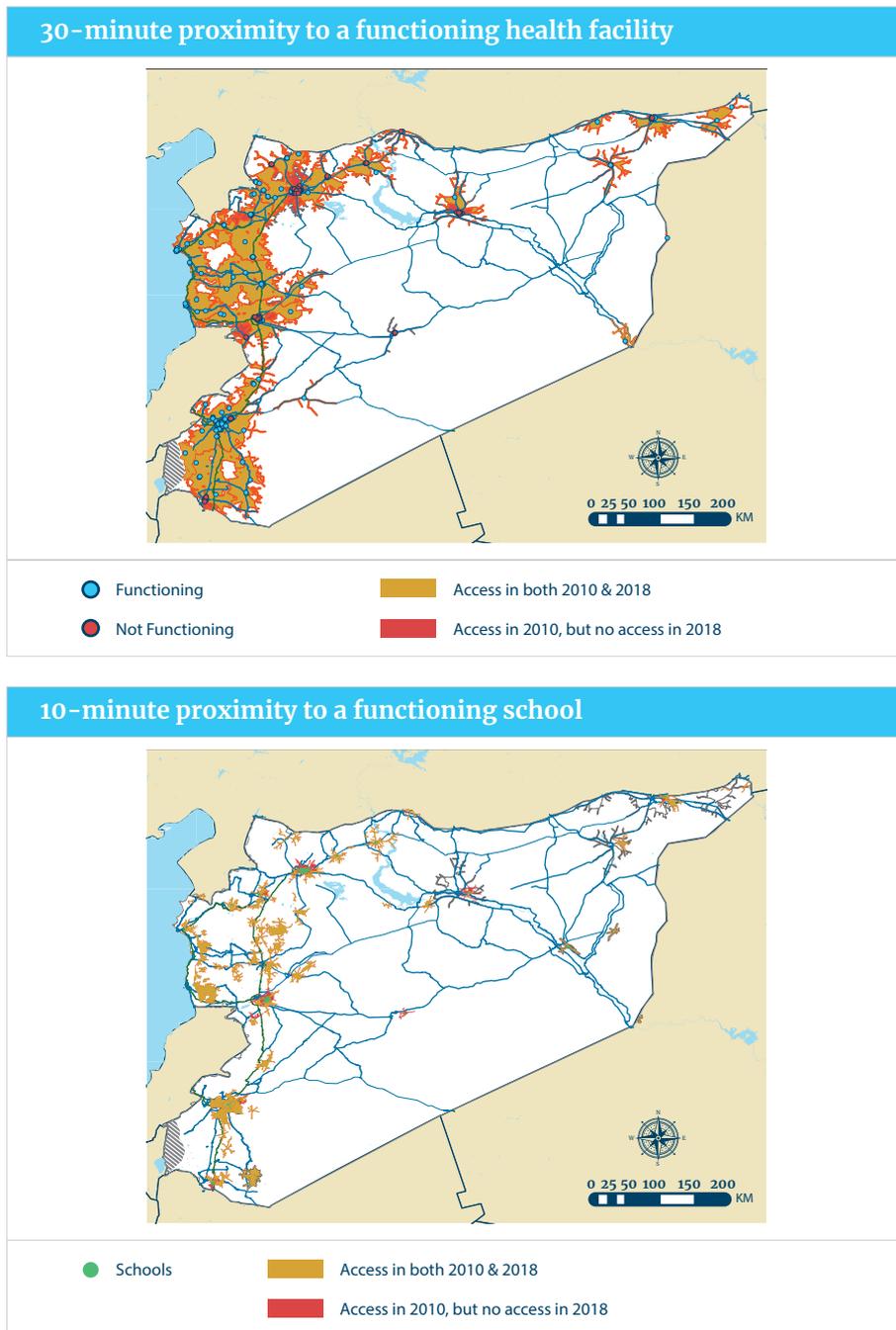
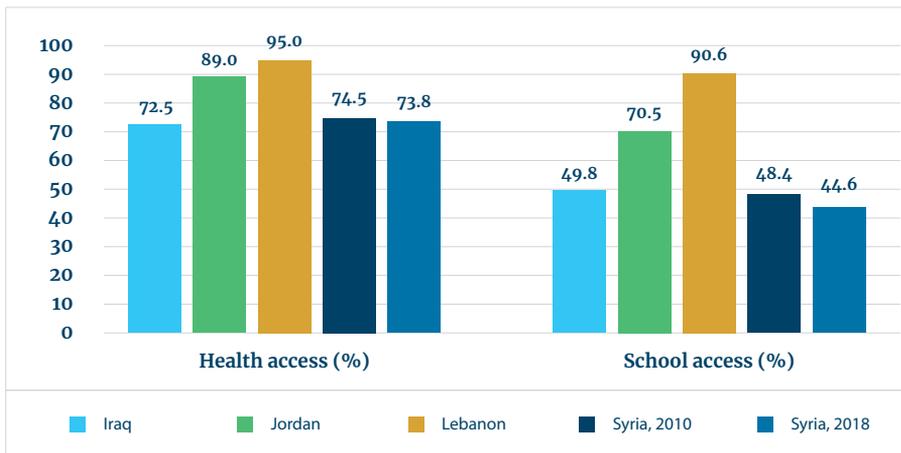


Figure 2.74. Health and School Connectivity Indicators in Syria and Its Neighbors



Source: World Bank

Conditions in Countries of Asylum

Proximity to schools and hospitals in Syria was among the lowest in the region and has worsened as a result of the conflict. Lebanon has the best proximity to health facilities and schools. This may be attributed partly to a more complete coverage of available data as mentioned above, but also because of the country's high population density, urbanization and road density. This is followed by Jordan and Iraq. Syria's health proximity is 20 percentage points lower than Lebanon's. School proximity is merely half of Lebanon's (Figure 2.74).

In host countries, transport infrastructure is sufficient to connect residents with services and markets. Especially in Lebanon and Jordan, highly urbanized societies imply relatively good access for residents. In rural areas, access to road infrastructure is high, compared to global benchmarks. Even in Iraq, where the largest share of rural residents lives, the rural access index (the share of population living in 2 km proximity of a road) is estimated at 63 percent. As with Syria, however, such infrastructure access is only a portion of the issue, as many refugees face policy driven limitations on their movement and access to transport, which was not possible to measure at this stage.

2.6. Concluding Remarks



This chapter assessed the conditions faced by Syrians inside and outside Syria along the four dimensions distilled from international experience. For each of the four dimensions (peace, security, and protection; livelihoods and employment; housing, land and property rights; and access to basic services), several narrower categories were identified and analyzed using multiple sources of data including needs assessments and vulnerability assessments organized by UN agencies, official sources of data, and World Bank assessments of damage and functionality. Data sources lent themselves to comparison between conditions within Syria and those outside Syria in some cases, especially in vulnerability/needs related issues as they were covered by surveys both in Syria and in host communities, albeit not identically; but they did not always support such comparisons, forcing the analysis to pursue second- or third-best approaches for some issues, such as monetary poverty.

Most Syrians are likely to face extreme poverty inside and outside of Syria. Before the conflict, the extreme poverty rate ranged from 6 percent in the urban areas of the Coastal region to 20 percent in the rural areas of the North-eastern region in Syria. By 2016, the average extreme poverty rate was estimated to be between 55 and 67 percent depending on various scenarios, indicating a massive jump in poverty with the majority of those remaining in the country under the extreme poverty line. Poverty for refugees is not particularly better, ranging from 51 to 61 percent in Jordan and 37 to 50 percent in Lebanon. Although these estimates are sensitive to assumptions and methodological choices as previously discussed, the standard of living for Syrians living both inside and outside the country is far worse than it was in pre-conflict Syria.

Other dimensions of welfare and quality of life are in parallel with poverty. Generally, as with monetary poverty, the non-monetary welfare of Syrians, which includes access to key services and infrastructure, tends to be highest for those refugees living in Lebanon, followed by those living in Jordan, with current welfare for Syrians still living in Syria the worst. This pattern holds on most comparable indicators of health, livelihoods, and core infrastructure, with education and housing being notable exceptions (Table 2.20). Female labor force participation is very low all three countries, but male unemployment is highest in Syria at 57.7 percent, followed by Jordan (20.5 percent) and then Lebanon (12.7 percent). However, more school-age children are enrolled in Syria (61 percent) than in Jordan (56 percent) or Lebanon (42 percent), indicating that on this critical dimension for the future, refugee children are particularly challenged, especially in Lebanon. The picture is also mixed on measures of living standards. Sanitation deprivation is considerably lower in Syria than for refugees in Jordan and Lebanon. Water deprivation is higher in Lebanon than Syria which is higher itself than in Jordan. Garbage collection is much worse for those in Syria than in Lebanon where there are almost no problems (no information is available for Jordan).

Table 2.20. Comparison of Key Indicators in Present Day Syria and Host Countries

Factor	Indicator	Syria	Refugees in Lebanon	Refugees in Jordan
Poverty	Percentage of households in extreme poverty	55-67	40-53	56-65
Housing	Average percentage of housing problems (percent)	28	44	15
Water	Deprivation Index	25	33	18
Sanitation	Deprivation Index	4	19	18
Garbage	No collection (percent)	25	5	n/a
	Not public collection (percent)	19	2	n/a
Education	School-age enrolment (percent)	61	42	56
Health	Infrastructure Index	0.230	0.369	0.291
	Human Resource Index	0.095	0.562	0.612
Employment	Female participation (percent)	11.9	12.7	13.1
	Male unemployment (percent)	57.7	12.7	20.5
	Female unemployment (percent)		2.7	59.9
Transport	Health access (percent)	73.8	95.0	89.0
	Education access (percent)	44.6	90.6	70.5

Source: All measures are summarized from earlier in the chapter. Refer to earlier sectoral discussions for full sources and notes.

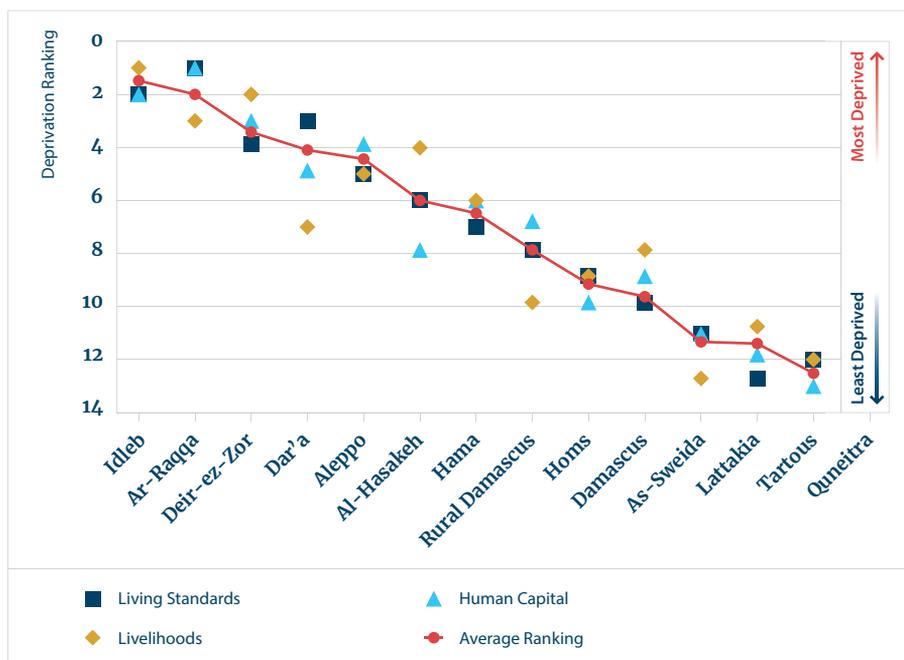
In Syria, deprivation is concentrated in the most conflict-affected governorates even after accounting for major displacement away from these locations.

Figure 2.75 summarizes sector-specific deprivation rankings presented throughout the chapter in three broad categories: living standards (water, housing, sanitation, energy, and solid waste, human capital (education and health), and livelihoods (employment and agriculture). Note, the higher the ranking (the lower the number), the worse the relative deprivation. Idleb (1.5 average ranking) and Ar-Raqqa (2.0) are the most deprived governorates, followed closely by Deir-ez-Zor (3.5), Aleppo (4.5) and Dar'a (4.3). Al-Hasakeh (6.0) also performs badly but its average is better due to less deprivation on human capital (only 8th worst). The least deprived governorates are consistently Tartous (12.5), Lattakia and As-Sweida (11.5).

Overall, most Syrian refugees are from the governorates that experienced the greatest incidence of conflict, and by the analysis above, the greatest deprivation.

Combining the demographic results from the previous chapter and conflict/deprivation

Figure 2.75. Deprivation Rankings by Governorate and Welfare Channel



Source: World Bank analysis

Note: Rankings for Quneitra are not available due to lack of data for some sectors.

results from this chapter shows that, about half of all refugees in Iraq, Jordan and Lebanon come from the five governorates with the poorest deprivation rankings (Idleb, Ar-Raqqa, Deir-ez-Zor, Dar'a and Aleppo). Another quarter come from the next three worst governorates (Al-Hasakeh, Hama and Rural Damascus). The only significant outlier is Homs, which sent the second highest number of refugees, yet it has the fifth best deprivation ranking; Damascus has also sent many refugees (139,000) despite having the fourth best ranking. Thus, for most refugees, the correct benchmark is clearly not the average security and deprivation across Syria, but these conditions in already badly hit areas. It is clear for most refugees that if they were to return to their place of origin, they would be facing considerable deprivations on all dimensions of welfare.

Given these concerns, the next chapter will take a more granular approach by exploring the relationship between refugee returns and conditions faced by individual refugees at origin and host countries. The assessments provided in this chapter helped to understand the conditions faced by refugees in countries of asylum and in Syria. However, there are vast heterogeneities across different locations and different refugees. To better understand how the four dimensions of factors discussed so far may influence the return behavior of refugees, these differences need to be accounted for. This is done in Chapter 3.

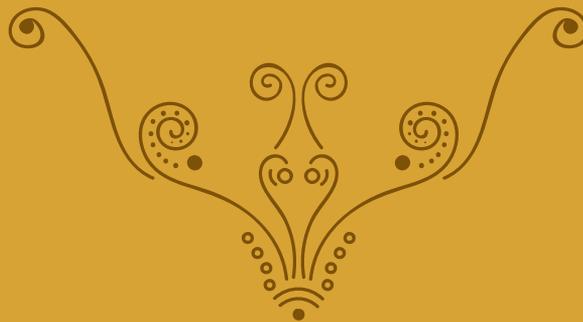
Chapter 3

The Anatomy of Returns to Date

Returns to Syria have been low relative to the total refugee population but more than a hundred thousand (103,090 between 2015 and mid-2018), nevertheless. These returnees (and millions of non-returnees) provide an opportunity to investigate the factors that have contributed to return decision so far.

This chapter estimates the importance of the four broad factors distilled from international experience in shaping the mobility of Syrian refugees so far. To do this, it uses empirical tests to identify generalized (population-wise) effects of each factor on actual return behavior and uses machine-learning techniques such as decision trees and boosted trees to capture localized (group-wise) effects, which enables better understanding of the complexity of return.

To complement the analysis of actual returns, the study also investigates willingness to return by employing new surveys of refugees, including non-registered ones.





Lolita Lolita

Chapter 3:

The Anatomy of Returns to Date



Unlike an initial forced displacement, voluntary and spontaneous return is, at least to a certain extent, a rational/economic/multidimensional decision. Violence-induced displacement often takes place quickly, allowing no lead time for preparation and planning. The threat to the lives of individuals and their families overrides any economic concerns in that short period of time, and although the nature of flight may differ across different socio-economic groups, society as a whole is affected by the shock across all subgroups. In comparison, voluntary return decisions, assuming no direct coercion, are made gradually. Refugees, to a certain extent, act differently in this case: they compare their options like staying in their current location, returning to their country of origin, or moving to a third location. Because these options typically change over time, many refugees move several times after the initial displacement.

The complexity surrounding refugee returns renders a systematic analysis daunting. Factors that influence the well-being of refugees in host communities, country of origin, or a third location can all influence their return decisions. Like other economic actors, refugees compare their current and future quality of life in all locations that are within reach. However, they face many more constraints than an ordinary person, including numerous economic, social, cultural, judicial, psychological, and institutional factors, all of which interact in a convoluted web. In such unconventional conditions, no single factor becomes the sole reason explaining refugee mobility decisions. For these reasons, and due to the absence of comprehensive data, the literature on returns is thin and confined to descriptive case studies. Quantitative evidence and empirical analyses of refugee returns beyond limited aspects of individual cases are virtually absent.

Descriptive evidence suggests a nuanced and non-linear pattern of return that may look inconsistent at first sight. It is common to see cyclical return movements and considerable secondary movement (post return) as refugees seek out optimal solutions to their immediate reintegration challenges. While structural considerations such as security, livelihoods, and potential reintegration are key to return decisions, what these considerations really mean to individual refugees differs significantly depending on asset ownership, business and education opportunities in exile, recognition of school diplomas and certificates, recognition of civil registration (birth and death certificates, marriage, and inheritance), health considerations, state of the house or dwellings in the home country (whether or not it was destroyed), security, and accessibility. For a relatively urbanized refugee population, the longer the exile, the more they establish economic and social linkages (networks), and the more complicated returns may become. In the end, refugees rarely return in the same way as they arrived—either quantitatively (in the same numbers, at the same time) or qualitatively (return to original places of origin, or to former occupations). Return

takes place in varied and staggered shapes, occurring on different scales, at different times to different places, especially in the absence of a full peace accord/political settlement. It is often spontaneous, sporadic, and opportunistic rather than controlled and predictable.

Understanding the relative importance of key factors entails a quantitative approach. Facing the daunting task of making sense of the complexity surrounding return behavior makes it necessary to impose a logical structure onto the problem in order to reflect upon refugee returns effectively. When “everything matters” it is difficult to prioritize policies to help relax some of the constraints faced by refugees. To analyze the relative importance of various factors that explain the mobility of refugees, a framework within which different factors can be classified and ranked must be considered. In practical terms, this entails limiting the number of factors considered in the analysis. To this effect, this chapter adopts the classification of factors provided by the international experience, which was described in the previous chapters, to analyze the return of Syrian refugees to date. In particular, a ‘pull and push factors’ framework is used to classify the data and rely on insights from economic theory to reduce the dimensionality of the data, that is, by eliminating redundancies across variables.

The analysis in this chapter comprises a suite of methods that aim to shed light on the complexity of returns that have taken place until now. Subsequent sections here provide a brief descriptive summary of return behavior, where unidimensional comparisons between returnees and non-returnees are presented. Several empirical tests are presented to identify the generalized (population-wise) effects of each factor on return behavior. Next considered is a machine-learning based approach to identify the localized (group-wise) effects of various factors. Finally, a few extensions are considered where specific issues, like conflict dynamics and return perceptions, are analyzed in more detail.

3.1. Return Trends at First Sight



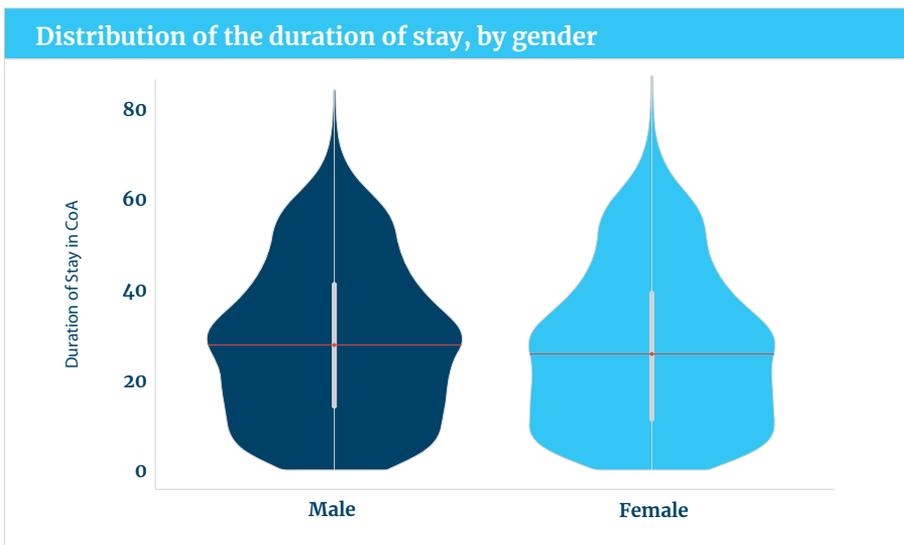
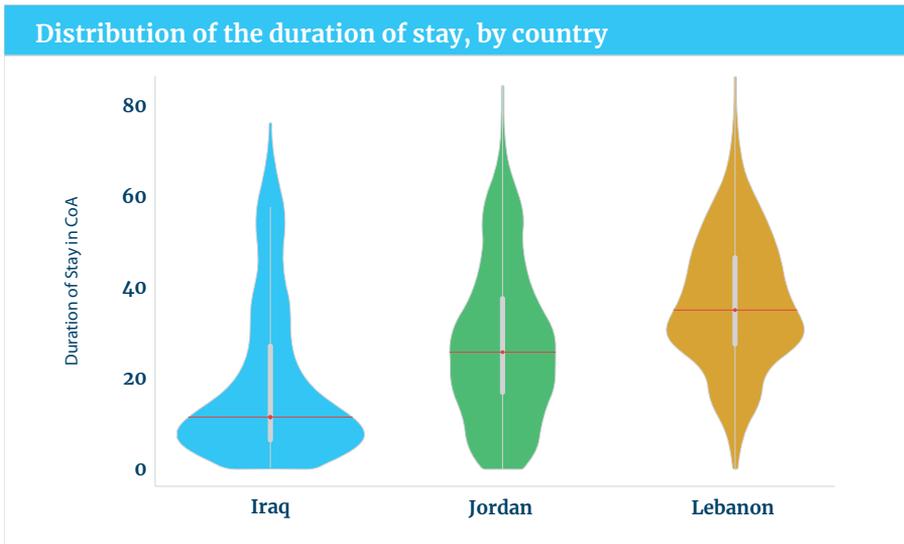
The knowledge of returns presented here comes from the Profile Global Registration System (ProGres) database, which is compiled by UNHCR to record each person of concern who approaches it. This is a limited administrative database, which may leave some forcibly displaced people out if they are not registered, and it includes a broad set of demographic characteristics for each recorded individual. It also contains information about the kinship of individuals within each “case,”¹⁴⁷ (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, aunts and uncles.) The UNHCR registration system effectively functions like a civil register, as the status of each entry is updated in subsequent contacts after the initial registration. Therefore, although information on arrival, registration, and return dates are fixed as they are onetime events, other information like occupation, marital status, and location of asylum may change over time.

UNHCR records show a small, but non-negligible, amount of returns to Syria from its Mashreq neighbors. The data used in this analysis covers all persons of concern in the Mashreq—mainly Iraq, Jordan, and Lebanon—that have registered with UNHCR until March 2018, comprising more than 2.4 million people.¹⁴⁸ Of this group, roughly 103,000 or less than 2 percent have been recorded as returned to Syria. However, this overall average marks notable differences in returns across countries of asylum. By 2018, almost 10.8 percent of the refugees in Iraq, 6.6 percent of the refugees in Jordan, but less than 2 percent of those in Lebanon have returned to Syria.

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 (Figure 3.1). The average returnee from Lebanon remained in the country of asylum for almost 1.5 years more than peers from Iraq and 10 months longer than those from Jordan. Using a separate metric, a simple pairwise comparison across countries shows that a Syrian refugee who sought asylum in Iraq was far more likely to return to Syria within a year than peers from the other two countries of this study. 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, it was shown in the first chapter that this is not likely. The relative distribution of arrival times is very similar across all three countries covered in this study. Thus, we must look elsewhere for an explanation. There are also no meaningful differences between male and female durations of stay at first sight.

Age is an important parameter in the decision to return. When sheer return numbers are considered, the two biggest age groups for the returnee population are 15-19 and 20-24, followed by the two subsequent age groups in third and fourth place. Together, individuals between 15 and 34 years old represent 40 percent of the returnees (Figure 3.2). However, when the returnee and non-returnee population age distributions are compared, these numbers show an underrepresentation of children, youth, and young adults in returnee population, and overrepresentation of older adults and seniors. In fact, the share of individuals above the age of 55 is more than twice the size of the share of the same age group in the general refugee population. This observation provides some support to the hypothesis that older individuals would be more willing to return to their country of origin. This may be driven by numerous factors, including difficulty in adapting to a new cultural-economic system, lesser concerns about military conscription for seniors, and concerns about maintaining asset ownership that requires the official owner to be present—in most cases this would be an older adult.

Figure 3.1: Duration of asylum by country (as of March 2018)



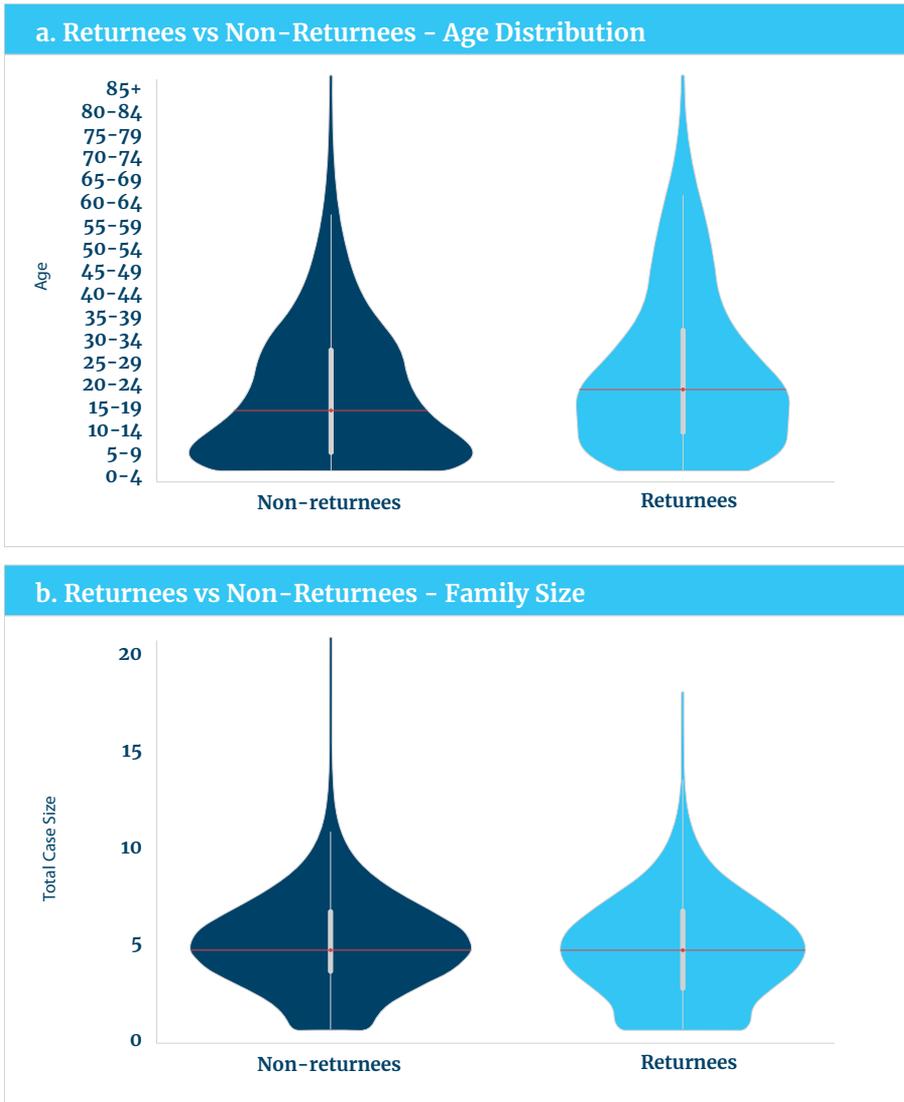
Notes: The violin plot figures show the distribution of values. The red lines in the middle show the median value, the vertical long lines show the full range of observations, and the thicker portions of the vertical line show where the 50 percent of the observations are observed. The areas to the right and left of the vertical line (mirror images) show the actual distribution, smoothed.

Family size is also an important correlate of return: single persons and smaller families are more likely to return. The marriage status of refugees does not seem to have influenced the decision to return: the distributions for returnees and refugees are almost identical. However, in a pairwise comparison between returnees and non-returnees, having at least one child is correlated with a lower likelihood of return: only 73 percent of the returnees have children, compared to 85 percent of the refugee population in the study. Indeed, the average case size for the returnees is five, compared to 5.3 for the entire sample (Figure 3.2). As the bottom segment of the distribution in Figure 3.2 shows, in comparison to non-returnees, smaller households are overrepresented in the returnee population. Although the underlying mechanisms behind this outcome could be very complex, one driver of such outcome could be family reunification, where individuals and small families decide to go back after the rest of the family fails to leave the country of origin.

On average, returnee adults have fewer years of education than non-returnee adults. At first glance it appears that returnees have more years of schooling compared to their peers who did not choose to return (Figure 3.3). However, as mentioned earlier a large segment of the refugees are children of school age and children are less likely to return compared to adults. Therefore, the distribution of education should be considered for adults only. When children are excluded, returnees have less education than non-returnees on average. In fact, individuals with no schooling comprise about 19 percent of the adult returnee population, while the same category comprise less than 12 percent of non-returnee population.

The simple exploration of returnee and non-returnee differences provided in this section should not be overinterpreted. The picture provided by pairwise comparisons of returnee and non-returnee populations is incomplete, and numerous potential confounding factors need to be controlled for a more conclusive assessment of the factors that drive return. The education example discussed above, where not controlling for age could lead to a wrong conclusion that returnees are more educated than non-returnees, points to a common pitfall. Many outcomes regarding the differences between returnee and non-returnee populations can be driven by factors that are not obvious at first sight. These may include differences between socio-economic conditions of refugees before arrival, conditions at their locations of origin, conditions they face in different host countries, among others. Thus, these factors need to be accounted for before the analysis could suggest effects of specific factors on return. The next section will do that.

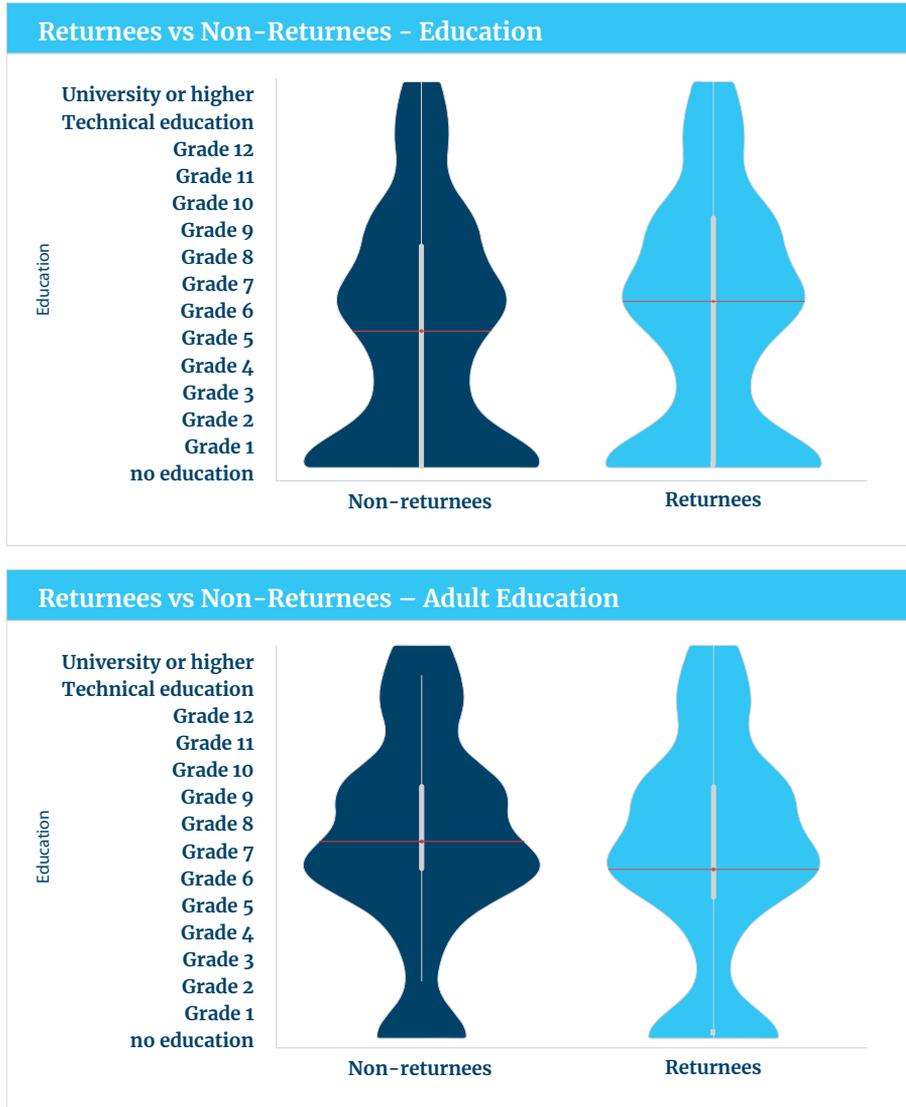
Figure 3.2. Age and family size distribution: returnees vs. non-returnees



Source: UNHCR ProGres Database, World Bank Staff Calculations

Notes: The violin plot figures show the distribution of values. The red lines in the middle show the median value, the vertical long lines show the full range of observations, and the thicker portions of the vertical line show where 50 percent of the observations are observed. The areas to the right and left of the vertical line (mirror images) show the actual distribution, smoothed.

Figure 3.3: Education profile of returnees and non-returnees



Source: UNHCR ProGres Database, World Bank Staff Calculations

Notes: The violin plot figures show the distribution of values. The red lines in the middle show the median value, the vertical long lines show the full range of observations, and the thicker portions of the vertical line show where 50 percent of the observations are observed. The areas to the right and left of the vertical line (mirror images) show the actual distribution, smoothed.

3.2. Disentangling the Drivers of Return



To better characterize the drivers of return to date, mixed sources of data on conditions in Syria and the main countries of asylum—Jordan and Lebanon—are used.¹⁴⁹ The team did not have access to a comprehensive longitudinal record of the conditions faced by refugees in countries of asylum and potential return locations in Syria. To offset this problem, a pragmatic approach that combines different sources and types of data has been adopted.

- **For conditions in countries of asylum,** consistent measures of push factors were developed from a series of representative household surveys of registered refugees conducted in both Jordan and Lebanon during the 2015-2017 period: the Vulnerability Assessment (VAF) in Jordan and the Vulnerability Assessment of Syrian Refugees in Lebanon (VASyr).¹⁵⁰ These household surveys assessed refugee needs at the case, household, and individual level, in such areas as access to water and sanitation, as well as poverty and food coping strategies. An important shortcoming of these surveys is the limited sample size: whereas the registration provides information for about 2.4 million refugees, the vulnerability surveys cover only a few thousands in each round, defined at the case level. To take advantage of a larger dataset for accuracy, the case-level data from the vulnerability surveys was aggregated geographically using the lowest available administrative subdivision.¹⁵¹ This approach enabled a robustness check to be conducted by using inference from a larger, individual-level dataset.
- **For conditions in Syria,** it was not possible to acquire a comparable and geographically comprehensive time series on living conditions or access to services. Instead, the analysis draws on a UNHCR-led Multi-Sector Needs Assessment (MSNA), which conducted key informant interviews in more than 5,000 communities in all 14 governorates in 2017. This information was subsequently aggregated to the district level and used as a proxy for access to publicly-provided goods and services. In addition, a monthly dataset comprising conflict dynamics was compiled based on secondary sources (including the Carter Center, Institute of War, and University of Maryland). This data provides a record of verified conflict-driven casualties, area control, and key conflict events (e.g. skirmishes, airstrikes, etc.) from January 2011 until August 2018.

The study has taken additional steps for removing doubts regarding the objectivity of data. In addition to testing the ideas with several samples (e.g., the entire population, only case-level data, and country-specific analyses), which are described in subsequent sections, the study also considered mitigating potential issues with the data itself. The data sources described above, especially the ones regarding the conditions

in countries of asylum, may potentially suffer from a few biases. First, the sampling may be biased, that is, the vulnerability survey participants are not representative of the broader registered refugees. Second, because the vulnerability survey participants are

chosen only from those who are registered, results based on this sample may not be representative of the broader displaced Syrian community in countries of asylum. This is particularly likely if registered refugees are self-selected; certain types of refugees prefer not to register, or they are unable to register for some reason. Third, in certain cases, responses to vulnerability surveys may be biased. Because UNHCR is both an aid agency and the agency that conducts the vulnerability surveys, participants may have incentives to reflect a more vulnerable profile to directly or indirectly influence the amount of aid they receive even if their responses do not have any direct influence on their qualification for aid.

A survey was conducted in Jordan and Lebanon to cross-verify existing survey data. To capture the livelihood conditions of unregistered refugees,¹⁵² and to provide a comparison between responses to surveys conducted by different agencies, a limited household survey was conducted in Jordan and Lebanon over a two-month period in July-August 2018. To ensure comparability with the ProGres database and the VASyr and VAF surveys, comparable information was collected for heads of Syrian refugee households, including demographic characteristics as well as livelihood conditions and work status in the host countries. In addition, the survey included questions on participants' livelihoods and employment in Syria prior to the conflict as well as vignettes to elicit the refugee's opinions on how likely a hypothetical refugee family would be to return. For the latter, the details of the scenario presented to a given individual respondent were randomly varied. This data was collected for an overall sample of 950 refugees in each country, including both registered and unregistered refugees.¹⁵³ Given the relatively high incidence of unregistered/unrecorded refugees in Lebanon,¹⁵⁴ existing sampling frames could be used to capture both populations, with quotas placed to ensure that the requisite number from each sub-group were interviewed in each geographic region. However, the incidence of unregistered refugees was reported to be much lower in Jordan. Thus, using existing sampling frames were not practicable. Instead, door-to-door surveys were combined with a snowball methodology for both registered and unregistered Syrian refugees to capture the required number of responses in both groups.

Building on the international experience described in previous chapters, four main categories of push and pull factors are used to classify data. The first category, peace, security, and protection, includes factors that influence the perception of security in the refugee's home location in Syria (Table 3.1). These include an index on the total number of conflict events that have occurred since the arrival in the host country. For returnees this series ends at the individual's return date to Syria, and for others, March 2018, the last time the researcher's version of the ProGres database was updated, is used as a cut-off date. In addition, information on area control and change of control one or three months prior to return (or March 2018), respectively, is also used. The second category of push and pull factors focuses on the livelihood situations of refugees in both the countries of asylum and origin. This is proxied for by how food insecure households are. Data is much more limited for HLP – the third category – and often limited to anecdotal evidence. An indicator for whether a case lives in a camp is used to proxy for access to shelter in countries of asylum.¹⁵⁵ Lastly, access to basic services can be directly measured for both countries of asylum and country of origin through household and key informant surveys, respectively.

The selection of indicators reflects challenges in measuring the push and pull factors. Two data conditions limit a more comprehensive approach. First, in certain cases, reliable data series are absent altogether. For instance, information on access to employment is absent for both the countries of asylum and origin. Most refugee employment is informal, and refugees refrain from revealing this so as not to lose assistance and being subjected to legal repercussions. Thus, proxy indicators are often used to replace missing or unreliable data. For example, food insecurity, one of the few variables that is measured consistently across countries and over time, is used as proxy for living conditions. The second problem is the time dimension of the data. Return is a dynamic process, that is, it takes place over time, depending on conditions that change. However, the ProGres database is largely cross-sectional—a characteristic driven by its social registry nature. In addition, the time series information on push and pull factors needs to be matched to the return date for returnees, which is not always possible with available data. In those cases, the most recent information is used as a proxy. Often only one year of information is available, especially for conditions within Syria.

3.2.1. What Matters and What Does not: Generalized Effects

To assess the relative importance of various factors in explaining return, the analysis first runs a linear probability model using data on actual returns. With a binary dependent variable (return or no-return), the linear probability model employed here estimates the probability of return based on a range of control or independent variables, including all the push and pull factors listed in Table 3.1 as well as demographic and socio-economic characteristics and registration information. In addition, fixed effects for the year of arrival as well as location in the country of asylum are included. A technical discussion on the specification of this approach is provided in Box 3.1. A robustness check of the specification is performed by using a logit model in the annex for this chapter, with remarkably similar results.

Table 3.1. Push & Pull Framework used in the empirical analysis

Push and pull factors	Variables used in the analysis for		Notes
	Location in Asylum Country	Location in Country of Origin	
Peace, security and protection	N/A	<ul style="list-style-type: none"> • Index on total conflict events during stay in Host Country, e.g. low intensity conflict, artillery, and air strikes. (Source: World Bank) • Change in control during 3 months prior to departure (Source: World Bank) • Armed group, who is in control of the area 1 month prior to departure. (Source: World Bank) • Security is a primary concern (Source: UNHCR MSNA) 	No comparable data is available on security and protection for the main host countries.
Livelihoods and access to employment	<ul style="list-style-type: none"> • Number of meals a household eats in a day (Source: VAF, VaSyr) • Index on food insecurity, including how many days per week an average household needs to borrow food or reduce the number of meals or portion sizes. (Source: VAF, VaSyr) 	<ul style="list-style-type: none"> • The price of 1kg of unsubsidized and subsidized bread (Source: UNHCR MSNA) • Malnutrition is a serious concern in the community (Source: UNHCR MSNA) 	No comparable data is available on access to employment for Syria or in the host countries. We use data on food availability to proxy for livelihood conditions.
HLP	<ul style="list-style-type: none"> • Case lives in a refugee or transit camp (Source: ProGres) 	N/A	No systematic data was found on HLP in Syria.

Results are cross-verified by using three datasets, each with its own strengths and weaknesses. The first dataset is based on UNHCR's ProGres, conflict dynamics, and the Syria MSNA, and covers the Mashreq region, including Iraq, Jordan, and Lebanon, comprising more than 2.16 million records.¹⁵⁶ Since vulnerability assessments are only available for refugees in Jordan and Lebanon (VAF and VASyr, respectively), they are excluded and this first dataset supports only analyses focusing on demographic characteristics, registration information, and conditions in Syria. The second dataset adds the vulnerability surveys for Jordan and Lebanon to incorporate conditions in host communities. However, because most individuals in ProGres are not covered in vulnerability surveys, an imputation is needed. To this effect, the case-level host community conditions in the vulnerability surveys are aggregated at the lowest possible geographic unit, and those values are imposed for all ProGres cases who are recorded in corresponding areas. This approach helps exploit the additional information provided by the VAF and VASyr; however, it restricts attention to Jordan and Lebanon only. Finally, the third dataset restricts the analysis to only those refugees who were covered by the vulnerability surveys to avoid using any imputations. This approach allows more variation at the case level, but significantly reduces the sample size to slightly over 42,500. Overall, each approach has merits and shortcomings; but together they present a convincing case.

The analysis first focuses on the effects of refugees' socio-economic characteristics and their registration status in the host communities. Overall, the number of variables that are used to describe the socio-economic characteristics, refugee registration status, and push and pull factors are too large to present in a single table. Therefore, the results are discussed in stages: Table 3.2 shows the results for socio-economic characteristics and refugee registrations status, Table 3.3 shows the results pertaining to conditions in Syria (pull factors), and Table 3.4 shows the results on conditions in host communities (push factors). Note, however, that in all tables the characteristics that are not shown explicitly are still controlled for, they are just hidden for ease of exposition.

The analysis of demographic characteristics suggests that return has so far happened in stages with select family members—singles, males, and non-nuclear family members—being more likely to return to Syria. Table 3.2 shows the demography and registration related results from the linear probability model specification. Column (1) shows the results for the Mashreq dataset, while the next two columns limit the analysis to Jordan and Lebanon with column (2) using geographical aggregates and column (3) using the case-level data only. Adult men are generally more likely to return to Syria compared to women. Moreover, marital status plays a role in the return decision, with singles being 2.7 percentage points more likely to return to Syria compared to the omitted category of married refugees for the Mashreq dataset, a result that is statistically significant at the 1 percent level. Comparable results, both in terms of magnitude and statistical significance, are obtained for the two Jordan and Lebanon datasets. Since this is the case for most of the other coefficients as well, the subsequent discussion will focus on the interpretation of the Mashreq results unless otherwise indicated. In contrast, widowed refugees are 1.6 percentage points less likely to return (significant at the 1 percent level). In addition, principal applicants are 4.5 percentage points less likely to return, while members of the immediate and extended

family are 14 and 12 percentage points respectively more likely to return than the nuclear family (all coefficients are significant at the 1 percent level).¹⁵⁷ This is in line with findings from international experience, which suggests that families send single, male members, especially those that are not nuclear-family members (e.g., immediate or extended family members) back 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 education has been associated with lower likelihood of return. The results in Table 3.2 suggest that the refugee's education level matters, with higher levels of education being associated with a lower probability of return. Having a university degree reduced the likelihood of return by 2.5 percentage points, and having a secondary degree by 1.7 percentage points, vis-à-vis having no education (both coefficients are significant at the 1 percent level). Although these results may seem intuitive at first sight, this is likely to be misleading. As skilled refugees are not allowed to work formally in skilled jobs in Lebanon and Jordan, the differences between return likelihood should not immediately be correlated with opportunity cost of leaving the country of asylum. It may, however, be related to limited differences in financial wealth (e.g., more-skilled people may have more savings) and lower transaction costs (e.g., more-skilled people better communicate/navigate in host communities).

Refugees' legal status in host countries has important influences on the return decision, as they reflect refugees' opportunity costs. A small group of refugees have been selected for resettlement to a third country.¹⁵⁸ This group is found to be 0.3 percentage points less likely to return to Syria than those who are not selected for this (the omitted category); a result that is statistically significant at the 1 percent level. Similar figures are found for refugees in Lebanon that receive assistance but are not formally registered as refugees or asylum seekers. Interestingly, the results also suggest that refugees who delay registration upon arrival are less likely to return; a one standard deviation increase in the time elapsed between arrival and registration reduces the likelihood of return by 1.3 percentage points (significant at the 1 percent level). Registration seems to be driven, at least in part, by how well-off the refugees are. In fact, the survey conducted for this study, covering both registered and unregistered refugees in Jordan and Lebanon, shows that unregistered refugees report higher incomes, are less likely to be in debt, and have engaged in fewer poverty coping strategies than their registered counterparts (see the annex to this chapter). Thus, a registration delay could indicate that the refugees are not in immediate need of assistance and are in a better economic position in the host country which might discourage return.

Box 3.1. Specification of baseline and robustness check estimations

When studying refugee returns, the dependent variable y is binary, that is:

$$y = \begin{cases} 0 & \text{if a refugee is still in the country of asylum as of March 2018} \\ 1 & \text{if a refugee has returned from the country of asylum to Syria} \end{cases}$$

Binary outcome models can estimate the probability that $y = 1$ as a function of the regressors x , where $p = pr[y = 1|x] = F(x'\beta)$. There are three different binary outcome models depending on the assumed functional form of $F(x'\beta)$.

1. The *linear probability model* assumes that $F(x'\beta)$ is linear, i.e.

$$F(x'\beta) = x'\beta \text{ and } p = pr[y = 1|x] = x'\beta, \text{ with constant marginal effects } \partial p / \partial x_j = \beta_j \text{ for the } j^{th} \text{ independent regressor.}$$

2. The *logit model* assumes that $F(x'\beta)$ follows the cumulative distribution function of the logistics distribution, where

$$F(x'\beta) = \Lambda(x'\beta) = e^{x'\beta} / (1 + e^{x'\beta}), \text{ with marginal effects } \partial p / \partial x_j = (e^{x'\beta} / (1 + e^{x'\beta})^2) \cdot \beta_j \text{ for the } j^{th} \text{ independent regressor.}$$

Concerns have been raised about the use of linear probability model with binary regressors, given that it yields biased and inconsistent estimates and that its fitted values are not restricted to the unit interval. However, the linear probability model generally performs well in estimating marginal effects especially if the functional form is not known. Compared to the logit and probit, it yields similar results, especially with datasets that have a large sample size and performs better when many dummy regressors are presented; both of which are the case in this analysis. It is also computationally simpler.

For these reasons, the analysis in this chapter uses the Linear Probability Model for the main results, estimating this equation.

$$\begin{aligned} \text{Probability}(y_{ilm} = 1 | X) &= \beta_0 + \beta_1 * \text{characteristics}_i + \beta_2 * \text{registration}_i + \\ &\beta_3 * \text{peace}_m + \beta_4 * \text{livelihood}_{coa_l} + \beta_5 * \text{livelihood}_{coo_m} + \\ &\beta_6 * \text{camp}_l + \beta_7 * \text{services}_{coa_l} + \beta_8 * \text{services}_{coo_m} + \\ &\mu_l + \eta_{it} + \varepsilon_{ilm} \end{aligned}$$

Where y_{ilm} takes a value of zero if refugee i is still in location l in the country of asylum as of March 2018 and 1 if a refugee i from home location m has returned to Syria. On the right hand side, characteristics_i measures refugee i 's demographic characteristics, registration_i measures refugee i 's registration information, peace_m measures the security situation in refugee i 's home district m in Syria, $\text{livelihood}_{coa_l}$ and $\text{livelihood}_{coo_m}$ measure the livelihood situation in location l in the country of asylum and home location m in the country of origin respectively, camp_l is a dummy equal to 1 if location l is in the country of asylum

Box 3.1. Continued

is a camp, $services_coa_l$ and $services_coa_m$ measure access to basic services in location l in the country of asylum and home location m in the country of origin respectively, μ_l are country of asylum fixed effects, η_{it} are fixed effects for the year t refugee i arrived in the country of asylum, and ε_{ilm} is the error term.

To test the robustness of the results of this LPM-based analysis, the annex to this chapter presents the results for the logit model. Consistent with the argument above, it yields marginal effect estimates that are very similar to those of the linear probability model in terms of their significance, sign and magnitude.

Table 3.2. The effects of demographic characteristics and registration status on return

Dependent variable: Refugee returned to Syria (No=0, Yes=1)			Mashreq	Jordan & Lebanon add host country of factors using	
Category	Variable	Omitted category	(1)	Geographical aggregates (2)	Case-level information only (3)
Demographic characteristics	Single	Married	0.027 *** (0.00060)	0.024 *** (0.00060)	0.024 *** (0.0038)
	Widowed	Married	-0.016 *** (0.0020)	-0.013 *** (0.0020)	-0.016 (0.011)
	Other Marital Status	Married	-0.013 *** (0.0010)	-0.0071 *** (0.0011)	-0.012 * (0.0066)
	Aged 20-44	Aged 0-19	0.035 *** (0.00059)	0.034 *** (0.00060)	0.034 *** (0.0040)
	Aged 45-59	Aged 0-19	0.054 *** (0.00085)	0.054 *** (0.00086)	0.049 *** (0.0052)
	Aged 60+	Aged 0-19	0.059 *** (0.0014)	0.066 *** (0.0014)	0.088 *** (0.0093)
	Female	Male	-0.0064 *** (0.00024)	-0.0047 *** (0.00024)	-0.0046 *** (0.0013)
	Principal Applicant	Case Member	-0.045 *** (0.00043)	-0.042 *** (0.00041)	-0.031 *** (0.0022)
	Extended Family	Nuclear family	0.12 *** (0.0027)	0.11 *** (0.0029)	0.12 *** (0.018)
	Immediate Family	Nuclear family	0.14 *** (0.0022)	0.14 *** (0.0024)	0.17 *** (0.015)
	Primary Education	No education	0.0029 *** (0.00035)	-0.000068 (0.00034)	0.0032 * (0.0018)
	Secondary Education	No education	-0.017 *** (0.00057)	-0.014 *** (0.00057)	0.00022 (0.0033)
	University Education	No education	-0.025 *** (0.00083)	-0.022 *** (0.00084)	-0.0026 (0.0051)
	Case has Children	Case has no Children	0.062 *** (0.00089)	0.059 *** (0.00086)	0.041 *** (0.0045)
	Case Size		-0.030 *** (0.00022)	-0.024 *** (0.00020)	-0.012 *** (0.0011)
	Special Need	No Special need	-0.0021 *** (0.00030)	-0.0021 *** (0.00030)	-0.0044 *** (0.0015)

Category	Variable	Omitted category	(1)	(2)	(3)
Registration status	Enrolled for Assistance	Asylum seeker	-0.0031 *** (0.00064)	-0.0043 *** (0.00060)	-0.0060 ** (0.0030)
	Refugee	Asylum seeker	-0.0029 *** (0.0011)	0.0012 (0.0013)	0.0047 (0.0081)
	Registration lag, months		-0.0015 *** (0.000020)	-0.0014 *** (0.000020)	-0.00078 *** (0.00011)
Push & pull factors controlled?	Country of Asylum		yes	yes	yes
	Country of Origin		yes	yes	yes
Other controls	Ethnicity & Religion		yes	yes	yes
	Constant		yes	yes	yes
Fixed Effects	Arrival Year		yes	yes	yes
	Country of Asylum		yes	yes	yes
	Observations		2,162,865	1,851,135	42,655
	R-squared		0.218	0.245	0.156

Next, pull factors are analyzed. Having discussed the effects of demographic aspects of refugees and their registration status on their return decisions, attention now turns to a more conventional push and pull analysis. Table 3.3. shows the estimations for conditions in Syria (pull factors). Note that demographic and registration status related factors are still controlled for, but those results are compressed for visual clarity.

Security is one of the most important determinants of return, but it is manifested via a complex set of conditions. The sense of security is based not only on current conditions, but also on the likelihood of future events. To reflect this multidimensional nature of security, several variables are used for measuring the peace, security, and protection in the home locations of refugees. These include an aggregate measure of the number of conflict events (dread factor), which includes tank/artillery strikes, airstrikes/bombing, and reported use of chemical weapons. These are aggregated for the period between the arrival date of refugees in the country of asylum and their return dates (if not yet returned, then until March 2018). The other indicators include a control-change indicator variable, which shows if there was a change in control in the home district prior to return, and a controlling-group dummy, which shows the conflict actor who is in control of the district. These, in turn, provide a more complete picture of current and future likelihood of violent events.

Refugees are less likely to return to districts with intensive conflict and more likely to return to districts after a takeover of control. The security situation in the country of origin (measured at the district level) seems to play an important role in determining the probability of return. Overall, refugees are less likely to return to areas that have experienced intense conflict, but more likely to those where there has been a change in control: a one standard deviation increase in the dread variable reduces

the likelihood to return by 4.5 percentage points; a result that is statistically significant at the 1 percent level. However, refugees are 18 percentage points more likely to return to Syria if there has been a change in control in the three months prior to return (significant at the 1 percent level).¹⁵⁹ This is one of the largest effects (in magnitude) found in the overall study, which confirms that security is not only about the absence of violence. A factor that further confirms this point is the refugees' revealed choice of returns to areas controlled by different parties to the conflict. On average, returns have been 3.6 percentage points more likely to areas not controlled by the Government of Syria (the omitted category) with the coefficient being statistically significant at the 1 percent level.¹⁶⁰

Low provision of education, health, and basic services in Syrian Districts provide an effective deterrent against return. Table 3.3. shows that concerns about access to basic services and education and health services provide a consistently negative effect on the likelihood of return across all specifications. Refugees are 2.2 percentage points less likely to return if access to basic services is a primary concern in their home district (significant at the 1 percent level).¹⁶¹ Similar results are obtained for limited access to public health and education, but the coefficient is much smaller. In terms of the livelihood conditions, higher prices for subsidized bread increase the likelihood of return though only marginally—a one standard deviation increase makes return 0.4 percentage point more likely for the Mashreq dataset (significant at the 1 percent level), but this result cannot be replicated in case-level analysis. Lastly, higher levels of malnutrition are associated with a higher likelihood of return. This result is counterintuitive but could capture location specific characteristics, especially if refugees return to locations that are not under Government control and thus potentially face more severe food shortages. However, it is not possible to control for home location fixed effects, which would allow a look at how changes in malnutrition and food prices within a given locality affect the return decision, as the MSNA data has only cross-sectional variation for 2017.

Table 3.3. The effects of conditions in Syria (pull factors) on return

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq	Jordan & Lebanon add host country factors using	
				Geographical aggregates	Case-level information
Pull factor	Variable	Omitted category	(1)	(2)	(3)
Peace, security and protection	Dread factor		-0.00082 *** (0.0000061)	-0.00078 *** (0.0000060)	-0.00045 *** (0.000028)
	Change in control		0.18 *** (0.0033)	0.23 *** (0.0068)	0.21 *** (0.063)
	Control: not Government of Syria	Control: Government of Syria	0.036 *** (0.00060)	0.028 *** (0.00057)	0.017 *** (0.0026)
	Security a concern?		-0.0032 *** (0.00049)	-0.0067 *** (0.00049)	-0.0070 *** (0.0023)
Livelihoods and access to employment	Price 1kg of bread (subsidized)		0.000051 *** (0.0000028)	0.000029 *** (0.0000028)	0.000015 (0.000015)
	Price 1kg of bread (unsubsidized)		0.0000018 (0.0000026)	0.000013 *** (0.0000025)	0.0000073 (0.000012)
	Malnutrition: Moderate prob- lem	Malnutrition: No problem	0.015 *** (0.00050)	0.012 *** (0.00049)	0.0096 *** (0.0023)
	Malnutrition: Serious problem	Malnutrition: No problem	0.032 *** (0.00080)	0.025 *** (0.00078)	0.015 *** (0.0034)
Infrastructure and services	Basic services a concern?		-0.022 *** (0.00056)	-0.017 *** (0.00057)	-0.0095 *** (0.0025)
	Health/education a concern?		-0.0081 *** (0.00047)	-0.010 *** (0.00044)	-0.010 *** (0.0023)
Push factors controlled?	Conditions in country of asylum		yes	yes	yes
Other controls	Demographic characteristics		yes	yes	yes
Fixed effects	Registration status		yes	yes	yes
	Constant		yes	yes	yes
	Arrival Year		yes	yes	yes
	Country of Asylum		yes	yes	yes
	Observations		2,162,865	1,851,135	42,655
	R-squared		0.218	0.245	0.156

Table 3.4. The effects of conditions in countries of asylum (push factors) on return

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq	Jordan & Lebanon add host country factors using	
				Geographical aggregates	Case-level information
Push factor	Variable	Omitted category	(1)	(2)	(3)
Livelihoods and access to employment	# meals per day			0.15*** (0.0020)	0.00016 (0.00060)
	Food insecurity index			-0.031 *** (0.00083)	-0.00078 (0.00092)
HLP	Case lives in a camp	Case does not live in a camp	0.056 *** (0.0013)	0.093*** (0.0016)	0.14 *** (0.028)
Infrastructure and services	Access to basic service index			0.0050*** (0.00087)	-0.0011 (0.00084)
Pull factors controlled?	Conditions in country of origin		yes	yes	yes
Other controls	Demographic characteristics		yes	yes	yes
	Registration status		yes	yes	yes
	Constant		yes	yes	yes
Fixed effects	Arrival Year		yes	yes	yes
	Country of Asylum		yes	yes	yes
	Observations		2,162,865	1,851,135	42,655
	R-squared		0.218	0.245	0.156

Focusing, next, on conditions in countries of asylum, estimations suggest non-linear effects. Overall, findings do not support the common perception that if refugees face bad living conditions in host communities, then they will be more likely to go back. The relationship between host community living conditions and return is complex. The results reported in Table 3.4 suggest the opposite in some scenarios. On the one hand, refugees who experience better living conditions in the country of asylum, as measured by their access to basic services or the number of meals consumed per day (or lower levels of food insecurity), are more likely to return. For example, refugees are 15 percentage points more likely to return if they consume an extra meal per day; a result that is statistically significant at the 1 percent level for the Lebanon and Jordan dataset using geographical aggregates as shown in column (2). Similarly, a one standard deviation increase in food insecurity decreases the likelihood to return by 1.8 percentage points (significant at the 1 percent level). More food secure households are likely to have other resources available that can help facilitate their return to Syria.

In addition, better access to publicly provided basic services—such as access to piped water and a latrine—increases the likelihood of return though the magnitude is small. On the other hand, if the case lives in a camp, there is a 5.6 percentage points greater likelihood to return for the Mashreq dataset, a result that is statistically significant at the 1 percent level across all three samples. These non-linearities indicate that a more flexible approach might be needed to analyze the push and pull factors of refugee return, which is further explored in the subsequent section using machine learning.

3.2.2. Dodging Complexity: Localized Effects

An important element of complexity in refugee returns is the fact that although generalizations are indicative, they hide important nuances. The estimation techniques used in the previous section provide a transparent approach to test the relative importance of individual factors that help explain the return decision. However, their effects are evaluated globally (that is, for all levels of a specific factor, unless otherwise specified).¹⁶² For instance, improvements in security may matter a lot for the return decision when large scale violence takes place (e.g., intense armed conflict), but not when a “normal” level of violence (e.g., crime) takes place. Moreover, these magnitudes might also depend on other characteristics of refugees—for certain subgroups of refugees, the effects might be different. Because the nature of this relationship is unknown at the outset, it is not possible to set up the estimation model accordingly. Therefore, there is sufficient rationale to consider some a-theoretical (e.g., no assumptions about the model selection) approaches to explore some of these nuances.

Machine-learning-based techniques provide a flexible way to identify the drivers of return with no prior knowledge about functional forms or cut-off values. By not restricting attention to a linear functional form, machine-learning techniques help model basically any type of interaction, without the need for the modeler to identify the variables that might be interacting. Thus, they can model complex, non-linear relationships and allow interactions between predictors. However, they also have drawbacks. First, because they often have high variance, re-fitting a decision tree after a small change to the training data could lead to different results. Second, they often do not have the same predictive power as other models like neural networks, random forest, or boosted trees. Considering these, in what follows, this analysis first adopts a decision tree approach to take advantage of their interpretability, and then tests the trees’ robustness by employing random forests. A more technical discussion of this approach is provided in Box 3.2.

Box 3.2. Machine Learning Algorithms: Decision Trees and Boosted Trees

The idea behind the tree fitting algorithm is simple and relies on sequentially dividing the observations into smaller groups, which are called regions. For a response Y and a predictor from series X_1, X_2, \dots, X_n , a split is made by using a cut-point value: both the splitting variable and the cut-point value are chosen by the algorithm via optimization, as further explained here. If the splitting variable is numerical, the cut-point is a threshold value: the observations are split in two groups, above and below the threshold. With categorical variables, the cut-point is given by the values that the variables admit. Then the first split is made, and observations are split in two regions. Observations in each region are then further split in two regions and the process continues until a stopping rule is reached. When the algorithm stops splitting, what is left are J distinct and non-overlapping regions: each training observation will fall in one and only one region. The response is finally predicted to be as constant over each region. Summing up, fitting a binary classification tree involves two main steps:

- First, stratify or segment the predictor space - that is, all possible values of the predictors X_1, X_2, \dots, X_n - into J regions
- Second, assign the same predicted class to each observation that falls into a specific region R_j by simply looking at the most commonly occurring class among training observations in the region. The predicted probability for all observations in class R_j is intuitively given by the proportion of training observations belonging to the positive class.

Single trees are often called weak learners as, by being small, they feature high bias and, by themselves, they are not good predictors of the response. However, having high bias inevitably means that they have low variance.

Boosted trees are tree-based ensemble methods that involve producing multiple trees that are then combined to yield a single prediction. Combining many trees can result in improvements in prediction accuracy and can lead to a reduction in variance, with only a small cost in terms of ease of interpretation. In boosting, individual trees are fit sequentially, and each tree leverages the information learned by previously grown trees. While boosted trees cannot be easily visualized like a decision tree, they still have built-in variable importance measures. In general terms, the algorithm relies on the following steps:

- At each iteration, instead of using the outcome Y as the response, fit a decision tree to the residual from the model (in the first iteration, since there is no model, the prediction is set equal to 0 and $r=Y$); each tree is called a “weak learner” and it should be a small tree;
- Add the weak learner to the model and update the residuals;
- Start a new iteration.

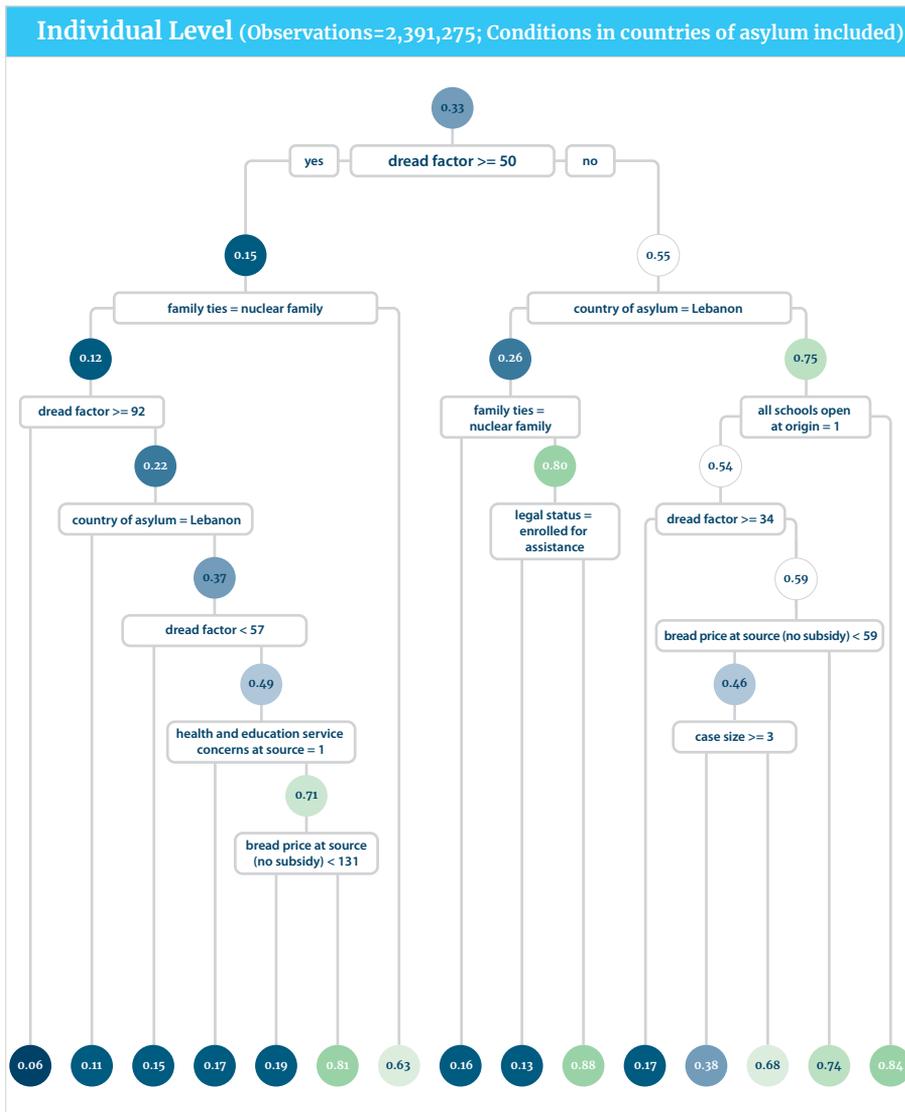
In this study, decision tree algorithms are first employed to explore the non-linear form of relationship between push and pull factors and return patterns in data. Then a boosted tree algorithm is used to test the robustness of decision tree-based results.

Given the structure of data, a decision tree approach is followed in two-steps. First, analysis of the conditions in Syria by using all 2.2 million observations at individual-level and, second, addition of host country conditions by using about 49,000 case-level observations. In both cases, demographic characteristics of refugees are taken into consideration. Because information about the country of asylum conditions is unavailable for all 2.2 million refugees, a truncated dataset is used when analyzing those issues. As in the previous section, this is done by using case-level data. Thus, the tradeoff is the following: whereas the first option takes advantage of a much larger dataset but suffers from a narrower scope, the second option takes advantage of a wider scope, but suffers from a smaller sample. Finally, because returnees constitute less than 2 percent of all refugees, to enhance the estimations, a random selection of non-returnees was used to construct an estimation sample where returnees constitute a third of the sample. Thus, return likelihoods are magnified quantitatively, but the qualitative results regarding splits and relationship hierarchy are indicative.

An interesting nexus between family ties, conflict intensity, and returns is detected: in places with intensive conflict, returnees are mainly non-nuclear-family members of refugee cases. Figure 3.4 shows the results of the two-step estimations. Both show that when the conflict intensity, measured by cumulative dread factors, is high, mostly members of a case who are not within the nuclear family of the case-head return. Overall, the case-level analysis shows that only 14 percent of nuclear-family members return, whereas 74 percent of non-nuclear-family members return in this specific sample. However, the returns of nuclear-family members become even less likely under high-intensity conflict. For instance, in the case-level analysis, only 3 percent of those return when the dread factor is greater than 92 (the left-most path from top to bottom of the case-level tree in Figure 3.4). In comparison, within those in non-nuclear member group, 88 percent return when the dread factor is less than 52 (the rightmost path) and 67 percent return when the dread factor is greater than 51 and the non-nuclear member is older than 55 years old (the second to the right-most path). These findings provide some support for the anecdotal evidence that suggest senior relatives go back, despite an active conflict, for family reunification, identifying return conditions, or watching property against appropriation risk.

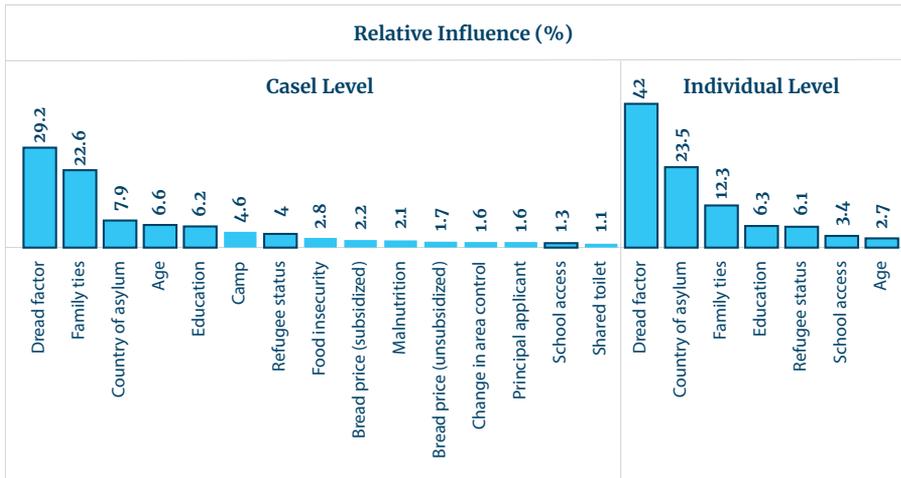
Adding age, economic livelihoods, and education levels makes clearer the complexity of return dynamics with numerous subgroups. In addition to suggesting that mostly non-nuclear-family members of cases return if the location of origin has high conflict intensity, the case-level results also provide some nuances along age and education characteristics of refugees. Non-nuclear-family members from areas with high conflict intensity (dread factor > 51) who are younger than 55 are more likely to return (85 percent) if unsubsidized bread prices are less than 64 SYP in their original location. In comparison, if bread prices are greater than 64 SYP, the return likelihood of the same group is low (26 percent). Similarly, nuclear-family members from relatively low intensity conflict areas that have malnutrition concerns and reside in Lebanon are likely to return if they have some education (64 percent) and less likely to return if they have less education (20 percent). Finally, nuclear-family members who came from relatively low intensity conflict areas and reside in either Jordan or Iraq are more likely to return if they are 10 years or older.

Figure 3.4. Decision Tree Algorithm Results



Source: World Bank Staff calculations.

Figure 3.5. Boosted Trees: Relative Influences with Two Datasets (Common Factors Highlighted)



Source: World Bank Staff calculations.

Overall, the factors that influence return most consistently are conflict intensity, family ties, the country of asylum, and refugees' age, education, and legal status.

To assess the robustness of individual-level and case-level analysis and analyze the similarities between the two approaches, boosted-tree algorithms were run. Figure 3.5 shows the results. Overall, because the case-level analysis includes additional variables (conditions in countries of asylum), the number of factors that influence returns are larger. However, all six factors that have more than 1 percent influence in the individual-level analysis also have comparable levels of influence in the case-level analysis. Moreover, although the magnitudes of their influences cannot be compared quantitatively across the two approaches, they are similarly ordered (dread factor is the highest ranked, and the top three factors comprising the same factors drive about 60 percent or more of variation in both cases).

3.3. Special Issues in Return



This analysis has, at this point, focused on providing a nuanced but broad overview of the mobility calculus used by refugees. Both the generalized effects discussed in the first section and the localized effects discussed in the previous section focused on putting all our information together and understanding the relative importance of different factors in explaining the spontaneous returns that have taken place so far. The following subsections will analyze four issues more deeply: the relationship between conflict events and return, the effect of refuge duration on return, a more detailed account of family ties and return and, finally, the refugees' own perceptions about return

3.3.1. Conflict Events and Return

The above analysis has provided strong evidence that peace and security in Syria are a major pull factor for refugee returns, a finding that is further confirmed by using different proxies for the conflict as presented in Table 3.5. In particular, the intensity of the conflict, as measured by the so-called dread factor or the number of conflict events in the home location during exile, has been identified as one of the main determinants of refugee returns. To test the robustness of this baseline result for the entire dataset (replicated in column (1) in Table 3.5), an alternative measure for conflict intensity is used in column (2)—the total number of casualties during the refugee's time in exile. Similar to the dread factor, a higher number of casualties is associated with a lower probability of return with a one standard deviation increase reducing the likelihood to return by 1.6 percentage points (significant at the 1 percent level). Moreover, it is important to note that the coefficient of the dread factor is unchanged as additional conflict variables are included in columns (3) and (4), further illustrating the robustness and importance of the conflict intensity proxy.

A refugee's return decision is not only influenced by actual conflict events but also by his or her perception of the conflict. Individuals vary in their risk aversion with some individuals being willing to tolerate higher levels of conflict. To capture this risk aversion, the dread factor is measured *prior* to the refugee's arrival in the country of asylum (i.e., the number of conflict events that occurred in his/her home location while the refugee was still in Syria). Refugees who left after only a few conflict events are likely more risk averse than those who stayed longer (though early leavers may also have access to resources or family abroad). Consistent with the risk interpretation, we find that refugees that had a higher tolerance for risk are now also more likely to return, though the magnitude of the effect is small—a refugee is 0.07 percentage point more likely to return for a one standard deviation increase in this new dread factor variable (significant at the 1 percent level).

However, the risk of being drawn into the actual fighting seems to be less of a push factor. There is some conflicting anecdotal evidence on whether young men are more likely to return to Syria. On the one hand, they are the likely choice for the family to send ahead to check the situation on the ground. On the other, they are at a higher risk of being drawn into the fighting. Our empirical results suggest that men are indeed less likely to return to areas with a high intensity of fighting, but this effect is largest for the oldest (more than 60 years) age cohort. Moreover, overall adult men are more likely to return to conflict areas than children, suggesting that the need to verify living conditions and the status of family property is greater than the fear of being drawn into the conflict.

Table 3.5. The effects of conflict on return

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)		Mashreq			
Variable	Omitted Category	(1)	(2)	(3)	(4)
Dread factor		-0.00077 *** (0.0000064)		-0.00077 *** (0.0000064)	-0.00077*** (0.0000064)
Change in control		0.15 *** (0.0032)	0.11 *** (0.0036)	0.15 *** (0.0033)	0.15 *** (0.0032)
Control: not Government of Syria	Control: Government of Syria	0.037 *** (0.00062)	0.025 *** (0.00060)	0.037 *** (0.00062)	0.033 *** (0.00071)
Security a concern?		-0.0040 *** (0.00049)	0.0047 *** (0.00049)	-0.0039 *** (0.00049)	-0.0041 *** (0.00049)
Casualties, in thousands			-0.0000028 *** (0.000000039)		
Dread factor (before arrival in asylum country)				0.000024 *** (0.0000079)	
Dread factor X Female					-0.0000048 (0.0000050)
Dread factor X Aged 20-44	Dread factor X Aged 0-19				-0.00018 *** (0.0000069)
Dread factor X Aged 45-59	Dread factor X Aged 0-19				-0.00016 *** (0.000012)
Dread factor X Aged 60+	Dread factor X Aged 0-19				-0.00058 *** (0.000025)
Dread factor X Aged 20-44 X Female	Dread factor X Aged 0-19 X Female				0.000024 *** (0.0000084)
Dread factor X Aged 45-59 X Female	Dread factor X Aged 0-19 X Female				-0.00019 *** (0.000017)
Dread factor X Aged 60+ X Female	Dread factor X Aged 0-19 X Female				-0.00040 *** (0.000033)
Aged 20-44	Aged 0-19	0.047 *** (0.00070)	0.048 *** (0.00072)	0.047 *** (0.00070)	0.045 *** (0.00071)
Aged 45-59	Aged 0-19	0.078 *** (0.0010)	0.080 *** (0.0010)	0.078 *** (0.0010)	0.074 *** (0.0011)

Variable	Omitted Category	(1)	(2)	(3)	(4)
Aged 60+	Aged 0-19	0.069 *** (0.0016)	0.071 *** (0.0016)	0.069 *** (0.0016)	0.057 *** (0.0016)
Female	Male	0.0042 *** (0.00027)	0.0044 *** (0.00027)	0.0042 *** (0.00027)	0.0037 *** (0.00030)
Aged 20-44 X Female	Aged 0-19 X Female	-0.020 *** (0.00053)	-0.021 *** (0.00054)	-0.020 *** (0.00053)	-0.019 *** (0.00057)
Aged 45-59 X Female	Aged 0-19 X Female	-0.048 *** (0.00095)	-0.048 *** (0.00097)	-0.048 *** (0.00095)	-0.051 *** (0.0010)
Aged 60+ X Female	Aged 0-19 X Female	-0.025 *** (0.0017)	-0.025 *** (0.0018)	-0.025 *** (0.0017)	-0.029 *** (0.0019)
Push and pull factors controlled?					
Conditions in country of origin		yes	yes	yes	yes
Conditions in country of asylum		yes	yes	yes	yes
Other controls					
Demographic characteristics		yes	yes	yes	yes
Registration status		yes	yes	yes	yes
Constant		yes	yes	yes	yes
Fixed effects					
Arrival Year		yes	yes	yes	yes
Country of Asylum		yes	yes	yes	yes
Observations		2,012,143	2,012,143	2,012,143	2,012,143
R-squared		0.198	0.176	0.198	0.200

Source: World Bank Staff calculations.

3.3.2. Duration of Refuge

At this point, all refugees are treated the same, no matter at which point they have arrived in the country of asylum. However, there could be systematic differences across refugees based on their duration of refuge. First, recent arrivals are likely to be in a more precarious and transitory situation since they have not yet had an opportunity to establish themselves in the host community. More tenured refugees will in contrast have had an opportunity to integrate and adjust, possibly by finding work, sending their children to school, and having found housing. Both situations could discourage return but for very different reasons. However, if the situation is too dire for either group, for example, if tenured refugees fail to establish a viable livelihood in the country of asylum or recent arrivals suffer severe food insecurity, this might provide a powerful push factor for tenured refugees. Second, recent arrivals are most likely less willing to

return, given that they have left Syria only a few months back. In fact, return rates for recent arrivals are considerably lower at 0.76 percent compared to 3.85 percent for tenured refugees.

To explore whether there are differences in return decisions between recent arrivals and tenured refugees, the baseline regression is rerun for the sample of recent arrivals and tenured refugees separately. For this analysis, recent arrivals are defined as refugees who arrived in the country of asylum between March 2017 and March 2018, while more tenured refugees arrived prior to March 2017. The results for recent arrivals and tenured refugees are presented in Table 3.6 for the Mashreq region in columns (1) and (2) respectively. Since conditions in the host country could provide an important push factor, the same regressions are also run for the Jordan and Lebanon dataset (using geographical aggregates to measure host country factors) and are shown in columns (3) and (4) respectively.

Return decisions of recent arrivals and tenured refugees are largely determined by the same factors, but their living conditions in the country of asylum matter differentially, further magnifying the non-linearity of these effects. The impacts of demographic characteristics as well as a refugee's registration status on the likelihood of return are very similar across both groups and samples, which is why they are not reported in Table 3.6.¹⁶³ The main difference in results for the Mashreq sample is for those refugees living in a camp. Recent arrivals are 2.5 percentage points less likely to return to Syria if they live in a camp, while more tenured refugees are 5.8 percentage points more likely to return (both significant at the 1 percent level). Since recent refugees are likely to first find shelter in a camp it is not surprising that this group is less likely to return since they just arrived in the country of asylum. In contrast, more tenured refugees that are still in a camp after more than one year, might be pushed to return to Syria given their difficulty in getting established in the host community. However, this result is not confirmed for Jordan, where recent arrivals who live in a camp are more likely to return (there are no refugee camps in Lebanon). This result should however be interpreted with caution, as only a small number of recent arrivals returned from Jordan (166 out of 20,429 refugees).

Food insecurity also has a differential impact on return decisions of recent arrivals. Our baseline results have suggested that greater food security is associated with a higher likelihood of return. This result is replicated for the tenured refugees in the Jordan and Lebanon sample in column (4), both for the number of meals and food insecurity index. However, the opposite is the case for recent arrivals, where one more meal per day reduces the likelihood of return by 0.14 percentage point, an effect that is small in magnitude but highly significant at the 1 percent level.

Confirming our earlier results, recent arrivals are also less likely to return to areas now controlled by the Government of Syria. The results for tenured refugees in both samples (column (2) for Mashreq and column (4) for Jordan and Lebanon) are in line with the baseline results of this analysis, suggesting that refugees are more likely to return to Syria if there has been a change in control and if this control now rests with an actor other than the Government of Syria. However, between 2017 and 2018 most of these changes have been to return the control back to the Government of Syria. It is, thus, not surprising that recent arrivals are 1.9 percentage points less likely to return

for the Mashreq dataset if there has been a recent change in control; a result that is statistically significant at 1 percent. Given that this variable now captures which actor is in control, the other control variable loses significance.

3.3.3. Gender and Family Ties

Since return seems to happen in stages it is important to understand the decision-making process at the case level. That is, when refugees consider the possibility of returning to Syria, they do not make this decision in isolation, but rather it is made jointly with other members of the same case. A case is typically made up of the nuclear family, (i.e., a husband and wife and their children), with at times additional members from the immediate or extended family. The case will likely first decide whether the entire case should return to Syria or whether only one or two family members¹⁶⁴ should be sent ahead to assess the situation on the ground. Next a decision needs to be made about which member of the case should return. To shed more light on this decision-making process, the analysis needs to be expanded to explaining return decisions not at the individual but the case level, which is the focus of this section.

Return patterns vary significantly across countries of asylum with case-level returns being much more common in Iraq and Jordan compared to Lebanon. Two-thirds of all returnees or nearly 59,000 people returned with their entire case. These cases are typically small with an average of 4.6 family members. In contrast, the average size of cases with individual returns is significantly larger at 6.7 individuals on average, while the average size of a non-returnee case is 5.0 individuals. Case-level returns are most common from Jordan and Iraq, making up 89 percent and 85 percent of all returns respectively. However, for Lebanon, the pattern is the reverse with 89 percent of all returns involving individual family members only.

Table 3.6. The effects of duration of stay on return

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq		Jordan & Lebanon add host country factors using geographical aggregates	
Category	Variables	Omitted category	Recent arrivals	Tenured refugees	Recent arrivals	Tenured refugees
			(1)	(2)	(3)	(4)
Peace, security and protection	Dread factor		-0.00019 *** (0.000013)	-0.00083 *** (0.0000062)	-0.000041 *** (0.0000066)	-0.00079 *** (0.0000060)
	Change in control		-0.019 *** (0.0032)	0.19 *** (0.0034)	-0.000059 (0.00044)	0.24 *** (0.0068)
	Control: not Gov. of Syria	Control: Gov. of Syria	-0.00048 (0.00096)	0.038 *** (0.00063)	0.0013 *** (0.00035)	0.030 *** (0.00060)
	Security a concern?		-0.0020 *** (0.00056)	-0.0034 *** (0.00052)	0.00074 *** (0.00025)	-0.0070 *** (0.00053)
Livelihoods and access to employment	Price 1kg of bread (subsidized)		0.000029 *** (0.0000027)	0.000052 *** (0.0000030)	-0.00000076 (0.0000012)	0.000032 *** (0.0000030)
	Price 1kg of bread (unsubsidized)		-0.000029 *** (0.0000039)	0.0000031 (0.0000027)	0.0000032 ** (0.0000016)	0.000012 *** (0.0000026)
	Malnutrition: Moderate problem	Malnutrition: No problem	0.0056 *** (0.00086)	0.015 *** (0.00053)	0.00027 (0.00032)	0.012 *** (0.00052)
	Malnutrition: Serious problem	Malnutrition: No problem	0.0041 *** (0.00077)	0.033 *** (0.00085)	0.00052 * (0.00030)	0.026 *** (0.00084)
	# meals per day				-0.0014 *** (0.00036)	0.15 *** (0.0020)
	Food insecurity index				0.000045 (0.00017)	-0.032 *** (0.00088)
HLP	Case lives in a camp	Case does not live in a camp	-0.025 *** (0.0032)	0.058 *** (0.0013)	0.012 *** (0.0028)	0.093 *** (0.0016)
Infrastructure and services	Basic services a concern?		-0.0014 ** (0.00063)	-0.023 *** (0.00059)	0.00015 (0.00025)	-0.017 *** (0.00060)
	Health/education a concern?		0.0034 *** (0.00082)	-0.0090 *** (0.00050)	-0.00043 ** (0.00018)	-0.011 *** (0.00047)
	Access to basic service index				-0.000081 (0.00042)	0.0064 *** (0.00090)

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq		Jordan & Lebanon add host country factors using geographical aggregates	
Category	Variables	Omitted category	Recent arrivals	Tenured refugees	Recent arrivals	Tenured refugees
			(1)	(2)	(3)	(4)
Other controls	Demographic characteristics		yes	yes	yes	yes
	Registration status		yes	yes	yes	yes
	Constant		yes	yes	yes	yes
Fixed effects	Arrival Year		yes	yes	yes	yes
	Country of Asylum		yes	yes	yes	yes
	Observations		130,878	2,031,987	101,045	1,750,090
	R-squared		0.077	0.227	0.012	0.252

Source: World Bank Staff calculations.

To further disentangle how households, make these return decisions, demographic characteristics are aggregated to the case level. That is, for each case the share of individuals that is, for example, single, falls into a specific age category, or is part of the extended family, is computed. Then a linear probability model is run to determine how these case-level characteristics determine the probability of the entire case returning to Syria. A comparable analysis is carried out to estimate which factors determine the probability of only some family members returning, while the rest of the case remains in the country of asylum. Like the prior analysis, controls are introduced in both regressions for pull and push factors as well as country of asylum and year fixed effects. However, these are suppressed in Tables 3.7 and 3.8 for visual clarity, which show the results for the case-level differences and conditions in the country of asylum respectively.

Interestingly, most of the case-level characteristics are similar across both types of returns. In fact, the results for the Mashreq and the Jordan/Lebanon sample mimic many key findings on individual return decisions. For instance, cases with a larger share of singles are more likely to return, while the opposite is true for households with a larger proportion of widows. Similarly, cases with more immediate or extended family members are more likely to return both as a case and as individuals.

One key factor that distinguishes cases where the entire family returns from those where only some family members return is the case's age composition. First, the probability of only some family members returning is higher if there is a greater share of adults in the household. For example, one standard deviation increases in the proportion of family members aged 20-44 increases the likelihood to return by 1.8 percentage points with similar magnitudes for the older cohorts, results that are statistically significant at the 1 percent level. In contrast, a larger share of adults is

associated with a lower probability of the entire case returning. This finding is in line with international experience, which suggests that refugees adopt complex return strategies, where one or two adult members of a refugee household return informally from the host countries for short periods to assess the scope for a more permanent return of the entire household. A greater share of adults in a given household makes following this strategy more feasible.

How registration status influences returns differs between household-level returns and individual-level returns. Refugee cases are more likely to return if they are not registered, potentially indicating more limited international protection for the household in the country of asylum, while the opposite is true for instances where only a few family members return to Syria. In a related fashion, individual level returns are also less likely when a large share of their cases are considered for resettlement to a third country, which reduces the need to explore the current situation in the home location.

Living conditions in the country of asylum also have differential, non-linear effects on return type as shown in Table 3.9. For the entire case, return is less likely the greater its food insecurity—a one standard deviation increase in food insecurity decreases the likelihood of return by 1.6 percentage points, a result that is statistically significant at the 1 percent level for the Jordan and Lebanon dataset using geographical aggregates (column 4). In contrast, food security has non-linear effects on the case decision to only send a few family members back. On the one hand, an extra meal increases the likelihood to return by 1.1 percentage points (column 3, significant at the 1 percent level). However, a one standard deviation increase in the food insecurity index also increases the likelihood to return of selected family members by 1.1 percentage points (also significant at the 1 percent level). This could reflect the fact that more precarious living conditions in the asylum country push some refugee families to send individual members back to Syria to assess to what extent the situation in the home location is better. At the same time, better-off households might want to explore possibilities for rebuilding livelihoods or reclaiming assets and/or property in Syria.

Table 3.7. The effects of case-level differences on types of return

Dependent Variable			A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)	A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)
			Entire Mashreq		Jordan and Lebanon using geographical aggregates	
Category	Variable	Omitted variable	(1)	(2)	(3)	(4)
Demographic and socioeconomic characteristics	% Single	% Married	0.0041 *** (0.00057)	0.029 *** (0.0010)	0.0063 *** (0.00070)	0.023 *** (0.00094)
	% Widowed	% Married	-0.0012 (0.0027)	-0.043 *** (0.0032)	-0.0059 ** (0.0029)	-0.029 *** (0.0033)
	% Other Marital Status	% Married	-0.012 *** (0.00098)	-0.031 *** (0.0016)	-0.012 *** (0.0011)	-0.024 *** (0.0016)
	% Aged 20-44	% Aged 0-19	0.046 *** (0.0013)	-0.084 *** (0.0016)	0.051 *** (0.0015)	-0.068 *** (0.0015)
	% Aged 45-59	% Aged 0-19	0.065 *** (0.0016)	-0.064 *** (0.0018)	0.072 *** (0.0018)	-0.052 *** (0.0017)
	% Aged 60+	% Aged 0-19	0.061 *** (0.0017)	-0.057 *** (0.0021)	0.068 *** (0.0019)	-0.039 *** (0.0020)
	% Female	% Male	0.0036 *** (0.00059)	0.0034 *** (0.00092)	0.0035 *** (0.00070)	0.011 *** (0.00087)
	% Extended Family	% Nuclear family	0.29 *** (0.0082)	0.11 *** (0.0056)	0.29 *** (0.0087)	0.084 *** (0.0054)
	% Immediate Family	% Nuclear family	0.28 *** (0.0042)	0.035 *** (0.0027)	0.29 *** (0.0046)	0.031 *** (0.0027)
	% Primary Education	% No education	0.0020 *** (0.00068)	-0.0071 *** (0.00085)	0.00062 (0.00077)	-0.0098 *** (0.00080)
	% Secondary Education	% No education	-0.0020 ** (0.00083)	-0.033 *** (0.0012)	-0.0027 *** (0.00098)	-0.030 *** (0.0011)
	% University Education	% No education	-0.0024 *** (0.00090)	-0.038 *** (0.0015)	-0.0033 *** (0.0011)	-0.034 *** (0.0013)
	Case has Children	Case has no Children	0.045 *** (0.00090)	0.022 *** (0.00082)	0.047 *** (0.00099)	0.027 *** (0.00082)
	Case Size		-0.0024 *** (0.00014)	-0.034 *** (0.00022)	-0.0021 *** (0.00016)	-0.027 *** (0.00021)
% Special Need	% No Special need	-0.0037 *** (0.00051)	-0.020 *** (0.00071)	-0.0058 *** (0.00060)	-0.017 *** (0.00069)	

Category	Variable	Omitted variable	(1)	(2)	(3)	(4)
Registration information	% Enrolled for Assistance	% Asylum seeker	-0.028 *** (0.00070)	0.0081 *** (0.00092)	-0.024 *** (0.00082)	0.021 *** (0.00097)
	% Refugee	% Asylum seeker	-0.0083 *** (0.0018)	0.0090 *** (0.0014)	-0.0089 *** (0.0022)	0.014 *** (0.0017)
	Average registration lag		-0.00058 *** (0.000017)	-0.0016 *** (0.000024)	-0.00061 *** (0.000021)	-0.0014 *** (0.000025)
Push and pull factors controlled?						
Conditions in country of origin			yes	yes	yes	yes
Conditions in country of asylum			yes	yes	yes	yes
Other controls						
Ethnicity & Religion			yes	yes	yes	yes
Constant			yes	yes	yes	yes
Fixed effects						
Arrival Year			yes	yes	yes	yes
Country of Asylum			yes	yes	yes	yes
Observations			632,397	632,397	523,307	523,307
R-squared			0.074	0.217	0.080	0.234

Table 3.8. The effects of case-level differences on types of return

Dependent Variable			A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)	A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)
			Mashreq		Jordan and Lebanon using geographical aggregates	
Category	Variable	Omitted variable	(1)	(2)	(3)	(4)
Livelihoods and access to employment	# of meals per day				0.011 *** (0.0017)	-0.00087 (0.00095)
	Food insecurity index				0.028 *** (0.0010)	-0.044 *** (0.00091)
HLP	Case lives in a Camp	Case does not live in a camp	0.0066 *** (0.00078)	0.076 *** (0.0014)	0.0079 *** (0.00094)	0.14 *** (0.0018)
Infrastructure and services	Access to basic services				-0.00033 (0.00089)	-0.0061 *** (0.00095)
Push and pull factors controlled?						
Conditions in country of origin			yes	yes	yes	yes
Other controls						
Demographic characteristics			yes	yes	yes	yes
Registration status			yes	yes	yes	yes
Constant			yes	yes	yes	yes
Fixed effects						
Arrival Year			yes	yes	yes	yes
Country of Asylum			yes	yes	yes	yes
Observations			632,397	632,397	523,307	523,307
R-squared			0.074	0.217	0.080	0.234

Table 3.9. The effects of individual-level differences on types of return

Dependent Variable	A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)	A few case members returned (0=No, 1=Yes)	Entire case returned (0=No, 1=Yes)
	Mashreq		Jordan and Lebanon using geographical aggregates	
Variable	(1)	(2)	(3)	(4)
A few case members returned to Syria=1		-0.038 *** (0.0051)		-0.058 *** (0.0055)
Single	0.027 *** (0.0006)	0.015 *** (0.0005)	0.024 *** (0.0006)	0.01 *** (0.0005)
Single # = 1 if other case member(s) returned to Syria=1		0.11 *** (0.0046)		0.13 *** (0.0049)
Widowed	-0.016 *** (0.0020)	-0.015 *** (0.0015)	-0.013 *** (0.0020)	-0.011 *** (0.0015)
Widowed # = 1 if other case member(s) returned to Syria=1		-0.04 ** (0.0180)		-0.04 ** (0.0200)
Other	-0.013 *** (0.0010)	-0.0095 *** (0.0008)	-0.0071 *** (0.0011)	-0.00 *** 5 (0.0008)
Other # = 1 if other case member(s) returned to Syria=1		0.02 *** (0.0064)		0.032 *** (0.0068)
aged 20-44	0.035 *** (0.0006)	0.016 *** (0.0005)	0.034 *** (0.0006)	0.012 *** (0.0004)
aged 20-44=1 # = 1 if other case member(s) returned to Syria=1		0.19 *** (0.0044)		0.21 *** (0.0047)
aged 45-59	0.054 *** (0.0009)	0.029 *** (0.0007)	0.054 *** (0.0009)	0.026 *** (0.0007)
aged 45-59=1 # = 1 if other case member(s) returned to Syria=1		0.18 *** (0.0057)		0.2 *** (0.0061)
aged 60+	0.059 *** (0.0014)	0.022 *** (0.0011)	0.066 *** (0.0014)	0.024 *** (0.0011)
aged 60+=1 # = 1 if other case member(s) returned to Syria=1		0.3 *** (0.0076)		0.32 *** (0.0082)
1 if Female=1	-0.0064 *** (0.0002)	-0.0062 *** (0.0002)	-0.0047 *** (0.0002)	-0.0043 *** (0.0002)

Variable	(1)	(2)	(3)	(4)
1 if Female=1 # = 1 if other case member(s) returned to Syria=1		-0.003 (0.0025)		-0.0059 ** (0.0027)
Extended Family=1	0.12 *** (0.0027)	0.03 *** (0.0016)	0.11 *** (0.0029)	0.022 *** (0.0014)
Extended Family=1 # = 1 if other case member(s) returned to Syria=1		0.42 *** (0.0092)		0.43 *** (0.0100)
Immediate Family=1	0.14 *** (0.0022)	0.0095 *** (0.0014)	0.14 *** (0.0024)	0.0033 ** (0.0013)
Immediate Family=1 # = 1 if other case member(s) returned to Syria=1		0.46 *** (0.0055)		0.46 *** (0.0061)
Push and pull factors controlled?				
Conditions in country of origin	yes	yes	yes	yes
Conditions in country of asylum	yes	yes	yes	yes
Other controls				
Demographic characteristics	yes	yes	yes	yes
Registration status	yes	yes	yes	yes
Constant	yes	yes	yes	yes
Observations	2,162,865	2,162,865	1,851,135	1,851,135
R-squared	0.218	0.307	0.245	0.354

3.4. Perceptions of Return



The analysis so far has analyzed the drivers of return to date. However, only a very small fraction of refugees has returned to Syria. In particular, the analysis is limited in two key dimensions. First, the refugees who have already returned may be motivated to return by very different factors than the remaining refugees who have so far chosen to stay. Spontaneous returns during an active conflict are probably very different in its composition, timing, and purpose than returns after a stabilization period. Therefore, this analysis only gains some insights into the decision-making process of certain types of refugees. Second, the analysis of the existing data does not allow us to predict how refugees will react to changes in circumstances not yet observed in the real world. For instance, the future concerns and expectations of refugees about the broader political economy of Syria will likely be different from those in the last seven years.

This section begins to consider future returns by analyzing return intentions through a vignettes survey. Return intentions of refugees are often studied by means of interviews, focus group discussions, and perception surveys. However, these approaches may be prone to cognitive challenges. First, simple manipulations, such as ordering words or questions in certain ways or presenting problems in different scales, can affect how people respond to questions. In addition, the participants may not spend enough mental effort to remember or think, or they may not want to reveal answers that they think are socially undesirable. In order to avoid the pitfalls of a simple intentions survey, a vignettes survey was employed; refugees' opinions were elicited on how likely a hypothetical refugee family would be to return and randomization of details across participants were relied on to reduce the likelihood of introducing systematic biases into the findings. Box 3.3. provides more details about this approach.

The first analysis looks at variations in responses to opportunities for exercising skills in the host communities and to varying property conditions in Syria. Table 3.10 shows the structure of the first vignette exercise. In this case, there are four key variants of the description of the family's economic situation in their country of asylum (physician in Syria now working as a janitor, physician in Syria now working as a physician, miner in Syria now working with a permit, miner in Syria now working without a permit). There are also three variants on how long the security situation in their home town has stabilized (6 months, 9 months or 12 months). Therefore, the regression includes five dummy variables capturing the vignette scenarios. To interpret these coefficients, we need to refer to the omitted category. For example, the coefficients: "physician in Syria now working as a physician," "miner in Syria now working without a permit," and "miner in Syria now working with a permit" should all be interpreted as changes in the reported likelihood of the family returning relative to the scenario where the husband/father is working as a janitor when he was a physician in Syria, which serves as the reference category. Column (1) shows the analysis with all respondents, while column (2) uses only data from respondents in Jordan and column (3) uses data only from Lebanon.

Working in jobs that are less skill-intensive than one's original profession is perceived to be a catalyst for returns. Column (1) of the table shows that about half of all respondents indicate that they think the family is Very likely or Likely to return (hence forth referred to as just 'likely to return') to Syria when the father/husband is depicted as a physician from Syria who now works as a janitor in Lebanon or Jordan. On average, about 50 percent of respondents thought that a family where the father/husband was working as a janitor in Lebanon, despite being a doctor in Syria prior to the conflict, would likely return if there had been 6 months of security in their home town. Compared to this benchmark, the scenario where the father/husband can work as a physician makes it 5.5 percentage points less likely, an 11 percent decline, that the family would return. This difference is statistically significant at the 10 percent level. If the father/husband had been a miner in Syria and working without a permit, the family is believed to be 10 percentage points less likely to return (significant at the 1 percent level). The miner in Syria who is working with a permit is 5 percentage points more likely to return than a miner from Syria who is working without a permit. This difference is at the margin of statistical significance at the 10 percent level.¹⁶⁵

The aversion to “skill-downgrade” is stronger among respondents in Lebanon. Column (1) also shows that overall, respondents in Jordan (whose scenarios depicted refugees who also lived in Jordan) are less likely to say that the hypothetical family is likely to return. This motivates doing the same analysis separately for the Jordan and Lebanon samples. Column (2) presents the results of the same regression but for only the Jordan subsample and column (3) uses only the Lebanon data. The finding that the scenario where the husband/father is working without a permit now, when he was a miner in Syria, is less likely to return than a scenario where the husband/father was previously a physician but is now working as a janitor is robust for both subsamples. However, in Jordan, we do not observe any differences among the scenarios, physician working as janitor, physician working as physician and miner working with permit. In Lebanon, the analysis shows that the physician currently working as a janitor is the most likely to return, with all other scenarios being about 10 percentage points less likely to return. This suggests that for respondents in Lebanon, the gap in the type of work someone was doing in Syria versus the type of work they can find in Lebanon is a factor in the return decision. Blue collar work with or without a permit is not an important factor.

In Jordan, providing permits does not make refugees want to stay more. As column (2) shows in Table 3.10, only 28 percent of respondents indicated that a worker without a permit would be likely to return to Syria. This compares to 37 percent of workers who have a permit. Providing permits, therefore, does not appear to make refugees more interested in staying in Jordan. When combined with the results from actual return analyses discussed in this chapter (which showed those who are better off are more likely to return), this result shows that having a permit may in fact allow a refugee family to save up more money to fund their return home.

Security conditions appear to affect return intentions with no lag. Across all specifications, there is essentially no observed effect of a longer period in which the hypothetical family’s home town has been conflict free. That is, 6 months of no-violence appears to have a similar effect on the return decision as 9 months and 12 months. This suggests that, at least intension-wise, return can take place relatively rapidly if it happens when the conditions are right.

Box 3.2. Vignette Analysis

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

All respondents in all vignettes, were asked “How likely is this family to return to Syria in the next two months?” where the respondent could answer using a Likert scale, ranging from “very likely” to “very unlikely”. For the analysis described here, we use an indicator that is equal to 1 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 researchers to go beyond the data limitations of the above analysis. That is, the vignettes not only explored the impact of security on return decisions, but also of employment prospects in the 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 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 that vary across respondents. The first varies if 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 a 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.

Box 3.2. Continued

The responses to the vignettes are analyzed using a Linear Probability Model:

$$y_i = \alpha + \beta_1 VignetteScenario_i + \gamma Jordan + \epsilon_i$$

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 how 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.

Table 3.10. The first vignette: occupation and security

	All	Jordan only	Lebanon only
	(1)	(2)	(3)
Physician in Syria now working as a physician	-0.055 * (0.032)	-0.021 (0.045)	-0.089 * (0.046)
Miner in Syria now working without a permit	-0.103 *** (0.032)	-0.096 ** (0.045)	-0.109 ** (0.045)
Miner in Syria now working with a permit	-0.050 (0.032)	-0.008 (0.046)	-0.089 * (0.045)
9 months of security	0.033 (0.027)	0.052 (0.039)	0.016 (0.039)
12 months of security	0.008 (0.028)	0.058 (0.039)	-0.045 (0.040)
Respondent resides in Jordan	-0.145 *** (0.023)		
Observations	1,900	950	950
Mean: Physician working as janitor and 6 months of security	0.497	0.375	0.590
SD	0.501	0.487	0.494
Test: Physician, physician = Miner, no permit [p-value]	0.129	0.084	0.667
Test: Miner, no permit = Miner, with permit [p-value]	0.093	0.045	0.653
Joint test of significance of occupation vars [p-value]	0.015	0.110	0.071

Table 3.11. The second vignette: assistance

	Mashreq	Jordan	Lebanon
	(1)	(2)	(3)
Respondent resides in Jordan	-0.139 *** (0.022)		
1,000 USD cash assistance per returnee	-0.082 *** (0.022)	-0.005 (0.031)	-0.156 *** (0.032)
Observations	1,900	950	950
Mean: 2,000 USD cash assistance per returnee	0.457	0.373	0.540
SD	0.498	0.484	0.499

Assistance-related results paint a complex nexus of human psyche and economic factors: refugees do not embrace financial factors in discussing mobility, but those factors still play a role. Table 3.11 focuses on how information on cash assistance for return influences the perception of whether a hypothetical family will in fact return. Column (1) looks at the full sample, column (2) is only Jordan and column (3) is only Lebanon. Comparing the overall means, it is striking that there is no increase in the likelihood that respondents say the family will return with the introduction of the information about the US\$2,000 cash assistance. In the vignette that mentions nothing about external assistance, about 50 percent of respondents indicated the family would likely return. But when US\$2,000 per person is introduced, that number is only 46 percent. Nevertheless, being offered less money is associated with a lower likelihood to return to Syria by about 8 percentage points. This overall effect is driven by the Lebanon subsample, where the lower assistance level means a 16-percentage point reduction in the likelihood a respondent says the hypothetical family will return.

Turning next to the third vignette, the results show that access to schools in Syria is an important determinant of return perceptions. The third vignette is analyzed by comparing the scenario in which the wife is working and schools in Syria are open and well-resourced to the other three scenarios as illustrated in Table 3.12. The first column shows responses to the question whether the entire family is likely to return in the next two months, and the following columns ask about individual family members, as described in the table under the row “Who migrates?” The responses show that refugees consider female labor force participation not an important factor in the return decision. However, schools not being open in Syria significantly reduces the probability that a respondent thinks the family (and individual family members) will return. The benchmark likelihood is 43 percent, and this is reduced to 25 percent if schools in Syria do not have resources to pay teachers their full salaries. In this scenario, schools matter both for the children—who are enrolled in school—and because the father/husband was a school teacher in Syria. We do not observe dramatically different patterns for the return decisions for the individual family members versus the entire family.

The fourth vignette shows that refugees’ ability to reclaim non-destroyed houses in Syria is a key determinant of return intentions. This vignette focuses on the conditions of the family’s house and whether they have family in their home village or not. In this scenario, 38 percent of respondents indicate that the family is likely to return to Syria if they find out from their neighbors in Syria that their house is intact as shown in Table 3.13. This is the same rate if their family in Syria tells them their house is intact. However, the house being destroyed reduces the likelihood of returning home by 22-23 percentage points. In this case, no significant difference is observed between Jordan and other host countries in responses.

Table 3.12. The third vignette: conditions in Syria and family returns

	Migration Profiles				
	(1)	(2)	(3)	(4)	(5)
Wife not working	0.012 (0.022)	0.004 (0.021)	0.021 (0.021)	0.012 (0.021)	0.027 (0.021)
Schools poor resources	-0.187 *** (0.021)	-0.188 *** (0.021)	-0.143 *** (0.021)	-0.142 *** (0.021)	-0.130 *** (0.021)
Respondent resides in Jordan	-0.063 *** (0.022)	-0.143 *** (0.021)	-0.099 *** (0.021)	-0.096 *** (0.021)	-0.089 *** (0.021)
Who migrates?	Entire family	Father/ Husband	Wife/ Mother	Older daughter	Younger daughter
Observations	950	950	950	950	950
Mean: Wife is working and Schools in Syria Open	0.433	0.440	0.357	0.357	0.337
SD	0.496	0.497	0.480	0.480	0.473

Table 3.13. The fourth vignette: conditions of house in Syria

	(1)
Family says house intact	0.020 (0.028)
Neighbor says house destroyed	-0.224 *** (0.028)
Family says house destroyed	-0.229 *** (0.028)
Respondent resides in Jordan	-0.009 (0.020)
Observations	1900
Mean: Neighbor says house is intact	0.381
SD	0.486

These vignettes do not cover all factors that influence refugees' decisions; however, they provide a useful introduction to a more forward-looking analysis of return. Refugees who have thus far returned to Syria may be motivated by very specific reasons that are less relevant for refugees who have so far stayed in their country of asylum. This survey helps to uncover factors that may influence the decisions among the clear majority of refugees who have thus far not returned to Syria. In the next chapter, the analysis will analyze more formally the possible paths of future conditions in Syria, and how those may influence the return behavior.

3.5. Concluding Remarks



In this section, the analysis estimated the importance of the four broad factors distilled from international experience in shaping the mobility of Syrian refugees so far. Returns to Syria have been low relative to the total refugee population but more than a hundred thousand (103,090 between 2015 and 2018), nevertheless. These returnees (and non-returnees) provide an opportunity to investigate the factors that have contributed to return decision so far. To do this, the analysis used empirical tests including linear probability and logit models to identify *generalized (population-wise) effects* of each factor on return behavior and uses machine-learning techniques like decision trees and boosted trees to capture *localized (group-wise) effects*, which enables better capture of the complexity of return. Finally, novel surveys of refugees are employed, including non-registered ones, to analyze the willingness to return. The use of vignette scenarios (e.g., not asking refugees directly about their own return, but presenting them with scenarios about hypothetical refugee profiles, and randomizing the scenarios across participants), lessens some important biases that often plague return-intentions surveys, such as cognitive problems (e.g., responses being shaped by social/political pressure).

Results showed that the actual returns to date are of a special kind, in both their scale and composition, that are generally different from large-scale returns. Overall, the estimations of generalized effects show that demographic characteristics like family ties, age, and marital status are important determinants of return. Empirical results in this study confirm the findings from international experience that refugee return is a complex process. While this analysis is not able to verify the cyclical and transitory nature of some return behavior (since this data does not lend itself to such an exercise), the nuances of who returns and under what conditions are shown.

- **Refugees who are single, or male, or not members of a nuclear family have been more likely to return.** Generalized results (e.g., applicable to the entire Syrian refugee population in Lebanon, Jordan, and Iraq) show that singles are 2.7 percentage point more likely to return than married refugees, male members are 0.6 percentage points more likely than female, and extended family members are 1.2 percentage points more likely than nuclear family members. However, this pattern varies greatly across countries of asylum with individual returns being very common in Lebanon (89 percent of all returns). In contrast, case-level returns are much more common in Iraq and Jordan, making up more than 85 percent of all returns. “Case” here refers to UNHCR’s registration system of “refugee case” where a group of refugees, often families with relatives, is headed by the case-head. It should also be noted that frequent back-and-forth movements of refugees between Lebanon and Syria have been reported, which may not be captured by the official return statistics completely.

- **With intensive conflict in home locations in Syria, returnees are more narrowly selected from a specific profile of refugees.** Using the machine-learning algorithm with a return-augmented sample (by randomly choosing a smaller sample from non-returnees) elaborates on more complex dynamics. In this biased sample, overall, only 14 percent of nuclear family members return, whereas 74 percent of non-nuclear family members return in this specific sample. However, the returns of nuclear family members become even less likely under high-intensity conflict. For instance, only 3 percent of nuclear family members return when the dread factor (tank, artillery, and air strikes) has been high in the district of origin in Syria. In comparison, within those in non-nuclear family member group, 88 percent return when the dread factor is low and 67 percent return when the dread factor is moderate, and the non-nuclear member is older than 55 years old. These findings provide some support for the anecdotal evidence that suggest senior relatives go back despite an active conflict for family reunification, to identify return conditions, or watch property against appropriation risk.

Results also showed that whereas “pull factors” in Syria have unambiguous effects on return behavior, “push” factors in countries of asylum have mixed implications. Findings confirm international lessons regarding dominance of country of origin effects. However, this study finds no evidence for any suggestion that “if refugees face bad living conditions in host communities, then they will be more likely to go back.” The relationship between host community living conditions and return is complex as shown below.

- **Security in Syria is one of the most important determinants of return.** Figure E.S.4 shows that security, along with demographic aspects, is one of the most important determinants of return, a result that is consistent across specifications. Refugees are found to be less likely to return to districts with a history of intensive conflict. One standard deviation increase in the dread factor reduces the likelihood to return by 4.5 percentage points. However, the sole absence of violence is not sufficient and the party in control is equally critical. Estimations show that refugees are 3.6 percentage points more likely to return if the district of origin is not controlled by the Government of Syria. Similarly, a takeover of control (by any group) increases the likelihood of return by 18 percentage points. Thus, security is not only a backward-looking factor (e.g., conflict history), but also a forward-looking one (future exposure to violence and possible tensions).
- **Low provision of education, health, and basic services in Syria provides an effective deterrent against return.** Other things being equal, concerns about access to basic services, education, and health provide a consistently negative effect on the likelihood of return across all specifications. Refugees are 2.2 percentage points less likely to return if access to basic services (electricity, fuelwood, etc.) is a primary concern in their home district. Similar results are obtained for limited access to public health and education, but the coefficients are smaller.
- **Better living conditions and access to services in countries of asylum do not reduce the likelihood of return on the low end of the distribution.** Results regarding living conditions (such as food security) and access to services (such as education) show that refugees’ living conditions and access to services in countries

of asylum have non-linear effects on the likelihood of return. For instance, refugees are 15 percentage points more likely to return if they consume an extra meal per day (Lebanon and Jordan dataset with geographical aggregation). Similarly, a one standard deviation increase in food insecurity decreases the likelihood to return by 1.8 percentage points. Although higher education has been associated with lower likelihood of return at secondary and tertiary levels (e.g., having a university degree reduced the likelihood of return by 2.5 percentage points, and having a secondary degree by 1.7 percentage points), having a primary education increased this likelihood by 0.3 percentage points vis-à-vis having no education.

Surveys detected a complex nexus of human-psyche and economic factors: refugees do not embrace financial issues in discussing mobility, but those issues still matter. Responses to vignette surveys provided predictable results regarding the role of assets in returns. About 38 percent of respondents indicated that their family would likely return to Syria if they find out from their neighbors in Syria that their house is intact, but the destruction of the family's house reduces the likelihood of return by 22-23 percentage points. However, responses to hypothetical scenarios of financial assistance were rather unexpected. Positive responses to a fictional return scenario decreased from 50 percent to 46 percent when a hypothetical amount of US\$2,000 cash assistance was introduced in the scenario.¹⁶⁶ Interestingly, however, a scenario with less money (US\$1,000) is still associated with a lower likelihood to return to Syria by about 8 percentage points as compared to the more money (US\$2,000) scenario. Thus, somewhat paradoxically, cash assistance reduced the positive return responses, but more assistance still triggered more positive responses than less assistance.

The future mobility of Syrian refugees could be different from their past mobility. In many ways, the return that has happened so far has been undertaken in specific circumstances, that is, during an active conflict, with specific motives like protecting property. Going forward, however, both the circumstances and motives are likely to be different. To capture these concerns, the analysis in the next chapter considers scenario-based simulations.

Chapter 4

Return Simulations

The future mobility of Syrian refugees will likely be different from their past mobility. In many ways, the returns that have happened so far have been undertaken in specific circumstances, that is, during an active conflict, with specific motives like protecting property. Going forward, however, both the circumstances and motives are likely to be different.

Considering these concerns, the analysis in this chapter develops scenario-based simulations, which characterize different degrees of improvement in security and service provision in Syria. Given the complexity of these two concepts (e.g., security requires more than the sheer absence of violence), indices that comprise multidimensional descriptions of these conditions, and location-specific scenarios regarding future evolution of them, are employed.





Lolita Lolita

Chapter 4:

Return Simulations



The future mobility of Syrian refugees could be different from their past mobility.

Chapter 3 showed the complexity of return dynamics that have taken place to date. In many ways, returns so far have been undertaken in specific circumstances, for example, during an active conflict, or with specific motives such as protecting property, among others. Going forward, however, both circumstances and motives are likely to be different. The intensity of conflict has begun to decrease in certain areas and the nature of concerns regarding protection of property is shifting from a simple take-over toward more institutionalized risks, as encapsulated in fears surrounding Law #10. Thus, many parties to the conflict and forced displacement may expect returns going forward to be at a different scale and composition than those currently realized. Although there were no signs of such change at the time of this report's preparation, the analysis below investigates the plausibility of such expectations by performing a forward-looking exercise.

The analysis of future refugee mobility is, however, complicated by major uncertainties surrounding key drivers of mobility in the future.

Although a significant reduction in hostilities is expected in the coming years for the first time since the onset of the conflict, a "positive peace" in which all constituents feel safe is absent. The possibility of some fighting and large-scale displacement in and around Idlib, and in the North-East, cannot be dismissed. In addition, important dimensions of safety, other than sheer violence, are yet to be fulfilled. There are widespread social tensions, including ethno-sectarian aspects, retribution against communities that have allegedly sided with another fighting camp, and institutional punitive practices like appropriation of assets, arrest, military conscription, and predatory practices involving the use of unreasonable civil documentation requirements. Similarly, there is much uncertainty regarding living standards going forward. With largely degraded administrative and financial capacity, it is unclear at what speed the provision of services like electricity, water, roads, education, and health will recover. Together, these factors provide a highly unpredictable path for quality of life in Syria going forward.

This chapter develops a scenario-based approach to analyzing the future mobility of Syrian refugees by using a simulation model.

To complement the inferences based on international and Syrian experiences so far, and to perform policy analyses based on various realizations of outcomes that are not captured in data, the analysis builds on the model developed for "The Toll of War" (World Bank 2017b), with amendments that are required to capture the specific issues regarding refugee mobility, such as attachment to the home location and valuation of conflict and amenities. The underlying features of the simulation model are discussed below, and more technical descriptions of the model and its calibration are provided in the annex.

The analysis here focuses solely on refugees' own rational choices; other options such as forced repatriation are renounced and not analyzed. It is important to emphasize that this report does not analyze any factors that do not include refugees' own rational choices. Refugees are not people who are "out of place and to be returned." They have the full biological and cognitive facilities to assess their options, and act rationally given their resources and constraints. Other parties, including the international community, host country governments, and the government of the source country, can influence those resources and constraints, but they cannot prevent refugees' reassessment of the situation, nor prevent them from acting accordingly. In technical terms, it is the refugee who undertakes the optimization decision, not the other parties. Therefore, to estimate the potential impact of a policy action, it is necessary to understand how the refugees would react to the proposed changes. These reactions are discussed in subsequent sections.

4.1. Taking Uncertainty into Consideration

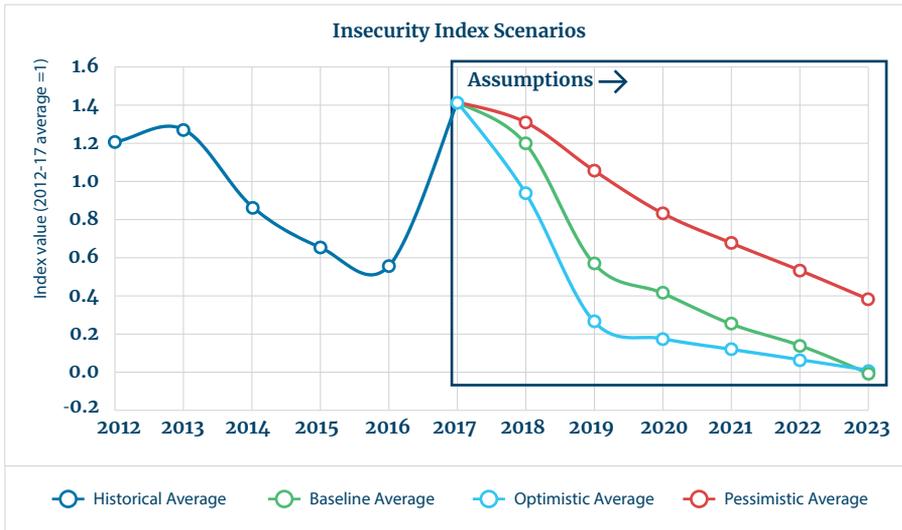


A bottom-up scenario-based approach was developed to study the responsiveness of refugee movements to shifting conditions in Syria. To avoid making strong, top-down assumptions regarding the complex and unpredictable political economy dynamics surrounding the Syrian conflict, the analysis described here pursues a pragmatic micro-approach. This involves building scenarios for two prominent pull factors: security and infrastructure. To do this, eight underlying conditions are analyzed for every governorate in Syria (14 overall): political influence/control, administrative capacity, social tensions, reconstruction priority, rule of law, legal/procedural complexity of return, financial capacity, and the region's connectivity with other regions. By using observations and expert assessments regarding these conditions, three possible future paths for security and infrastructure are generated for each governorate.

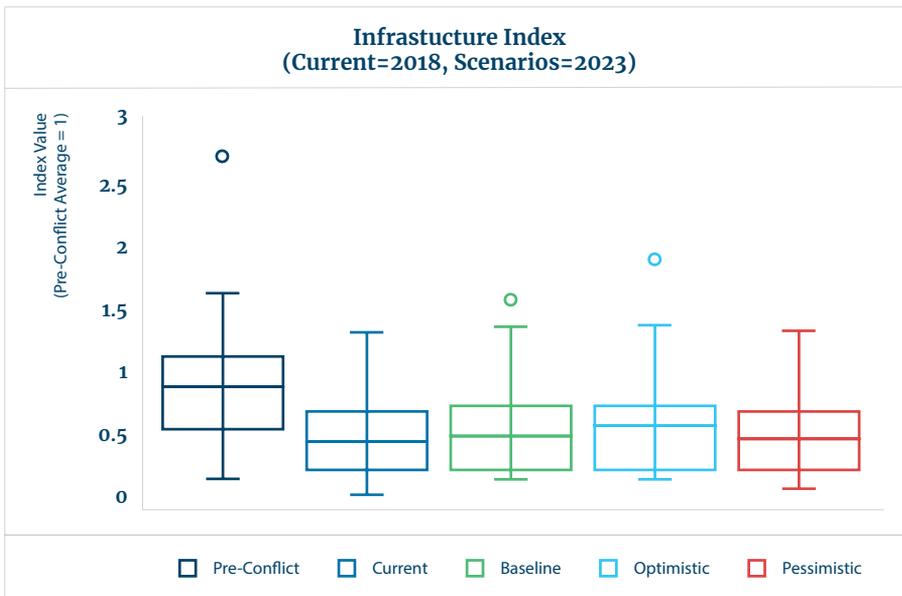
Figure 4.1 shows these three paths for security and infrastructure separately. In the first panel, an insecurity index is developed. The historical series are based on actual conflict events across governorates, which are then extrapolated in three different trajectories by using a subset of the eight underlying conditions for each of the 14 governorates. In the figure, the future scenarios are represented by different colors (lines show governorate averages). Both historical and forward-looking elements are normalized by using the average conflict event numbers across governorates between 2012 and 2017. The second panel shows the distributions of an infrastructure index across governorates for pre-conflict, current (early 2018), and in five years levels, with three possible outcomes for the latter. Index values show the status of infrastructure assets by using education and health sector assets as proxies, which are normalized by pre-conflict averages across Syria. Overall, the security and infrastructure dimensions are characterized by the following three forward-looking paths:

- **Baseline environment:** this case presents a “business as usual” situation where conflict dynamics follow the most recent trends and security conditions improve gradually in most areas; however, social tensions largely prevail. Similarly, damaged infrastructure is gradually rebuilt in key strategic areas; however, these efforts are handicapped by financial and administrative capacity constraints. In aggregate terms, the insecurity index decreases from 1.4 in 2017 to 0.15 in 2023. In the meantime, 16 percent of the currently damaged infrastructure is rebuilt/fixed in the entire country, but the reconstruction ratio varies from 3 percent to 32 percent in different areas.
- **Optimistic environment:** in comparison to the baseline scenario, this one presents a more rapid de-escalation from conflict and faster easing of social tensions across the country. With access to additional finance and technical assistance, the country undertakes a greater effort to reconstruct damaged infrastructure and restore publicly provided goods and services. Overall, the insecurity index decreases from 1.4 to 0.07 between 2017 and 2023, and about 30 percent of the currently damaged infrastructure is rebuilt/fixed during that period. With greater capacity of rebuilding, the reconstruction ratio is more divergent across different locations than the baseline: 5 percent in the lowest case and 48 percent in the highest.
- **Pessimistic environment:** this scenario considers the slowest gradual de-escalation of conflict across the country, which in turn fuels further social conflict and grievances. Protracted tensions will limit financial and administrative capacity that can be spared for rehabilitation projects more than the other scenarios. The insecurity index decreases from 1.4 in 2017 to 0.54 in 2023. The average reconstruction ratio remains at 5 percent of the current damage across the country, with significant disparities between the highest reconstruction at 14 percent and the lowest at 2 percent.

Figure 4.1 Security and Infrastructure Scenarios



Notes: Each data point in a given year shows the index value for a specific governorate. Historical series are single valued, projections provide three values for each governorate (baseline, optimistic, and pessimistic). Index values are normalized with 2012-2017 averages of all governorates.



Notes: Each Box-Whisker plot shows the distribution of facility numbers across Syrian governorates. Index values are normalized with pre-conflict averages across governorates. Boxes show the positions of governorates between Q1 and Q3, and the parallel lines within boxes show median values. The whiskers include observations within 1.5 times the interquartile range (IQR) distance from the Box ($Q1-1.5*IQR$, $Q3+1.5*IQR$). Dots are outliers from this range.

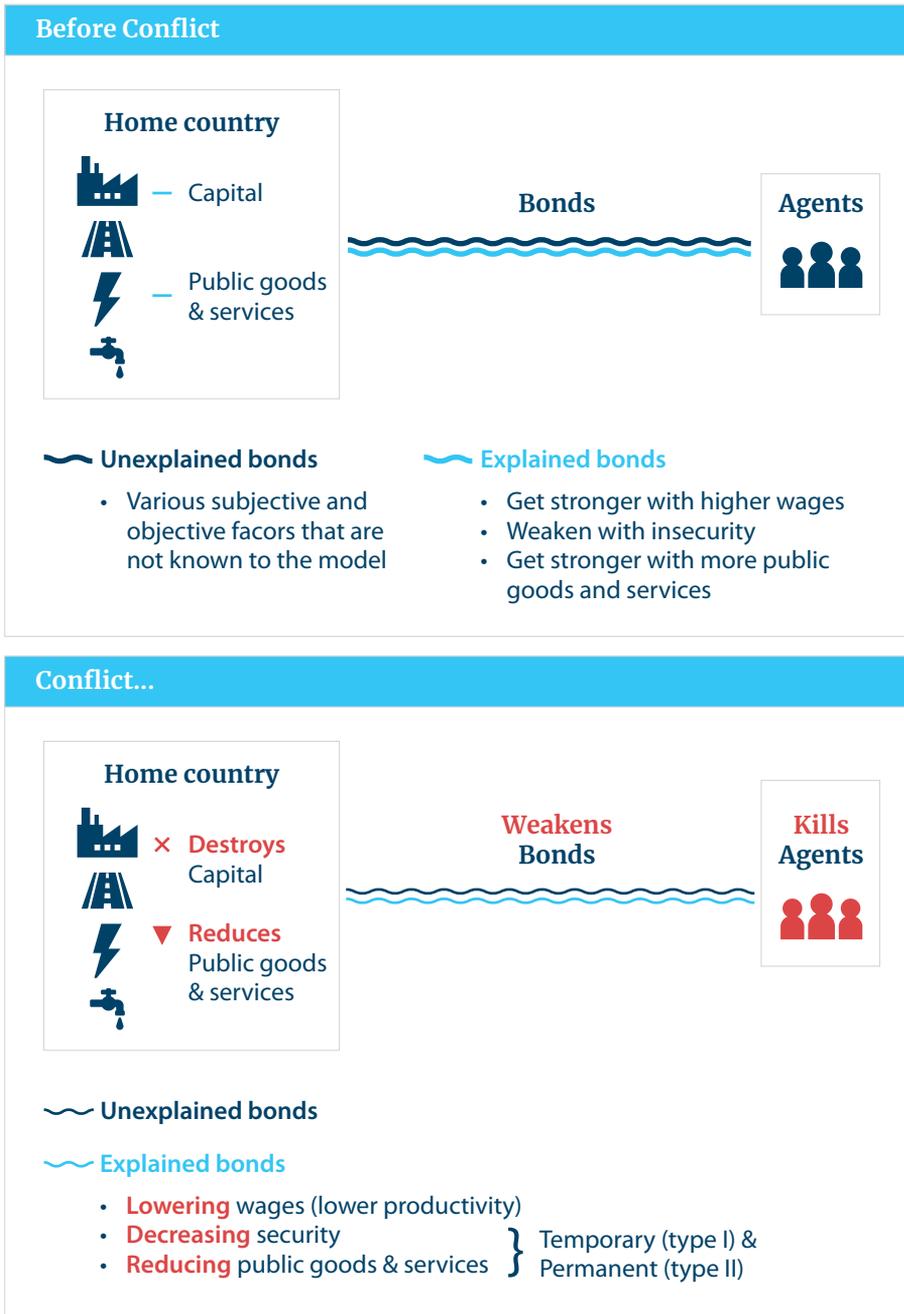
Note that *these environments do not project future events; they are merely assumptions that allow the study of the mobility of refugees under different conditions.* As noted above, it is impossible to make predictions about security or reconstruction in an active conflict situation. Thus, it is important to note that the environments developed here are not predictions of future events. They only provide benchmarks to study the mobility responses of refugees, and the analysis is agnostic about the likelihood of such outcomes. Overall, the suggested interpretation of these scenarios is as follows: if conditions specified by a scenario hold, then the corresponding results generated by the analysis are to be expected. However, it is not possible to assess if those conditions will hold or not.

4.2. A Simulation Approach to Analyzing Mobility



The analysis in this section uses a dynamic mobility model with perfect foresight to study the potential reactions of Syrian refugees to changes in security and service restoration. As in the model used in the World Bank report “The Toll of War” (World Bank 2017b), at the core of the simulation model lie rational agents who compare alternative locations to choose a mobility/immobility path that maximizes their expected lifetime welfare (Figure 4.2). For instance, other things being equal, higher wages in a certain location can attract people from other locations. Unlike the previous model, however, in this case the model features “attachments” to the home country, which have some intrinsic components for which an explanation is not attempted (i.e., subjective feelings for the home country). But two components of these attachments are estimated: insecurity (decreases attachment) and amenities like publicly provided services (increases attachment). Overall, it is more likely that agents will move to a location from other locations if: the wages are higher and it is more secure and more amenities are available. The simulations here, therefore, build on these two dimensions. Box 4.1. provides more details about the modeling framework, and the annex for this chapter presents the technical details like calibration.

Figure 4.2 Structure of the Simulation Model



Box 4.1. Simulation Model

The simulation model builds on World Bank (2017b) extends it in various aspects, including the characterization of conflict and migration both within and outside Syria. The model comprises 14 regions (governorates) within Syria, neighbor countries, (Turkey, Lebanon, Jordan, Iraq), and the rest of the world to account for outmigration. Agents decide to live and work in a region based on wages, amenities provided in the region, including safety, and the moving cost between regions. Agents take their expectations about the future into account and compare options in all regions as well as countries before deciding to move or stay. Due to an individual-specific random utility component, similar agents can make different decisions. The model takes into account projections of security, amenities, reconstruction of capital, possible subsidies and transfers, and other relevant measures prepared by experts, and forecasts the decisions of current and potential refugees.

Wages: Agents take wages into account, in addition to other factors such as safety, when deciding to move or stay. Wages are impacted by the number of agents in a region. As the number of workers decline, and labor becomes scarcer, the marginal product of labor increases as it is the standard in most economic models. However, destruction of capital reduces the availability of fixed production factors and factor productivity, thus wages can decline endogenously as conflict intensifies even if the supply of labor declines.

Amenities: Agents' instantaneous utility includes a component for amenities in addition to wages. Amenities account for non-pecuniary factors that influence agents' decisions, which can be potentially more important than wages. Amenities have two main components: 1. Perception of safety. 2. Provision of public goods.

Safety: The perceived safety is a function of casualties in a given region. We assume that there are two types of agents: For Type I agents, the perceived safety is only a function of current casualties. For Type II agents, the perceived safety is a function of current and past casualties. More specifically, Type I refugees are more likely to return after safety improves compared to Type II refugees, since they are not influenced by past casualty levels.

Public goods: The provision of public goods such as education, healthcare, road infrastructure, public transportation, social security, water and electricity distribution, and other factors can impact refugee return and migration decisions. Provision of public goods, hence amenities, declines with conflict and increases with reconstruction.

Other factors that affect mobility: The agents pay a moving cost if they decide to move. The moving cost is larger if an agent decides to move outside Syria. Agents are rational and form expectations about the future. Agents are not myopic; therefore, they take the future stream of wages and amenities into account after discounting them.

Box 4.1. Continued

Policy interventions: Policymakers can influence agents' decisions by reducing conflict, improving safety, providing public goods, reducing moving costs through subsidies, or giving unconditional transfers to people in Syria. At that point, decisions of agents join with policy interventions to determine the number of refugees and their welfare in Syria. Since the policymaker must operate within a constrained budget, it is useful to analyze implications of different policy scenarios for welfare and refugee return.

To account for heterogeneity among refugees, two types of refugees are considered. Previous chapters discussed the characteristics of refugees that generate a vast degree of heterogeneity among refugee populations: gender, age, occupation, family structure, location of origin, location of refuge, income/wealth status, refugee registration status, ethnicity, religious orientation, political orientation, military service status, etc.- all of which differ across refugees; thus, there are in fact thousands of different factors that could be used to classify individuals. Because it is not possible to take these numerous dimensions of information into account in simulations, these simulations consider two types of refugees: Type-I and Type-II, who differ primarily based on their history. More specifically, whereas Type-II refugees would suffer from a permanent welfare effect from their exposure to conflict once they return to Syria, Type-I refugees do not. In other words, Type-II refugees' current welfare is affected by their history of conflict and service destruction in their hometown. This can be interpreted as a permanent psychological trauma or political affiliation that will keep reducing their life quality if they return. Type-I refugees only consider current conditions, and do not suffer from such persistent effects. Although this structure is far from representing the complexity in sufficient detail, it helps us to analyze how each factor may influence the return decision in isolation.

Unless otherwise noted, Syrian borders are assumed to be closed inside-out. Considering the current conditions on the ground, where all movements of Syrians to neighboring countries are highly restricted, the main simulations in this chapter assume that Syrians within Syria, including returnees, are not able to emigrate. This condition is also known by refugees outside Syria in advance, that is, if they decide to return, they do it despite knowing that they will be unable to move out even if they want to in the future. However, additional simulations show how results would differ if such border closures were not implemented.

4.3. The Role of Security and Service Restoration



Simulations show that improvements in security conditions and services are key drivers of return. Figure 4.3 shows the simulation results in comparison to the baseline environment, that is, the figure shows how return would change from its trajectory under the baseline environment if security and service restoration took either the optimistic path or the pessimistic one instead of the baseline path. Thus, if the insecurity index is reduced from 1.4 now to 0.07 (optimistic environment) in five years, instead of 0.15 (baseline environment), and if 30 percent of the infrastructure is rebuilt (optimistic environment) instead of 16 percent (baseline environment), then return would be 4.9 percent higher than that in baseline environment in the same time frame. In contrast, if the insecurity index decreases to only 0.54 and only 5 percent of the infrastructure is rebuilt, as in the case of the pessimistic environment, then the returns would be about 9.8 percent less than the baseline.

Service restoration is more effective in mobilizing refugees when security is less of an issue. To better understand the distinct roles played by improving security conditions and service restoration, these effects are introduced separately. This is done by first introducing different security paths as specified in the baseline, optimistic, and pessimistic environments, and then adding the service restoration in the second step. Figure 4.4 shows the results by using the baseline outcomes as benchmark. When only security improvements are considered, the optimistic path features 1.9 percent more returns than the baseline environments in five years. This ratio increases by about 2.5-fold to reach 4.9 percent when service restorations are involved (second blue group in the figure). In comparison, the gap between “security only” and “security+service restoration” cases are smaller when the pessimistic scenario is compared with the baseline scenario. The pessimistic insecurity path, by itself, reduced returns by 5.3 percent as compared to the baseline path. When differences between service restoration rates are also accounted for, this gap widens to 9.8 percent, about 1.8-fold. Another way to evaluate this is to analyze how much additional returns can be generated by service restoration in different security conditions. In this case, service restoration by itself increases returns by 26 percent in the pessimistic scenario. This effect increases to 48 percent and 62 percent in the baseline and optimistic scenarios, respectively. Note that some of these differences are driven by the fact that there is simply more restoration as scenarios get better. However, there are diminishing marginal effects of service restoration within a given scenario, for example, the first kilometer of road, water well, and hour of electricity are more effective than the second one, and the second one more than the third one, and so on. But the effect of the first service restoration unit in a good security environment is greater than the effect of the first unit in a bad security environment. The same goes for the second unit, third unit, and so on.

Figure 4.3 Returns Under Optimistic and Pessimistic Environments (Relative to Baseline Path)



Figure 4.4 The Effect of Service Restoration on Returns (Relative to the Baseline, %)

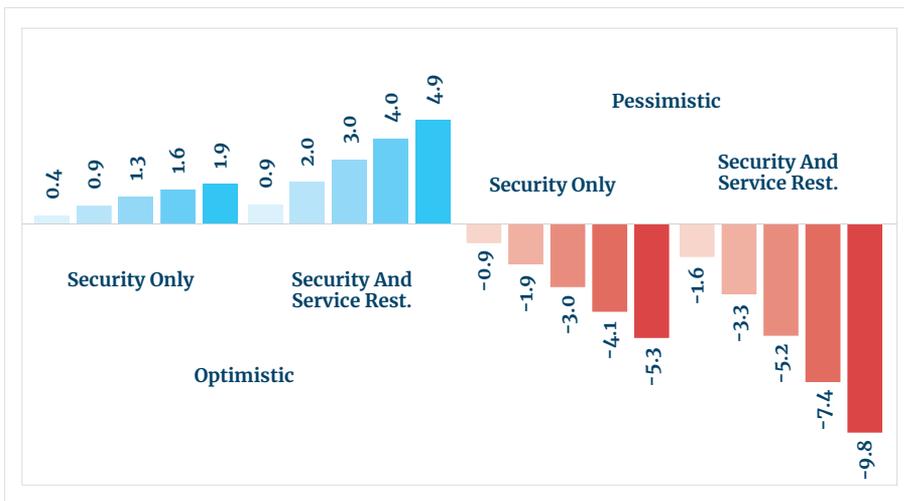
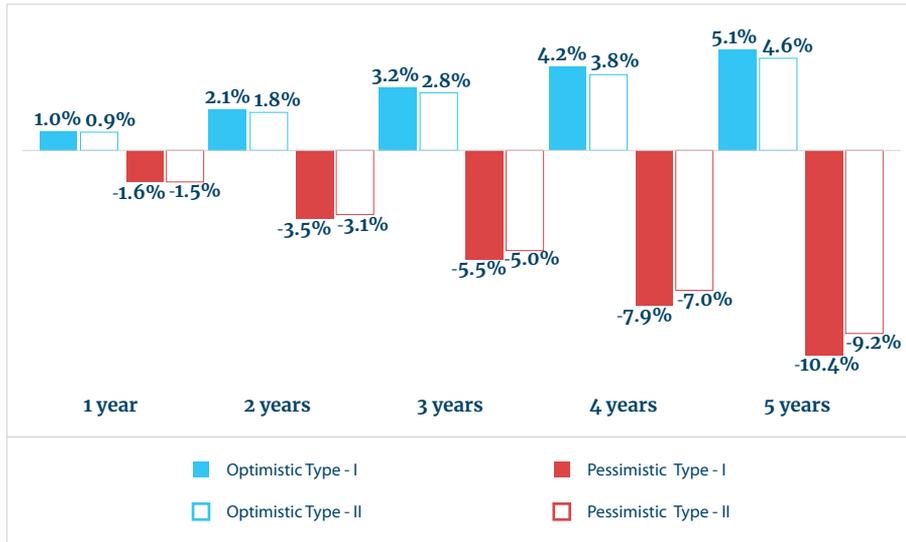


Figure 4.5 Return by Types of Refugees (Relative to the Baseline)



Type-II refugees (those with higher costs) are both less mobile than Type-I refugees within each scenario and less responsive to shifts across scenarios. Type-II refugees are about 4 percent less likely to return than Type-I refugees in the baseline, 5.3 percent in the optimistic environment, and 2.3 percent in the pessimistic environment over the five-year period covered here. The differences between these lags across scenarios are also visible in Figure 4.5. The return “lead” of optimistic scenario over baseline is more pronounced for Type-I refugees. Similarly, the “lag” of pessimistic scenario is also more pronounced for Type-I refugees. Thus, Type-II refugees are not only less likely to return in a given environment, they are also less likely to respond to changes in environment.

4.4. The Role of Resource Allocation



To further analyze the mobility responses of refugees, alternative resource allocation scenarios are considered. As refugees’ mobility decisions may also be influenced by other policy-driven conditions, this study analyzes relative effectiveness of alternative uses of financial resources. More specifically, for each of the three environments specified above (baseline, optimistic, and pessimistic), the study investigates if certain ways to allocate resources other than service restoration may be more conducive to return. To this end, the following options are used:

- **Transfers:** in each environment, the estimated environment-specific cost of service restoration is distributed equally on a per capita basis within Syria, in the form of cash transfers, including to the returnees. This continues for five years until the money is depleted; no service restoration is performed.
- **Subsidies:** in each environment, the estimated environment-specific cost of service restoration is used to subsidize the return of refugees to Syria, in the form of reductions in mobility costs and cash transfers including to the returnees. Because the Syrians inside Syria are not subsidized, the returned receive a larger transfer in this case. This continues for five years until the money is depleted; no service restoration is performed.

Results show that, on average, mobility subsidies are the most effective in mobilizing refugees, but the least desirable from a welfare perspective. Table 4.1 shows that returns under the subsidy scheme can exceed those under the service restoration scheme by about 29 percent, 45 percent, and 60 percent for pessimistic, baseline, and optimistic environments, respectively. Intuitively, for refugees, subsidies provide a more direct, exclusive and thus larger benefit associated with returns. In comparison, the benefits of service restoration are shared by all Syrians and, thus, diluted from the refugee's perspective. The difference between the two schemes is the most prominent in the optimistic environment, where a larger financial resource is either shared among returnees (subsidies) or diluted by means of service restoration. The downside of the subsidy allocation is low welfare achievement within Syria. With no service restoration or reconstruction of capital stock, and a greater return of refugees, the average Syrian is worse off by about 10 percent in the optimistic environment, and by 4.5 percent and 6.2 percent in the pessimistic and the baseline environments, respectively, in five years.

Transfers, by themselves, are less effective than subsidies and service restoration in mobilizing refugees; they are also welfare-inferior to the latter. Transfer schemes, where the financial resources that would otherwise be used for service restoration are distributed in equal installments for everybody in Syria over five years, generate less mobilization than the other schemes. By the end of five years, returns under transfers are 4.8 percent, 5.2 percent, and 1.7 percent less than those under service restoration for the baseline, optimistic, and pessimistic environments, respectively. This result is interesting because it shows that although refugees may be tempted by the prospect of a small transfer once they are back in the long term, doing so does not present a durable solution when compared to service restoration. This is most clearly seen in the optimistic scenario, where in the first few years, returns under the transfer scheme are marginally (0.7 percent in the first year and 0.4 percent in the second year) higher than those under the service restoration case. However, this does not last long, and by the fifth year returns under the service restoration scheme dominates the one under transfers by more than 5 percent. In welfare terms, transfers provide a slightly better outcome in Syria than mobility subsidies because a larger group of individuals benefit from transfers, and less refugee returns work in favor of wages in this case. However, welfare outcomes under service restoration dominates both transfers and subsidies in all environments.

Table 4.1 Returns and Welfare under Transfer or Subsidy Schemes, as Compared to Service Restoration (Percent, Cumulative)

Returns and Welfare (% Deviation from Service Restoration Case)						
		RETURN				
		1 Year	2 Years	3 Years	4 Years	5 Years
Baseline Environment	Transfers	-0.1	-0.7	-1.6	-2.9	-4.8
	Subsidies	9.1	17.9	26.6	35.5	45.0
Optimistic Environment	Transfers	0.7	0.4	-0.7	-2.6	-5.2
	Subsidies	14.0	26.6	38.3	49.3	60.3
Pessimistic Environment	Transfers	-0.1	-0.4	-0.7	-1.1	-1.7
	Subsidies	5.6	11.1	16.6	22.5	28.8
		WELFARE				
		1 Year	2 Years	3 Years	4 Years	5 Years
Baseline Environment	Transfers	-4.1	-4.6	-5.1	-5.6	-6.2
	Subsidies	-6.9	-7.1	-7.4	-7.6	-7.8
Optimistic Environment	Transfers	-4.0	-4.8	-5.7	-6.5	-7.4
	Subsidies	-8.6	-9.0	-9.2	-9.5	-9.7
Pessimistic Environment	Transfers	-2.5	-2.7	-3.0	-3.2	-3.5
	Subsidies	-4.0	-4.1	-4.2	-4.4	-4.5

These results could be magnified as more details are considered. The simulation results presented here are partially driven by certain modeling assumptions that make this computationally heavy exercise possible. However, researchers here believe that the qualitative results would prevail, and the quantitative effects would be magnified in certain cases and weakened in others as further details are considered. For example, one implication of the money-metric utility specification is that cash receipts (that is, wages, transfers, and subsidies) are substitutes for publicly provided services (electricity, roads, etc.). A more realistic assumption would consider more ordered structure of preferences (that is, a minimum level of services is needed before income can be useful). Introducing such an assumption would reinforce the welfare comparisons between service restoration, transfer, and subsidy schemes, but weaken the superiority of subsidies in mobilizing refugees.

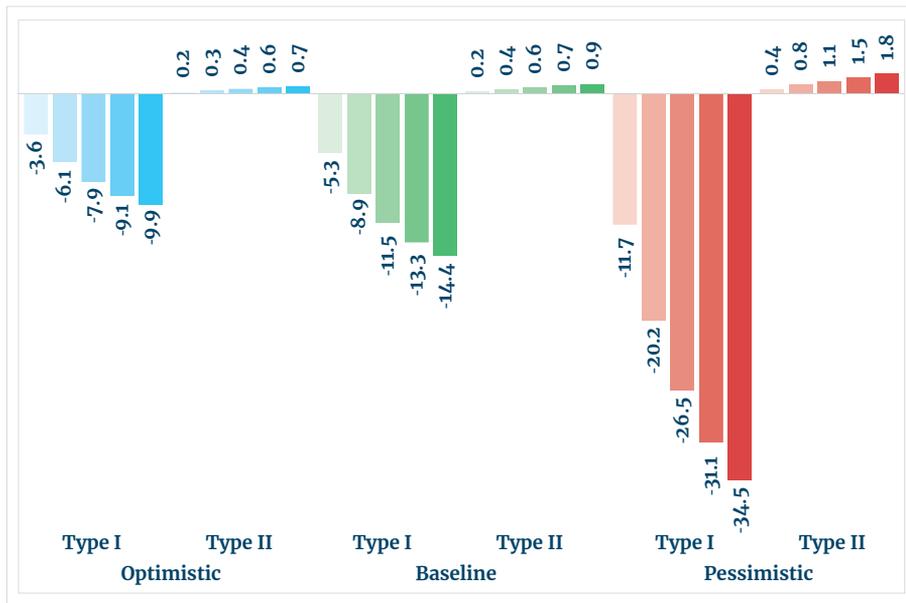
4.5. The Role of Border Policies



Border policies have two opposite effects in these simulations: more Syrians move out when borders are open, but at the same time, more displaced Syrians move in. In all environments (baseline, optimistic, and pessimistic) the living standards in Syria continue to be below other countries. Although insecurity diminishes gradually over time, and services are restored to different extents across governorates, the country continues to be largely insecure and service-deprived in comparison to other economies. On the one hand, this translates into further displacement when allowed by border policies. Some Syrians move to safer areas that have better service access. On the other, the ability of moving out again gives better incentives for already displaced Syrians to return. This result is obviously more relevant when the future paths of security and service provision suffer from large uncertainties, but would still hold, albeit to a smaller degree, even in the absence of such aggregate uncertainty. This follows from the fact that, even if there is no aggregate uncertainty, there are still individual level uncertainties and, thus, rational agents prefer the ability to move if warranted.

Simulations show that the difference open borders can make is more pronounced in negative environments, both for outflows and inflows. Figure 4.6 shows that in the pessimistic path, about 1.8 percent more Type-II refugees would return to Syria over five years in net terms if borders were open. In comparison, the differences are at 0.9 percent in the baseline environment and 0.7 percent in the optimistic environment. These returns are, however, paralleled with greater outflows of Syrians: compared to the closed border case, the net outflow of Type-I refugees would be at 34.5 percent, 14.4 percent, and 9.9 percent in pessimistic, baseline, and optimistic environments, respectively. Note that, the simulations assume all Type-II refugees are in exile (half of the refugee population), and all Syrians in Syria are Type-I, in the beginning of the simulations (year 0). Thus, the movement of Type-II refugees can also be used as a proxy for gross returns of Type-I, albeit in an imperfect manner as previous analysis showed that the mobility of Type-II refugees is less elastic as compared to Type-I refugees.

Figure 4.6 The Effect of Border Opening on Returns by Environment (Relative to the Closed Border Case)



4.6. Concluding Remarks



Despite daunting challenges, the analysis in this chapter attempted to study possible mobility patterns Syrian refugees in the medium term. Previous chapters in this report showed that the returns of Syrian refugees to date have been limited and of specific nature, reflecting transitory coping strategies rather than durable solutions. Thus, they have limited implications for understanding large-scale returns that may happen when the conditions are right. The analysis in this chapter produced conjectures regarding the transition from a limited and selective mobility pattern to broader mobility dynamics, depending on different degrees of improvement in security and service provision in Syria. Given the complexity of these two concepts (for example, security requires more than the sheer absence of violence), index values that comprise multidimensional descriptions of these conditions, and location-specific scenarios regarding future evolution of them, were employed. Overall, given the high degrees of complexity and uncertainty surrounding mobility of refugees, no analysis can claim precision and completeness; nevertheless, the methodology developed in this chapter enables conjecture on dynamics of refugee mobility depending on assumptions in a systematic and transparent manner.

The analysis showed that for service restoration in Syria to be effective in mobilizing refugees, it needs to be accompanied by improving security conditions. In addition to simulating refugee returns under overall baseline, optimistic, and pessimistic conditions, the analysis in this chapter also introduced improvements in security and service access separately under these conditions to better understand the distinct roles played by these factors. Results showed that service restoration acts like a greater multiplier in better security conditions. For instance, service restoration by itself increases returns by 26 percent in the pessimistic scenario. This effect increases to 48 percent and 62 percent in the baseline and optimistic scenarios, respectively. Thus, the difference-making potential of service sector restoration goes together with improvements in security. This result supports the observations in chapters 2 and 3, which showed that security conditions is the most important driver of return (both in refugees' perceptions and their revealed preferences as observed from the actual returns that have taken place).

Results also show that using limited resources for trying to maximize the return of Syrian refugees is inefficient from the point of view of Syrians' welfare. Some returns are welfare improving; they take place spontaneously and assistance for such returns can also be welfare improving. However, there is a tradeoff after a certain level. To study this, the analysis considered three extreme cases: in each of the security conditions (baseline, optimistic, and pessimistic), money can be used to restore services, to transfer cash to all Syrians, or to subsidize the return of refugees. Simulations show that, on average, mobility subsidies are the most effective in mobilizing refugees, but the least desirable from a welfare perspective. In comparison, the benefits of service restoration are shared by all Syrians and, thus, diluted from refugees' perspective. The difference between the two schemes is the most prominent in the optimistic environment, where a larger financial source is either shared among returnees (subsidies) or diluted by means of service restoration. The downside of the subsidy allocation is low welfare achievement for Syrians in Syria.

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Annexes

Annexes for Chapter 2

Health Access indicators

Table 1: Health Accessibility Index, 2010

Health Accessibility Index, 2010	2010														
	Syria	Hasakah	Aleppo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir - Az Zor	Hama	Homs	Idleb	Lattakia	Quneitra	Rural Damascus	Tartous
Health Infrastructure															
Hospitals															
# of Hospitals	462	32	112	11	5	50	15	23	48	42	31	21	1	50	21
# of Hospital Beds	26,430	1,358	5,251	841	704	5,104	993	1,035	1,914	2,228	845	1,660	200	2,941	1,356
Health Units															
Number of Health Units	1,826	98	241	73	93	61	106	103	175	225	114	118	59	189	171
Human Resources for Health															
Physicians	11,305	619	1,746	628	348	731	526	663	1,146	1,173	538	971	212	1,082	922
Nurses and Midwives	29,126	1,059	2,386	997	2,340	785	1,668	2,110	2,486	3,978	1,997	3,660	321	2,063	3,276
Financial Coverage															
Financial Coverage Hospitals	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Financial Coverage Primary care	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Assets Accessible to Syrians		Syria	Hasakah	Aleppo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir- Az Zor	Hama	Homs	Idleb	Lattakia	Quneitra	Rural Damascus	Tartous
Population of Syrians		21,377,000	1,512,000	4,868,000	944,000	370,000	1,754,000	1,027,000	1,239,000	1,628,000	1,803,000	1,501,000	1,008,000	90,000	2,836,000	797,000
Population of Host Country (Only host country citizens)																
Health Infrastructure																
Hospitals																
# of Hospitals per 1,000		0.022	0.021	0.023	0.012	0.014	0.029	0.015	0.019	0.029	0.023	0.021	0.021	0.011	0.018	0.026
# of Hospital Beds per 1,000		1.236	0.898	1.079	0.891	1.903	2.910	0.967	0.835	1.176	1.236	0.563	1.647	2.222	1.037	1.701
Normalized # of Hospitals per 1,000		0.451	0.437	0.494	0.140	0.198	0.666	0.232	0.356	0.696	0.503	0.421	0.426	0.123	0.327	0.598
Normalized # of Hospital Beds per 1,000		0.316	0.178	0.252	0.175	0.589	1.000	0.206	0.152	0.292	0.316	0.041	0.484	0.719	0.235	0.506
Health Units																
Number of Health Units per 1,000		0.085	0.065	0.050	0.077	0.251	0.035	0.103	0.083	0.107	0.125	0.076	0.117	0.656	0.067	0.215
Normalized Number of Health Units per 1,000		0.101	0.069	0.045	0.089	0.363	0.022	0.130	0.098	0.136	0.164	0.087	0.151	1.000	0.072	0.305
Health Infrastructure Indicator		0.209	0.124	0.148	0.132	0.476	0.511	0.168	0.125	0.214	0.240	0.064	0.318	0.860	0.153	0.406
Human Resources for Health																
Physicians per 1,000		0.529	0.409	0.359	0.665	0.941	0.417	0.512	0.535	0.704	0.651	0.358	0.963	2.356	0.382	1.157

Assets Accessible to Syrians	Syria	Hasakah	Aleppo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir- Az Zor	Hama	Homs	Idlib	Lattakia	Quneitra	Rural Damascus	Tartous
Nurses and Midwives per 1,000	1.362	0.700	0.490	1.056	6.324	0.448	1.624	1.703	1.527	2.206	1.330	3.631	3.567	0.727	4.110
Normalized Physicians per 1,000	0.194	0.149	0.129	0.246	0.351	0.152	0.188	0.197	0.261	0.240	0.129	0.359	0.889	0.138	0.433
Normalized Nurses and Midwives per 1,000	0.202	0.095	0.061	0.153	1.000	0.055	0.244	0.257	0.228	0.338	0.197	0.567	0.556	0.100	0.644
Human Resources for Health Indicator	0.198	0.122	0.095	0.199	0.675	0.103	0.216	0.227	0.245	0.289	0.163	0.463	0.723	0.119	0.538
Financial Coverage															
Financial Coverage Hospitals	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Financial Coverage Primary Care	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Financial Coverage Indicator	1.000	1.000													
Health Accessibility Index	0.404	0.342	0.348	0.366	0.657	0.531	0.388	0.369	0.418	0.442	0.323	0.525	0.860	0.356	0.587

Table 2: Health Accessibility Index, 2018

Assets Accessible to Syrians	2018																		
	Syria	Hasakah	Allepjo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir - Az Zor	Hama	Homs	Idleb	Lattakia	Quneitra	Rural Damascus	Tartous	Lebanon	Jordan	Iraq	
Health Infrastructure																			
Hospitals																			
# of Hospitals	505	31	117	11	6	60	13	28	48	51	34	26	1	58	21	147	116	260	
# of Hospital Beds	27,667	1,081	4,131	675	724	5,190	1,011	1,392	2,014	2,937	1,092	2,841	200	3,017	1,362	12,555	14,779	44,821	
Health Units																			
Number of Health Units	1,585	98	169	73	93	61	25	15	175	225	114	118	59	189	171	900	1,177	2,669	
Human Resources for Health																			
Physicians	5,889	155	481	270	225	1,601	67	13	629	113	180	768	90	127	1,170	13,813	26,019	27,208	
Nurses and Midwives	12,915	497	716	559	1,019	1,529	280	77	1,593	1,080	630	1,594	132	724	2,485	16,087	14,795	62,795	
Financial Coverage																			
Coverage Hospitals	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.45	0.45	0.45	
Coverage Primary Care	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.65	0.65	
Population of Syrians	20,226,627	1,169,176	3,808,479	869,808	404,872	1,824,931	954,726	713,623	1,439,831	1,449,869	2,363,035	1,138,556	122,575	3,189,742	777,404	976,065	666,596	251,157	

Assets Accessible to Syrians	Syria	Hasakah	Aleppo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir- Az Zor	Hama	Homs	Idleb	Lattakia	Quneitra	Rural Damascus	Tartous	Lebanon	Jordan	Iraq
Population of Host Country (citizens)																5,851,479	9,159,302	36,115,649
Health Infrastructure																		
Hospitals																		
Number of Hospitals per 1,000	0.025	0.027	0.031	0.013	0.015	0.033	0.014	0.039	0.033	0.035	0.014	0.023	0.008	0.018	0.027	0.022	0.012	0.007
Number of Hospital Beds per 1,000	1.368	0.925	1.085	0.776	1.788	2.844	1.059	1.951	1.399	2.026	0.462	2.495	1.632	0.946	1.752	1.839	1.504	1.232
Normalized number of Hospitals per 1,000	0.555	0.604	0.735	0.171	0.239	0.802	0.202	1.000	0.816	0.873	0.226	0.489	0.031	0.344	0.619	0.448	0.145	-
Normalized number of Hospital Beds per 1,000	0.370	0.189	0.254	0.128	0.542	0.973	0.244	0.608	0.383	0.639	-	0.831	0.478	0.198	0.527	0.562	0.426	0.315
Health Units																		
# of Health Units per 1,000	0.078	0.084	0.044	0.084	0.230	0.033	0.026	0.021	0.122	0.155	0.048	0.104	0.481	0.059	0.220	0.132	0.120	0.073
Normalized # of Health Units per 1,000	0.090	0.099	0.037	0.099	0.329	0.020	0.008	-	0.158	0.211	0.043	0.130	0.725	0.060	0.314	0.175	0.156	0.083
Infrastructure Indicator	0.230	0.144	0.146	0.114	0.435	0.496	0.126	0.304	0.271	0.425	0.021	0.480	0.602	0.129	0.420	0.369	0.291	0.199
HR for Health																		
Physicians per 1,000	0.291	0.133	0.126	0.310	0.556	0.877	0.070	0.018	0.437	0.078	0.076	0.675	0.734	0.040	1.505	2.023	2.648	0.748

Assets Accessible to Syrians	Syria	Hasakah	Allepjo	Ar-Raqqa	As-Sweida	Damascus	Dar'a	Deir - Az Zor	Hama	Homs	Idleb	Latakia	Quneitra	Rural Damascus	Tartous	Lebanon	Jordan	Iraq
Nurses/Midwives per 1,000	0.639	0.425	0.188	0.643	2.517	0.838	0.293	0.108	1.106	0.745	0.267	1.400	1.077	0.227	3.197	2.356	1.506	1.727
Normalized Physicians per 1,000	0.104	0.043	0.041	0.111	0.204	0.327	0.020	-	0.159	0.023	0.022	0.250	0.272	0.008	0.565	0.762	1.000	0.278
Normalized Nurses and Midwives per 1,000	0.085	0.051	0.013	0.086	0.388	0.117	0.030	-	0.161	0.102	0.026	0.208	0.156	0.019	0.497	0.362	0.225	0.260
HRH Indicator	0.095	0.047	0.027	0.099	0.296	0.222	0.025	-	0.160	0.063	0.024	0.229	0.214	0.014	0.531	0.562	0.612	0.269
Financial Coverage (FC)																		
Coverage Hospitals	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Coverage Primary Care	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
FC Indicator	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.550	0.550							
Health Accessibility Index	0.389	0.334	0.330	0.331	0.542	0.554	0.319	0.402	0.425	0.478	0.267	0.547	0.604	0.318	0.593	0.462	0.436	0.304

Water Sectors

City	Status of networked facilities
Afrin	The Local Council of Afrin city, with Turkish support, was able to rehabilitate several water network pipelines, in addition to reactivating the main water station. As a result, the public water network and the supply of most neighbourhoods of the city was reactivated in the mid 2018. While restoration is still in progress, water is continuously provided, with some occasional delays between pumping periods. Previously, the cost of a 24-barrel water tank was around SP 3500 (US\$3.5 m ³).
Al-Bab	Following widespread damage, the water network was rebuilt and is 90 percent ready to use. However, since it was taken over, the Syrian Government authorities have been blocking the water line towards Al-Bab city, from A'ayn Al-Baydaa station near the Euphrates River within their territories.
Aleppo	Widespread destruction has damaged networks assets leaving only 30 percent of households able to depend on the network. Humanitarian actors invested heavily in a network of wells during the siege of Aleppo. While this was a critical safety net during the siege it has changed the structure of the service delivery—possibly irreversibly. Aleppo has a water treatment plant (WTP) and a waste water treatment plant (WWTP): Al-Khafsa Water Treatment Plant supplies drinking water to 3.5 million people, including all residents of the city of Aleppo, and produces around 18,000 m ³ of drinking water per day. The plant is located to the east of Aleppo near Lake Assad, a dammed portion of the Euphrates River, and consists of two facilities, one smaller and one larger, likely representing the initial station (the smaller) and more recent additions to increase the plant's output. Water travels from the plant through 90 kilometers of pipelines to supply the main water pumping stations in the city of Aleppo (Sulayman al-Halabi and Bab al-Nayrab), a journey that takes roughly 20 hours. The damage to this WTP impacted the water supplied to Al-Bab's city. The sewage water treatment plant located in the Ar-Ramouseh Industrial District, is functioning, but the physical status of the plant is unknown.
Dar'a	The water supply network in Dara's has suffered severe damage and non-functionality as a result of sustained conflict leaving 65 percent of people without access to the network. Dar'a has a water treatment plant (WTP) and a waste water treatment plant (WWTP): Dar'a's existing water treatment plant is not functioning, but local media reports that repairs/construction are in progress and will cost SP 1.4 billion (and may take approximately seven months to complete). It is expected to be completed in October 2018 and will be able to treat 1,200 m ³ per day of water. The wastewater treatment plant in Dar'a had been damaged in fighting and was no longer functioning. Government-affiliated reports in December 2016 and February 2017 confirm the station to still be damaged, with electricity outages and continued fighting in the area making repairs to, and completion of, the station difficult. No repairs are reported to have occurred in 2018. Even prior to the Syrian conflict, local municipal authorities stated that the treatment plant did not have capacity to treat sewage.
Deir- el Zor	In the populated neighbourhoods of Al-Joura, Al-Qusoor, and Harabesh, the water network didn't incur any substantial damage and is still functioning properly. Yet nearly half of households are not receiving network water. As for the unpopulated neighborhoods, ^a the network has seen major damage that rendered it out of service. The nature of damage varies from one neighborhood to another, based on the rate at which each neighborhood was targeted. Water Establishment announced restoration of functionality of its main pumping station that was rehabilitated when electricity returned to the city in May 2018. The water pumped daily increased from 1000 cubic meters to 1400 cubic meters and is expected to be at 2400 cubic meters, depending on the stability of electricity. A one-megawatt diesel engine was also installed at the facility that allows the pump to remain operational in case of power failure.

	<p>Deir ez-Zor had 10 functional water purification plants until 2011, constructed during different time periods. The main water treatment plant is the Al-Basel Plant (capacity Max.: 1,200m³/day Practical: 600m³/day). This plant started operating in 2007 and could cover the water needs. Recent problems related to the endurance of the water conveyance pipes between the plant and the water tanks prevent the plant from functioning. This plant is out of service with a damage percentage of 90 percent as estimated by the government officials. The estimated costs for repairing is around US\$2.6 million. Six treatment plants need partial maintenance with repairs estimated at US\$200,000 and the three remaining plants are functioning.</p>
Douma	<p>The Local Council reported repairs to the city's sewage and water networks in April 2018. The Barada pipeline has been partially functioning since the beginning of 2011, due to shelling. Douma has a water treatment plant (WTP) and a waste water treatment plant (WWTP): Al-Fija Spring Treatment and Pumping Station, located in Ayn al-Fija (25 KM northwest of Damascus), also served the Douma area but was destroyed in 2013. Local reporting indicates that wells have been constructed in the Ayn al-Fija area as an alternative water source, however diminishing water levels due to lack of rainfall is increasing the water deficit in surrounding areas (including Douma). Adra Wastewater Treatment Plant was the main wastewater treatment facility for all of Damascus and its suburbs. It is located approximately seven miles northeast of Douma. Due to its proximity, wastewater from Douma was likely sent to this plant but when Douma was cut-off from the Damascus water network in 2012, it likely also was cut-off from this plant. The facility was destroyed in 2013 as a result of bombing. Adra wastewater treatment facility. This treatment facility has been partially operational since 2011, due to shelling.</p>
Homs	<p>Needs assessments reports claim that Homs residents have consistent availability of potable water, but water quantity has been less than fully sufficient to address household needs, resulting in additional expenditures and trade-offs in the household budget. However, a majority of local communities have reported disruptions to sewerage services, including "blocked connections to sewage" and inability to empty septic tanks. Several repair and reconstruction projects are reportedly ongoing in Homs, including replacement of sewage lines, sanitation system repair, and replacement of street water lines. WASH infrastructure in Homs is undergoing extensive reconstruction and repair, with improved physical integrity at approximately 38.5 percent of all facilities. This is in contrast with significant conflict-related disruptions to water access examined in the previous assessments.</p>
Idleb	<p>The proportion of pipelines affected in the water network does not exceed eight percent. The water networks appear in good condition and are able to meet necessary demands for the required use. However, the networks require constant maintenance in order to address issues that result from pumping and continuous operations. A majority of the WSS infrastructure is not operating at full capacity, and access to water appears largely dependent on donors and aid organizations. As a result only 40 percent of households are able to depend on the network for water.</p> <p>Most of the neighborhoods have similar access to water, depending heavily on alternative non-network sources. Houses with multiple floors often have difficulties with accessing water, because many pumping operations only extend as far as the ground floor and do not have the capacity to reach the second or third floor or higher. The average expenditure on water in Idleb is reportedly above the national average, at six percent of household income.</p>
Kobane	<p>There is a project underway to repair the sewage system and to repave the streets. NGOs are also fundraising to help rehabilitate the water networks throughout Kobane. Only one water treatment plant is located in the Kaniya Murside neighbourhood. The plant is not damaged, however it is not functioning.</p>
Manbij	<p>The Water Directorate is responsible for repairing works and maintenance of the water pipelines in the Self Administration's territories in Manbij city and its countryside. It is important to note that the Manbij Water Directorate implemented a project in June 2018 to replace asbestos pipelines in the Manbij water network.</p>

Qamichli	Water is generally supplied to citizens through the main water network. In some areas, especially in summer, citizens are required to pay 500 SP per barrel or dig wells in order to get water. Despite the great population pressure and increasing numbers of IDPs, the electricity, water, and other services have not had major repairs and experienced significant service disruptions, however, there have also been no new projects initiated to cover these developing needs. In addition to the three old water stations which supply drinking water to the entire city (the stations of Awijah, Halaliya and Jagjag), there is a large collection of artesian wells that the civilians dug due to the inability of these stations to supply the entire city with water, which obliges residents to get water through tanks or sometimes dig manual or artesian wells. Some neighborhoods located in the eastern part of Qamishli City, lack water entirely during the summer. The residents of these neighborhoods are supplied with water by tanks, and in particular, the Qanat Al- Suez neighborhoods experience a severe water deficit. Except for these neighborhoods, the others have a stable water supply. Some northern parts of Qamishli City are supplied by the Safan Dam, which is located in Derik "Malikia" district.
Ar-Raqqa	According to local authorities, damage and cracks are estimated to affect no less than 45 percent of the total water network system, but because most of it is underground the exact damage cannot be clearly pinpointed. As a result, both local authorities and residents are engaged in simultaneous repairs of the water lines, for example of the main line 600, another two lines 300 west of the city, and one line 60 east of the city. As part of a new initiative called "The rehabilitation of basic services in the city of Ar-Raqqa," water sanitation workers repair the sewage and water pipes. There is one water treatment plant located between the two bridges, to the south of the Euphrates River. It provides most neighborhoods in the city and ten neighboring villages with clean drinking water. The Reconstruction Committee supervised its maintenance after being funded by the Euphrates Program to operate the station and to provide salaries for employees and some machinery and accessories needed for the station to continue working. The Dbsi Afnan Water Plant in the Western Ar-Raqqa countryside, which services suburbs of Ar-Raqqa city, is currently undergoing repairs. The sewage treatment plant, located to the east of the city near Al-Qarmid Factory (Brick Factory), is partially damaged and not functional.
Yabroud	Water is generally supplied to citizens through the main water network by the Self Administration authorities. All water wells and reservoirs are functioning properly with no damage. Maintenance to these water facilities is provided by the Yabroud Water Unit of the Water Foundation, and all neighborhoods are provided with water services equally. Over the last two years, the Yabroud Water Unit has been providing regular maintenance and repairs of the water networks and well system within the city. In addition to repairs, the Water Unit has conducted regular testing of tap water quality as it was recently (June-July 2018) affected by sand at the bottom of the wells. Notably, as of last July, the Water Unit conducted full rehabilitation of the main pumping line for the city, drastically improving availability of running water in the city.

- a The length of the network in the unpopulated neighborhoods is estimated at 3,000 km, with dimensions that range between 5 and 100 cm. Based on the estimated cost (before 2011), the total cost of installing 1linear meter (LM) is \$30, including the price of the pipe, along with its accessories, transportation, excavating work, protection materials, backfilling works, etc.,*

Annexes for Chapter 3

Survey Response Comparison

In this section, we compare responses to questions posed to refugees both in the VASyr and VAF, administered by UNHCR, and in our own survey, implemented by a third party. The sample from our survey includes only registered refugees from Jordan and Lebanon, to allow for more accurate comparisons. Differences we observe stem from two main reasons: (i) a change in time; or (ii) bias arising from the fact that refugees may respond differently (the direction of the bias could go different ways) to survey questions when an aid organization is administering the question. There is no way to separate these two explanations. However, since we have VASyr and VAF surveys from multiple years, the table below shows the data for each year.

Table A.3.1 combines data from the VAF and the VASyr in years 2015 and 2017 and combines Lebanon and Jordan from the survey data in 2018. In parentheses are standard deviations. The column titled p-value shows whether the means in the 2018 column are statistically different than the 2017 column. This test was chosen as the years are closest to each other, in an attempt to minimize—though surely not eliminate—differences resulting from changes over time.

We focus on measures related to coping with poverty. In all surveys, respondents were asked whether they had to engage in a number of activities, all of which would ideally be avoided, in order to deal with a shortage of food or money since they arrived in their country of asylum. The 2018 data shows much higher rates of households reporting engaging in poverty-coping strategies, ranging from selling household goods and reducing consumption of essentials. Notably, there is a higher rate (27 percent) of households reporting that they had to stop sending their children to school than in the 2015 and 2017 data (15 percent and 10 percent respectively). There is a corresponding increase in the percentage of households who report having to send their children to work. Fortunately, however, we do not observe an increase in the percentage of households who have to resort to sending their children to beg, which is 2-3 percent of households in all surveys.

A smaller fraction of households reports receiving food voucher assistance, decreasing from 60 percent in 2017 and 75 percent in 2015 to 40 percent in 2018. Comparisons for Jordan and Lebanon are shown separately. The largest change is in Jordan, where in 2018 only 45 percent of the respondents reported receiving food assistance in the form of a voucher, compared to 93 percent and 91 percent respectively for 2015 and 2017.

Table A.3.1: Comparison of Refugees in VAF, VASYR and survey data

	All				
	2015	2017	2018	N	p-value
Had to do the following to cope with poverty:					
Sell household goods	0.291 (0.454)	0.282 (0.450)	0.495 (0.500)	19149	0.000
Reduce consumption of essentials	0.454 (0.498)	0.532 (0.499)	0.815 (0.389)	19149	0.000
Spend savings	0.370 (0.483)	0.364 (0.481)	0.656 (0.475)	19149	0.000
Buy food on credit	0.656 (0.475)	0.706 (0.456)	0.748 (0.434)	19149	0.005
Stopped sending children to school	0.150 (0.357)	0.103 (0.304)	0.267 (0.443)	19150	0.000
Sent children to work	0.034 (0.182)	0.055 (0.229)	0.192 (0.394)	19150	0.000
Sent children to beg	0.019 (0.136)	0.027 (0.163)	0.025 (0.155)	19149	0.579
Engaged in dangerous or exploitative work	0.183 (0.386)	0.120 (0.324)	0.126 (0.332)	19149	0.519
Received food voucher assistance	0.753 (0.431)	0.601 (0.490)	0.402 (0.490)	19148	0.000
Has piped water	0.602 (0.489)	0.486 (0.500)	0.762 (0.426)	19148	0.000
Has toilet	0.977 (0.151)	0.856 (0.351)	0.842 (0.365)	15273	0.124
Avg meals per day	2.138 (0.780)	2.107 (0.957)	2.509 (0.642)	19140	0.000
Number of times reduced meals	2.727 (2.753)	2.351 (2.832)	1.112 (1.596)	19139	0.000

In contrast to the coping strategy results, which suggested refugees are struggling more in the 2018 survey—either due to a deterioration in time or different reporting, their ability to eat regular meals has improved. The average meals per day was 2.5 in the 2018 survey compared to 2.1 in 2015 and 2017. Consistent with this, households report having to reduce meals less often. To the question “In the last 7 days, how many times has the household had to reduce the number of meals eaten per day?”, respondents answered 1.1 in the 2018 data. In 2015 and 2017 the average was 2.7 times and 2.3 times respectively. This is a large difference.

Table A.3.2 focuses only on Jordan, comparing the VAF to the survey data collected by the team in 2018. In Jordan, across almost all the measures of coping with poverty, we observe an increase in reports of having to engage in each strategy over time, increasing from 2015, 2017, and then 2018. However, there is a significant decline in reports of being engaged in dangerous or exploitative work in 2018 compared to earlier years. We also observe fewer households reporting access to piped water and having a toilet in the 2018 sample, though the differences are fairly small in magnitude even if statistically significant. The trend in food consumption is a little different than discussed with the full sample. Respondents report far fewer incidents of reducing their meals in the last week but there is a different pattern over time for reported average meals per day. In 2015 households reported on average 2.5, going down to 2.1 in 2017 and then rising again to 2.4 in 2018.

Table A.3.3 examines only Lebanon, including VASyr data from 2015-2017 compared to the survey data from 2018. The p-value continues to compare only 2018 to 2017. In the Lebanon data, a striking change in the 2018 data compared to earlier years is the percentage of households reporting that they had to stop sending their children to school (30 percent compared to 10-19 percent in previous years) and having to send their children to work (22 percent compared to 3-5 percent in previous years). We also observe a steady decline in the percentage of households reporting receiving food assistance in the form of a voucher in Lebanon between 2015, 2017 and 2018.

Table A.3.2: Comparison of Refugees in VAF, VASYR and survey data

	Jordan				
	2015	2017	2018	N	p-value
Had to do the following to cope with poverty:					
Sell household goods	0.235 (0.424)	0.340 (0.474)	0.557 (0.497)	5679	0.000
Reduce consumption of essentials	0.148 (0.356)	0.546 (0.498)	0.849 (0.358)	5679	0.000
Spend savings	0.398 (0.490)	0.445 (0.497)	0.685 (0.465)	5679	0.000
Buy food on credit	0.356 (0.479)	0.619 (0.486)	0.740 (0.439)	5679	0.000
Stopped sending children to school	0.073 (0.259)	0.105 (0.307)	0.246 (0.431)	5679	0.000
Sent children to work	0.009 (0.094)	0.075 (0.263)	0.174 (0.379)	5679	0.000
Sent children to beg	0.005 (0.068)	0.042 (0.200)	0.006 (0.078)	5679	0.000
Engaged in dangerous or exploitative work	0.531 (0.499)	0.304 (0.460)	0.148 (0.355)	5679	0.000
Received food voucher assistance	0.929 (0.256)	0.912 (0.283)	0.454 (0.498)	5678	0.000
Has piped water	0.940 (0.238)	0.900 (0.300)	0.857 (0.350)	5679	0.001
Has toilet	0.966 (0.182)	0.951 (0.216)	0.926 (0.262)	5679	0.007
Avg meals per day	2.495 (0.541)	2.103 (1.208)	2.382 (0.597)	5679	0.000
Number of times reduced meals	2.908 (2.689)	2.152 (2.684)	1.093 (1.655)	5671	0.000

Table A.3.3: Comparison of Refugees in VAF, VASyr and survey data

	Lebanon					
	2015	2016	2017	2018	N	p-value
Had to do the following to cope with poverty:						
Sell household goods	0.316 (0.465)	0.307 (0.461)	0.250 (0.433)	0.404 (0.491)	13470	0.000
Reduce consumption of essentials	0.593 (0.491)	0.534 (0.499)	0.524 (0.499)	0.764 (0.425)	13470	0.000
Spend savings	0.358 (0.479)	0.363 (0.481)	0.319 (0.466)	0.616 (0.487)	13470	0.000
Buy food on credit	0.793 (0.405)	0.616 (0.486)	0.754 (0.430)	0.760 (0.428)	13470	0.794
Stopped sending children to school	0.185 (0.388)	0.118 (0.322)	0.102 (0.303)	0.298 (0.458)	13470	0.000
Sent children to work	0.046 (0.209)	0.031 (0.174)	0.045 (0.207)	0.218 (0.413)	13470	0.000
Sent children to beg	0.025 (0.157)	0.018 (0.135)	0.019 (0.137)	0.051 (0.220)	13470	0.000
Engaged in dangerous or exploitative work	0.024 (0.154)	0.021 (0.142)	0.018 (0.133)	0.096 (0.294)	13470	0.000
Received food voucher assistance	0.673 (0.469)		0.429 (0.495)	0.327 (0.470)	13470	0.000
Has piped water	0.449 (0.497)	0.340 (0.474)	0.257 (0.437)	0.624 (0.485)	13468	0.000
Has toilet	0.982 (0.134)	0.889 (0.314)	0.656 (0.475)	0.719 (0.450)	9594	0.000
Avg meals per day	1.975 (0.817)	1.865 (0.837)	2.109 (0.784)	2.696 (0.659)	13461	0.000
Number of times reduced meals	2.645 (2.778)	2.208 (2.708)	2.461 (2.906)	1.138 (1.509)	13468	0.000

Registered vs. unregistered refugee responses: sampling bias

The data from UNHCR only includes refugees who are registered (or recorded in Lebanon after 2015). There are, however, refugees in both Lebanon and Jordan who are not registered with UNHCR. In the survey, both registered and unregistered refugees were interviewed in Lebanon and Jordan. In this appendix section, we provide some summary statistics comparing characteristics of different refugees. A refugee household is considered *Registered* in Jordan if the refugee who was the primary respondent to the survey indicates that s/he is registered, and the registration is current. The refugee is *Not registered* if s/he never registered, has an expired registration or was registered only in a refugee camp (and no longer residing in the camp). In Lebanon, a refugee is *Registered* if they either have a current registration or if they are recorded for assistance. They are treated as *Not registered* if they have an expired registration or they were never registered or recorded.

In Table A.3.4 we observe some differences across registered and not registered refugees, though most of the differences are fairly small. Note: the figures in parentheses are standard deviations, and column titled p value demonstrates whether the difference between registered and not registered refugee households are statistically different from one another. There is a higher fraction of female-headed households among the registered sample (27 percent vs. 22 percent). This difference is found in Lebanon; in Jordan, however, the percentage of female headed households is similar in registered and not registered households. Registered households are also larger, on average 6.5 individuals compared to 4.6 individuals in not registered households. There is no difference in whether the household held had a skilled occupation in Syria prior to the conflict. Those who are registered are a bit less likely to report that their home in Syria is intact (10 percent compared to 17 percent). This may suggest that registered refugees may plan to stay in their country of asylum for longer if their home has been impacted by the war. However, the difference is not dramatically large.

Overall, in the sample, monthly food expenditure is the same in registered and unregistered refugee households. However, in Lebanon specifically, registered households report higher food expenditure than not registered households. This could reflect the benefits of the UNHCR assistance received by registered households. But the households are also larger, so per capita consumption is lower among the registered than not registered. Registered households are also slightly more likely (84 percent vs. 78 percent) to be in debt than not registered households. This may reflect higher need, which also motivated them to register with UNHCR. Overall both types of households are consuming about 2.5-2.6 meals per day. However, in Jordan, not registered refugees consume a slightly larger number of meals on average per day (2.48 vs 2.38).

Table A.3.4: Comparison of Registered and Not Registered Refugees

	All				Jordan				Lebanon			
	Registered	Not registered	N	p value	R	NR	N	p value	R	NR	N	p value
Female headed household	0.267	0.218	1,900	0.015	0.257	0.240	950	0.577	0.282	0.204	950	0.005
	(0.443)	(0.413)			(0.437)	(0.428)			(0.451)	(0.403)		
Household size	5.603	4.604	1,846	0.000	5.689	5.368	949	0.050	5.469	4.126	897	0.000
	(2.492)	(2.577)			(2.346)	(2.334)			(2.698)	(2.608)		
Skilled occupation in Syria	0.234	0.227	1,716	0.534	0.273	0.284	803	0.749	0.183	0.198	913	0.575
	(0.423)	(0.419)			(0.446)	(0.452)			(0.387)	(0.399)		
Condition of Syrian home: Unimpacted/intact	0.095	0.166	1,900	0.000	0.082	0.147	950	0.002	0.113	0.178	950	0.005
	(0.293)	(0.373)			(0.274)	(0.354)			(0.317)	(0.383)		
Monthly HH income in COA	299	332	1,846	0.148	266	285	920	0.167	345	360	926	0.417
	(224)	(265)			(181)	(211)			(266)	(290)		
Monthly food expenditure in COA	213	212	1,851	0.303	198	207	927	0.310	234	215	924	0.016
	(123)	(118)			(124)	(117)			(117)	(118)		
Monthly rent expenditure in COA	174	161	1,851	0.097	181	170	940	0.036	162	156	911	0.496
	(106)	(111)			(80)	(77)			(135)	(128)		
Reduced consumption of essentials: Have never done	0.180	0.248	1,900	0.013	0.146	0.180	950	0.183	0.229	0.288	950	0.038
	(0.384)	(0.432)			(0.354)	(0.385)			(0.421)	(0.453)		
Household currently in debt	0.839	0.784	1,894	0.016	0.858	0.817	950	0.098	0.812	0.765	944	0.081
	(0.367)	(0.411)			(0.349)	(0.388)			(0.391)	(0.424)		
Avg meals per day	2.509	2.595	1,887	0.325	2.382	2.480	950	0.020	2.696	2.665	937	0.474
	(0.642)	(0.648)			(0.597)	(0.620)			(0.659)	(0.655)		

On net, this analysis suggests that there are factors which may influence refugees' legal status within their country of asylum. Do these differences impact the inference we can make from the earlier analysis? They are fairly small in magnitude but statistically significant. While it is impossible to fully answer that question, given we can't undertake the analysis with comparable data which includes not registered refugees, we can analyze the responses to the vignettes by whether the refugees were registered or not. The tables below suggest that the responses of refugees of either status are very similar.

Robustness checks of the Linear Probability Model: Logit Model

To allow for possible nonlinearities in the underlying distribution of our data, we test the robustness our baseline results by estimating a Logit Model. As discussed already above, linear probability models with binary regressors yield biased and inconsistent estimates and do not restrict the fitted values to the unit interval. However, they typically yield similar results to a Logit or Probit Model, especially with datasets that have a large sample size and in specifications that include many dummy regressors. We confirm that this is the case in this context, by estimating a Logit Model for the two Jordan and Lebanon datasets.¹⁶⁷ These results are presented in Table A.3.3 with the baseline specification shown in column (1) and the average marginal effects estimates of the Logit Model shown in column (2) for the dataset using geographical aggregates to measure host country factors.¹⁶⁸ The corresponding columns for the case level data are columns (3) and (4) respectively. We find that the average marginal effects estimates are largely of similar sign, magnitude and significance as those of the linear probability model.

Table A.3.3: The Linear Probability Model with Country of Origin fixed effects

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Jordan & Lebanon - add host country factors using			
			Geographical aggregates		Case-level information only	
Category	Variables	Omitted variables	Linear Probability Model	Average marginal effects	Linear Probability Model	Average marginal effects
			(1)	(2)	(3)	(4)
Demographic and socioeconomic characteristics	Single	Married	0.024*** (0.00060)	0.0081*** (0.00029)	0.024*** (0.0038)	0.012*** (0.0020)
	Widowed	Married	-0.013*** (0.0020)	0.00041 (0.0012)	-0.016 (0.011)	-0.000022 (0.0092)
	Other Marital Status	Married	-0.0071*** (0.0011)	0.0026*** (0.00035)	-0.012* (0.0066)	-0.00017 (0.0017)
	Aged 20-44	Aged 0-19	0.034*** (0.00060)	0.020*** (0.00030)	0.035*** (0.0040)	0.018*** (0.0017)
	Aged 45-59	Aged 0-19	0.054*** (0.00086)	0.026*** (0.00041)	0.049*** (0.0052)	0.026*** (0.0025)
	Aged 60+	Aged 0-19	0.066*** (0.0014)	0.032*** (0.00050)	0.088*** (0.0093)	0.039*** (0.0030)
	Female	Male	-0.0047*** (0.00024)	-0.0037*** (0.00018)	-0.0046*** (0.0013)	-0.0042*** (0.0011)
	Principal Applicant	Case Member	-0.042*** (0.00041)	-0.025*** (0.00024)	-0.031*** (0.0022)	-0.024*** (0.0016)
	Extended Family	Nuclear family	0.11*** (0.0029)	0.032*** (0.00058)	0.12*** (0.019)	0.027*** (0.0031)
	Immediate Family	Nuclear family	0.14*** (0.0024)	0.025*** (0.00036)	0.17*** (0.015)	0.023*** (0.0018)
	Primary Education	No education	-0.000068 (0.00034)	0.0014*** (0.00022)	0.0032* (0.0018)	0.0039*** (0.0013)
	Secondary Education	No education	-0.014*** (0.00057)	-0.0016*** (0.00032)	0.00019 (0.0033)	0.0036* (0.0020)
	University Education	No education	-0.022*** (0.00084)	-0.0031*** (0.00047)	-0.0026 (0.0051)	0.0022 (0.0030)
	Case has Children	Case has no Children	0.059*** (0.00086)	0.025*** (0.00028)	0.041*** (0.0045)	0.024*** (0.0021)
	Case Size		-0.024*** (0.00020)	-0.014*** (0.000093)	-0.012*** (0.0011)	-0.0095*** (0.00064)
	% Special Need	% No Special need	-0.0021*** (0.00030)	-0.0022*** (0.00017)	-0.0044*** (0.0015)	-0.0040*** (0.0011)

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Jordan & Lebanon - add host country factors using			
			Geographical aggregates		Case-level information only	
Category	Variables	Omitted variables	Linear Probability Model	Average marginal effects	Linear Probability Model	Average marginal effects
			(1)	(2)	(3)	(4)
Registration information	Enrolled for Assistance	Asylum seeker	-0.0043*** (0.00060)	-0.022*** (0.00046)	-0.0059* (0.0030)	-0.011*** (0.0021)
	Refugee	Asylum seeker	0.0012 (0.0013)	-0.0044*** (0.0011)	0.0046 (0.0081)	0.0075 (0.0100)
	Registration lag, months		-0.0014*** (0.000020)	-0.00048*** (0.000022)	-0.00078*** (0.00011)	-0.00053*** (0.00013)
Peace, security and protection	Dread factor		-0.00078*** (0.0000060)	-0.00035*** (0.0000038)	-0.00045*** (0.000028)	-0.00032*** (0.000020)
	Change in control		0.23*** (0.0068)	0.043*** (0.0017)	0.21*** (0.063)	0.046*** (0.0054)
	Control: not Government of Syria	Control: Government of Syria	0.028*** (0.00057)	0.010*** (0.00023)	0.017*** (0.0026)	0.0093*** (0.0015)
	Security a concern?		-0.0067*** (0.00049)	-0.0012*** (0.00025)	-0.0070*** (0.0023)	-0.0031** (0.0015)
Livelihoods and access to employment	Price 1kg of bread (subsidized)		0.000029*** (0.0000028)	0.000011*** (0.0000018)	0.000015 (0.000015)	-0.0000019 (0.000013)
	Price 1kg of bread (un-subsidized)		0.000013*** (0.0000025)	0.000016*** (0.0000014)	0.0000072 (0.000012)	0.000023** (0.0000093)
	Malnutrition: Moderate problem	Malnutrition: No problem	0.012*** (0.00049)	0.0049*** (0.00025)	0.0096*** (0.0023)	0.0072*** (0.0016)
	Malnutrition: Serious problem	Malnutrition: No problem	0.025*** (0.00078)	0.0091*** (0.00048)	0.015*** (0.0034)	0.0081*** (0.0030)
	# meals per day		0.15*** (0.0020)	0.015*** (0.00056)	0.00016 (0.00060)	-0.00056 (0.00078)
	Food insecurity index		-0.031*** (0.00083)	-0.0053*** (0.00039)	-0.00078 (0.00092)	-0.00081 (0.00063)
HLP	Case lives in a camp	Case does not live in a camp	0.093*** (0.0016)	0.010*** (0.00032)	0.14*** (0.028)	0.017*** (0.0026)

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Jordan & Lebanon - add host country factors using			
			Geographical aggregates		Case-level information only	
Category	Variables	Omitted variables	Linear Probability Model	Average marginal effects	Linear Probability Model	Average marginal effects
			(1)	(2)	(3)	(4)
Infrastructure and services	Basic services a concern?		-0.017*** (0.00057)	-0.0084*** (0.00034)	-0.0095*** (0.0025)	-0.0033* (0.0019)
	Health/ education a concern?		-0.010*** (0.00044)	-0.0053*** (0.00028)	-0.010*** (0.0023)	-0.0038** (0.0019)
	Access to basic service index		0.0050*** (0.00087)	0.0097*** (0.00041)	-0.0010 (0.00084)	-0.00038 (0.00068)
Other Controls	Ethnicity & Religion		yes	yes	yes	yes
	Constant		yes	yes	yes	yes
Fixed effects	Arrival Year dummies		yes	yes	yes	yes
	CoA dummies		yes	yes	yes	yes
	Observations		1,851,135	1,851,135	42,588	42,588

Robustness checks of the Linear Probability Model: Country of origin fixed effects

To further test the robustness of the baseline results of the Linear Probability Model presented in Tables 3.2-3.4, we control for time-invariant characteristics of the refugee's home location. That is, we include country of origin fixed effects at the subdistrict level¹⁶⁹ in the baseline specification, which will control for all factors that do not vary over time, such as ethnic composition pre-conflict, cultural factors or institutional characteristics, but could determine return behavior. Since fixed effects absorbed all time-invariant information, the variables from the MSNA Syria survey are dropped from the regression, since this information is only available for one-time period. This analysis is presented for the entire dataset in column (2) and for the Lebanon and Jordan dataset (using geographical aggregates) in column (4) of Table A.3.3 below. For comparison, the baseline results for both datasets are reproduced in columns (1) and (3) respectively. We find that the results are robust to the inclusion of country of origin fixed effects, with the coefficients largely of a similar magnitude, sign and significance level.

Table A.3.3: The Linear Probability Model with Country of Origin fixed effects

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq		Jordan & Lebanon – add host country factors using geographical aggregates	
Category	Variable	Omitted Variable	(1)	(2)	(3)	(4)
Demographic and socioeconomic characteristics	Single	Married	0.027*** (0.00060)	0.024*** (0.00055)	0.024*** (0.00060)	0.021*** (0.00054)
	Widowed	Married	-0.016*** (0.0020)	-0.014*** (0.0019)	-0.013*** (0.0020)	-0.012*** (0.0020)
	Other Marital Status	Married	-0.013*** (0.0010)	-0.012*** (0.00094)	-0.0071*** (0.0011)	-0.0068*** (0.00096)
	Aged 20-44	Aged 0-19	0.035*** (0.00059)	0.030*** (0.00054)	0.034*** (0.00060)	0.029*** (0.00054)
	Aged 45-59	Aged 0-19	0.054*** (0.00085)	0.049*** (0.00078)	0.054*** (0.00086)	0.048*** (0.00077)
	Aged 60+	Aged 0-19	0.059*** (0.0014)	0.054*** (0.0012)	0.066*** (0.0014)	0.059*** (0.0013)
	Female	Male	-0.0064*** (0.00024)	-0.0047*** (0.00022)	-0.0047*** (0.00024)	-0.0036*** (0.00022)
	Principal Applicant	Case Mem- ber	-0.045*** (0.00043)	-0.040*** (0.00039)	-0.042*** (0.00041)	-0.036*** (0.00036)
	Extended Family	Nuclear family	0.12*** (0.0027)	0.11*** (0.0025)	0.11*** (0.0029)	0.098*** (0.0026)
	Immediate Family	Nuclear family	0.14*** (0.0022)	0.13*** (0.0020)	0.14*** (0.0024)	0.12*** (0.0021)
	Primary Edu- cation	No educa- tion	0.0029*** (0.00035)	0.0065*** (0.00033)	-0.000068 (0.00034)	0.0036*** (0.00032)
	Secondary Education	No educa- tion	-0.017*** (0.00057)	-0.0061*** (0.00053)	-0.014*** (0.00057)	-0.0066*** (0.00052)
	University Education	No educa- tion	-0.025*** (0.00083)	-0.013*** (0.00078)	-0.022*** (0.00084)	-0.013*** (0.00078)
	Case has Chil- dren	Case has no Children	0.062*** (0.00089)	0.055*** (0.00079)	0.059*** (0.00086)	0.051*** (0.00077)
	Case Size		-0.030*** (0.00022)	-0.027*** (0.00019)	-0.024*** (0.00020)	-0.021*** (0.00018)
% Special Need	% No Special need	-0.0021*** (0.00030)	-0.0012*** (0.00028)	-0.0021*** (0.00030)	-0.0014*** (0.00028)	

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq		Jordan & Lebanon – add host country factors using geographical aggregates	
Category	Variable	Omitted Variable	(1)	(2)	(3)	(4)
Registration information	Enrolled for Assistance	Asylum seeker	-0.0031 *** (0.00064)	-0.017 *** (0.00070)	-0.0043 *** (0.00060)	-0.013 *** (0.00069)
	Refugee	Asylum seeker	-0.0029*** (0.0011)	0.0018* (0.0011)	0.0012 (0.0013)	0.0023* (0.0012)
	Registration lag, months		-0.0015*** (0.000020)	-0.00095*** (0.000019)	-0.0014*** (0.000020)	-0.00094*** (0.000020)
Peace, security and protection	Dread factor		-0.00082*** (0.0000061)	-0.0030*** (0.000018)	-0.00078*** (0.0000060)	-0.0033*** (0.000021)
	Change in control		0.18*** (0.0033)	0.39*** (0.010)	0.23*** (0.0068)	0.41*** (0.012)
	Control: not Government of Syria	Control: Government of Syria	0.036*** (0.00060)	0.060*** (0.0032)	0.028*** (0.00057)	0.014** (0.0060)
	Security a concern?		-0.0032*** (0.00049)		-0.0067*** (0.00049)	0.0058 (0.0047)
Livelihoods and access to employment	Price 1kg of bread (subsi- dized)		0.000051*** (0.0000028)		0.000029*** (0.0000028)	0.00069*** (0.000080)
	Price 1kg of bread (unsubsi- dized)		0.0000018 (0.0000026)		0.000013*** (0.0000025)	-0.00026*** (0.000031)
	Malnutrition: Moderate problem	Malnutrition: Not a problem	0.015*** (0.00050)		0.012*** (0.00049)	0.025*** (0.0070)
	Malnutrition: Serious prob- lem	Malnutrition: Not a problem	0.032*** (0.00080)		0.025*** (0.00078)	0.033*** (0.0082)
	# meals per day				0.15*** (0.0020)	0.12*** (0.0017)
	Food insecurity index				-0.031*** (0.00083)	-0.022*** (0.00081)
HLP	Case lives in a camp	Case does not live in a camp	0.056*** (0.0013)	0.052*** (0.0012)	0.093*** (0.0016)	0.085*** (0.0014)
Infrastructure and services	Basic services a concern?		-0.022*** (0.00056)		-0.017*** (0.00057)	0.041*** (0.0064)
	Health/educa- tion a concern?		-0.0081*** (0.00047)		-0.010*** (0.00044)	0.016*** (0.0049)
	Access to basic service index				0.0050*** (0.00087)	0.0077*** (0.00083)
Other controls	Ethnicity & Religion		yes	yes	yes	yes
	Constant		yes	yes	yes	yes

Dependent variable: Refugee returned to Syria (0=No, 1=Yes)			Mashreq		Jordan & Lebanon – add host country factors using geographical aggregates	
Category	Variable	Omitted Variable	(1)	(2)	(3)	(4)
Fixed effects	Arrival Year		yes	yes	yes	yes
	Country of Asylum		yes	yes	yes	yes
	Country of Origin		no	yes	no	no
	Observations		2,162,865	2,162,865	1,851,135	1,851,135
	R-squared		0.218	0.312	0.245	0.350

Annexes for Chapter 4

A. Key Features of the model

(i) Regions and Mobility:

- In the model, there are 14 regions within Syria and 5 regions outside Syria. The regions are Syrian governorates, plus Lebanon, Jordan, Turkey, Iraq and the rest of the world (ROW).
- The agents choose a region to live and work in every period. If they choose to move, they must pay a moving cost. The moving cost parameter has a fixed and a random component.
- Workers' instantaneous utilities include wages determined by market conditions and a subjective non-pecuniary term capturing the security conditions and available amenities.
- We consider two agent types: Type-I and Type-II. The agent type determines how each agent is impacted from conflict, otherwise all agents within the same region are identical.
- We abstract away from education, gender, age and other agent characteristics for computational simplicity.

(ii) Amenities:

- We assume that agents have a non-pecuniary component in their utility. The region-specific non-pecuniary utility component is a function of conflict events (casualty) and provision of public goods.
- Type I agents only care about the current levels of casualty and public goods.
- Type II agents will be impacted from the historical levels of casualty and public goods.
- Note that both Type I and Type II agents are rational, but only Type II agents have a disutility based on experience (e.g. trauma, social tensions, political exclusion, etc.).

(iii) Capital and productivity:

- We assume that the potential capital levels are fixed in each region. The capital levels are calibrated to match the destroyed infrastructure.
- We allow the total factor productivity to recover either with decreasing conflict events or as the infrastructure is rebuilt.

B. Introduction of Notation

(i) Subscripts and superscripts

- i : region superscript, $i = 1, 2, \dots, N + M$
- N number of regions in Syria
- M number of regions outside Syria, i.e. Turkey, Lebanon, Jordan, Iraq, ROW.
- s : agent type, $s = 1$ or $s = 2$
- t : time subscript.
- τ : time subscript to indicate the most intensive conflict period.

(ii) Parameters

- α : Cobb-Douglas production function labor share parameter.
- ν : regional moving cost shock ("") scale parameter.
- β : intertemporal discount factor.
- δ conflict discount factor for type II workers.
- $\gamma_0, \gamma_1, \gamma_2$: parameters of the amenity function.
- $C^{i,j}$: moving cost friction from region i to region j .
- c_1 : moving cost friction for internal migrants (part of $C^{i,j}$)
- c_2 : moving cost friction for international migrants (part of $C^{i,j}$).

(iii) Exogenous variables

- A_t^i : Total factor productivity in region i .
- K_t^i : amount of intact capital.
- d_t^i : casualty per capita.
- q_t^i : provision of public goods (schools, hospitals, etc).

(iv) Endogenous Variables

- y_t^i : output in region i .
- $L_{s,t}^i$: number of type s workers in region i .
- L_t^i : total number of workers in region i .

- w_t^i : real wage of workers in region i .
- $\eta_{s,t}^i$: non-pecuniary utility of type s agents in region i .
- $u_{s,t}^i$: instantaneous utility of type s agents in region i .
- $U_{s,t}^i$: present discounted utility of type s agents in region i .
- $V_{s,t}^i$: expected discounted utility of type s agents in region i .
- $m_{s,t}^{i,j}$: probability of moving from region i to region j for a type s worker.

(v) Random Shocks

- ε_t^i : regional moving cost shock (Gumbel with scale ν). These shocks are individual. Specific and iid random with no memory.

C. The Model

Assume that there are $N + M$ regions. We assume that first N regions are inside Syria and regions from $N + 1$ to $M + N$ are outside Syria. Agents choose a region in every time period based on current wages, public goods, security, and expectations about the future. We will assume that wages in Syria is a function of capital and labor. The amenities in Syria will be a function of public goods and security. The capital and total factor productivity will be determined by the undamaged infrastructure. The wages and amenities outside Syria will be constant. The agents are rational, and they form expectations about the future.

(i) Production and wages

The output in region i is equal to

$$y_t^i = A_t^i (L_t^i)^\alpha (K_t^i)^{1-\alpha}$$

where $L_{a,t}^i$ is the number of active workers, $K_{a,t}^i$ is the amount of active capital, and A_t^i is the productivity parameter. Then the wage equation is

$$w_t^i = \alpha A_t^i (L_t^i)^{\alpha-1} (K_t^i)^{1-\alpha}$$

We assume that K_t^i is proportional to the intact (undamaged) infrastructure in region i , but otherwise fixed. We take K_t^i as exogenous and do not model investment or depreciation.

(ii) Amenities

We assume that amenity level in region i , expressed as η_t^i , is a function of safety (i.e., casualty) and public good provision. We assume that current level of safety and public good as well as the history matters for the amenity levels. More precisely, we will consider two agent types: Type I agents, indexed as $s = 1$, will only consider the current security and public good levels, while Type II, indexed as $s = 2$ will take a weighted average of current and historical security and public good levels. The amenity piecewise amenity function is

$$\eta_{s,t}^i = \begin{cases} \gamma_0 + \gamma_1 d_t^i + \gamma_2 q_t^i & \text{for } s = 1 \\ \gamma_0 + \gamma_1 (d_t^i + [1 - \delta]d_{\tau}^i) + \gamma_2 (\delta q_t^i + [1 - \delta]q_{\tau}^i) & \text{for } s = 2 \end{cases}$$

where d_t^i is the death per capita and q_t^i is a measure of public good provision. The time index τ denotes the period with highest number of casualties, and t is the current period.

Note that the history term in agents' utility function does not mean that some agents are irrational or myopic. Some agents have region-specific disutility associated with past conflict and casualty.

(iii) Agents

The number of type s agents in region i denoted as $L_{s,t}^i$. The total number of workers is equal to

$$L_t^i = \sum_s L_{s,t}^i$$

The instantaneous utility of a worker is equal to:

$$u_{s,t}^i = w_t^i + \eta_{s,t}^i$$

In each period, workers decide to move to another region or stay. After the decision the agent faces a moving cost $C^{i,j} + \varepsilon_t^j$, where $C^{i,j}$ is the fixed component and ε_t^j is the random component. We assume the following structure for C :

$$C^{i,j} = \begin{cases} 0, & i = j \\ c_1, & (i \neq j) \wedge (i \leq N) \wedge (j \leq N) \\ c_2, & (i \neq j) \wedge [(i > N) \vee (j > N)] \end{cases}$$

where $c_2 > c_1$. In other words, agents migrating within Syria face a lower moving cost compared to international migrants,

$$L_{s,t}^i = \sum_i (m_{s,t-1}^{ij} L_{s,t-1}^i)$$

where $m_{s,t-1}^{ij}$ is the proportion of agents moving from i to j . The value of an agent is equal to

$$U_{s,t}^i = w_t^i + \eta_{s,t}^i + E_{t,\varepsilon} \max_j (\beta U_{s,t+1}^i - C^{i,j} - \varepsilon_t^j)$$

where $U_{s,t}^i$ is the present discounted utility, and β is the inter-temporal discount factor. If we define $V_{s,t} = E_\varepsilon U_{s,t}^i$ and assume that ε is distributed Gumbel with scale parameter ν , then the expected value function becomes

$$V_{s,t} = w_t^i + \eta_{s,t}^i + \beta E_t V_{s,t+1}^i - \nu \log m_{s,t}^{i,i}$$

The probability of moving for inactive workers is defined as

$$m_{s,t}^{i,j} = \frac{\beta E_t V_{s,t+1}^j - C^{i,j}}{\sum_k (\beta E_t V_{s,t+1}^k - C^{i,k})}$$

D. Data

We use different time series from the Syrian Central Bureau of Statistics (CBS) for the period 2010 to 2016. This data source provides information on the population/number of workers, and wages inside Syria before and during the crisis. Household expenditure data from the CBS and informal wages estimates from the World Food Programme (WFP) are also used to complement our dataset of salaries across governorates. Data regarding labor allocations and wages in host countries has been taken from the UNHCR and the ILO.

Data on the number of casualties and the public goods provision come from The Syrian Martyrs Revolution Database, and the CBS. The former collects data on the number of people killed as result of the conflict, and the latter presents estimates of the number of public goods before the crisis, e.g., number of healthcare facilities, housing, schools, etc. for the period 2002 to 2010.

E. Solution algorithm

The solution algorithm relies on the existence of a fixed point and has two components: (i) solution of the initial steady state and (ii) solution of the transition. Also, we need to calibrate unknown parameters of the model that cannot be taken as given. We use different moments from the observed data to do that.

(i) Initial Steady State

Guess the value $V_{s,1}^i$ and labor allocation $L_{s,0}^i$ arrays. Consider the parameters of the

model as given

- Calculate wages given $L_{s,0}^i$ and $K_{s,0}^i$ using the wage equation derived from the production function.
- Calculate probability of industry change given $V_{s,1}^i$
- Calculate location moving probabilities
- Calculate new implied value $V_{s,1}^i$
- Calculate implied labor allocations given the guessed labor allocation and moving probabilities.
- Continue until the guessed values and labor allocation ($V_{s,1}^i$ and $L_{s,0}^i$) are equal to the implied values and labor allocations.
- Since the value function of agents are concave a fixed point exists, and the solution is unique once the implied and guessed values are equal to each other.

(ii) Transition

This procedure is like the steady state solution. Rather than guessing a value for a single time, we need to guess the entire time series. We do not need to guess labor allocations for periods after $t = 0$, we only need to observe the initial ones. More details are presented in Artuc, Chaudhuri and McLaren (2008).

(iii) Calibration strategy

There is no available information for some parameters in the model, $\eta_{s,t}^i$, C_1 , and C_2 . To obtain estimations on those, we take the discount factor, the scale parameter, and the labor share in the production function as given, and moving costs and amenities are calibrated matching observed data and model simulation results for labor allocations and mobility patterns inside Syria, e.g., average outflows between governorates, and average outflows from governorates to host countries, with the same moments obtained in the simulations.

F. Calibration results

Parameters for the extreme value distribution, ν ; the discount factor, β ; the labor share, α ; and the pessimistic discount factor, τ .

$$\nu = 1.00$$

$$\beta = 0.95$$

$$\alpha = 0.70$$

$$\tau = 0.90 \text{ (it means only 10\% discount)}$$

(i) Moments

Average outflows between governorates=2%

Average outflows from governorates to host countries=0.1%

Calibration for the moving cost between governorates, C_1 ; and the moving cost between governorates and host countries, C_2 . We assume the latter as the cost of moving between host countries too.

$$C_1 = 6.3457$$

$$C_2 = 6.8083$$

Table 4.2 Results for etas in calibrations normalizing ROW to zero

Region\Year	2010	2011	2012	2013	2014	2015	2016
Aleppo	3.626	3.928	3.928	3.928	3.928	3.486	3.486
Al-Hassakeh	3.634	3.508	3.508	3.508	3.508	3.892	3.892
Ar-Raqqa	3.666	3.880	3.880	3.880	3.880	3.272	3.272
As-Sweida	3.577	3.778	3.778	3.778	3.778	3.479	3.479
Damascus	3.272	3.638	3.638	3.638	3.638	3.460	3.460
Dar'a	3.497	3.638	3.638	3.638	3.638	3.783	3.783
Deir-ez-Zor	3.756	3.894	3.894	3.894	3.894	3.559	3.559
Hama	3.655	4.171	4.171	4.171	4.171	3.575	3.575
Homs	3.605	3.542	3.542	3.542	3.542	3.719	3.719
Idleb	3.746	3.806	3.806	3.806	3.806	3.273	3.273
Lattakia	3.438	3.982	3.982	3.982	3.982	3.236	3.236
Quneitra	3.473	2.936	2.936	2.936	2.936	3.456	3.456
Rural Damascus	3.509	4.476	4.476	4.476	4.476	3.364	3.364
Tartous	3.413	4.371	4.371	4.371	4.371	3.379	3.379
Iraq	3.556	4.769	4.769	4.769	4.769	3.741	3.741
Jordan	3.877	4.933	4.933	4.933	4.933	3.822	3.822
Lebanon	3.783	5.321	5.321	5.321	5.321	3.726	3.726
ROW	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Turkey	3.145	3.745	3.745	3.745	3.745	3.499	3.499

(ii) Projection of etas:

$$\hat{\eta}_t = \eta_{2010}^{S.S.} + \hat{\theta}[\hat{\delta}_1(\log schools_t - \log schools_{2010}^{S.S.}) + \hat{\delta}_2(\log health_t - \log health_{2010}^{S.S.})] + \hat{\gamma} \log casualties_t$$

Where correlations are obtained from the following OLS estimations.

Table 4.3 OLS estimations before conflict (2010)

VARIABLES	(1)	(2)
	eta_pre_conflict	eta_pre_conflict
log_cost_dwelling - $\hat{\theta}$	0.0619*** (0.00392)	0.0267 (0.125)
Constant		0.326 (1.152)
Observations	14	14
R-squared	0.950	0.004
Year Fixed-Effect	N	N
Region Fixed-Effect	N	N
<i>Standard errors in parentheses</i> *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$		

Table 4.4 OLS estimations before conflict (2002–2010)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log_cost	log_cost	log_cost	log_cost	log_cost	log_cost	log_cost	log_cost
log_health - $\hat{\delta}_1$	0.468** (0.194)	0.170*** (0.0221)	0.161*** (0.0198)	0.282*** (0.0725)	0.0796 (0.0867)	0.457** (0.197)	0.797*** (0.134)	0.976*** (0.112)
log_schools - $\hat{\delta}_2$	0.962*** (0.135)	-0.0673*** (0.0185)	-0.0667*** (0.0165)	0.0618 (0.0536)	0.0409 (0.0534)	0.919*** (0.139)	0.694*** (0.0819)	0.597*** (0.0686)
Constant		8.782*** (0.0897)	8.786*** (0.0814)	7.293*** (0.399)	8.372*** (0.557)			
Observations	126	126	126	126	126	126	126	126
R-squared	0.994	0.357	0.526	0.582	0.709	0.994	1.000	1.000
Year Fixed-Effect	N	N	Y	N	Y	Y	N	Y
Region Fixed-Effect	N	N	N	Y	Y	N	Y	Y
<i>Standard errors in parentheses</i> *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$								

Table 4.5 OLS estimations during conflict (2014 and 2016)

VARIABLES	(1)	(2)	(3)	(4)
	change_eta	change_eta	change_eta	change_eta
log_casualties - $\hat{\gamma}$	-0.0458*** (0.0114)	-0.00596 (0.0392)	-0.00613 (0.0405)	-0.0413** (0.0151)
Constant		-0.278 (0.261)	-0.274 (0.293)	
Observations	28	28	28	28
R-squared	0.372	0.001	0.001	0.377
Year Fixed-Effect	N	N	Y	Y
Region Fixed-Effect	N	N	N	N
<i>Standard errors in parentheses</i> *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Endnotes

Endnotes

- 1 This figure includes Syrians registered in Egypt, Iraq, Lebanon, Jordan, North Africa, and Turkey. This figure does not include the nearly 800,000 Syrians that entered Europe between 2011 and December 2016 since many of these individuals have not been removed from registration lists in their first country of refuge. This also does not include an estimated 0.4 to 1.1 million unregistered Syrian refugees in Lebanon, Jordan, Turkey, and Iraq.
- 2 UNDP/UNHCR, Regional Refugee and Resilience Plan (3RP), (December 2017)
- 3 Please note that enumerators emphasized the fictional nature of this question.
- 4 This figure includes Syrians registered in Egypt, Iraq, Lebanon, Jordan, North Africa, and Turkey. This figure does not include the nearly 800,000 Syrians that entered Europe between 2011 and December 2016 as many of these individuals have not been removed from registration lists in their first country of refuge. This also does not include an estimated 0.4 to 1.1 million unregistered Syrian refugees in Lebanon, Jordan, Turkey and Iraq.
- 5 UNHCR Syria Emergency Monitoring, September 2018 at <https://data2.unhcr.org/en/situations/syria>
- 6 3RP (2017-2018)
- 7 World Bank data (as of 2018)
- 8 UNDP/UNHCR, Regional Refugee and Resilience Plan (3RP), (December 2017)
- 9 A typical example can be found in the case study of Liberian refugees in Ghana in Omata (2013).
- 10 Additionally, most of the refugees in Turkey are from Aleppo. This makes the Aleppo Governorate the main governorate of origin for Syrian Refugees in the entire region.
- 11 <http://data2.unhcr.org/en/situations/syria/location/71>
- 12 One of the most comprehensive chronicles of voluntary repatriation is Voluntary Repatriation Throughout the Years: A Compilation of Selected Extracts from UNHCR Document (1953-2012), UNHCR, 2013. Few other sources take such an inclusive view of voluntary returns. A second source that regards returns through a sustainability lens is: World Bank, Sustainable Refugee Return: Triggers, Constraints, and Lessons on Addressing Development Challenges of Forced Displacement, August 2015.
- 13 See UN doc. A/AC.96/830, 7 September 1994, paras. 8, 10-11, 31-32. UNRWA has a specific mandate over a particular category of refugees residing in five areas of operation (Gaza, West Bank, Lebanon, Jordan and Syria). This complementarity is acknowledged in the Statute, para. 7(c) and also in Art. 1D of the 1951 Convention. There are additional exclusions for those with nationality in the asylum state, those under the protection of other UN offices, those suspected of serious non-political crimes, war crimes or crimes against humanity,
- 14 UN High Commissioner for Refugees (UNHCR), Interpreting Article 1 of the 1951 Convention Relating to the Status of Refugees, April 2001, available at: <http://www.refworld.org/docid/3b20a3914.html> [accessed 16 November 2018]
- 15 UNHCR, Interpreting Article 1, p.13
- 16 UN (1950). General Assembly Resolution, A/RES/428 (V)
- 17 See UN Archive Gallery for Algeria, 1952- 1964 at <http://www.unhcr.org/en-us/research/archives/4a3272846/unhcr-archive-gallery-algeria-1954-1962.html>
- 18 UNHCR (1980). Executive Committee.
- 19 UNHCR (1985). Executive Committee.
- 20 As documented in World Bank, The Forcibly Displaced: Toward a Development Approach to Supporting Refugees, the Internally Displaced, and Their Hosts. (2017)
- 21 For reference, see UNHCR's sample template for tripartite agreements at <http://www.unhcr.org/50aa07929.pdf>

- 22 UNHCR (2016) Global Trends: Forced Displacement in 2016. <http://www.unhcr.org/5943e8a34.pdf> and UNHCR (2017) Global Trends: Forced Displacement in 2017. <http://www.unhcr.org/5b27be547.pdf>
- 23 UNHCR (1999), *The State of the World's Refugees: A Humanitarian Agenda*, Geneva: UNHCR, p. 146. <http://www.unhcr.org/3eb78b3e4.pdf>
- 24 This number includes the 5.4 million Palestine refugees under UNRWA's mandate.
- 25 As described in Long, Katy (2011) *Permanent crises?: unlocking the protracted displacement of refugees and internally displaced persons. Policy overview*, Oxford Department of International Development, Refugee Studies Centre, Oxford, UK.
- 26 World Bank (2016) 'Forcibly Displaced: Toward a development approach supporting refugees, the internally displaced, and their hosts' World Bank: Washington DC.
- 27 See, for example, World Bank, *Sustainable Refugee Return: Triggers, Constraints, and Lessons on Addressing Development Challenges of Forced Displacement*, August 2015; UNHCR, *Difficult Decisions: A Review of UNHCR's Engagement with Assisted Voluntary Return Programs*, (Helen Morris and Machiel Salomons) July 2013; and discussions of "emplacement in, for example, UNHCR (Marianne Holm Pedersen), *Between Homes: Post-War Return, Emplacement and the Negotiation of Belonging in Lebanon*, (February 2003)
- 28 Laura Jeffrey and Jude Murison, *The Temporal, Social, Spatial, and Legal Dimensions of Return and Onward Migration*, (2011) at <https://doi.org/10.1002/psp.606>
- 29 The phenomenon of migrating toward urban centers is sometimes called "urbanization" and will be described below in more detail. See Martin, E., and Mosel, I. (2011) 'City limits: urbanization and vulnerability in Sudan Juba case study', ODI/HPG, page 4, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6511.pdf> as well as Metcalfe, V., and Haysom, S., with Martin, E. (2012) 'Sanctuary in the city? Urban displacement and vulnerability in Kabul', HPG Working Paper, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7722.pdf>
- 30 Niels Harild and Asger Christensen, *Forced Displacement: The Development Challenge*. The World Bank, (December 2009)
- 31 IRIN, *Afghanistan: Where Home is Battlefield*, (May 2018) at <https://www.irinnews.org/feature/2018/05/01/Afghanistan-Pakistan-returnees-refugees-conflict>
- 32 See, among others, UNHCR, *Dadaab Kenya: Operational Update*, 16-30 September 2017; and Norwegian Refugee Council, *Dadaab's Broken Promise*, (October 2016).
- 33 See, for example A typical example can be found in the case study of Liberian refugees in Ghana by Naohiko Omata in Omata, Naohiko, *The Complexity of Refugees' Return Decision-Making in a Protracted Exile: Beyond the Home-Coming Model and Durable Solutions*, *Journal of Ethnic and Migration Studies*, 39:8, 1281-1297
- 34 Harild, Niels, Christensen, Asgur, and Zetter, Roger; *Sustainable Refugee Return: Triggers, Constraints, and Lessons on Addressing the Development Challenges of Forced Displacement* (2015)
- 35 Lloyd, Annemaree; Kennan, Mary; Thompson, Kim; and Qayuum, Asim. *Connecting with New Information Landscapes: Information Literacy Practices of Refugees*. *Journal of Documentation*, (2013) Vol. 69 Issue: 1, pp.121-144 at <https://doi.org/10.1108/00220411311295351>
- 36 World Bank: *Scoping Study: Conflict in Ukraine: Coordinating Peacebuilding, Recovery, and Development Response Efforts*, February 2018.
- 37 Martin, E., and Mosel, I. (2011) 'City limits: urbanisation and vulnerability in Sudan Juba case study', ODI/HPG, page 4, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6511.pdf>
- 38 Metcalfe, V., and Haysom, S., with Martin, E. (2012) 'Sanctuary in the city? Urban displacement and vulnerability in Kabul', HPG Working Paper, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7722.pdf>
- 39 OCHA (2018) *Humanitarian Needs Overview, South Sudan*, https://reliefweb.int/sites/reliefweb.int/files/resources/South_Sudan_2018_Humanitarian_Needs_Overview.pdf
- 40 OCHA (2018) *Humanitarian Needs Overview, Afghanistan*, page 8, https://reliefweb.int/sites/reliefweb.int/files/resources/afg_2018_humanitarian_needs_overview_1.pdf

- 41 OCHA (2018) Humanitarian Bulletin Iraq January 2018
https://reliefweb.int/sites/reliefweb.int/files/resources/DRAFT_OCHA%20Iraq%20Humanitarian%20Bulletin%20%28January%202018%29_final.pdf
- 42 A controversial paper modeled a variety of social and population data and estimated that the population of 48.4 percent Bosniaks, 32.7 percent Serbs and 14.6 percent Croats had largely separated out in the 20 years since the Dayton Agreement. Bochsler, D., and Schläpfer, B. (2015) 'An indirect approach to map ethnic identities in postconflict societies', *Ethnopolitics*, 15:6, pps 467-486.
- 43 UNICEF MICS data: Jordan data is from 2006, Lebanon is 2009, and Jordan is 2012.
- 44 Additional concerns include future protection of women and their children who were married in religious or tribal courts outside of government-controlled areas and the possibility that these will not be recognized in the future since often there is no formal documentation process (SCLR 2017). See also Zabel 2016.
- 45 Syrian Ministry of Transport. <http://www.mot.gov.sy/web/main.php>
- 46 The conflict reduced the number of state collection centers from approximately 140 before the conflict broke out to 22 in 2015 (General Organization for Cereal Processing and Trade, Hoboob).
- 47 Article by Freihat (2015) in "In Perspective".
- 48 <https://www.theciip.org/content/jordan>
- 49 The World Bank Report "Toll of War" estimated about 3.1-3.2 million job losses across the country, using underlying data from the Syria Center for Policy Research.
- 50 SCPR/UNRWA/UNDP March 2015.
- 51 Figures pertain to government-controlled regions which make up most of the population.
- 52 Jordan Labor Code, 1996. Eligibility criteria and the process for obtaining a work permit are not specified in the law but are detailed in a series of regulations.
- 53 MoL letter dated 7 June 2015 (Ref. No L/1/6868) and MoL letter dated 1 March 2016 (Ref. No. L/1/2389).
- 54 The work permit does not guarantee good working conditions or social security benefits. Many non-Jordanian workers argue that the sponsors of work permits exploit them, refusing to release them from employment or threatening to turn them over to the police. See ILO (2017) *Work Permits and Employment of Syrian Refugees in Jordan: Towards Formalizing the Work of Syrian Refugees*.
- 55 Circular 98/2017 dated 16 March 2017 (Ref. No. TM/1/1/481) clarifies the open professions in the agriculture sector and a letter dated 14 June 2017 clarifies the open professions in the manufacturing sector.
- 56 Closed sectors include: administrative and accounting professions; literary professions including printing and secretary professions; warehouse professions; sales; decoration professions; electrical work; car maintenance and mechanics; drivers' professions; security guard and office boys; medical professions; engineering; hair-dressing; and education
- 57 ILO, 2017. *A Challenging Market Becomes More Challenging: Jordanian Workers, Migrant Workers and Refugees in the Jordanian Labour Market*. ILO Regional Office for Arab States, Beirut, Lebanon
- 58 A circular was issued on 5 April 2016, another circular issued on 3 July 2016 extended this for an additional three months and exempting Syrian workers from work permit fees, additional amounts due in accordance with Bylaw 67 for 2014 and revenue stamp fees. A circular issued 24 December 2016 clarified that audit fees, verification fees, pledge fees and authorization fees would be collected. Latest circulates exempting the Syrian workers from work permits fees was issued on December 10, 2018.
- 59 Ministry of Labor Report, August 2018
- 60 Instructions for 2012 Article 11 state that non-Jordanian workers can obtain their dues from the Social Security Corporation when they leave the country permanently. If the worker has been paying into Social Security but does not have a work permit, he must pay work permit fees retroactively for the duration of his subscription (See also letters dated 7 July 2013, 8 February and 14 April 2016). However, refugees often do not consider this a guaranteed mechanism.

- 61 ILO, 2017. A challenging Market Becomes More Challenging: Jordanian Workers, Migrant Workers and Refugees in the Jordanian Labour Market. ILO Regional Office for Arab States, Beirut, Lebanon.
- 62 The following cases apply: (i) Workers in the agriculture sector whose permits have expired, can move from an employer to another in the agriculture sector ; (ii) Workers in the agriculture sector whose permits are still valid, can move from an employer to another in the agriculture sector if they have permission of the original employer; (iii) Workers in sectors other than agriculture whose permits have expired, can move from an employer to another in any sector; (iv) Workers in the construction sector whose permits are still valid, can move from an employer to another in the construction sector if they have permission of the original employer; (v) Workers in sectors other than agriculture and construction whose permits are still valid, can move from an employer to another in any sector if six months have passed since the permit was issued and if they have the permission of the original employer. The case of workers in the agriculture sector was revised to require the original employer's permission.
- 63 MoL letter dated 22 May 2016 (Ref. No. L/1/6751).
- 64 Circular 249/2017 dated 23 July 2017 (Ref. No. TM/1/1/13997).
- 65 A Circular issued on the 13th of November 2017 slightly improves inter-sectorial mobility for Syrians by allowing mobility from the agriculture, bakeries and support services sectors to other sectors once an existing work permit has expired, it also allows Syrians to change employers without clearance from their previous employer once an existing work permit has expired.
- 66 See section 2c on labor regulations.
- 67 Another WANA survey conducted in 2017 but with a small sample size of 501 also estimated employment of men at 50 percent.
- 68 The JLPMs survey conducted in 2016, estimated that 36 percent of men were working, while an ILO survey in 2014 had put employment of men at 20 percent.
- 69 The figures are similar to JLPMs data where 96 percent of Syrian refugee women were inactive (Krafft 2018).
- 70 The share is for both genders.
- 71 Informal here being not having a contract or not registered in the Social Security.
- 72 The Agreement for Economic and Social Cooperation and Coordination Between the Lebanese Republic and the Syrian Arab Republic, signed in 1993, affirmed the freedom of movement for Lebanese and Syrians between their two countries, as well as their citizens' right to work in Lebanon or Syria according to each country's labor code.
- 73 It should be noted that Syrians fleeing the conflict are not recognized as refugees in Lebanon and are treated according to general regulations applicable to all Syrian nationals. Lebanon has not ratified the 1951 Refugee Convention relating to the Status of Refugees and protection mechanisms for refugees are considered weak. However, the Universal Declaration of Human Rights, which is included in the Lebanese Constitution, binds Lebanese to "the right to seek asylum". In practice, the Government rarely arrests, prosecutes, or detains irregular refugees.
- 74 <https://www.newsdeeply.com/refugees/articles/2017/12/13/the-compact-experiment>
- 75 See Section 3c of this report on Regulatory Framework.
- 76 VASYR 2017.
- 77 Central Administration of Statistics. 2010. Multiple Indicators Cluster Survey 2009. Beirut: Central Administration of Statistics.
- 78 http://wanainstitute.org/sites/default/files/publications/Publication_RefugeeLabourInclusion_English3.pdf
- 79 Ibid
- 80 Kurdistan Region Statistics Office, 2015.
- 81 Data is from REACH report (2015), but figures on agriculture employment are not very different from MSNA 2017.

- 82 KRSO, 2015.
- 83 Toll of War, World Bank (2017).
- 84 UNDP reports estimate poverty lines adopting cost-of-basic-needs methodology. The approach estimates expenditure necessary to acquire enough food intake for adequate calorie requirement, augmented by minimum cost necessary for non-food expenditure. Three main measures of poverty are: (i) abject poverty, defined as the share of population whose expenditure lies below the food poverty line; (ii) extreme poverty, defined as the share of population whose per capita expenditure is less than the cost of food plus expenditure on absolute-minimum essential non-food goods; and (iii) overall poverty, defined as the share of population whose per capita expenditure is less than the cost of food and a reasonable minimum expenditure on non-food items. See United Nations Development Programme (2011) for more detail.
- 85 United Nations Development Programme (2005, 2011).
- 86 For ease of exposition, the discussion focuses on extreme poverty. Poverty incidence was also estimated at a higher poverty line. The interpretations are qualitatively the same with the two poverty rates.
- 87 Each region consists of the following governorates: South – Damascus, Rural Damascus, Dar’a, As-Sweida, and Quneitra; North-East – Idleb, Aleppo, Ar-Raqqa, Deir-ez-Zor, and Al-Hasakeh; Central – Homs and Hama; Coastal – Tartous and Latakia.
- 88 Kelleya, Mohtadib, Seagerc and Kushnir (2015).
- 89 See Toll of War (2017). The elasticity of poverty with respect to growth in per capita consumption and inequality (measured by the Gini coefficient) is estimated on historical data, giving the percentage change in poverty when mean per capita consumption changes by one percent (keeping the distribution unchanged) and when inequality changes by one percent (keeping the mean expenditure constant). In the past, owing to the shallowness of poverty, the growth and distribution elasticity of poverty in Syria was quite high **Invalid source specified**. For the purpose of the 2017 analysis, elasticities from the most recent period were used (2004 – 2007), when growth elasticity was -2.911 and distribution elasticity was 3.046. Next, the latest available poverty rate and estimates of GDP per capita growth rates are used, with baseline poverty estimated from the HIES 2006-07 (12.3 percent). The estimates of real GDP and total population are combined with an assumed pass-through between GDP per capita growth and per capita expenditure growth of 1.
- 90 Syrian Center for Policy Research (SCPR 2015).
- 91 VAF only samples the refugee population outside of camps in Jordan. Thus, these findings can be extrapolated to only that segment of the refugee population.
- 92 This is the lower poverty line, which is the food poverty line augmented by an allowance for expenditure on essential non-food goods.
- 93 2011 PPP exchange rate of 22.8866.
- 94 Regression-based PPP exchange rate was used for Jordan instead of the direct estimates reported by the International Comparison of Prices (ICP). In eight countries, the 2011 PPPs were outliers because they showed a large difference in inflation implied by the 2005 and 2011 PPPs and domestic consumer price index (CPI). There were also concerns over the coverage and quality of ICP price collection in four countries, Jordan included. Therefore, the PPP conversion rate for these countries are estimated from a regression model that predicts PPP on the basis of macroeconomic explanatory variables. Please refer to Atamanov et al. (2018) for more details.
- 95 World Bank (2016) The Welfare of Syrian Refugees: Evidence from Jordan and Lebanon.
- 96 Beegle et al. (2012).
- 97 Jordan Response Plan 2018-2019, p. 18-19, 66
- 98 Jordan Response Plan, p. 33
- 99 VASyr 2017
- 100 VASyr 2017
- 101 World Development Indicators, 2010 -2016
- 102 WHO, 2017

- 103 Institute of Health Metrics and Evaluation, 2018
- 104 Save the Children
- 105 Syrian American Medical Association
- 106 Kherallah, M., Alahfez, T., Sahloul, Z., Eddin, K. D., & Jamil, G. (2012). Health care in Syria before and during the crisis. *Avicenna Journal of Medicine*, 2(3), 51–53. <http://doi.org/10.4103/2231-0770.102275>
- 107 World Health Organization, May 2018
- 108 However, since both Jordan, Lebanon, and Iraq do not have official policies that currently provide health coverage to refugees from national budgets and coverage to date is mainly provided through donors and UN agencies, the results from the latest UN surveys, including Vulnerability Assessment of Syrian Refugees in Lebanon; Vulnerability Assessment Framework in Jordan, are used to estimate the extent to which financial coverage is provided to Syrian refugees in host countries. Responses from the surveys indicate that, in relation to primary health care, approximately 65 percent of respondents did not see financial coverage as a barrier to accessing services. On the other hand, when it comes to hospital care, 45 percent of respondents did not indicate financial coverage as a barrier to accessing services. Using the population sizes for 2010 and 2018, pre-crisis and current access ratios are calculated for each governorate within Syria. Similarly, the population size in host countries (considering the population size of Syrian refugees in those countries), current access ratios within Syria is compared to access in Lebanon, Jordan, and Iraq.
- 109 UN-Habitat, Urban Community Profiling (UCP), 2017.
- 110 VASYSR 2017: Vulnerability Assessment of Syrian Refugees in Lebanon; Vulnerability Assessment Framework (VAF) 2016 in Jordan; UN-Habitat, Urban Community Profiling (UCP), 2017.
- 111 In the Syrian education system, early childhood education (pre-primary) is available for children aged 3 to 5, but is not compulsory and is provided on a fee-paying basis (WES, 2016). Syria has a 12-year basic and secondary education system (9 years of basic education, which is mandatory, and 3 years of secondary education, which is offered at general secondary schools or 7 technical/vocational schools).
- 112 Children can be enrolled in primary school or in secondary school (both general and vocational education track). Only enrollment in public schools is considered which represents most of schooling in Syria. Generally, 97 percent of all basic education schools in Syria are public; the remaining 3 percent are private. Children that are not enrolled in public schools are considered as out of school, even if they may receive some kind non-formal education.
- 113 Whole of Syria Child Protection Area of Responsibility. 2018. An Overview of Children Protection Needs in Syria.
- 114 Ibid.
- 115 The impact of conflict on child labor has been widely analyzed both theoretically and empirically in the recent literature generally finding that conflict increases child labor. See for example Kofol and Ciarli (2017) for Afghanistan, Di Maio and Nandi (2013) for West Bank and Gaza, and Rodriguez and Sanchez (2012) for Colombia. The child labor model of Basu and Van (1998) is built on the luxury axiom which posits that children work when their family cannot meet their basic needs otherwise, regardless of how large or small the return to child labor is.
- 116 Child labor was defined as working at least one day in the previous 30 days.
- 117 UNICEF (2017) Water Utilities Management During Crisis. Workshop presentation, Marseille.
- 118 Multiple Indicator Cluster Survey (2006) and Pan Arab Project for Family Health Survey (2010)
- 119 Wartime currency devaluation and inflation makes conversion of Syrian Pounds misleading. In 2017 2 SYP is worth \$1.18, but in 2011 it was worth \$5.4, which more accurately reflects the real cost to Syrian people. In 2011 equivalents, 570 SYP is worth \$12.26, and 1760 SYP is worth \$37.84.
- 120 Reach assumes that a household of 6 requires 2.8m³ of water per month for basic survival needs. The official domestic tariff is stepped. Up to 3m³ per month is free, 3-8m³ is 7 SYP, 8- 13 m³ is 15 SYP, with further steps to a maximum of 60 SYP for over 60m³ per month.
- 121 Vulnerability Assessment of Syrian Refugees in Lebanon 2017
- 122 <https://data2.unhcr.org/en/documents/details/64657>

- 123 <https://data2.unhcr.org/en/documents/download/64658>
- 124 Swain, A. and Jägerskog, A. (2016) *Emerging Security Threats in the Middle East: The Impact of Climate Change and Globalization*, Rowman and Littlefield Publishers. Lanham. U.S.. (2016)
- 125 There are actually three agreements from 1953, 1987 and 2012 in relation to the Yarmouk River between Jordan and Syria.
- 126 Muller, M. f, j. Yoon, S M Gorelick, N., Avisse, A. Tilmant (2016) "Impact of the Syrian refugee crisis on land use and transboundary freshwater resources", PNAS
- 127 Jordan Response Plan 2016-2018.
- 128 Jordan Response Plan 2016-2018.
- 129 <http://www.emro.who.int/irq/iraq-news/syrian-refugees-in-iraq.html>
- 130 Although note that the VAF data for Jordan excludes those in camps.
- 131 Sweepnet, 2010; Country Environmental Profile for the Syrian Arab Republic, European Commission, 2009.
- 132 Sweepnet, 2010; Country Environmental Profile for the Syrian Arab Republic, European Commission, 2009.
- 133 Sweepnet, 2010
- 134 Based on characterization of waste in 2004 national strategy that indicates 9.1 percent of MSW is demolition waste
- 135 *The Toll of War, the Economic and Social Consequences of the Syrian Civil War*, ESIA background paper, World Bank, 2017)
- 136 UNICEF 2017 WASH Survey
- 137 VASyr 2017.
- 138 <http://www.all4syria.info/Archive/97508>
- 139 Local interviews.
- 140 <http://www.aljazeera.net/news/arabic/2015/12/29/%D9%85%D8%AE%D8%A7%D9%88%D9%81-%D9%85%D9%86-%D8%A7%D9%86%D9%87%D9%8A%D8%A7%D8%B1-%D8%B3%D8%AF-%D8%AA%D8%B4%D8%B1%D9%8A%D9%86-%D8%A8%D8%B1%D9%8A%D9%81-%D8%AD%D9%84%D8%A8>
- 141 <https://kassiounpaper.com/labour-affairs/item/31987-2017-09-23-20-44-52>
- 142 Syria ESIA
- 143 <https://static1.squarespace.com/static/522c2552e4b0d3c39ccd1e00/t/5ab3565f8a922d5e4a011286/1521702505515/JRP+Final+Copy+21-3.pdf>
- 144 https://reliefweb.int/sites/reliefweb.int/files/resources/JRP16_18_Document-final+draft.pdf
- 145 <https://reliefweb.int/report/jordan/unhcr-jordan-factsheet-february-2018>
- 146 A smaller time threshold is used for schools, as many students may walk to school, with the 10-minute driving distance equivalent to about 7 to 13 km, depending on type of road.
- 147 A case is the unit of individuals, often relatives but not necessarily limited to kinship groups, who is headed by the principal applicant through whom the interaction with the UNHCR is maintained.
- 148 The "closed cases" (e.g. those refugees who were resettled to third countries but not those who returned) are dropped from the dataset.
- 149 Note that Turkey is left out of the study altogether as even demographic data for refugees have not been accessible. Iraq is left out of the push & pull factor analysis as survey data on conditions in the country of asylum was not accessible at the time of the preparation of this report.

- 150 For Jordan the VAF was conducted in 2015 and 2017 and for Lebanon the VASyr was conducted annually during the 2015-2017 period. Variables were selected based on the availability of consistent measures both across countries and over time.
- 151 For Jordan data is aggregated to administrative level 1 (governorate), while for Lebanon it is aggregated to administrative level 2 (district).
- 152 For the purposes of this survey, Syrian refugees that had expired registrations were also considered unregistered.
- 153 In Lebanon 450 registered and 500 unregistered Syrian refugees were interviewed. In Jordan 650 registered and 300 unregistered refugees were interviewed.
- 154 UNHCR stopped registering refugees in 2015 at the request of the Government of Lebanon.
- 155 It is important to note that there are no refugee camps in Lebanon.
- 156 Due to missing locational information, some observations were dropped.
- 157 Nuclear family includes the spouse and children of the principle applicant, immediate family is defined as the parents, siblings, children of siblings, nephews and nieces of the principle applicant, and the extended family includes in-laws, grandchildren, grandparents and other blood and non-blood relatives of the principle applicant. The vast majority of the refugee population are part of a nuclear family (96.5 percent), while immediate and extended families make up 2.6 percent and 1.0 percent respectively. However, return probabilities are much higher for the latter with 22.1 percent of immediate and 12.6 percent of extended family members returning to Syria as compared to only 3.1 percent of nuclear family members.
- 158 This study uses the term "refugee" to denote all forcibly displaced Syrians who reside in a country of asylum.
- 159 Change in control over a given district does not occur often. The mean of the dummy variable is 0.009 with a standard deviation of 0.094.
- 160 The analysis also includes a security perception variable at the district of origin. However, the signs of regressions coefficients are not consistent across the three datasets being used, which may be explained by the possibility that this indicator is a "perception" based indicator that is based on key informant responses, and not consistently measured across different geographical units.
- 161 Basic services include the provision of electricity, fuelwood etc.
- 162 This is particularly the case for linear probability models. In logit/probit based estimations, level-specific variations in the marginal effects of a specific regressor can be observed over its range of support. However, in those cases, the levels of other regressors are fixed at a specific level (often at their mean values) and repeating the analysis for all ranges is not practicable. In contrast, Classification and Regression Trees (CART) allow simultaneous observations of localized marginal effects for multiple variables in a systematic manner.
- 163 In particular, the coefficients for the recent arrivals are remarkably similar both in terms of magnitude and sign to those of the more tenured refugees for both samples. However, due to the significantly smaller sample size of recent arrivals a few coefficients lose significance, while the main results remain significant.
- 164 For the returns where only a subset of case members leaves for Syria, 70 percent of the time only one family member returns, and 15 percent of the time two individuals return.
- 165 See Test: Miner, no permit = Miner, with permit, which provides the p value of the test of whether the coefficient on "Miner in Syria now working no permit" is statistically different than the coefficient on "Miner in Syria now working no permit"
- 166 Please note that enumerators emphasized the fictional nature of this question.
- 167 The logit model for the entire Mashreq dataset does not converge.
- 168 Given the large number of dummy regressors marginal effect at the means are hard to interpret in this context, which is why we are reporting average marginal effects instead.
- 169 For the refugees, for whom we do not have subdistrict level information, we replace the subdistrict information with district or governorate information before creating the fixed effects.

The war in Syria, now in its eighth year, continues to take its toll on the Syrian people. Over half of the population of Syria remains displaced (as of September 2018), with more than 5.6 million registered as refugees outside of country and another 6.2 million displaced within Syria's borders. The internally displaced include two million school-age children, with less than half attending school. Another 739,000 Syrian children are out of school in five neighboring countries that host Syria's refugees. The loss of human capital is staggering, and it will create permanent hardship for generations of Syrians going forward.

Despite the tragic prospects for renewed fighting in certain parts of the country, an overall reduction in armed conflict is possible going forward. However, international experience shows that the absence of fighting is rarely a singular trigger for return of the displaced people. Numerous other factors, including improved security and socio-economic conditions in origin states, access to property and assets, the availability of key services, and restitution in home areas play important roles in shaping the scale and composition of returns. Overall, refugees have their own calculus of return that considers all these factors and assesses available options.

This study sheds light on the "mobility calculus" of Syrian refugees. While dismissing any policies that imply wrongful practices involving forced repatriation, the study analyzes factors that may be considered by refugees in their own decision to relocate. By doing so, it aims to provide a conceptual framework, supported by data and analysis, to facilitate an impartial conversation about refugees and their mobility choices.



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