

A large, semi-transparent black and white photograph of children in a camp. In the foreground, a young girl in a dark hijab and a Mickey Mouse t-shirt looks towards the camera. To her right, a young boy in a t-shirt with a car graphic looks off to the side. Other children are visible in the background.

Regular Surveys on Social Tensions throughout Lebanon

Wave III | April 2018

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List of Acronyms and Abbreviations

CP	Child Protection
DV	Dependent Variable
GIS	Geographic Information Systems
GPS	Global Positioning System
GoL	Government of Lebanon
HSAR	Hierarchical Spatial Autoregressive
IV	Independent Variable
MCMC	Markov Chain Monte Carlo
MLE	Maximum Likelihood Estimation
MCAR	Missing Completely at Random
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
PPS	Probability Proportionate to Size
PNCA	Propensity to Negative Collective Action
QoR	Quality of Relations
RPP-S	Refugee Population Pressure on Services
SD	Standard Deviation
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
LCRP	Lebanon Crisis Response Plan

Executive Summary¹

This report presents an analysis of data from the third wave of the UNDP Regular Perceptions Survey on Social Tensions throughout Lebanon. Funded by the Government of the Netherlands, it differs from the reports published on the first two waves in that it does not describe geographic or temporal variations in tension levels, but instead uses an econometric modelling approach to answer key research questions pertinent to the Social Stability sector and the Lebanon Crisis Response Plan (LCRP) as a whole. The primary question amongst them being: To what extent are changes in Lebanese perceptions of Syrian refugees *attributable* to the provision of assistance?

The data on which the analysis is based upon is representative of the total adult Syrian and Lebanese populations² in Lebanon, and the data for the third wave was collected in January and February 2018.

Given the reality that relations are reported more negatively by Lebanese than Syrian respondents³, this analysis concentrated solely on Lebanese perceptions. To measure changes in these perceptions, three key outcomes were selected for further analysis:

¹ Corresponding author: Taylor Long (tlong@arkgroupdmcc.com). The authors would like to thank Tom Lambert, Jacob Shapiro, Miguel Morales and the members of the Social Stability Working Group in Lebanon for their comments on previous drafts of this report. Any errors or omissions are strictly those of the authors.

² With the combined first, second and third wave samples, together including over fifteen thousand interviews, these survey results are representative of and generalizable to the total adult Lebanese and Syrian population resident in Lebanon, with a margin of error of less than +/- 5% within most of the country's twenty-six districts and a margin of error of less than +/-2% nationally.

³ Ark & UNDP, 'Regular Perception Surveys on Social Tensions in Lebanon', (Wave 1 & 2, May & September 2017)

- i. *Refugee population pressure on services*: e.g. “The presence of so many Syrian refugees in Lebanon today is placing too much strain on Lebanon’s resources” To what extent do you agree / disagree?;
- ii. *Quality of relations*: e.g. “Lebanese and Syrians in this community are able to work together to solve problems they have together” To what extent do you agree / disagree?;
- iii. *Propensity for negative collective action*: e.g. “When tensions are high, some restrictions on foreigner¹ movement or curfews can help keep this area safe” To what extent do you agree / disagree?’.⁴

To unpack the causal effect of assistance on these outcomes, assistance data from LCRP partners in 2017 was used as an input to the models to investigate statistically significant relationships. Nine types of assistance data were included in this analysis, offering detail on the effects of different types of assistance on the negative outcomes described above.⁵ **The model essentially built a picture of what outcomes would have more likely occurred had this assistance not been provided, establishing a quantified counterfactual for comparable analysis.** Further details on the methodology are described in the second half of this report, while the key findings are summarised here.

The principal finding of this analysis is that higher levels of assistance was associated with lower levels of all three negative

⁴ Each of the three outcomes was assessed with a multi-dimensional index, described subsequently in the report. The question items are single items provided as examples.

⁵ Assistance types considered included livelihoods assistance, conflict resolution support, child protection psychosocial support, health consultations, shelters improved, workforce improvement, job creation, social stability support, and improved access to clean water.

outcomes. Certain types of Social Stability assistance⁶ in particular, when coupled with other types of assistance, emerged as playing an important role in reducing perceptions of unfair aid distribution and other negative outcomes, particularly in reducing propensities to negative collective action against refugees. Results also indicated that humanitarian assistance had a positive impact on social stability. For example, health, basic assistance, and livelihoods programming proved to lower Lebanese dissatisfaction with services and perceptions of refugee population pressure on services effectively. Moreover, it was found that these **positive effects were not limited to the cadaster that the assistance was provided to**; rather, assistance had significant and positive regional ‘spill-over’ effects (e.g. union of municipality or district).

A key finding in all three waves of surveying was that **vulnerability alone was not associated with more negative outcomes.** While, in general, the more vulnerable a person was, the more likely negative perceptions of the quality of relations were also observed. However, the relationship was weak, and there were many non-vulnerable Lebanese also holding strong anti-refugee sentiments. This phenomenon is more likely related to structural factors originating in Lebanese history, such as the Syrian military occupation of Lebanese territory. Overall, the findings confirmed a sense of hospitality amongst the significant majority of Lebanese host communities, including vulnerable ones, as negative attitudes were not strongly correlated with the proportion of refugees in a community, after controlling for other factors in the analysis.

In terms of changes in context and evolution of social tensions, the Wave III results marked a return to Wave I levels across many of the indicators. In other words, many of **the negative outcome indicators,**

⁶ Including assistance on youth programming and community dialogue mechanisms but excluding capacity building work with municipalities.

including the three used in this analysis, peaked during Wave II (September 2017) before returning to Wave I baseline levels in Wave III. The fact that major Lebanese Armed Forces (LAF) operations took place during Wave II would likely have heightened perceptions of the ‘threat’ of a Syrian presence in Lebanon, revealing an important finding: that **national level shifts in public opinion, unrelated to the provision of assistance, may obscure effects of local or regional change.** Accounting for these exogenous effects on perceptions is a key consideration moving forward and in the evaluation of programme impact.

Breaking down the results by outcome, Lebanese perceptions of **refugee population pressure on services were higher in general amongst respondents that were male, less educated, and rural.** In addition, there was a strong correlation between those that were dissatisfied with the government, and those that thought that refugees were placing too much pressure on services. However, other factors are likely to have influenced respondents’ satisfaction with services, such as perceptions of clientelism. In areas with a higher fraction of refugees, Lebanese perceptions of the capability and fairness of the provision of assistance was also strongly associated with levels of satisfaction with public services.

In terms of the perceived quality of relations between Syrian refugees and Lebanese host communities, structural factors were found to be amongst the most significant predictive factors. For instance, independent of other variables, such as the frequency of interaction with Syrian refugees, those that had the most negative memories of the Syrian occupation were also much more likely to evaluate relations between Lebanese and Syrians as negative. **At the same time, as found in the Wave I and II surveying, greater social interaction and regular intercommunal contact was found to be strongly correlated with better relations.**

Lebanese propensity to negative collective action (PCNA), for example, support for curfews or other restrictions on refugees’ freedom of

movement, was the outcome most strongly associated with the ratio of Syrian refugees in the area. To elaborate, the higher the ratio of refugees to host communities in a cadaster, the more likely Lebanese communities would be to turn to collective measures such as curfews and other restrictions. Despite this finding, **personal attributes, unconnected to community traits or demographics were most associated with this outcome.** For instance, notably, women had higher PCNA scores than men, while the greater the household's income and educational attainment, the lower the level of PCNA predicted.

Overall, the results of the analysis bring forward three key considerations. First, the important role that **conflict dialogue and youth assistance plays should be acknowledged in strategic planning** as the effect of that type of assistance on improving perceptions of fairness of assistance was notable. The effect of municipal support – not directly analysed in this report – is likely also to be significant as strong correlations between the trust in local institutions and the three negative outcomes analysed in this report were recorded. Given that trust in local institutions have been rising steadily through consecutive waves of surveying, the case for working through these bodies to deliver positive impacts on social stability continues to grow.

Second, the type of social stability support that proved most effective at reducing propensities to violence – community dialogue mechanisms – should be scaled up in certain areas. This finding, taken in tandem with the finding of the regional effects of the impact of assistance, underlines the need to work in communities that are not only hosting large numbers of refugees, but to take an area-based approach and work in areas nearby where lower numbers of refugees are present, and, thus, **where levels of assistance are low. It is in these areas that perceptions of aid**

bias against vulnerable Lebanese are highest and the need for programming to reduce propensities to violence would be most effective.

Finally, the negative sentiments evident across vulnerability levels indicates that much of the population holding negative sentiments will not be recipients of assistance; assistance that may otherwise positively shift perceptions of Syrians, or of international assistance itself. Given this reality, **new ways to communicate with these non-vulnerable groups will be vital to quell any surges in anti-refugee popular sentiment.**

These findings and implications should be taken by decision-makers as strategic considerations when designing how and where assistance is delivered in Lebanon, to ensure a conflict sensitive response. Looking ahead, analysis on the fourth wave will continue to place the impact of assistance at its heart, probing how and why changes in the levels of tensions between Lebanese and Syrians have occurred, and the role that assistance has played in those changes.

1 Introduction

ARK has been commissioned by the UNDP to conduct quarterly national perception surveys focusing on inter-community relationships, between different Lebanese communities and between Lebanese host communities and Syrian refugees. This report summarises findings from the third quarterly wave of the research. The surveys and subsequent analysis provide deeper insights into Lebanon's stability landscape in two ways: first, by testing the relationship between key 'tension' variables and second, by tracing the evolution of social tensions in Lebanon over time.

As a study of 'social tensions throughout Lebanon' many of the topics covered in this analysis and queried in the surveys related to the Social Stability Sector in the Lebanon Crisis Response Plan, where 'social stability' has been defined as,

A state of intergroup relations at the community level, where sources of tension between groups are addressed and managed through formal institutions or systems, so as to prevent them from resulting in collective violence, human rights abuses, or further loss of opportunities for vulnerable groups.⁷

Despite the focus on tension and stability factors, due account of the cross-cutting characteristics of Social Stability programming, this research has also focused more broadly on the provision of assistance and relations between Syrian refugees and Lebanese host communities. Funded by the Government of the Netherlands, this third round of surveying conducted by ARK in 2018 has sought to continue to monitor changes in Lebanese and Syrian attitudes, and building off previous reporting on the results of

⁷ The Government of Lebanon and the United Nations, *Lebanon Crisis Response Plan*, 2018.

Waves I and II of the survey, this third report seeks also to assess the impact of assistance locally, with a focus on the attribution of specific Lebanese attitudes to the provision of assistance.

Throughout this report, 'assistance' is understood to be one of nine types of interventions implemented by UN agencies or partner organisations in areas of Lebanon, which have sought to either improve the situation and status of Syrian refugees and vulnerable Lebanese or which have sought to reduce tensions between Syrian refugees and Lebanese host communities. Additional information on the definition and measurement of levels of assistance may be found in Section 6.2.1, along with a discussion of potential limitations, for example, the effects of unmeasured forms of assistance provided by third-party organisations.

The findings presented in this report help illuminate some of the complex interactions between the structural, proximate and evolving causes of tensions between Syrian refugees and Lebanese host communities – and importantly, how these different conflict causes interact with the provision of assistance. The results presented here provide both empirical evidence of the positive impact of assistance but also highlight some of the persistent challenges in the delivery of aid and assistance, in particular, the prevalence of Lebanese perceptions of 'unfairness' in the distribution and allocation of assistance, which in some areas of Lebanon, is understood to have benefited only Syrian refugees and not vulnerable Lebanese.

As detailed below, in an outline of the report, results of the analysis are presented first, followed by a more detailed discussion of the approach used in this analysis. The estimates of the impact of assistance are derived from an econometric model, which was used to help 'isolate' the independent effects assistance on Lebanese public opinion, controlling for other individual and community-level factors.

1.1 Objectives of the Research

This analysis focuses on better understanding three key public opinion constructs: (a) dissatisfaction with services and the perception of refugee population pressure on services (RPP-S), (b) the perception of the quality of relations (QoR) between Lebanese host communities and Syrian refugees and (c) the Lebanese propensity to violence or other forms of negative collective action (PNCA) as a response to the perceived 'threat' of the Syrian refugee presence to Lebanon's stability, economy, etc. These acronyms are used throughout this report to refer to these three primary outcomes of interest, and the three constructs are defined more fully in Section 6.1 of this report, including a discussion of how each outcome was measured and operationalised for this analysis. For clarity, we maintain consistency in the discussion of each outcome, where greater levels of each outcome might normatively be understood as 'negative'. That is, reference to each of the three outcomes are to greater to *dissatisfaction* with services, more *negative* assessments of the quality of relations and *greater* propensity to violence or other negative forms of collective action respectively. Thus, greater levels of all three outcomes are understood as having the potential to undermine social stability nationally and at local levels.

For each of the three outcomes, we seek to better understand (a) the concentration and distribution of each, (b) the population and other factors associated with the greater or lesser prevalence of each negative outcome and (c) the relationship between the level of assistance locally and the prevalence of each outcome.

We conducted this analysis by more formally conducting a statistical evaluation of the relationship between each outcome and the level of assistance, controlling for the geographic or regional distribution of each outcome and controlling for population features and other factors which might predict greater or lesser levels of each outcome. While we focused,

methodologically, on the evaluation of the relationship with levels of assistance, we did so in a way that was been designed to provide insight also on the other primary objectives of the research.

It is our contention that better understanding the interaction between population factors and assistance will provide a more detailed understanding of the social factors driving Lebanese attitude formation and attitudinal change, with respect to the Lebanese response to the Syrian refugee presence. A thorough assessment of the impact of assistance may not only validate previous interventions but also may reveal new potential for projects or programmes that might further promote social stability in the country and otherwise improve the quality of life for both Lebanese host communities and Syrian refugees.

1.2 Outline of the Report

Following a brief discussion of background and context (Section 2), including a summary of other recent research on the subjects of social stability in Lebanon and the relationship between Lebanese host communities and Syrian refugees, we discuss our findings (Section 3). We estimate three hierarchical spatial autoregressive (HSAR) models. Coefficient tables from these models for marginal direct and indirect effects are provided in Appendix A; however, in Section 3.1, we provide a brief summary of our model output, followed by a more thorough discussion of results for each outcome in Sections 3.1-3.4.

In Section 5, we briefly describe how each of the three waves of the Regular Perception Surveys on Social Tensions throughout Lebanon were conducted, and we explain how representative statistics were obtained. With the total sample collected to date, including over 15,000 interviews, our results are representative of and generalisable to the total adult Lebanese and Syrian population of the country, with a margin of error of less than $\pm 5\%$ within each of Lebanon's twenty-six districts (*aqdiyya*) and a

margin of error of less than $\pm 2\%$ nationally. In Section 6, we provide a summary of the data and variables we used in our analysis. This included both data from the survey and also supplementary data on varieties of assistance, conflict events and the distribution of the population in the country. Each source of supplementary data was measured at the cadastral-level, and we leveraged this to examine highly-local relationships in our analysis. In this section, we define the operationalisation of our three key outcome measures and provide some descriptive statistics. For each of the three key outcome measures, we briefly summarise their distribution by district and also assess the level of change in each outcome wave-over-wave.

In Section 7, we describe our approach to the statistical evaluation of the impact of assistance. This section begins with a brief summary of the notation we use to describe hypothesised relationships, beginning with a simple Ordinary Least Squares (OLS) regression model and expanding this in Section 7.3 to account for a number of additional parameters. In this section, we discuss a number of key considerations for inference:

1. The provision of assistance was endogenous with the outcomes of interest, that is, that greater assistance had been provided to areas with already greater social instability (through the effective targeting of assistance to date), and there was thus a positive relationship between the level of assistance and a greater likelihood of more negative social stability outcomes. Rather than accept the implication of this relationship that the provision of assistance *causes* more negative social stability outcomes, one of the primary objectives of this analysis was to demonstrate how, once conditioned on local factors (partially accounting for

endogenous selection), the provision of assistance did indeed have a mitigating effect on social tensions.

2. The outcomes of interest were spatially dependent. That is, there were significant spatial patterns to be considered. Syrian refugees in Lebanon tended to be spatially clustered, and thus also, the quality of relationships between Lebanese host communities and Syrian refugees was spatially dependent. Furthermore, most assistance has been geographically targeted, and thus any analysis must also consider this factor. Accounting for spatial correlations in these relationships enabled us to examine not only the relationship between individual-level features and outcomes but also the relationship between *community-level* features and outcomes.
3. Proximate exposure to conflict, like the provision of assistance, was also expected to be endogenous to the relationships of interest. That is, we expected past conflicts to have occurred in areas of the country that were already less stable. A previous history of conflict in an area might also have been one of the justifications for programmatic intervention or the provision of assistance. We therefore considered in our analysis the interaction between geographically disaggregated conflict data and the relationships of interest.

In Section 4 we discuss implications for programme. In the concluding section of the report (Section 8), we summarise some limitations of the research and suggest avenues for future research. Additional appendices provide further detail on some of our model diagnostics and additional information on the survey instrument.

Recognising that our research may have users with different interests and priorities, we have sought to organise our report in such a way that we emphasise main findings and implications first. However, many of these findings results from somewhat more complex analysis of the data and relationships between variables. Sections 2-4 highlight key findings, but Sections 5-8 provide a more complete picture of our approach to understanding Lebanese attitude formation as it relates to the reception of Syrian refugees in Lebanon and our approach to understanding and identifying the impact of assistance.

This analysis has a specific focus – assessing the impact of assistance on Lebanese perceptions of Syrian refugees. However, the surveys conducted to date in the *Regular Social Perceptions Surveys throughout Lebanon* have addressed additional topics and queried both Lebanese and Syrians. For a more general discussion of public opinion, the reader should refer to the Wave I and Wave II narrative reports of the survey research project. Readers may also refer to a web application for visualisations of all survey question items, with options to disaggregate results by a number of geographic and demographic categories.⁸

2 Background and Context

Seven years into the Syria conflict, 1.5 million displaced Syrians have sought refuge in Lebanon, in addition to 277,985 Palestine Refugees in Lebanon and 34,000 Palestine Refugees from Syria. Furthermore, the country is home to 1.5 million vulnerable Lebanese. Demand for basic services, such as health care, water and sanitation facilities, and shelter, among others, which were already strained before the crisis, have increased in tandem with the influx of Syrian refugees. Additionally, the

⁸ Consult the UNHCR Operational Portal for Refugee Situations, data.unhcr.org for most recent updates, or use the stable link to the web application: <http://tiny.cc/nvh9vy>.

refugees' presence has increased feelings of insecurity and perception of job competition amongst Lebanese communities.

In addition to previous reporting on the *Regular Social Perceptions Surveys throughout Lebanon*, several additional studies assessing the relations between Lebanese host communities and displaced Syrian have been published. In 2017, a Mercy Corps study found that, in the North governorate, increased satisfaction with social services and employment opportunities reduced the likelihood of disputes between host communities and displaced Syrians. During the same year, a report published by the Université Saint-Joseph de Beyrouth (USJ) reported that 63% of Syrian refugees 'did not feel welcome in Lebanon' and only 27% of Lebanese rated their relations with Syrians as 'good' or 'very good'. The report also found that Lebanese were more willing to engage with Syrians in economic rather than social relations.

In 2015, the Government of Lebanon and the United Nations released the first Lebanon Crisis Response Plan (LCRP), in order to outline the country's response to the refugee crisis. The LCRP built on previous Regional Response Plans (RRPs), as well as Lebanon's 2013 'Roadmap of Priority Interventions for Stabilization from the Syrian Conflict'. The initial plan called for three primary actions:

- i. Restore and expand economic and livelihood opportunities, particularly to vulnerable groups, and create an enabling environment for private sector investment;
- ii. Restore and build resiliency in equitable access to and quality of sustainable basic public services;
- iii. Strengthen social cohesion

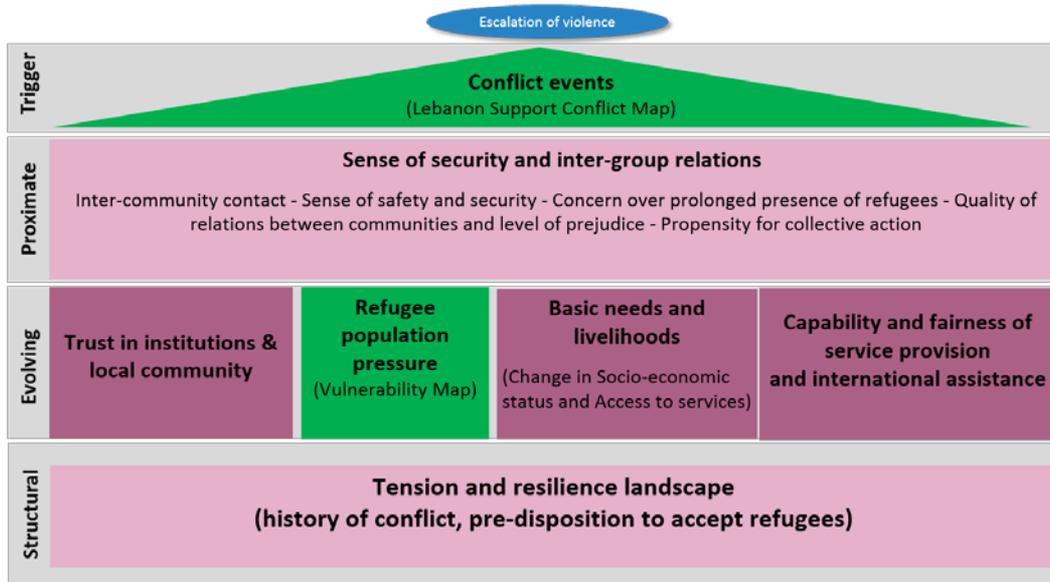
The 2015 LCRP also featured 'social stability' as a cross cutting response area with the livelihoods, shelter, food, and social stability responses all

working towards 'supporting national institutions to preserve social stability'. The 2018 update of the 2017-2020 LCRP similarly listed 'reinforce Lebanon's economic, social and environmental stability' as a strategic objective. The 'social stability' response, implemented by approximately 62 humanitarian agencies, under the updated LCRP aimed to reach 2,236,299 beneficiaries out of an estimated 3,311,985 in need. Of the 109.8 USD, the social stability response requested during 2018, 79.8% were for activities to 'strengthen municipalities, national and local institutions' ability to alleviate resource pressure', 18.6% to 'strengthening municipal and local community capacity to foster dialogue and address sources of tensions and conflicts', with the remainder aiming to 'enhance LCRP capacities on early warning and conflict sensitivity'.

UNDP's Stabilisation Monitoring Framework (SMF) summarises a number of potential factors that may promote or threaten greater social stability in Lebanon. The SMF breaks down the drivers for inter-communal Lebanese/Syrian and intra-communal Lebanese tensions into four conflict-cause categories: structural, evolving, proximate and trigger causes of conflict. Trigger events are incidents that escalate tensions when many proximate, evolving and structural drivers of conflict culminate. Proximate causes may be considered as factors contributing to a climate of exacerbated tensions. Proximate causes of conflict tend to be directly related to deeper evolving and structural causes. The evolving causes of conflict were considered across four dimensions: trust in institutions and trust in local community, refugee population pressure, basic needs and livelihoods and the capability and fairness of service provision and international assistance. Structural drivers of conflict can be defined as the cornerstone to how the relationship between Syrian refugees and Lebanese host communities has evolved; the history of relations between these communities; and long-term socio-economic conditions in an area. ARK's

survey questionnaire was designed to measure these conflict drivers. The first wave report validated the SMF, while the second wave report highlighted trends over time and governorate. This report aims to explore the relation between attitudes on social stability, humanitarian assistance, and conflict events.

Figure 1 Stabilisation Monitoring Framework



3 Summary of Key Findings

In this analysis, we regressed a number of plausible predictor variables onto each of the three outcomes: (a) dissatisfaction with services and the perception of refugee population pressure on services (RPP-S), (b) the perception of the quality of relations (QoR) between Lebanese host communities and Syrian refugees and (c) the Lebanese propensity to violence or other forms of negative collective action (PNCA) as a response to the perceived ‘threat’ of the Syrian refugee presence to Lebanon’s stability, economy, etc. With this approach, more fully described in Section 7, we endeavoured to assess both the impact of varying levels of assistance on each outcome and also to better understand the other individual and community-level predictors of each of the three outcomes.

The results presented in this section are derived from these econometric models. The coefficient estimates from the estimation of the three models may be found in Appendix A. The estimates given in this appendix are for the marginal direct and indirect effects for each predictor. The direct effect refers to the relationship between individuals and the dependent variable, whereas the indirect refers to the relationship between the regionally-lagged predictor and the dependent variable. In this summary, we generally discuss the total effect, or the combined direct and indirect effect. For all estimates, both the direct and indirect effects were in the same direction, and most cases, the direct effect was the greater of the two. For all three models, the assumption of spatial dependence was strongly validated, with significant levels of spatial autocorrelation, both between spatially-proximate individuals and also across adjacent or regionally-grouped cadasters. The exception was within the PNCA model, where the correlation across cadasters was statistically significant but negligible, suggesting that attitudes related to the propensity to violence or support for other negative forms of collective action were more likely (a) to be dependent on the characteristics of individuals, or in some cases (b) the characteristics of specific neighbourhoods or villages but not regions.

Likewise, our assumptions of regional random effects were validated, with significant variation in regional baseline levels for each of the three outcomes. In a regression model, the model's intercept represents the *conditional mean*, or the mean of the dependent variable, controlling for the other factors in the model. With a random effects specification—like the specification used in this analysis—the intercept is allowed to vary by region. So, rather than assuming a single national baseline or mean, the random effects specification takes into consideration that there may be additional unmeasured factors that differentiate the nature of relationships across regions. For example, the relationship between variables might be

expected to vary between regions with and without a higher percentage of Syrian refugees in the population. This also helps control for the fact that there may be unobserved affecting baseline levels for each of the dependent variables – for example, factors that, at the onset of the Syrian refugee crisis, might have determined where in Lebanon Syrian refugees were more likely to resettle. These factors, which we could not have observed some years later, at the time at which this survey was conducted, also plausibly could have explained initial allocations of assistance, with more assistance directed at areas with a greater percentage of refugees. This relates to the problem of the endogeneity of assistance discussed in Section 7.2.1.

The geographic distribution of, e.g. the perception of refugee population pressure or more negative assessment of the quality of relations between Lebanese and Syrians, did not conform ‘neatly’ with administrative boundaries for either governorates or districts. Previous reporting on tensions (including in previous narrative reports summarising findings from Wave I and Wave II of the Regular Perception Surveys on Social Tensions throughout Lebanon) have used the district as a unit of analysis. However, aggregation at this level obscures important sub-district and cross-district regional variations. While we did observe similar outcomes across cadastres in some more uniform districts like Hermel and West Bekaa, in other districts, and especially in Mount Lebanon, we observed significantly different outcomes across a number of cadasters, and even across some cadasters in relatively close proximity to one another within districts.

In the following discussion of our results, we first discuss the impact of assistance on all three outcomes, and then we discuss additional results from each of the models separately.

3.1 Impact of Assistance

SECTION KEY FINDINGS

For most varieties of assistance, we found a negative relationship between the provision of more assistance and the prevalence of more negative outcomes.

There was strong evidence of ‘spill-over’ effects. Both tensions factors and the positive impacts of assistance in one area were, on average, strongly correlated with outcomes in nearby areas.

For each model we estimated, there were ten terms related to assistance. First, there was an indicator for ‘any assistance’, and then there were terms for each of nine types of assistance.⁹ In brief, we found strong evidence for the total impact of combined assistance, with the likelihood of all three outcomes lessening significantly with the greater total provision of assistance. In Section 7.2.1, we discuss the unconditional *positive* relationship between greater levels of assistance and more negative outcomes. In contrast to this, and as evidence of the ameliorating or ‘mediating’ effects of assistance, we found that, once conditioned on local characteristics, the relationship between all types of assistance and all three negative outcomes was either (a) in the opposite direction or (b) significantly weakened. That is, for most varieties of assistance, we found a *negative* relationship between the provision of more assistance and the prevalence of more negative outcomes – strong evidence of the positive, or beneficial, impacts of assistance. For some varieties of assistance, however, the relationship was still positive, but in each case of this, the strength of this relationship was significantly weakened, after conditioning on local characteristics.¹⁰ In summary, we found significant evidence of the impact of assistance, which was one of our primary research objectives. In the

⁹ See Section 5.2.1 for a discussion of the data on assistance used in this assessment.

¹⁰ Exact measures of direct and indirect effects may be found in the tables in Appendix A. The terms related to assistance are the last ten terms in each table of coefficients.

discussion that follows, we provide some additional detail on this impact, further considering assistance type and the three outcomes.

The average change we saw attributable to assistance was about 0.25 standard deviations across assistance types, which was modest in magnitude but nonetheless significant. To the extent that there may have been omitted variables in our model—other predictors related to both the outcome and the level of assistance—there may have also been some attenuation bias. That is, the ‘true effect’ may indeed have been somewhat *stronger*. But even with this modest effect size, we saw a meaningful contribution from assistance to the improvement of social stability. In some sense, this was especially remarkable given how indirect our theory of impact was. For seven of the nine assistance types were measured, these were varieties of assistance primarily targeted at Syrian refugees, yet the impact we detected was amongst Lebanese. That meant that, for example, shelter improvement or livelihoods assistance provided to Syrian refugees in most areas was effective enough to, in turn, reduce Lebanese perceptions of refugee population pressure on scarce resources or services.

So, for example, the results validated a simple example of a plausible theory of change in social stability programming, for example: **if** refugee population pressure exacerbates competition in the local job market, **and if** livelihoods opportunities are created to benefit both Lebanese host communities and Syrian refugees, **then** tensions between the two communities will be reduced. We found evidence supporting both the assumptions of a theory of change such as this, as well as evidence of impact following the causal logic of this theory of change. Support to Syrian refugees in areas of health, basic services and livelihoods had, on average, a mitigating effect on Lebanese dissatisfaction with services, more negative perceptions of the QoR and Lebanese PNCA.

Some other types of assistance, specifically those in the social stability sector, were more direct, specifically targeting Lebanese and not only Syrian refugees, for example, conflict resolution support. For these, we found similar but somewhat stronger results. Greater Conflict Resolution Support was associated with lower levels of all three negative outcomes. Of the various assistance type considered in this analysis, greater Conflict Resolution Support was by far the strongest of the nine in predicting lower levels of the propensity for negative collective action. Conflict Resolution Support in a cadaster not only reduced average PNCA in that cadaster but also had an indirectly positive effect on nearby or adjacent cadasters. For the other two outcomes—dissatisfaction with services and more negative perceptions of the quality of relations—greater conflict resolution support still had a mediating effect, but it was more modest in size.

The other Social Stability Sector indicator we considered was Youth Empowerment, and for this indicator, the results were somewhat more mixed. The coefficient on this indicator was positive in both the RPP-S and PNCA models, and it was negative in QoR model. This meant that there was still a positive relationship between greater dissatisfaction with services, a greater propensity for negative collective action, and more support for Youth Empowerment initiatives, even after conditioning on the other individual and community-level features we included in our assessment. However, this should not necessarily be read as an ‘indictment’ of such initiatives, for a number of reasons.

First, while these effects were statistically significant, by most conventional metrics, they were also small. Of the nine types of assistance, only the number of CP Psychosocial Consultations provided had a weaker average effect, in either direction, on each of the three outcomes. Second, after conditioning on the other features in the model, the relationship

between each negative outcome and the level of support for Youth Empowerment was still weaker than the unconditional relationship, meaning that there was still evidence of a positive mediating effect, by the logic we will discuss in Section 7.2.1. Lastly, as we discuss in Section 6.1.3, the propensity for negative collective action was a more complicated construct to operationalise, because it relied on two separate sub-constructs: the propensity for any sort of collective action and support for specifically *negative* forms of collective action. Though we sought to address this by using a multiplicative rather than additive scale for our outcome measure (dependent variable), a greater propensity for any sort of collective action, even positive social action, would still be associated with higher measures on this scale.

Certainly, one of the conflict sensitivity risks that might be associated with Youth Empowerment is the risk that certain tools—for example, a greater capacity to organise—might be used to promote negative sorts of collective action. For example, youth might advocate for restrictions of refugees' freedom of movement, if these youths perceive a threat from the refugee presence. While we found no direct evidence of this phenomenon, the fact that we did find somewhat weaker results than we expected, with regards to the effects Youth Empowerment, might suggest that project and programmes be especially sensitive to this conflict sensitivity risk in their design.

In summary, our results largely confirmed the hypothesis given in Section 7.2.1: after conditioning on local characteristics, we found that, on average, greater assistance was associated with a lesser likelihood of negative outcomes, and this effect held both for individuals, and in aggregate, for Lebanese host communities. Further, we established that, just as there was an important spatial component in refugee population pressure, with greater refugee population pressure also affect nearby areas,

we also found that the effects of intervention, through the provision of assistance, had a similar reach across cadastral and other administrative boundaries. That is, we found that there were positive, regional aggregate effects in the provision of assistance.

In the three subsequent sections of this report, we discuss more fully a number of other results from our analysis, focussing not only on the effects of assistance but also other social, economic and demographic relationships with the three outcomes.

3.2 Refugee Population Pressure on Services (RPP-S)

SECTION KEY FINDINGS

Greater refugee presence, when not offset by adequate levels of assistance, was associated with greater levels of Lebanese dissatisfaction.

Greater dissatisfaction with services was more likely to be predicted by there being a reported strain on services from too much demand and from lesser perceptions of the fairness of assistance.

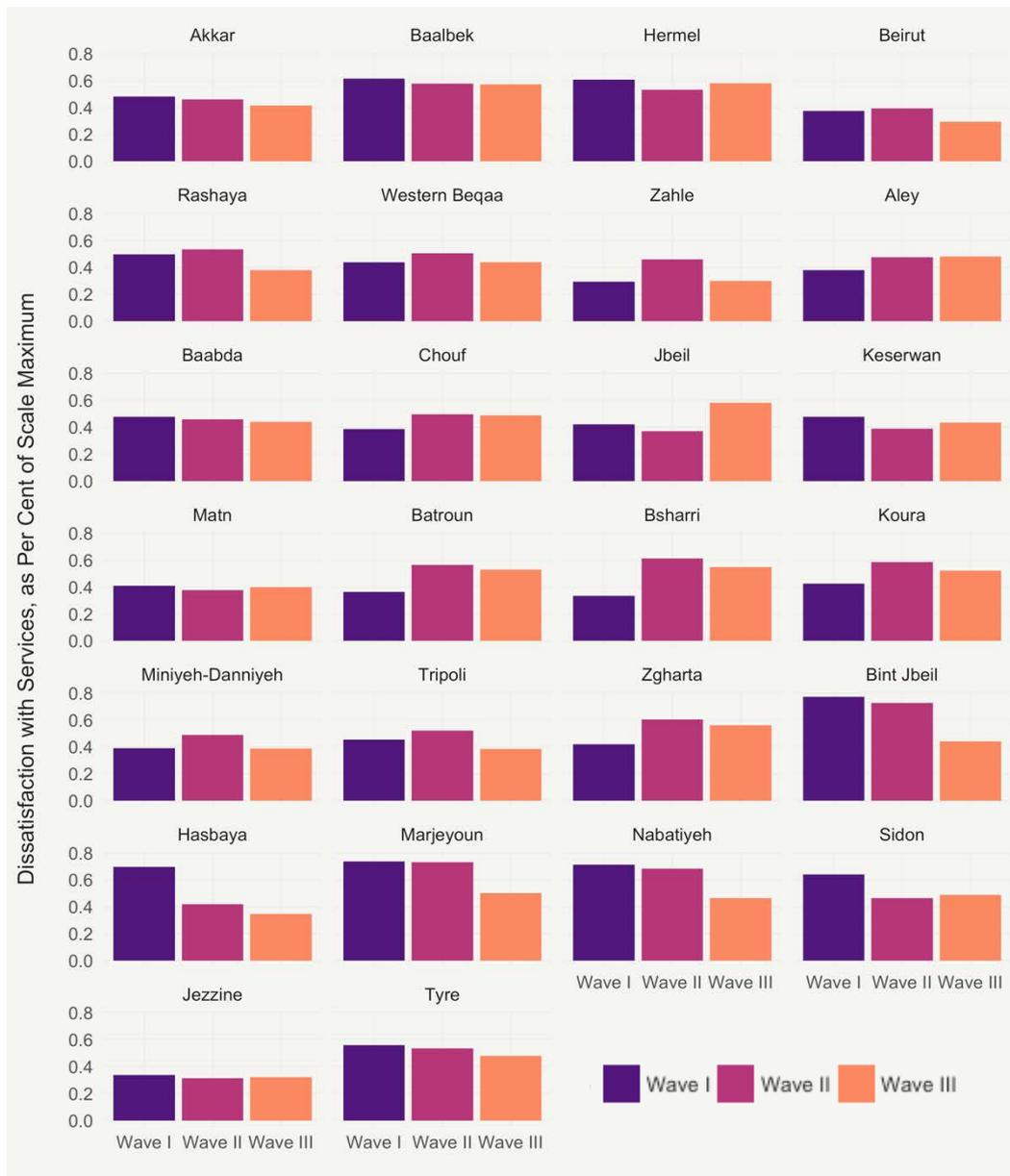
Those who had less confidence in state institutions were also more likely to be dissatisfied with the level and quality of service provision in their area.

To assess correlates with refugee population pressure on services, we asked Lebanese respondents about their dissatisfaction with a number of public services, with no specific reference to the presence of refugees in the area. After controlling for other factors, the actual fraction of Syrian refugees in an area was not significantly associated with greater Lebanese dissatisfaction with services.¹¹ We did find that a greater refugee presence, when not offset by adequate levels of assistance, was associated with greater levels of Lebanese dissatisfaction, on average. But the presence of

¹¹ The estimated fraction of the population that were Syrian refugees in these results is based on the fraction of respondents with the Syrian nationality in a given cadaster. Because the sample size in each cadaster was too small for reliable estimates, the estimate used for each cadaster was spatially lagged over adjacent cadasters.

Syrian refugees in an area, as a single factor, was not enough to explain Lebanese complaints with the quality of availability of services.

Figure 2: Dissatisfaction with Services, by District and Wave.



Rather, greater dissatisfaction with services, as it related to potential refugee population pressure, was more likely to be predicted by there being a reported strain on services from too much demand and from lesser perceptions of the fairness of assistance. That is, asked to what extent they agreed with a number of statements like, vulnerable Lebanese have been

neglected in international aid/assistance programmes', those who agreed with these statements were more likely to be dissatisfied with the level and quality of service provision in their area.

As one might expect, given that state institutions are expected to provide the public services which were queried, those who had less confidence in state institutions—defined by agreement that a number of institutions had 'responded poorly' to the Syrian refugee crisis—were also more likely to be dissatisfied with the level and quality of service provision in their area.

Those who felt less safe were also more likely to be dissatisfied with services. While the provision of security might be understood as a public service, it was not one of the eight public services assessed to construct this outcome measure. So, it was likely that these two went hand-in-hand. That is, though who were dissatisfied with the GoL's ability to provide public services were also dissatisfied with the GoL's ability to provide protection, though the ISF, LAF or other security agencies.

In terms of socio-economics and demographics, independent of Lebanese perceptions of Syrian refugees, wealthier individuals and communities were less likely to be dissatisfied with the level and quality of services, like due to their greater ability to purchase replacements, for example, their ability to subscribe to a shared generator service or enrol children in private schools. Relative to their Sunni and Shia counterparts, both Christians and Druze were more likely to be satisfied with their level of service provision. Men were marginally more likely to be dissatisfied, and older Lebanese were more marginally less likely to be dissatisfied. Perhaps also proxying socio-economic status, more educated respondents were also less likely to be dissatisfied, relative to respondents with less than a high school diploma.

Geographically, persons in smaller and more populous cities or villages were also less likely to be dissatisfied. This was perhaps a reflection of the challenge of distributing some sorts of services to more remote or less populous areas, and/or a reflection of the fact that some more populous areas like the capital of Beirut receive a greater share of rationed services, like electricity from the state's *Électricité du Liban* (EDL).

What is of special note is the contiguity of regions with greater evidence of positive change, highlighting the dynamics of spatial dependency we have discussed previously in this report. Communities in the same area tended to face the same sorts of challenges or hold the same concerns, and this in turn, informed the relationship between individual and community-level characteristics and the perception of the quality of assistance.

Where assistance had been provided, this has generally had a positive 'spillover' effect in nearby areas. The concentration of effect was greatest in areas with a greater fraction of refugees, which were, of course, more likely to have received assistance. In the few 'pockets' where the trend was in the opposite direction—that is, primarily in the South and Nabatiyeh—where there the impact of assistance was lesser, these areas tended to have had lower 'baseline' satisfaction with the quality of services, and they were more likely to have received assistance targeting primarily Syrian refugees and not also Lebanese host communities (e.g. there was less Social Stability Sector programming in these areas). In combination, these factors also heightened the Lebanese perception of lesser 'fairness' in assistance, with residents in these areas less likely to agree that international assistance has also benefited Lebanese.

The distributive politics of service provision in Lebanon is complicated, and Lebanese were still very much dissatisfied with levels of public service provision even long before the influx of Syrian began in 2011.

It is unlikely that refugee population pressure is the only, or even the strongest, driver of Lebanese dissatisfaction with this, where Lebanese perceptions of the quality of service provision are also influenced by factors not assessed in this research, like perceptions of patronage and clientelism, or macro-economic factors, and these also likely had an impact on public perceptions. Nevertheless, with service provision remaining one of the public's primary expectations of the government, there remains a significant interaction with perceptions of refugee population pressure.

3.3 Quality of Relations (QoR)

SECTION KEY FINDINGS

Some of the strongest predictors of more negative perceptions were structural in nature. For example, relative to their Sunni counterparts, both Lebanese Christians and Druze were significantly more likely to evaluate relations as negative.

Both lesser prejudice and greater social interaction were associated with more positive Lebanese assessments of the quality of relations.

In addition to the level of assistance having a mitigating effect on more negative assessments of the quality of relations, the Lebanese assessment of the quality of relations also depended on a number of other factors, not all of which were necessarily associated with greater Lebanese exposure to Syrian refugees or refugee population pressure. Some of the strongest predictors of more negative perceptions were structural in nature. For example, relative to their Sunni counterparts, both Lebanese Christians and Druze were significantly more likely to evaluate relations as negative, independent of, for example, the frequency of interaction with refugees or the fraction of the population in an area that was Syrian. Likewise, independent of other factors, those with more negative memories of the Syrian occupation were also more likely to evaluate relations between Lebanese and Syrian refugees as negative.

One of the findings discussed previously in the Wave I and Wave II narrative reports for the Regular Perceptions Surveys on Social Tensions throughout Lebanon was that Lebanese vulnerability alone was not a strong predictor of Lebanese host-community and Syrian refugee tensions. And the analysis conducted for this evaluation reiterated these findings. For example, income was only a predictor of more negative relations for the poorest Lebanese; those households living on less than 500,000 L.L. per month were more likely to evaluate relations as negative. However, over higher income categories, the level of income was not a significant predictor of the quality of relations, controlling for other factors. Likewise, for the multi-dimensional index of vulnerability we included as a control, which was constructed with question items related to food security and other potential sources of vulnerability, this was only weakly associated with evaluations of the quality of relations. And indeed, more vulnerable Lebanese were in fact marginal more likely to more *positive* assessments of the quality of relations.

The relationship between Lebanese vulnerability and more negative assessments of the quality of relations tended to be 'offset', or mitigated, by other factors. The level of assistance was one of these factors, where a greater level of assistance was likely to predict a more positive assessment of relations, especially around Tripoli, in the Wadi Khaled area, in the Bekaa and in the South, between Saida and Sour – all areas of Lebanon with a higher concentration of refugees. However, just as with the model evaluating Lebanese dissatisfaction with public service provision (discussed above), the perception of the fairness and capability of international assistance were also important. Lebanese who regarded the provision of assistance as 'unfair', or who regarded organisations providing assistance as 'less capable' were more likely to evaluate the

quality of relations as negative, independent of the actual level of assistance provided to an area in 2017.

Other social forces also played an important role in mitigating tensions or improving the perception of the quality of relations. Both lesser prejudice and greater social interaction were associated with more positive Lebanese assessments of the quality of relations. To measure these, Lebanese were asked about how often they interacted with Syrians in a variety of locales, and Lebanese were asked about how ‘agreeable’ or ‘disagreeable’ they would consider a number of scenarios, like ‘living next door to a Syrian family’.

A greater fraction of Syrian refugees in an area – a proxy for ‘actual’ rather than ‘perceived’ refugee population pressure – was associated with more negative assessments of relations, but this was far from being the sole determining factor of Lebanese assessments of the quality of relations. Each 1 percentage point increase in the fraction of Syrian refugees in an area was only associated with a 0.1% increase in more negative perceptions of the quality of relations. While this relationship was statistically significant, this relatively small effect size was attributable to the social and other forces discussed above, which had strong mitigating effects on the relationship between refugee population pressure and tensions.

Figure 3: Lebanese Assessment of the Quality of Relations, by District and Wave.



Where there were more Syrian refugees per capita, there were also more likely to be positive interactions, for example, through regular inter-communal contact. However, there were also a number of other features that were associated with a higher concentration of refugees that operated in the opposite direction, that is, that contributed to more negative perceptions of the quality of relations. Lebanese living in areas with a higher concentration of refugees were more likely to know someone personally who had lost his/her job to a Syrian refugee, and these

individuals were more likely to evaluate relations as negative. And perceptions of safety and security, on average, were somewhat lower in areas with a higher concentration of Syrian refugees, and lesser perceptions of safety and security, in turn, were associated with somewhat more negative assessments of the quality of relations.

However, proximate exposure to conflict was not found to be a significant predictor of the quality of relations. Direct victimisation of any sort was weakly associated with more negative Lebanese assessments of the quality of relations, but the count of conflict events in an area was not a statistically significant predictor of the quality of relations.

3.4 Propensity to Negative Collective Action (PNCA)

SECTION KEY FINDINGS

PNCA was the outcome most strongly related to the fraction of Syrian refugees in an area; however, greater PNCA was driven by both real and perceived refugee population pressures.

Women had somewhat greater PNCA scores than did men, and both greater household income and greater levels of educational attainment predicted lower levels of PNCA amongst Lebanese.

The last model we estimated evaluated relationships with a greater propensity for negative forms of collective action, where the two specific forms of negative collective action included in the dependent variable included greater support violence as a means of political redress and greater support for curfews of other restrictions on refugees' freedom of movement. Of the three models we estimated, this model was the least explanatory. While we did identify a number of individual and population features associated a greater PNCA, the variables we considered did not explain a great deal of variation in our outcome measure.¹² This was likely

¹² The pseudo- R^2 for this model was less than 0.1. This was largely due to the use of a multiplicative outcome measure, but also likely due to omitted variables.

due to the fact that we were looking to explain more extreme (and thus rare) attitudes and also because we did not measure or include many individual-psychological variables, which would likely to have also been important predictors.

Figure 4: Propensity to Negative Collective Action (PNCA), by District and Wave.



Of the three outcomes we considered, PNCA was the outcome most strongly related to the fraction of Syrian refugees in an area. For example, the coefficient on the term for the fraction of Syrian refugees was

approximately six times larger than it was in the QoR model. Greater PNCA was driven, to some extent, by both real and perceived refugee population pressures, as evidence not only by the relationship with a greater percentage of Syrian refugees in an area, but also other perception measures, like the level of prejudice, a greater perception of strain on services or lesser agreement with the fairness of international assistance. Many of the same demographic trends observed in the RPP-S and QoR models were also observed in the PNCA model, for example, with Lebanese Sunnis being significantly less likely to support negative forms of collective action, relative to their Christian, Druze and Shia counterparts.

In terms of other demographic features, women had somewhat greater PNCA scores than did men, and both greater household income and greater levels of educational attainment predicted lower levels of PNCA amongst Lebanese. Age and household size had no discernible influence.

However, community-level features played less of a role in determining individuals' PNCA. While this analysis has enumerated a number of different ways that spatial relationships might matter, for example, with communities in close proximity to one another often contending with many of the same plausible tension factors, geography played far less of a role in determining aggregate levels of PNCA for individuals or within communities. The measure of spatial correlation in PNCA between cadasters, after controlling for other factors, was statistically indistinguishable from zero, and the correlation between respondents' PNCA scores within cadasters was also less than it was for the other two outcomes we assessed in this evaluation. These results suggested that there may have been additional variables – which were not included in our model – that might have better explained the level of variation in the Lebanese PNCA.

Recognising, after the first wave of the *Regular Perceptions Surveys on Social Tensions throughout Lebanon*, that PNCA might be driven more by individual-psychological factors than by other socio-demographic or community-level factors, a number of additional items intended to measure an individual's acceptance of violence were appended to the questionnaire. A preliminary analysis suggested that these did a better job explaining the outcome; however, because the questions were not included in the first wave of the survey, the sample size was not large enough to include these new items in our analysis. However, after the completion of the fourth of the planned waves of surveying, we expect to be able to consider the effects of these additional variables more fully.

3.5 Survey Wave Effects

SECTION KEY FINDINGS

Many of the negative outcome indicators, including the three used in this analysis, peaked during Wave II (September 2017) before returning to Wave I baseline levels in Wave III.

National-level trends played a role in determining the three outcomes we observed at local levels, emphasising how the impact of assistance *at local levels* might be obscured by exogenous, or external, events.

The data collected for this analysis was collected in approximately three-to-four-month intervals. This time-series (but not panel) component of the data has been used previously to track average levels over a number of key metrics, and in Section 6.1 of this report, we provide a summary of the level of change in the RPP-S, QoR and PNCA over the three waves, disaggregated by a number of categories. In the regression analysis, however, in order to maximise the potential to assess regional variations, the wave in which each interview was conducted was included only as a fixed effect, that is, the difference in the national-level mean between each wave. One finding that was common across all three models was that, for

each of the three more negative outcomes, these peaked during Wave II of the surveys, rising from Wave I to Wave II, and then in Wave III, returning to approximately baseline levels. This indicated that national-level trends also played a role in determining the three outcomes we considered. These may be related to macro-economic factors, changes in the national political climate, developments in neighbouring Syria or due to specific conflict events. For example, major LAF operations took place during the period of the Wave II survey, and such events may have heightened perceptions of the ‘threat’ of a Syrian presence in Lebanon. But, the ‘regression to the mean’ observed in the third wave also suggested that such effects were likely to be temporary. These ‘wave effects’ have an important implication for monitoring and evaluation, namely that, while the intended impacts of most assistance are regional, national level shifts in public opinion—unrelated to the provision of assistance—may also obscure evidence of local or regional change. In order to assess change in attitudes or behaviours related to Lebanese and Syrian tensions locally, one must also be able to identify and account for exogenous national-level events in order to accurately identify what fraction of local attitudinal or behavioural change might plausibly be attributable to assistance.

4 Implications for Programme

In order to think more comprehensively about implications for programme, we consider the three outcomes analysed in this report jointly. While there were important differences between the predictors or driver of each separate outcome, there were also consistent patterns across each of the three ‘more negative’ outcomes of RPP-S, QoR and PNCA. From these patterns, we have identified a number of recommendations.

1. **Understanding regional effects is important, both for the design and monitoring and evaluation of interventions.** Refugee

population pressure tends to be concentrated in specific areas, and due to the effective targeting of assistance, the assistance provided to-date has tended to be concentrated in the same areas. In these areas, both Syrians and vulnerable Lebanese have benefitted from assistance, but in nearby areas, where there may be a smaller fraction of Syrian refugees but an approximately equal fraction of vulnerable Lebanese, these Lebanese are amongst the most likely to regard the provision of international assistance as ‘unfair’ or benefitting only Syrian refugees. This perception of ‘unfairness’ is exacerbated by proximity to other communities receiving assistance. Neither refugee population pressure nor the impacts of assistance are tightly constrained by administrative boundaries. Both possible drivers of tension and possible sources of resiliency should be expected to ‘permeate’ through proximate Lebanese and Syrian communities living in similar circumstances. Monitoring and evaluation mechanisms implemented at very local levels, for example, around a specific project or programme, should also consider the positive and negative contributions to observed change that might be attributable to events or other changes in nearby areas.

- 2. Social Stability Sector assistance plays a role in determining the effects of other basic needs or development assistance.** While this analysis did confirm that basic needs or other humanitarian assistance targeted primarily at Syrian refugees could have indirectly positive effects of Lebanese perceptions of inter-communal tensions, by lessening either the reality or perception of refugee population pressure, these effects were stronger in location receiving greater Social Stability Sector support. It is likely that such support helped improve perceptions of the fairness of assistance, helping to enable the positive effects of other varieties of assistance.

3. **To the extent that Social Stability Support enhances the public's confidence in national and local government institutions, this would be expected to alleviate tensions between Lebanese host communities and Syrian refugees.** Greater confidence in government institutions, both national institutions local institutions, like municipal governments, was associated with a lesser prevalence of all three negative outcomes we considered. While we did not assess, in this analysis, the direct relationship between confidence in government institutions and the level of Social Stability Sector assistance provided, support to municipal governments has been one of the primary intervention efforts in the Social Stability Sector. Our results confirmed this was likely an effective point for intervention.
4. **Lebanese vulnerability alone was not necessarily a strong predictor of more negative Lebanese perceptions of the quality of relations.** Indeed, many non-vulnerable Lebanese held strongly negative attitudes toward Syrian refugees. Many of the drivers of more negative Lebanese perceptions of Syrian refugees were deeply structural, resulting from other Lebanese sectarian or confessional dynamics and politics, or resulting from Lebanese memories or experiences of the period of Syria's occupation of Lebanon. These dynamics and drivers are unlikely to change except in the long-term and certainly not as a result of short-term intervention. These structural drivers of tension will persist throughout the duration of the Syrian refugee presence in Lebanon. These dynamics should be considered in the design of conflict sensitive programming, but any effort to address this underlying structural causes directly should be done only with tempered expectations. Assistance in this area will likely be most effective if it seeks to address potential 'triggers' of

conflict in the short-term, rather than seeking to effect long-term structural change in Lebanese intra-sectarian politics.

5. **Following from the previous implication (#4), many non-vulnerable Lebanese were amongst the *most likely* to give negative assessments of the capability and fairness of international assistance but also amongst the *least likely* to observe the direct benefits of assistance.** For example, many Lebanese who were otherwise employed, and living in areas where unemployment or under-employment were less prevalent, also identified competition over jobs as one of the most likely drivers of tensions. The ‘rhetoric’ of the ‘threat’ posed by Syrian refugees to Lebanon’s stability or to Lebanon’s economy extends well into Lebanese communities that are otherwise relatively unaffected by the Syrian refugee crisis. The positive impact of assistance is thus unlikely to be observed by this segment of the Lebanese population—who for example, are also amongst the least likely to report interaction with Syrian refugees—and so these negative perceptions should be expected to persist in this segment of the population without either (a) more effective communication of positive outcomes attributable to assistance and also benefiting Lebanese or (b) a change in dynamics so drastic that affects the country as a whole, for example, on a macro-economic indicator like GDP. Of the two options, (a) more effective communication, is more plausible. And, some recent efforts, like the ‘Journalist Pact for Strengthening Peace’, are likely a step in the right direction.

5 Survey Method

Given the research objectives of the survey and with the sample size of 5,000 interviews per wave, for a total of 15,000 interviews conducted across

each of the three waves to date, there was adequate statistical power to assess meaningful differences in outcomes and changes in attitudes and behaviours over time with precision at the district (*qada*) level, as well as differences across levels of vulnerability indicated in the 'Most Vulnerable Localities in Lebanon' map. A complex sample design was required to optimise the efficiency of the sample across the two dimensions of (a) district geographies and (b) vulnerability-level geographies, while at the same time (c) minimising the margin of error for total-sample statistics. The survey was implemented with a multi-stage stratified cluster design.

5.1 Stages of Selection

In the first stage of selection, the sample was stratified across districts, with a formula including a vulnerability weight. Approximately 40% of the sample was allocated on the basis of the vulnerability weight, and the remaining 60% of the sample was allocated across districts proportional to population size.¹³ In other words, interviews were allocated on the basis of population size, but this allocation was then adjusted to over-sample more vulnerable areas. Thus, all districts were included in the sample, but relatively fewer interviews were allocated to districts like Jbeil, Kesrouan, Bcharre and Batroun, which had fewer vulnerable Lebanese and fewer Syrian refugees per capita.

In the second stage of selection, cadasters within district strata were sampled probability proportionate to population size (PPS) with replacement, using a weighted average of LandScan cadastral population size estimates and data on town population size estimates from the

¹³ The vulnerability weights as calculated from the 'Most Vulnerable Localities in Lebanon' map, available at: <http://data2.unhcr.org/en/documents/details/45715>. For more on the construction of the weight, see the 'Inception Report' for the *Regular Surveys on Social Tensions* project, <https://data2.unhcr.org/en/documents/details/59720>.

Lebanese ISF. No additional steps were taken to oversample more vulnerable cadasters.

In the third stage of selection, for the allocation of clusters, a number of random Global Positioning System (GPS) coordinates were generated equal to the number of clusters allocated to each cadaster, and this coordinate indicated the starting point for household selection. Enumerators began with the residential building closest to the random GPS coordinates and conducted an interview with a random adult in this building. Using a random number table, the enumerators then walked in a random direction, skipping a random number of homes, and then conducted the next interview in the next home. This proceeded until six interviews per cluster were completed. In the event of refusal, households were substituted within clusters, but individuals were not substituted within households.¹⁴

Regarding the selection of primary respondents, in the fourth stage of selection, the enumerators alternated between selecting the adult male householder who celebrated his birthday most recently and the adult female householder who celebrated her birthday most recently. Up to three attempts were made to contact the selected respondent if the respondent was not at home at the time of the visit. If after three attempts the respondent could not be contacted, the household was substituted within the cluster.

5.2 Obtaining Representative Statistics

One of the key-objectives of the survey was to obtain representative statistics for the general population, including both Lebanese and Syrian refugees. The basis for reporting results from both Wave I and Wave II of

¹⁴ The selection of random buildings with random GPS coordinates was used in order to avoid potential 'main street bias', sometimes associated with using landmarks or major intersections in an areas as a cluster starting locations.

the surveys has been the comparison of similarities and differences across geographic units and across different demographic profiles.

5.2.1 Probability Weights

A post-stratification weight for district size was required for the estimate of total-sample statistics and estimates across vulnerability-levels. Because the second stage sample was taken with PPS methods, no sampling weight was required for within-district estimates.

5.2.2 Non-Response and Imputation

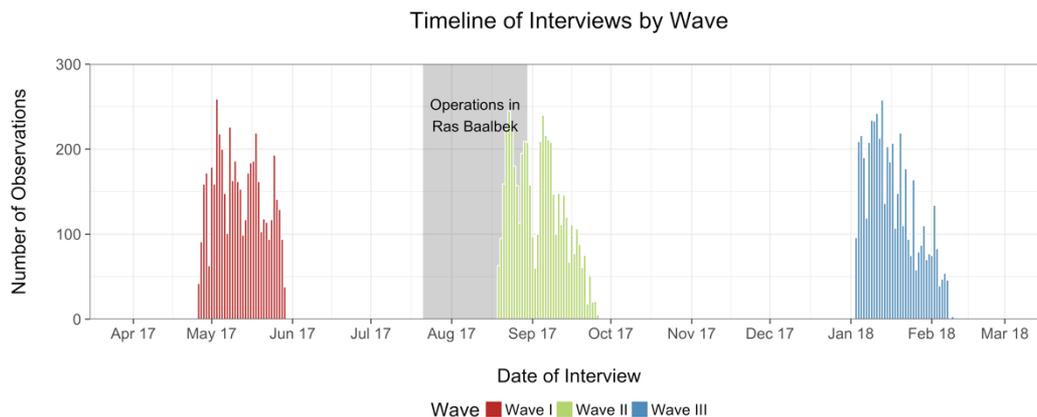
The analysis in this evaluation relies on a number of scalar measures, constructed from multiple items in the survey. Further, the regression models evaluated in Section 7 rely on the inclusion of a fairly large number of variables. While the total fraction of missing data due to non-response was less than 5% of all the data collected, which was well within acceptable thresholds for a public opinion survey, we did not wish to exclude respondents list-wise. That is, in order to maintain the statistical power of the full sample, we did not wish to drop a case from our analysis if only a few measures were missing. For example, a respondent may have refused to answer a question regarded as sensitive, or a respondent may have answered 'Don't know'. For each case where less than 5% of the data was missing, we multiply-imputed missing data with Amelia II.

The imputed data was used in the regression analysis presented in Section 7. However, because item non-response was limited, and in order not to introduce unnecessary additional variance from the imputations, for the calculation of weighted point estimates for the total sample, we did not use the imputed data, instead excluding the categories 'Don't know' and 'Refuse' from the calculation. Where point estimates are given in this report, these are estimates representative of the total adult Lebanese population, where sample weights have been applied to account for the

survey design and known or expected population margins. While Syrians were represented in the survey in proportion to their prevalence in the total population, Syrian refugees have not been included in this analysis, as the focus of this analysis is on the formation of Lebanese attitudes with respect to the Syrian refugee presence in Lebanon and, amongst other outcomes, the Lebanese assessment of the quality of relations between communities. Syrians were excluded from the analysis on the assumption that the formation of Lebanese attitudes and the formation of Syrian attitudes related to the outcomes of interest would differ substantively.

6 Data and Variables

In this analysis, we used three primary sources of data. First, we used the public opinion data collected with over 15,000 interviews over three waves of survey research conducted from 2017-2018. Wave I interviews were conducted in May-June 2017, Wave II interviews in September-October 2017, and Wave III interviews in January-February 2018. LAF operations in the Ras Baalbek area are highlighted on the timeline, noting the such major operations could have had a significant effect on public opinion in the period immediately afterwards. We sought to contextualize this public opinion data further by also considering supplementary data on the level of assistance provided to areas of Lebanon in 2017, proximate exposure to conflict from 2016-2017, and the distribution of the Lebanese population.

Figure 5: Surveys Conducted to Date, April 2017 – February 2018.

6.1 Key Metrics: Outcomes of Interest

While data on a number of indicators and metrics was assessed through the surveys, in this analysis we focus on three specific outcomes of interest, which considered together, represent a fairly wide-ranging vision of ways that Lebanese might have responded, for better or worse, to the Syrian refugee presence in Lebanon.

6.1.1 Refugee Population Pressure on Services (RPP-S)

To assess the potential impacts of the perception of refugee population pressure on Lebanese perceptions of the quality of service provision, we first measured Lebanese satisfaction with eight types of public services (Table 1). For each, respondents were asked to assess their performance on a scale from one to five. We then combined the eight items into an additive scale.¹⁵ The queries of satisfaction with service provision did not explicitly consider the extent to which respondents attributed better or worse service provision to the Syrian refugee presence. Rather, the effect of refugee population pressure on service provision entered into our analysis through

¹⁵ For each scale, the Chronbach's alpha for all items was greater than 0.9, with all items loading on a first principal component with values greater than 0.6 in an unrotated principal component analysis (PCA). Standardisation was done with a Box-Cox transformation after items were added.

a consideration of the relationship between satisfaction with services and the perception of refugee population pressure. In short, we sought to answer the question: to what extent might variation in Lebanese satisfaction or dissatisfaction with the level and quality of service provision be predicted by greater or lesser perceptions of population pressure?

Table 1: Items in Refugee Population Pressure on Services (RPP-S) scale.

How would you rate the quality of each of the following services in your area? Would you say that each is excellent, good, fair, poor or very poor? ¹⁶	
1. Electricity	2. Education
3. Water	4. Health services
5. Sewerage	6. Social services
7. Waste removal	8. Public and recreational space

6.1.2 Quality of Relations (QoR)

Many of the question items in the survey related to Lebanese perceptions of Syrian refugees. We used a Principal Component Analysis (PCA) to identify six strongly-related items that, together, provided a reliable measure of the latent perception of the quality of relations (Table 2). As with the RPP-S scale, we used the sum of responses to form our QoR scale. For each item, respondents were asked to what extent they agreed or disagreed with each, on a five-point Likert-type scale.

Table 2: Items in Quality of Relations Scale

Agreement with statement, or direct assessment of QoR or change in QoR. Some items reverse-coded, so that higher values indicated a more negative assessment.
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¹⁶ Respondents were also asked about 'environmental services' in Waves II and III. However, because it was not asked in Wave I, it was not used in the construction of this scale for this analysis, in order to maximize the available sample size.

1. 'The presence of so many Syrian refugees in Lebanon today is placing too much strain on Lebanon's resources, like water and electricity'.
2. 'Lebanese and Syrians in this community are able to work together to solve problems they have together'.
3. 'The presence of a large number of Syrian refugees in this community has contributed to more incidents of crime and violence'.
4. 'And how would you describe current relations between Lebanese and Syrians who live in this area? Would you say they are positive or negative?'
5. 'And would you say that compared to three years ago (since 2014), relations between Lebanese and Syrians in your area have improved or worsened?'
6. 'Lebanese and Syrians share many values and have compatible lifestyles'.

6.1.3 Propensity to Negative Collective Action (PNCA)

The propensity to negative collective action was a more difficult construct to operationalise, because the construct implied an interaction between two question items: first, the propensity for any form of collective action, and second, an endorsement of negative forms of collective action. For example, one could imagine a respondent with an above-average likelihood of engaging in collective action, but who would support more positive forms of collective action, for example, advocacy. And one could imagine a respondent who might endorse more negative forms of collective action, like supporting restrictions of refugees' freedom of movement or even violent action; however, this respondent might not personally be very likely to engage in such action. Thus, we sought to construct a single measure that contained both, and in the construction of this measure, we used an approach similar to that used by Sampson, et al. in their multi-level studies of crime and collective efficacy. With this approach, we created a multiplicative index, where we used as our outcome measure the *product* of three items hypothesised to be related to

the potential for collective action (**Table 3**: Items in Propensity to Negative Collective Action Scale, items 3-5) and two items hypothesised to be related to support for specifically negative forms of collective action (**Table 3**: Items in Propensity to Negative Collective Action Scale, items 1-2). Thus, respondents who scored higher on *both* the two separate measures would have greatly higher PNCA scores than those who scored high on only one of the two sub-constructs.

Table 3: Items in Propensity to Negative Collective Action Scale

Agreement with statement. Some items reverse-coded, so that higher values indicated greater PNCA.
1. 'When tensions are high, some restrictions on foreigners' movement or curfews can help keep this area safe'.
2. 'Violence is sometimes necessary when your interests are being threatened'.
3. 'People in this area can be trusted'.
4. 'If some of your neighbours got into a fight would someone intervene to resolve it?'
5. 'People around here are willing to help their neighbours'.

For each item in **Table 3**, respondents were asked to what extent they agreed or disagreed with each, on a five-point Likert-type scale.

6.1.4 Dependent Variables

For each of the three key public opinion measures discussed above, we used these as outcome measures in a statistical evaluation of the relationship between the level of assistance, individual and other community-level features and each of the three outcomes. **Table 4** provides a summary of each scale used, including the mean on the scale, its standard deviation, the range and number of items included in the scale. For ease of interpretation, we coded all three scalar outcome measures in the same direction, such that higher scores indicated the prevalence of more

negative outcomes, either for an individual, or in aggregate, for a community.

Table 4: Descriptive Statistics for Outcome Measures

	Services Pressure	Quality of Relations	Propensity to Collective Action
Mean	16.9	9.33	11.2
SD	5.97	2.71	1.9
Range	0-36	0-20	0-20
No. Items	8	6	5

6.2 Supplementary Data

In addition to the public opinion data collected through three waves of survey research, we included three additional forms of supplementary data in our statistical evaluation: data on the provision of assistance, conflict events and the distribution of the population in Lebanon. In contrast to the public opinion data, which was collected from individuals, all three sources of supplementary data were measured at the cadastral-level. Many of the intervention strategies designed to mitigate tensions between Lebanese host communities and Syrian refugees take the *community* as the point of intervention. To better understand the attitudes and behaviours of individuals, we must also consider the relationship between individuals and the communities to which they belong, an approach sometimes referred to as the Person in the Environment (PIE) approach to understanding social systems.

6.2.1 Varieties of Assistance

For data on the level of assistance and the distribution of assistance over cadasters in Lebanon, we used UNDP indicator matrices from 2017. We had data on ten varieties of assistance, and we considered nine of these in

our assessment. The one measure we excluded was Social Stability Support (Figure 6, right). We excluded this one measure, because unlike the other nine measures, the indicator for this item was for spending, whereas indicators for the other items were counts of services provided or persons benefitting. This, coupled with the fact that there had been fewer activities under this indicator than others, we were unable to make reliable comparisons between this measure and other. Nevertheless, two of the other items we did include in our analysis were from within the social stability sector: namely, Conflict Resolution Support and Youth Empowerment.

Figure 6: Distribution of Assistance in Areas of ‘Any Livelihoods Assistance’ (left) and ‘Conflict Resolution Support’ (right) (log).

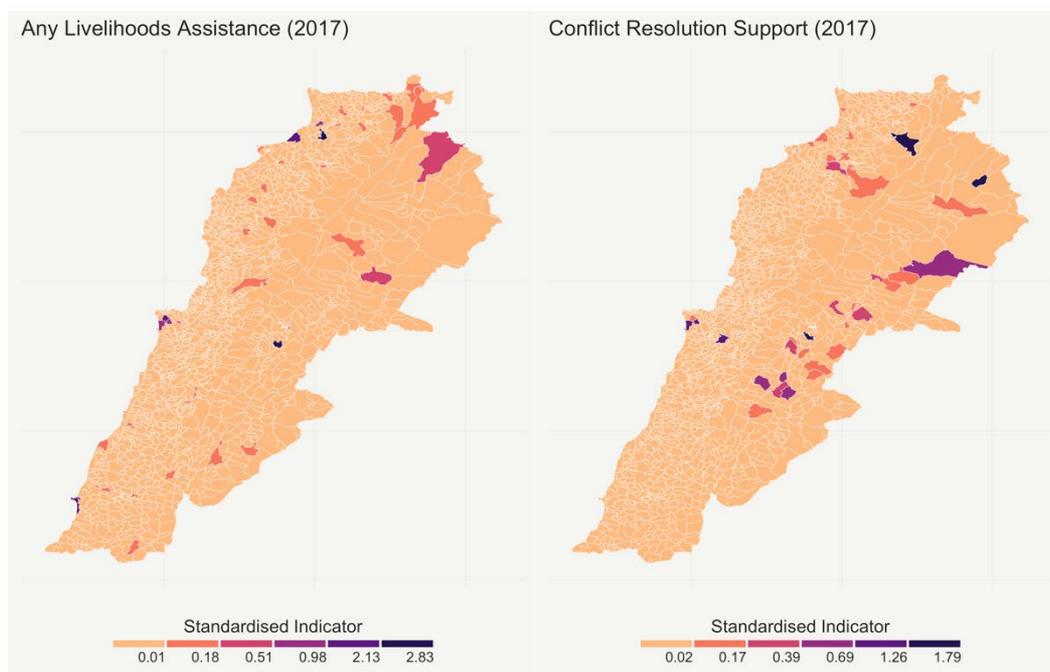


Figure 7: Distribution of Assistance in Areas of 'Child Protection Psychosocial Support' (left) and 'Health Consultations' (right) (log).

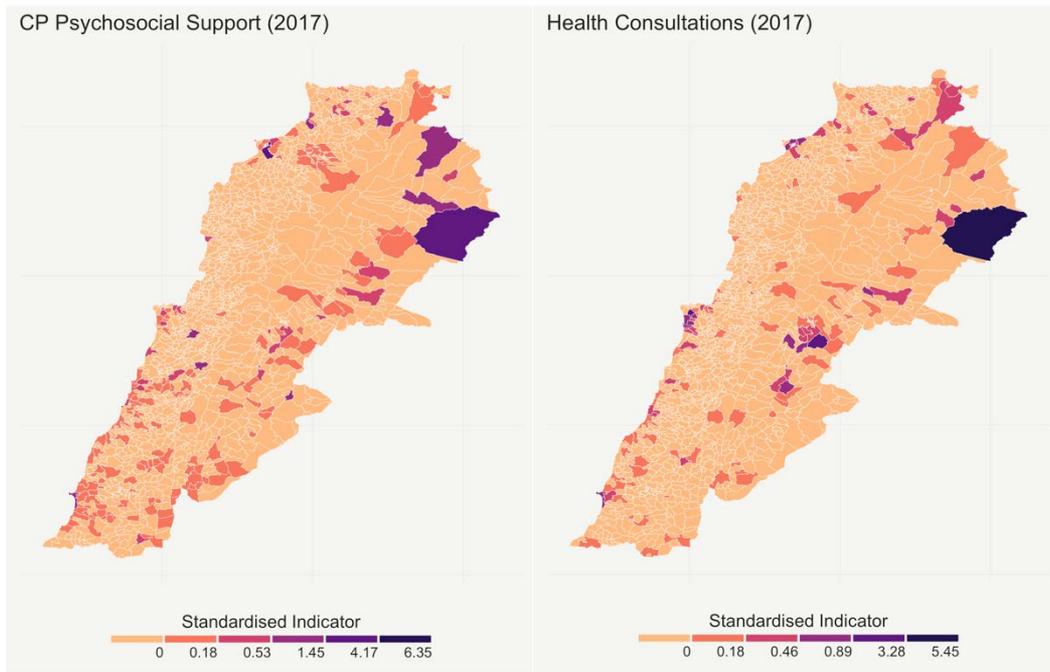


Figure 8: Distribution of Assistance in Areas of 'Improved Access to Clean Water' (left) and 'Job Creation' (right) (log).

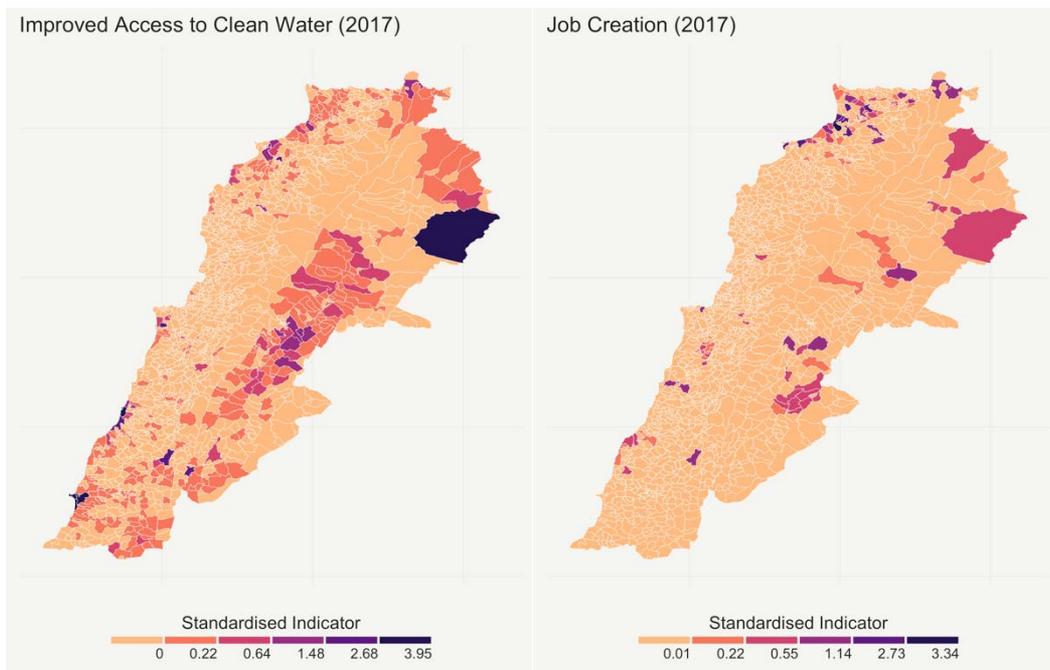


Figure 9: Distribution Assistance in Areas of ‘Shelters Improved’ (left) and ‘Social Stability Support’ (right) (log).

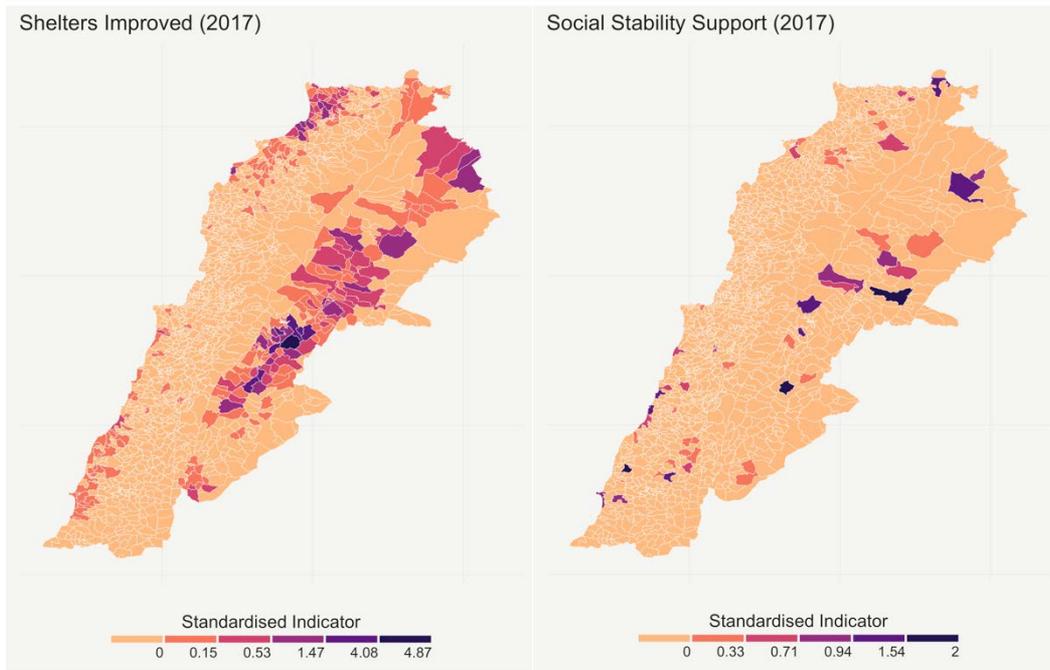
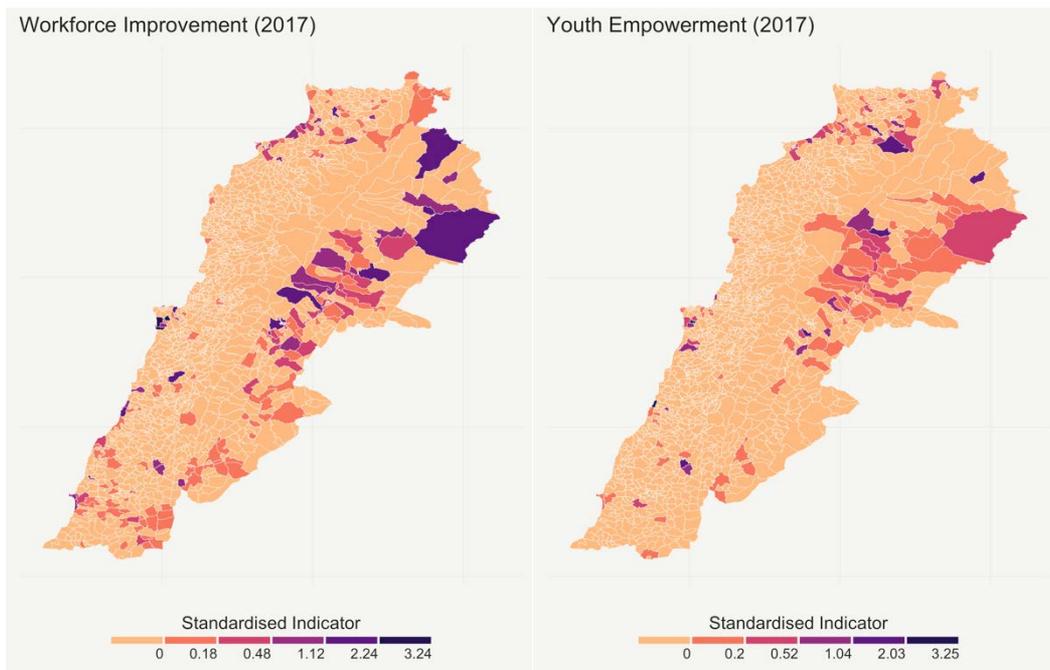


Figure 10: Distribution Assistance in Areas of ‘Workforce Improvement’ (left) and ‘Youth Empowerment’ (right) (log).



For each of these types of assistance, we constructed a standardised measure to facilitate comparisons between types of assistance measured in different units, e.g. health consultations provided vs shelters improved. We constructed this standardised measure by dividing each observation for each indicator by the indicator's standard deviation. Then, to account for the potentially diminishing marginal returns of much higher relative levels of assistance, we used the log of this standardised measure in our evaluation.

6.2.2 Conflict Events

For data on conflict events, we used reports from Lebanon Support's mapping of conflict events. We used a count of all events in each cadaster from 2016-2017.¹⁷ However, we excluded event related to Israel, for example, airspace violations, as these were so numerous that, in any statistical analysis, the contribution of Israeli violations would 'overshadow' data on the distribution of intrastate violence or conflict events.

6.2.3 Population Data and Survey Coverage

For data on the distribution of the population in Lebanon, we used LandScan zonal pixel sums for each cadaster.¹⁸ This data from Oakridge National Laboratories uses satellite imagery and other supplementary data to calculate worldwide estimates of population density in 1 km x 1 km cells.

Not all cadasters were included in the survey; however, most were. Given the LandScan population data, an estimated 83% of the total population (all nationalities) resided in a cadaster that was included in the survey at least once, in at least one of the three waves conducted to date.

¹⁷ For more information on Lebanon Support's event mapping and coding, see <http://civilsociety-centre.org/cap>.

¹⁸ LandScan (2014) High Resolution Global Population Data, <https://landscan.ornl.gov>.

That some of the population resided in unsampled cadasters did not affect the representativeness or generalisability of the point estimates, as cadasters were selected randomly (see Section 5.2). Nevertheless, for some portions of this analysis, we examined relationships across adjacent cadasters. For cadasters with missing public opinion data, this omission might be considered a variety of ‘censoring’. However, as the analysis considered a three-degree lag in adjacency—that is, neighbours-of-neighbours-of-neighbours—cadasters with missing public opinion data were still considered in the analysis, with the assumption that the population characteristics of these cadasters would resemble those of their neighbours. Additionally, because this survey intentionally oversampled cadasters assumed to be more-vulnerable, there were no cadasters receiving any assistance in 2017 that were not included in at least one wave of the survey. Thus, all cadasters receiving aid were included in the multivariate evaluation of the impact of assistance.

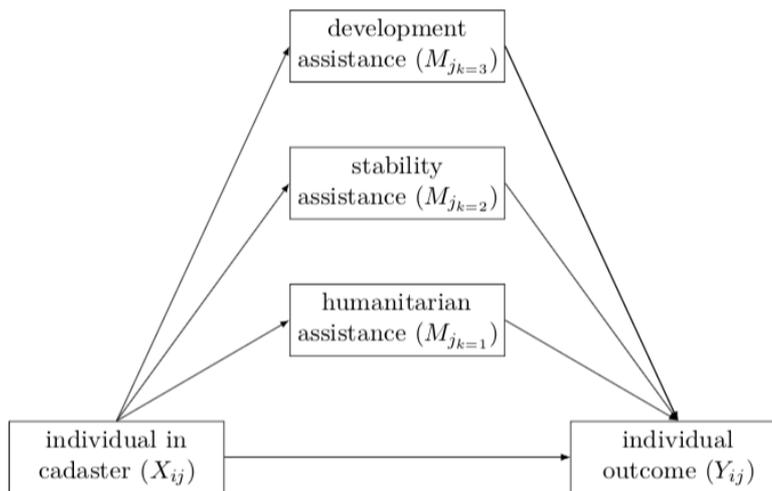
Unpopulated or sparsely populated were least likely to be sampled, for example, mountainous regions, even if the area of these cadasters was larger than more densely populated areas. Second, a larger fraction of cadasters in the area of Bcharre and Batroun were not included in the sample. This because the survey oversampled areas known beforehand to host greater refugee population, and these districts (and cadasters) hosted the smallest number of refugees in the country. This missingness of public opinion data in some cadasters should pose no problem to inference, as such data was wither missing completely at random (MCAR), or the patterns of missingness were consistent with the objectives of the research, and thus controlled for in the model specifications.

7 Evaluating the Impact of Assistance

Figure 8 outlines a hypothetical mediation model of the impact of cadastral-level assistance on individual attitudes and behaviours. Under experimental conditions, a model such as this could easily be assessed for evidence of the impact or effectiveness of assistance in mitigating drivers of Syrian refugee and Lebanese host community tensions, but as is often the case with real-world interventions, this task is more challenging with observational data only. Consider the example outcome of the Lebanese 'perception of refugee population pressure' and the plausible predictor of 'joblessness'. One might reasonably assume that both Lebanese unemployment at the individual-level (x_{ij}) and average Lebanese unemployment within the cadaster (\bar{x}_j) might predict higher levels of both individuals perceptions of refugee population pressure (y_{ij}) and average levels of the perception of refugee population pressure within the cadaster (\bar{y}_j). A job creation intervention would thus be expected to mediate or lessen the strength of this driver of greater perceptions of refugee population pressure.

This impact could be either *direct*, for example, for an individual, by directly obtaining employment due to the intervention, or *indirect*, for example, by alleviating pressure on the local economy. For the purposes of this investigation, we could only assess only the potential indirect effects of intervention, as while we had data on the attitudes and experiences of individuals, we only had assistance data measured at the cadastral-level. Thus, the 'treatment', or potential mediating effects of intervention, could only be assessed at the community-level.

Figure 11: Hypothetical mediation model of the impact of cadastral-level assistance on individual attitudes and behaviours.



We sought to discern whether or not (a) any assistance at the cadastral-level or (b) specific varieties of assistance at the cadastral-level lowered, on average, individual perceptions of each of the three 'more negative' outcomes: (a) greater dissatisfaction with services, (b) more negative perceptions of the quality of relations between Syrian refugees and Lebanese host communities and (c) greater propensity for negative forms of collective action, e.g. violence or restrictions on refugees' freedom of movement. For each of the three relationships between levels of assistance and the outcome of interest, we sought to condition this relationship on other individual-level and cadastral-level features of the population, including residual spatial autocorrelation in the outcome, to 'isolate' an estimate of the impact of assistance nationally and regionally. The (independent) variables on which we conditioned these relationships were also of substantive interest for better understanding the relationship between a range of other attitudes, experiences and demographics and the three outcomes (dependent variables).

7.1 Statistical Notation in the Evaluation

In both our discussion of the theory of the impact of assistance and in the discussion of our empirical analysis, we use some mathematical notation to describe the relationship between variables. For clarity, we provide a brief summary of our notational conventions. In general, we seek to describe the relationship between individual-level and cadastral-level features of the population (independent variables) and their relationship to specific outcomes of interest (dependent variables).

Capital letters denote matrices, while lower case letters denote vectors. Thus, X might include a vector for the variable *male*, where the characteristic of being male or female would be included as one of independent variables in X . Subscripts $i \in I$ and $j \in J$ denote individuals and cadasters, respective. Thus, X_{ij} would refer to all independent variables in an observation for person i in cadaster j . This convention for subscripts is used consistently throughout this report. Likewise, following this convention, the vector y refers to the dependent variable (DV) or outcome of interest—in this analysis, (a) the perception of refugee population pressure, (b) the perception of the quality of relations between Syrian refugees and the Lebanese host community, and (c) the propensity to violence or collective action—where y_i would refer to the measurement of the dependent variable for a single individual. With this notation, an Ordinary Least Squares (OLS) regression model in matrix notation would take the form:

Equation 1: Ordinary Least Squares (OLS) Model Specification

$$y = X\beta + \varepsilon$$

Where β represents the vector of coefficients relating X to y , and ε is an error term capturing variance in y not explained by the variables in X . Latin characters indicate *variables*, whereas Greek letters indicate *parameters*. In

short, variables are measurements, and parameters describe the relationships between variables. The coefficients in β would describe the magnitude of unit-changes in the variables in X on unit-changes in y .

The matrix M denotes a subset of independent variables that could hypothetically mediate the relationship between other variables in X and the dependent variable. For example, greater unemployment (an independent variable) could plausibly increase the perception of refugee population pressure (a dependent variable); however, the provision of livelihoods assistance could mediate this relationship. That is, the provision of this form of assistance could plausibly weaken the relationship between unemployment and the perception of refugee population pressure, and an indication of this would provide evidence of the impact of this particular form of assistance on this particular outcome of interest.

We use the subscript $k \in K$ to index varieties of assistance. For example, M_{jk} , as given in Figure 8 would indicate the level of provision of humanitarian assistance k in cadaster j . Subsequently, in the econometric specification we use to model the public opinion outcomes we have measured through the three waves of surveying, for example, to model a number of spatial relationships, we introduce additional variables and parameters. However, we maintain the same conventions of notation throughout.

7.2 Considerations for Inference

In seeking to evaluate the relationship between greater levels of assistance, other individual and community-level features, and the three outcomes of interest, we identified three specific challenges to inference: the endogeneity of assistance, spatial dependency and proximate exposure to conflict. Each of these merited further considerations for two reasons. First, a failure to account for these challenges could result in biased estimates.

And second, these three considerations also represent important dynamics in the dynamic of Lebanese host-community and Syrian refugee relations. In this section of the report, we briefly discuss each of these potential challenges to inference and our strategy for addressing each.

7.2.1 Endogeneity of Assistance

Greater levels of assistance were strongly correlated with more negative outcomes. However, this was not because *assistance* caused more negative outcomes but rather because assistance was more likely to be provided to communities with already greater dissatisfaction with services, more negative perceptions of the quality of relations or greater propensity to negative collective action. The unconditioned positive relationship between the provision of more assistance and the prevalence of more negative outcomes was thus an indication of the appropriate targeting of assistance – not an example of conflict insensitive intervention. However, our objective was to determine whether or not the provision of aid had a mitigating effect of pre-existing tensions. As summarised in Figure 8, our approach was thus to identify if, conditional on other individual and community-level features, the positive relationship between the provision of assistance and more negative outcomes weakened. This would be evidence of the impact of assistance. The inferential logic is that, if certain features of the population – for example, greater refugee population pressure – predict *both* the provision of assistance (through the targeting of assistance) and a more negative outcome (like a more negative assessment of the quality of relations), then ‘separating out’ the portion of the variance in Lebanese attitudes correlated with the provision of assistance but uncorrelated with the outcome, will produce an unbiased estimated of the effect of assistance or other factors on the outcome.

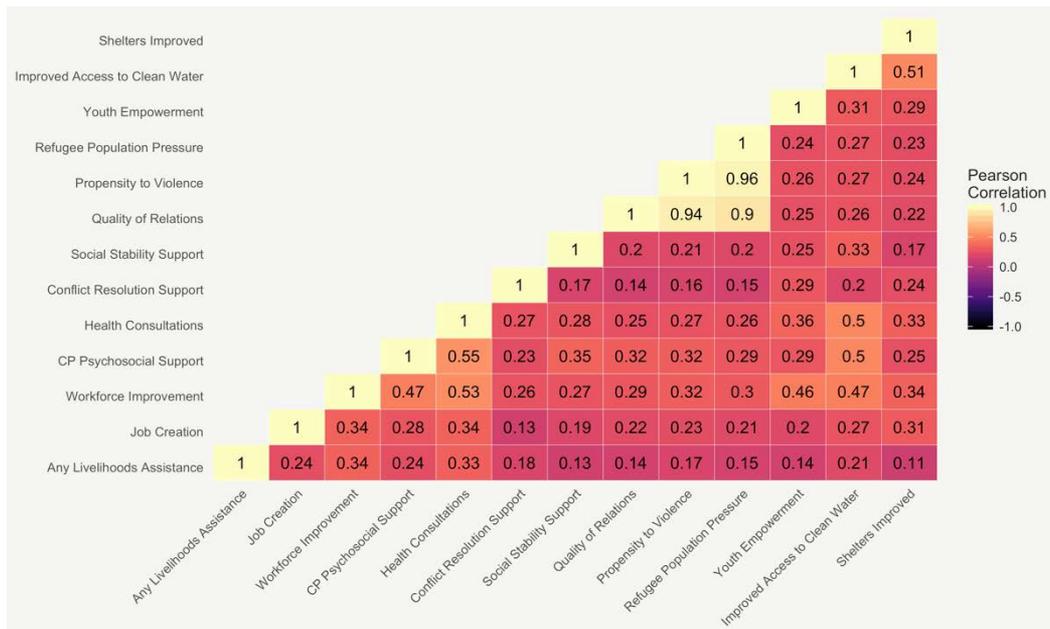
Our approach is similar to the approach used by Berman, Shapiro and Felter in their evaluation of the Commander’s Emergency Response

Program (CERP) spending on the prevalence of violence in Iraq in 2007.¹⁹ Just as, in our study, assistance was more likely to be provided to already-vulnerable areas, in Berman, et al.'s study, the CERP funding was more likely to have been allocated to areas of Iraq where there was a greater likelihood of violent conflict, resulting in 'a standard omitted variable bias issue in evaluating treatment effects'. And as such, our hypothesis on the provision of assistance can be formulated in nearly an identical fashion: *conditional on local characteristics, the provision of assistance reduced (H1) dissatisfaction with services, (H2) more negative assessment of the quality of relations and (H3) the propensity for negative collective actions*. That is, by conditioning on variables that would determine both 'selection into' assistance and the three outcomes of interest, we can (at least partially) control the endogeneity of assistance in our evaluation.

Indeed, the bias is in the opposite of the expected direction of impact, that is, the positive correlation between greater assistance and more negative public opinion outcomes. In terms of hypothesis testing, this means that, after conditioning on local characteristics, attenuation in positive relationships between would provide some weak evidence of the (positive) impact of assistance. However, statistically significant negative relationship would provide even stronger evidence of the (positive) impact of assistance.

¹⁹ Berman, E., Shapiro, J.N. and Felter, J.H., 2011. Can hearts and minds be bought? The economics of counterinsurgency in Iraq. *Journal of Political Economy*, 119(4), pp.766-819.

Figure 12: Bivariate Correlations



7.2.2 Spatial Dependency

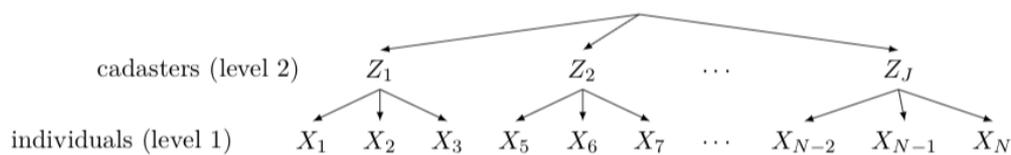
While Syrian refugees in Lebanon do not live in camps, as many do in nearby Turkey and Jordan, refugees in the country nevertheless tend to live in close proximity to one another, with the majority of Syrian refugees concentrated in specific locales, many of which also include ‘informal settlements’ that in many ways do resemble small, unofficial camps. Thus, we would expect for refugee population pressure to be geographically concentrated, and this could plausibly also have regional effects. We considered the spatial structure of the data for two primary reasons. First, we sought to control for spatial autocorrelation in the data, that is, that there could be stronger effects in areas with a higher concentration of refugees and also that there could be a ‘spillover’ of refugee population pressure into nearby areas. Similarly, for assistance, while this tended to be targeted at specific municipalities or locations, there could also be ‘spillover’ effects of aid or assistance. Assistance in nearby areas could also have an effect on individual or aggregate opinion, or in the same manner,

disparities in the level of aid in proximate areas might leader to greater perceptions of the ‘unfairness’ or assistance.

The second reason for considering the spatial structure of the survey and supplementary data explicitly in this analysis was motivated by the objective to better understand the formation of community-level attitudes. By modelling the nested (hierarchical) spatial structure of the data (**Figure 10**), we could consider both the correlation in attitudes between proximate or neighbouring individual *and* the correlation in attitudes between proximate or neighbouring cadasters.

With these assumptions about the regional effects of refugee population pressure and the drivers of Lebanese host-community and Syrian refugee tensions, in this analysis, we sought to understand both the *direct effects* of factors, which would be attributable to variation in individual attitudes, and the *indirect effects*, which would be attributable to ‘spillover’ mechanisms, or variation within and between cadasters.

Figure 13: Observations in a two-level hierarchy for individuals (X) in cadasters (Z), with higher-level districts (level-3) and governorates (level-4) not shown. N indicates the total sample size for observations $n \in N$.



7.2.3 Proximate Exposure to Conflict

Whether or not individuals were directly exposed to conflict or directly victimised, both of which were assessed for individuals and families in the survey, conflict in the area may also affect individuals’ assessment of the quality of relations between Lebanese host-community and Syrian refugees, or the other two outcomes considered in this assessment. Proximity to conflict, especially if such conflict included Syrian refugees as one party to that conflict, might heighten perceptions of the ‘threat’ of the

Syrian presence, for example, or such a perceived threaten might strengthen support for violent or other negative forms of collective actions, for example, restrictions on Syrian refugees' freedom of movement. Yet, in considering the relationship between a level of assistance and the three outcomes considered in this study, proximate conflict might obscure this relationship.

Previous reporting for Wave I and Wave II of the survey documented the ways in which localised conflict events have, in the past, had a strong but temporary effect on public opinion. Proximate conflict might be considered both endogenous and exogenous in the relationships we consider in this analysis. On the one hand, greater assistance, especially social stability assistance, might be allocated to areas with a greater history of conflict. On the other hand, conflict events are exogenous or 'external' to the relationships we consider in that, for example, we do not assume that the provision of assistance would *cause* conflict, yet exposure to proximate conflict might dampen or mitigate positive perceptions of the impact of assistance, at least in the short-term. Theories of change with the provision of assistance generally envision change in public opinion only in the medium-to-long term, whereas conflict events tend to occur unexpectedly. Conflict events might best be expected to exert short-term 'shocks' on the process of otherwise long-term attitudinal formation or change.

To help control for these potential shocks, and to consider the impact of conflict events on attitudinal formation and change, we included in our analysis geo-coded data on conflict events, with data from Lebanon Support and as documented in Section 6.2.2. Thus, we were able to examine the relationship between our three outcomes of interest, the level of assistance and other individual and community-level covariates *conditioned on* proximate exposure to conflict events. Thus, we were able to at least partially control for the independent effects of proximate exposure

to conflict at the cadastral-level and also, as discussed in Section 7.2.2, regionally, by considering the potential for spatial dependency in the distribution of conflict events throughout Lebanon, from 2016-2017.

7.3 Econometric Specification

Our primary approach to the evaluation is in our econometric specification, which is simply a mathematical representation of how we envision the relationship between individual and community-level features and the three primary outcomes of interest. The specification we provide in this section accounts for the different challenges or consideration for inference discussed in the previous section (Section 7.2), namely: the endogeneity of assistance, spatial dependency and proximate exposure to conflict.²⁰

Expanding the specification for the simple linear regression model given in Equation 1 to account for the nested structure of the data (as shown in Figure 10), and to account for spatial patterns in the data (as discussed in Section 7.2.2), we sought to estimate a Hierarchical Spatial Autoregressive (HSAR) model, with the functional form:

Equation 2: Hierarchical Spatial Autoregressive (HSAR) Model Specification

$$y = \rho W y + X \beta + Z \gamma + \Delta \theta + \varepsilon$$

$$\theta_j = \lambda L_j \theta + \mu_j$$

$$\varepsilon_{ij} \sim N(0, \sigma_\varepsilon^2); \mu_j \sim N(0, \sigma_\mu^2)$$

The expanded model includes additional terms for a spatially lagged dependent variable ($\rho W y$), where ρ is a parameter describing the spatial autocorrelation in y , given a matrix of spatial weights for individual-level observations (W). For W , we used a matrix or row-normed k -nearest neighbour distance weights for the 72 nearest neighbours for each

²⁰ Dong, Guanpeng, and Richard Harris. 'Spatial autoregressive models for geographically hierarchical data structures'. *Geographical Analysis* 47, no. 2 (2015).

observation.²¹ The expanded model also separates out individual-level covariates in X (level-1) from cadastral-level covariates in Z (level-2), where γ is a parameter relating Z to y in the same way that β relates X to y . The matrix Δ is a random effects design matrix, describing how individuals are nested within cadasters, and θ is a parameter relating this structure to y .

The second line of Equation 2 specifies the spatially-dependent random effects in the model, where the cadastral random effect (θ_j) is estimated as a function of the total random effect (θ) and a matrix of cadastral-level spatial weights (L). For L , we used a matrix of row-normed queen adjacency weights with a three-level lag, that is, for each cadaster, a weight for neighbours-of-neighbours-of-neighbours with a decreasing weight for each lag, where adjacency is defined by sharing a common border point. The parameter λ is the cadastral-level equivalent to ρ , describing the spatial autocorrelation in \bar{y}_j over cadasters.

In short, our econometric specification allowed the relationship between both level-1 variables (individuals) and level-2 variables (cadasters) to vary regionally.²² This helped to partially control for regional dependency in the endogenous 'distribution' of both Syrian refugees and assistance in Lebanon, as discussed in Section 7.2.1. For each of the three outcomes, we estimated the model in Equation 2 with Bayesian Markov Chain Monte Carlo (MCMC) methods via the 'HSAR' package for R.²³ For

²¹ The number 72 was chosen upon examination of the variograms for each y . This was the equivalent of 12 clusters of 6 interviews and was large enough to account for the 'spillover' across cadastral boundaries.

²² Prior to estimation, for each dependent variable, we applied a Box-Cox transformation, on account of some observed violations of normality assumptions in the distribution of residuals. A back-transformation was applied for the reporting and discussion of results.

²³ Spatially or temporally autoregressive models cannot be estimated with OLS. For more on the efficiency of MCMC methods over Maximum Likelihood Estimation (MLE) methods for the estimation of spatial econometric models with complex variance-covariance structure like the model given in Equation 2.

reference, we also estimated OLS models with the same variables, results from which may be found in Appendix A.

8 Concluding Remarks

In the Regular Perception Surveys on Social Tensions throughout Lebanon project, our first narrative report validated most of the assumption underlying the structural, proximate and evolving drivers of conflict. In the second report, we examined changes in public opinion related to these drivers over time and over districts. In this third narrative report, with data now from over 15,000 Lebanese and Syrians, we believe the most important results from this analysis are convincing evidence of the cumulative impact of assistance on multiple indicators. Our results suggest that assistance has not only directly alleviated suffering for many of the most vulnerable Lebanese and Syrian households in the country but also that the provision of assistance, cumulatively, has effectively reduced tensions between Lebanese host communities and Syrian refugees throughout much of the country. In this final section of the report, we discuss a number of implications for programme arising from our analysis and conclude with a brief summary of limitations and avenues for future research.

8.1 Limitations

The analysis in this report focused on drivers of Lebanese perceptions. Though we collected data from Syrian respondents, this data was not used in the analysis. It is possible that Syrian attitudes or experiences might have also had an effect on Lebanese perceptions. And the attitudes and experiences of Syrian refugees are, of course, also important to understand. Previous reporting from Wave I and Wave II of this survey project provided critical statistics on the situation and status of Syrian refugees, and within the wider research on relations between Lebanese host

communities and Syrian refugees, the VASYR survey assessments have also provided valuable information on the dimensions of Syrian vulnerability. Subsequent analysis and reporting for the Regular Perception Surveys on Social Tensions throughout Lebanon project, with the results from Wave IV of the project, will also endeavour to better stand the interactions between Lebanese and Syrians attitudes and experiences.

Though we hypothesized that proximate exposure to conflict, which we operationalized through a count of conflict events in an area, would be associated with each of the three outcomes we considered, we found little evidence of this. As discussed in the final section of this report, Avenues for Future Research, there were likely ways that we could have better included or operationalized this data on conflict events. Specifically, not disaggregating conflict events by type or actor was probably a limitation, though doing so would also have posed some additional challenges to identifying our models.

For data on the level of assistance, we used UNDP indicator frameworks, which included data from more than fifty partner organisations. But we also know that assistance has been provided by other organisations—including small local organisations and large donor agencies like the United States Agency for International Development (USAID)—that was not represented in our data on the level of assistance in regions. This likely introduced a degree of measurement error in our assessment. To the extent that additional assistance has been distributed approximately in proportion to the data we had access to, with for example, USAID targeting the sample more vulnerable geographies, we would expect this to have had a minimal impact on our assessment. However, to the extent that other development assistance for both Lebanese and Syrian communities might have been targeted with different geographic priorities, then our regression coefficients most likely would

have been attenuated; that is, we most likely would have *underestimated* the positive effects of assistance.

Our approach to the evaluation of assistance relied on *conditioning* the relationship between the level of assistance and the prevalence of more negative outcomes on other local factors. It is also unlikely that we considered *all* factors predicting both the level of assistance and the prevalence of each outcome. To the extent that there were omitted variables, this also would have attenuated our coefficient estimates.

For most of the possible statistical limitations of the research, like measurement error or omitted variable bias, this most likely would have led us to underestimate the effects of assistance. Thus, our estimates of the impact of assistance might be considered ‘conservative’, that is, they were likely larger than we reported but *not* likely smaller.

As with most observational research, there are limits to which we can interpret any effects as *causal*. With the approach we used, combining mediation analysis with a multi-level modelling approach, we were able to overcome a number of these limitations, but we were not able to meet all the assumptions of causal inference. Most notably, we were only able to partially control for the endogeneity of assistance, which was perhaps the greatest challenge to inference in this analysis. Though we consider this unlikely, statistically, we cannot completely rule out the possibility that, in some instances, the positive relationship between assistance and negative outcomes might actually have been attributable to the provision of assistance exacerbating pre-existing conflict dynamics. This possibility is, of course, the rationale for the importance of conflict sensitive programming in environment such as this, and we found no specific evidence suggesting conflict insensitive programming. Nevertheless, there are likely alternative explanations for some of our results, which we may have failed to consider.

Lastly, in this analysis, we sought to consider simultaneously individual attitude and community attitude formation. We did so both with a multi-level modelling approach and by considering spatial autocorrelation in variables.

8.2 Avenues for Future Research

While we included a count of all conflict events in a cadaster in our assessment (excluding Israeli violations of Lebanon's airspace), we did not consider specific conflict types or actors. Further analysis might look at the interaction between the three outcomes we examined, the provision of assistance and additional data available on conflict events from Lebanon Support's database. It is likely that, for example, conflict events with Syrian actors as one party, or conflict events related to LAF operations, would have a greater effect on the relationships we considered than other lower-level varieties of conflict. We included data on over one thousand conflict events from 2016-2017, but it is likely that the fewer, more-severe incidents of conflict in the database would have had the greater impact.

In considering the relationship between RPP-S, QoR, PNCA and levels of assistance, we considered the provision of multiple types of assistance in an area to have an additive total effect. That is, we examined the relationship between each dependent variable and each type of assistance as independent factors. It may be that the cumulative effect of assistance has a stronger 'multiplicative' effect. That is, each type of assistance might not only contribute to more positive perceptions or outcome, but it may be the case that specific combinations have an effect greater than their sum. And indeed, such an assumption about the cumulative effects of aid is documented in the Lebanon Crisis Response Plan. However, assessing this would require a different approach to modelling the relationship. Even with the large sample size available for this analysis, a multi-way interaction between assistance types on the right-hand side of

our econometric specification would have produced a weakly identified model, on account of the addition of an exponential number of additional terms.

Appendix A: Regression Output

Table 5: Marginal Direct and Indirect Effects from HSAR Model for Refugee Population Pressure on Services (RPP-S). Reference categories in parentheses.

Model Term	Direct	Indirect	Total
(Intercept)	8.448	2.458	10.906
Count of victimisation	0.157	0.046	0.203
Less frequent of interaction	-0.034	-0.010	-0.044
Perception of safety	-0.357	-0.104	-0.461
Lesser trust in institutions	0.172	0.050	0.222
Lesser levels of prejudice	-0.047	-0.014	-0.060
Strain on services (Strongly disagree)			
Disagree	0.192	0.056	0.248
Agree	0.199	0.058	0.256
Strongly agree	0.396	0.115	0.511
Capability in service provision	0.131	0.038	0.169
Greater perception of fairness in assistance	-0.278	-0.081	-0.359
Know someone lost job to Syrian	0.432	0.126	0.558
Memories of occupation (Strongly agree)			
Agree	-0.174	-0.051	-0.224
Neutral	0.207	0.060	0.268
Disagree	-0.235	-0.069	-0.304
Strongly disagree	0.956	0.278	1.234
No. adults	0.044	0.013	0.056
No. minors	-0.009	-0.003	-0.011
Confessional group (Sunni)			
Shia	0.109	0.032	0.141
Druze	-1.147	-0.334	-1.481
Christian	-0.549	-0.160	-0.709
Multi-dimensional vulnerability	0.008	0.002	0.011
Gender (male)	0.027	0.008	0.035
Age	-0.003	-0.001	-0.004
Education (Less than high school)			
High school	-0.153	-0.045	-0.197
University or above	-0.108	-0.031	-0.140

Model Term	Direct	Indirect	Total
Household income (Less than 500,000 LL)			
500,000--1,000,000 LL	-0.556	-0.162	-0.718
1,000,000--2,000,000 LL	-0.693	-0.202	-0.895
2,000,000--3,000,000 LL	-0.530	-0.154	-0.684
3,000,000--4,500,000 LL	-0.946	-0.275	-1.221
4,500,000--6,000,000 LL	-1.286	-0.374	-1.661
6,000,000+ LL	-1.200	-0.349	-1.550
Wave (Wave I)			
Wave II	0.584	0.170	0.754
Wave III	-0.251	-0.073	-0.324
Count of conflict events in cadaster	0.000	0.000	0.000
Cadaster population (log)	-0.358	-0.104	-0.463
Per cent population Syrian	-1.089	-0.317	-1.406
Per cent population Christian	-1.170	-0.340	-1.510
Cadastral area (log)	0.417	0.121	0.539
Any assistance to cadaster in 2017	0.054	0.016	0.070
Any livelihoods assistance (log)	-0.118	-0.034	-0.152
Conflict resolution support (log)	-0.113	-0.033	-0.146
CP psychosocial support (log)	0.024	0.007	0.031
Health consultations (log)	0.015	0.004	0.019
Improved access to clean water (log)	0.047	0.014	0.061
Job creation (log)	0.005	0.001	0.007
Shelters improved (log)	-0.075	-0.022	-0.097
Workforce improvement (log)	-0.027	-0.008	-0.035
Youth empowerment (log)	0.049	0.014	0.063

Table 6: Marginal Direct and Indirect Effects from OLS Model for Quality of Relations (QoR). Reference categories in parentheses.

Model Term	Direct	Indirect	Total
(Intercept)	6.384	2.301	8.685
Count of victimisation	0.102	0.037	0.139
Less frequent of interaction	0.013	0.005	0.018
Perception of safety	-0.129	-0.046	-0.175
Propensity to collective action	-0.034	-0.012	-0.046
Lesser trust in institutions	0.037	0.013	0.050
Greater levels of prejudice	-0.132	-0.047	-0.179
Greater dissatisfaction with services	0.023	0.008	0.031
Capability in service provision	0.055	0.020	0.075
Lesser perception of fairness in assistance	-0.161	-0.058	-0.219
Know someone lost job to Syrian	0.224	0.081	0.305
Memories of occupation (Strongly agree)			
Agree	-0.320	-0.115	-0.435
Neutral	-0.479	-0.173	-0.651
Disagree	-0.476	-0.172	-0.648
Strongly disagree	-0.446	-0.161	-0.606
No. adults	0.000	0.000	-0.001
No. minors	-0.012	-0.004	-0.016
Confessional group (Sunni)			
Shia	0.003	0.001	0.003
Druze	0.351	0.126	0.477
Christian	0.216	0.078	0.294
Multi-dimensional vulnerability	-0.006	-0.002	-0.008
Gender (male)	0.088	0.032	0.119
Age	-0.005	-0.002	-0.007
Education (Less than high school)			
High school	-0.064	-0.023	-0.087
University or above	-0.030	-0.011	-0.040
Household income (Less than 500,000 LL)			
500,000--1,000,000 LL	0.081	0.029	0.111
1,000,000--2,000,000 LL	-0.020	-0.007	-0.027

Model Term	Direct	Indirect	Total
2,000,000--3,000,000 LL	0.036	0.013	0.049
3,000,000--4,500,000 LL	0.085	0.031	0.116
4,500,000--6,000,000 LL	0.070	0.025	0.095
6,000,000+ LL	0.169	0.061	0.230
Wave (Wave I)			
Wave II	0.040	0.014	0.054
Wave III	-0.197	-0.071	-0.268
Count of conflict events in cadaster	-0.001	0.000	-0.001
Cadaster population (log)	0.036	0.013	0.049
Per cent population Syrian	0.431	0.156	0.587
Per cent population Christian	0.388	0.140	0.528
Cadastral area (log)	0.032	0.012	0.044
Any assistance to cadaster in 2017	-0.177	-0.064	-0.240
Any livelihoods assistance (log)	0.010	0.004	0.014
Conflict resolution support (log)	-0.004	-0.001	-0.005
CP psychosocial support (log)	-0.004	-0.001	-0.005
Health consultations (log)	0.022	0.008	0.030
Improved access to clean water (log)	0.002	0.001	0.003
Job creation (log)	0.004	0.001	0.005
Shelters improved (log)	0.009	0.003	0.012
Workforce improvement (log)	-0.029	-0.011	-0.040
Youth empowerment (log)	-0.006	-0.002	-0.008
Rho			0.266
Lambda			0.134
Deviance information criterion (DIC)			39809.520
Log likelihood			-19329.880
Pseudo R-squared			0.494

Table 7: Marginal Direct and Indirect Effects from HSAR Model for Propensity to Negative Collective Action (PNCA). Reference categories in parentheses.

Model Term	Direct	Indirect	Total
(Intercept)	28.672	9.665	38.338
Count of victimisation	0.654	0.221	0.875
Less frequent of interaction	-0.046	-0.016	-0.062
Perception of safety	-0.376	-0.127	-0.503
Negative assessment of relations	-0.085	-0.029	-0.114
Lesser trust in institutions	0.141	0.047	0.188
Lesser levels of prejudice	-0.196	-0.066	-0.262
Dissatisfaction with services	-0.023	-0.008	-0.031
Strain on services (Strongly disagree)			
Disagree	-1.674	-0.564	-2.238
Agree	0.404	0.136	0.540
Strongly agree	0.374	0.126	0.500
Capability in service provision	0.176	0.059	0.236
Greater perception of fairness in assistance	-0.030	-0.010	-0.040
Know someone lost job to Syrian	0.326	0.110	0.436
Memories of occupation (Strongly agree)			
Agree	0.657	0.221	0.878
Neutral	-0.443	-0.149	-0.592
Disagree	0.104	0.035	0.139
Strongly disagree	0.507	0.171	0.678
No. adults	-0.084	-0.028	-0.112
No. minors	0.070	0.024	0.094
Confessional group (Sunni)			
Shia	0.831	0.280	1.111
Druze	0.849	0.286	1.136
Christian	0.359	0.121	0.480
Multi-dimensional vulnerability	0.019	0.006	0.025
Gender (male)	-0.039	-0.013	-0.052
Age	0.000	0.000	-0.001
Education attainment (Less than high school)			
High school	0.133	0.045	0.178

Model Term	Direct	Indirect	Total
University or above	-0.034	-0.011	-0.045
Household income (Less than 500,000 LL)			
500,000--1,000,000 LL	0.031	0.011	0.042
1,000,000--2,000,000 LL	0.002	0.001	0.002
2,000,000--3,000,000 LL	-0.121	-0.041	-0.161
3,000,000--4,500,000 LL	-0.497	-0.168	-0.665
4,500,000--6,000,000 LL	-0.196	-0.066	-0.263
6,000,000+ LL	-0.681	-0.230	-0.911
Wave (Wave I)			
Wave II	-0.033	-0.011	-0.044
Wave III	0.303	0.102	0.405
Count of conflict events in cadaster	0.000	0.000	0.000
Cadaster population (log)	0.108	0.036	0.145
Per cent population Syrian	2.062	0.695	2.758
Per cent population Christian	0.067	0.023	0.090
Cadastral area (log)	-0.148	-0.050	-0.198
Any assistance to cadaster in 2017	0.083	0.028	0.111
Any livelihoods assistance (log)	0.011	0.004	0.015
Conflict resolution support (log)	-0.203	-0.068	-0.271
CP psychosocial support (log)	0.079	0.027	0.105
Health consultations (log)	-0.055	-0.018	-0.073
Improved access to clean water (log)	-0.039	-0.013	-0.053
Job creation (log)	0.078	0.026	0.105
Shelters improved (log)	-0.026	-0.009	-0.034
Workforce improvement (log)	-0.034	-0.012	-0.046
Youth empowerment (log)	0.091	0.031	0.121
Rho			0.253
Lambda			0.004
Deviance information criterion (DIC)			120442.400
Log likelihood			-60202.710
Pseudo R-squared			0.064

Table 8: Coefficient Estimates for OLS Model for Refugee Population Pressure on Services (RPP-S). Reference categories in parentheses.

Model Term	Est.	SE	t-value	Pr(> t)	Sig.
(Intercept)	14.215	0.693	20.498	0.000	***
Count of victimisation	0.090	0.053	1.692	0.091	.
Less frequent of interaction	-0.072	0.005	-13.715	0.000	***
Perception of safety	-0.472	0.035	-13.457	0.000	***
Lesser trust in institutions	0.199	0.011	17.431	0.000	***
Lesser levels of prejudice	-0.054	0.010	-5.564	0.000	***
Strain on services (Strongly disagree)					
Disagree	0.465	0.296	1.571	0.116	
Agree	0.356	0.261	1.365	0.172	
Strongly agree	0.455	0.263	1.729	0.084	.
Capability in service provision	0.088	0.020	4.421	0.000	***
Greater perception of fairness in assistance	-0.328	0.022	-14.742	0.000	***
Know someone lost job to Syrian	0.462	0.068	6.828	0.000	***
Memories of occupation (Strongly agree)	-0.086	0.086	-1.006	0.314	
Agree					
Neutral	0.426	0.117	3.632	0.000	***
Disagree	-0.490	0.121	-4.064	0.000	***
Strongly disagree	1.663	0.216	7.704	0.000	***
No. adults	0.009	0.027	0.351	0.725	
No. minors	-0.029	0.028	-1.040	0.298	
Confessional group (Sunni)					
Shia	1.291	0.092	14.006	0.000	***
Druze	-0.909	0.149	-6.083	0.000	***
Christian	-0.042	0.139	-0.300	0.764	
Multi-dimensional vulnerability	-0.010	0.005	-1.909	0.056	.
Gender (male)	-0.083	0.064	-1.297	0.195	
Age	-0.006	0.003	-2.131	0.033	*
Education (Less than high school)					
High school	0.017	0.099	0.177	0.860	
University or above	-0.032	0.085	-0.380	0.704	

Model Term	Est.	SE	t-value	Pr(> t)	Sig.
Household income (Less than 500,000 LL)	-0.717	0.175	-4.100	0.000	***
500,000--1,000,000 LL					
1,000,000--2,000,000 LL	-0.985	0.168	-5.878	0.000	***
2,000,000--3,000,000 LL	-0.742	0.174	-4.278	0.000	***
3,000,000--4,500,000 LL	-1.435	0.188	-7.623	0.000	***
4,500,000--6,000,000 LL	-1.675	0.218	-7.684	0.000	***
6,000,000+ LL	-1.575	0.270	-5.836	0.000	***
Wave (Wave I)					
Wave II	0.454	0.080	5.668	0.000	***
Wave III	-0.482	0.083	-5.827	0.000	***
Count of conflict events in cadaster	0.001	0.001	1.804	0.071	.
Cadaster population (log)	-0.487	0.031	-15.725	0.000	***
Per cent population Syrian	-1.246	0.331	-3.760	0.000	***
Per cent population Christian	-1.490	0.174	-8.538	0.000	***
Cadastral area (log)	0.401	0.030	13.162	0.000	***
Any assistance to cadaster in 2017	-0.154	0.094	-1.625	0.104	
Any livelihoods assistance (log)	0.047	0.031	1.516	0.129	
Conflict resolution support (log)	-0.122	0.029	-4.200	0.000	***
CP psychosocial support (log)	0.073	0.019	3.880	0.000	***
Health consultations (log)	0.036	0.011	3.395	0.001	***
Improved access to clean water (log)	0.105	0.011	9.835	0.000	***
Job creation (log)	0.176	0.025	7.127	0.000	***
Shelters improved (log)	-0.101	0.015	-6.615	0.000	***
Workforce improvement (log)	-0.100	0.018	-5.723	0.000	***
Youth empowerment (log)	0.075	0.017	4.312	0.000	***

Table 9: Coefficient Estimates for OLS Model for Refugee Population Pressure on Services (RPP-S). Reference categories in parentheses.

Model Term	Estimate	SE	t-value	Pr(> t)	Sig.
(Intercept)	12.745	0.477	26.714	0.000	***
Count of victimisation	-0.264	0.035	-7.434	0.000	***

Model Term	Estimate	SE	t-value	Pr(> t)	Sig.
Less frequent of interaction	-0.054	0.004	-15.429	0.000	***
Perception of safety	0.177	0.024	7.492	0.000	***
Propensity to collective action	0.055	0.011	4.871	0.000	***
Lesser trust in institutions	-0.110	0.008	-14.222	0.000	***
Greater levels of prejudice	0.139	0.007	21.329	0.000	***
Greater dissatisfaction with services	-0.026	0.004	-6.336	0.000	***
Capability in service provision	-0.116	0.013	-8.651	0.000	***
Lesser perception of fairness in assistance	0.291	0.015	19.284	0.000	***
Know someone lost job to Syrian	-0.419	0.045	-9.232	0.000	***
Memories of occupation (Strongly agree)	-0.634	0.198	-3.192	0.001	**
Agree	0.379	0.058	6.569	0.000	***
Neutral	0.554	0.079	7.029	0.000	***
Disagree	0.610	0.081	7.535	0.000	***
Strongly disagree	0.782	0.145	5.384	0.000	***
No. adults	-0.067	0.018	-3.713	0.000	***
No. minors	0.017	0.019	0.900	0.368	
Confessional group (Sunni)					
Shia	-0.487	0.062	-7.828	0.000	***
Druze	-1.379	0.100	-13.741	0.000	***
Christian	-0.674	0.093	-7.257	0.000	***
Multi-dimensional vulnerability	0.057	0.004	15.855	0.000	***
Gender (male)	-0.175	0.043	-4.060	0.000	***
Age	0.008	0.002	4.230	0.000	***
Education (Less than high school)					**
High school	0.206	0.066	3.111	0.002	***
University or above	0.195	0.057	3.402	0.001	
Household income (Less than 500,000 LL)					
500,000--1,000,000 LL	0.182	0.117	1.546	0.122	
1,000,000--2,000,000 LL	0.154	0.113	1.369	0.171	
2,000,000--3,000,000 LL	-0.030	0.117	-0.259	0.795	
3,000,000--4,500,000 LL	-0.130	0.127	-1.024	0.306	*
4,500,000--6,000,000 LL	0.302	0.147	2.057	0.040	
6,000,000+ LL	-0.184	0.181	-1.015	0.310	**

Model Term	Estimate	SE	t-value	Pr(> t)	Sig.
Wave (Wave I)					
Wave II	-0.153	0.054	-2.844	0.004	***
Wave III	0.415	0.055	7.490	0.000	***
Count of conflict events in cadaster	0.002	0.000	5.608	0.000	*
Cadaster population (log)	-0.050	0.021	-2.390	0.017	
Per cent population Syrian	0.359	0.222	1.613	0.107	***
Per cent population Christian	-0.943	0.117	-8.028	0.000	***
Cadastral area (log)	-0.081	0.021	-3.913	0.000	***
Any assistance to cadaster in 2017	0.241	0.063	3.804	0.000	*
Any livelihoods assistance (log)	-0.045	0.021	-2.127	0.033	*
Conflict resolution support (log)	-0.044	0.020	-2.268	0.023	***
CP psychosocial support (log)	0.060	0.013	4.788	0.000	***
Health consultations (log)	-0.030	0.007	-4.274	0.000	***
Improved access to clean water (log)	-0.038	0.007	-5.303	0.000	
Job creation (log)	0.008	0.017	0.472	0.637	*
Shelters improved (log)	0.023	0.010	2.244	0.025	***
Workforce improvement (log)	0.046	0.012	3.881	0.000	***
Youth empowerment (log)	-0.070	0.012	-5.990	0.000	

Table 10: Coefficient Estimates for OLS Model for Propensity for Negative Collective Action (PNCA). Reference categories in parentheses.

Model Term	Est.	SE	t-value	Pr(> t)	Sig.
(Intercept)	3.527	0.175	20.100	0.000	***
Count of victimisation	-0.036	0.013	-2.765	0.006	**
Less frequent of interaction	0.007	0.001	5.426	0.000	***
Perception of safety	-0.021	0.009	-2.502	0.012	*
Negative assessment of relations	0.017	0.003	4.867	0.000	***
Lesser trust in institutions	-0.007	0.003	-2.327	0.020	*
Lesser levels of prejudice	0.050	0.002	21.215	0.000	***
Dissatisfaction with services	-0.010	0.002	-6.704	0.000	***
Strain on services (Strongly disagree)					

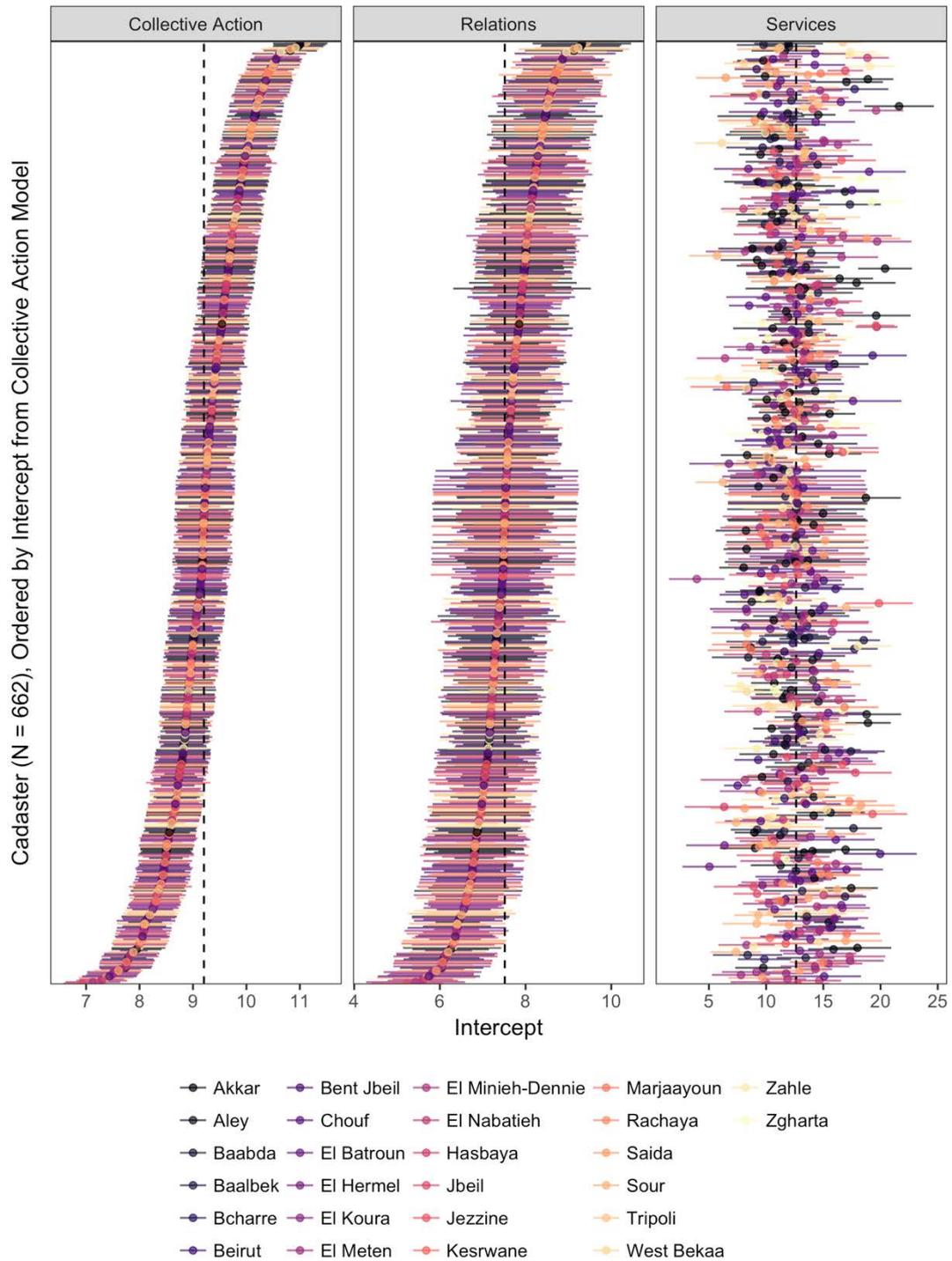
Model Term	Est.	SE	t-value	Pr(> t)	Sig.
Disagree	0.050	0.072	0.695	0.487	
Agree	-0.164	0.063	-2.577	0.010	**
Strongly agree	-0.350	0.065	-5.420	0.000	***
Capability in service provision	0.066	0.005	13.532	0.000	***
Greater perception of fairness in assistance	0.008	0.006	1.457	0.145	
Know someone lost job to Syrian	-0.084	0.016	-5.064	0.000	***
Memories of occupation (Strongly agree)					
Agree	0.173	0.021	8.259	0.000	***
Neutral	0.271	0.029	9.510	0.000	***
Disagree	0.260	0.029	8.860	0.000	***
Strongly disagree	0.232	0.053	4.414	0.000	***
No. adults	0.009	0.007	1.365	0.172	
No. minors	-0.026	0.007	-3.876	0.000	***
Confessional group (Sunni)					
Shia	-0.237	0.022	-10.532	0.000	***
Druze	-0.200	0.037	-5.458	0.000	***
Christian	0.010	0.034	0.289	0.772	
Multi-dimensional vulnerability	0.002	0.001	1.583	0.114	
Gender (male)	-0.072	0.016	-4.598	0.000	***
Age	0.001	0.001	1.519	0.129	
Education attainment (Less than high school)					
High school	0.040	0.024	1.689	0.091	.
University or above	0.087	0.021	4.217	0.000	***
Household income (Less than 500,000 LL)					
500,000--1,000,000 LL	-0.140	0.043	-3.298	0.001	***
1,000,000--2,000,000 LL	-0.201	0.041	-4.934	0.000	***
2,000,000--3,000,000 LL	-0.302	0.042	-7.167	0.000	***
3,000,000--4,500,000 LL	-0.337	0.046	-7.371	0.000	***
4,500,000--6,000,000 LL	-0.390	0.053	-7.346	0.000	***
6,000,000+ LL	-0.361	0.066	-5.509	0.000	***
Wave (Wave I)					
Wave II	0.095	0.020	4.894	0.000	***
Wave III	-0.068	0.020	-3.405	0.001	***

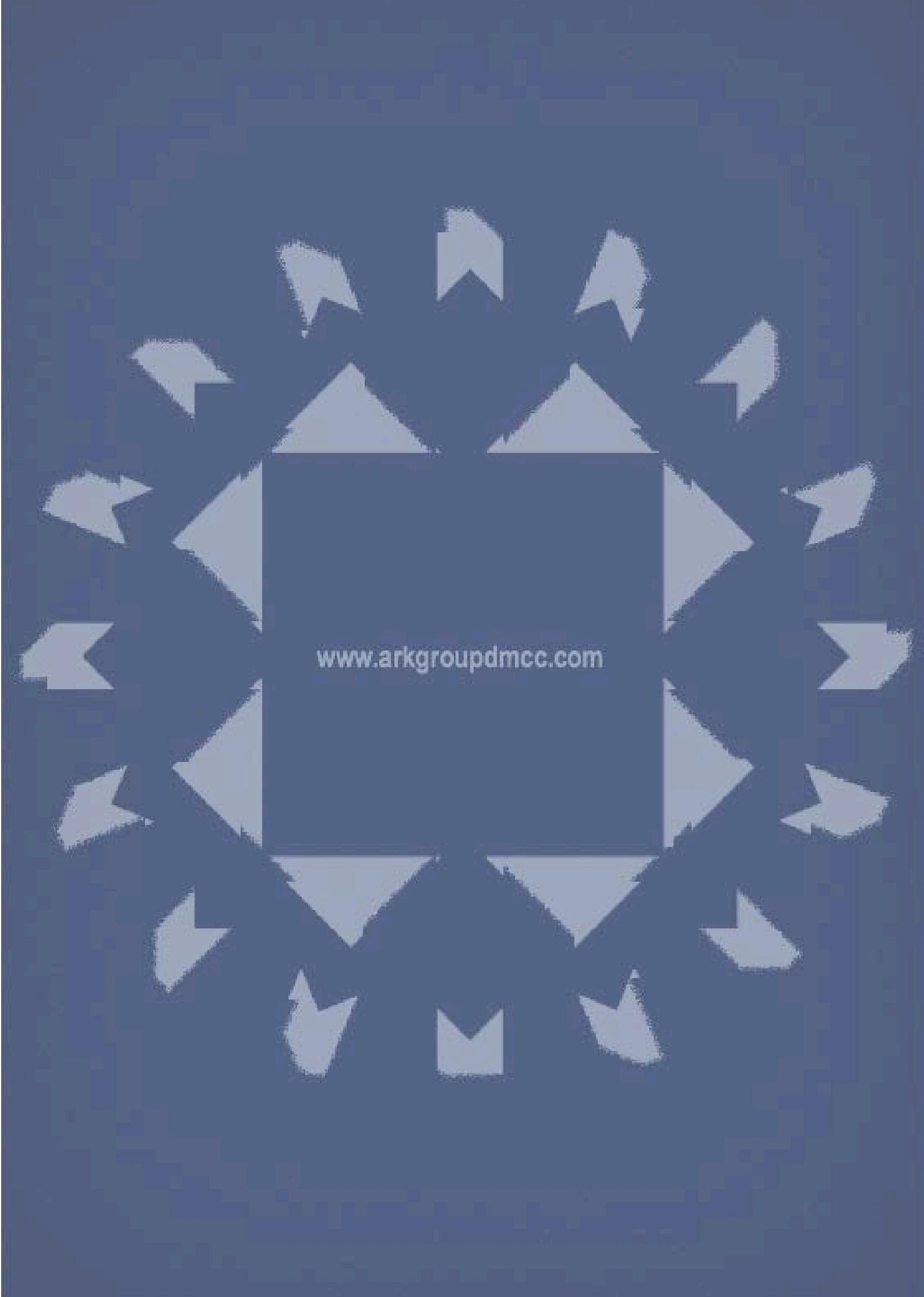
Model Term	Est.	SE	t-value	Pr(> t)	Sig.
Count of conflict events in cadaster	0.000	0.000	-2.557	0.011	*
Cadaster population (log)	0.078	0.008	10.258	0.000	***
Per cent population Syrian	-0.119	0.081	-1.483	0.138	
Per cent population Christian	-0.196	0.043	-4.609	0.000	***
Cadastral area (log)	-0.055	0.007	-7.421	0.000	***
Any assistance to cadaster in 2017	0.019	0.023	0.848	0.397	
Any livelihoods assistance (log)	0.009	0.008	1.183	0.237	
Conflict resolution support (log)	-0.020	0.007	-2.873	0.004	**
CP psychosocial support (log)	0.030	0.005	6.611	0.000	***
Health consultations (log)	-0.005	0.003	-2.022	0.043	*
Improved access to clean water (log)	-0.018	0.003	-7.024	0.000	***
Job creation (log)	-0.024	0.006	-3.924	0.000	***
Shelters improved (log)	0.013	0.004	3.405	0.001	***
Workforce improvement (log)	-0.009	0.004	-2.043	0.041	*
Youth empowerment (log)	0.018	0.004	4.228	0.000	***

Appendix B: Random Effects Estimates

Figure 14: Estimated Random Effects Intercepts, ordered by PNCA Model Intercepts.

Model Intercepts with Random Effects and 95% Credible Intervals





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