

# No Lost Generation: Supporting the School Participation of Displaced Syrian Children in Lebanon

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UNICEF Office of Research | Innocenti Working Paper

WP-2018-06 | June 2018

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**No Lost Generation:  
Supporting the School Participation of Displaced Syrian Children in Lebanon**

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**Abstract**

This paper documents the impact of a cash transfer programme – an initiative of the Government of Lebanon, the United Nations Children’s Fund (UNICEF) and the World Food Programme (WFP), widely known as the No Lost Generation Programme (NLG) and, locally, as Min Ila (‘from to’) – on the school participation of displaced Syrian children in Lebanon. The programme provides cash to children who are enrolled in the afternoon shift of a public primary school. It was designed to cover the cost of commuting to school and to compensate households for income forgone if children attend school instead of working, two critical barriers to child school participation. We rely on a geographical regression discontinuity design comparing children living in two pilot governorates with children in two neighbouring governorates to identify the impact of the programme halfway in the first year of operation (the 2016/17 school year). We find limited programme effects on school enrolment, but substantive impacts on school attendance among enrolled children, which increased by 0.5 days to 0.7 days per week, an improvement of about 20 per cent over the control group. School enrolment among Syrian children rose rapidly across all of Lebanon’s governorates during the period of the evaluation, resulting in supply side capacity constraints that appear to have dampened positive impacts on enrolment.

**Key words:** Cash transfers, Education, Lebanon, Syria, Refugees, Regression discontinuity

**JEL codes:** H31, H41, I2, I22, I25, I38, O12, O15, O22

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**Acknowledgements:**

We thank UNICEF Lebanon for the opportunity to carry out this study and for its financial and technical support. We would like also to recognize the many individuals and organizations without whom it would not have been possible to complete this study. We thank the Programme Management Unit of the Reaching All Children with Education Project in Lebanon's Ministry of Education and Higher Education (MEHE), including Sonia Khoury, Bane Khalife, Georges Ghassan, and Maroun Hobeika, the UNICEF Middle East and North Africa Regional Office, the UNICEF Office of Research–Innocenti, the United Nations Refugee Agency (UNHCR), the WFP (Jordi Renart and Soha Moussa), and Statistics Lebanon for technical or financial support at various stages of this project.

Special thanks go to Violet Speek-Warnery, Georges Haddad, Sharlene Ramkissoon, Juan Santander, Maxime Bazin, Abed Alrahman Faour, Louisa Lippi, and Georges Fares at UNICEF Lebanon for their technical support during the research and the design and implementation of the fieldwork. We thank Rabih Haber, Hanane Lahoud, and Elie Joukhadar of Statistics Lebanon and Mohammed Elmeski of the American Institutes for Research for their support during the implementation of the fieldwork.

We gratefully acknowledge feedback on the initial evaluation design by members of the UNICEF Office of Research Review Group, including particularly Sudhanshu Handa and Amber Peterman. We thank Marco Manacorda for commenting on the initial study findings. We thank Gustavo Angeles, Amber Peterman, and Dan Sherman for detailed comments on an earlier draft of this paper. And we thank participants in seminars at the 2018 CSAE conference, the 2017 the European Development Network conference, the 2018 Grand Bargain Cash Workstream meeting, UNICEF Headquarters and UNICEF Office of Research – Innocenti for valuable comments.

Our acknowledgements would be incomplete without mentioning our team of able research assistants. Kevin Kamto of the American Institutes for Research provided invaluable data support, and the project manager, Mariela Goett, helped coordinate and support all activities. We also acknowledge the input of the team of enumerators and supervisors at Statistics Lebanon whose dedication during data collection ensured that the data collected were of high quality.

The patience shown by Syrian refugee households, community leaders, and community members during interviews is also gratefully acknowledged. It is our hope that the insights from the information they provided will translate into valuable support for their communities.

## 1. Introduction

As a result of the Syrian conflict, Lebanon has one of the highest per capita ratios of registered refugees in the world (Government of Lebanon and UN, 2014). In early 2016, an estimated 1.5 million of a total population of 5.9 million in Lebanon were displaced Syrians.<sup>1</sup> The Lebanese Ministry of Education and Higher Education (MEHE) and partner agencies have implemented a variety of policies to ensure that the approximately 500,000 Syrian children of primary school age (6–14 years) in Lebanon can attend school and do not become a lost generation. Primary school fees have been waived; primary school supply has been expanded by opening an afternoon shift (often referred to as the second shift) in public primary schools dedicated mainly to Syrian children, and an accelerated learning programme allowing children who have been out of school for a prolonged period to re-enter school at an age-appropriate grade is being scaled up.

Despite these efforts, approximately half the Syrian children of primary school age in Lebanon did not attend school in the 2015/16 school year. A nationally representative household survey, the 2016 Vulnerability Assessment of Syrian Refugees in Lebanon (VASyR 2016), suggested that two demand-side barriers played a critical role in non-attendance: the cost of school and commuting to school and household reliance on children to help generate income. A residency fee of US\$200 required of adult Syrians desiring to work in Lebanon, which many Syrian households could not afford, was presumably important in household decisions to send children to work instead of to school. (The fee was partially waived in February 2017.)

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<sup>1</sup> Lebanon is also home to nearly 300,000 Palestinians who fled or are descendants of Palestinians who fled to Lebanon during the Arab-Israeli War of 1948.

To address these demand-side barriers, the MEHE, the United Nations Children’s Fund (UNICEF), and the World Food Programme (WFP) jointly developed and piloted a cash transfer programme during the 2016/17 school year. The programme, referred to either as No Lost Generation (NLG) or locally as Min Ila (‘from to’), provides monthly cash transfers to households for each child enrolled in an afternoon shift at a primary school. The transfers roughly cover the cost of transport to school for children ages 6 to 9 and offset a substantive portion of the income lost if older children (ages 10 to 14) attend school. Although the transfers are not conditional on regular school attendance, households are asked to sign an agreement confirming that the cash is intended to facilitate children’s school attendance. The pilot programme was rolled out in two of Lebanon’s eight governorates.

This paper estimates the immediate effect of the programme on school participation. It relies on a geographical regression discontinuity design comparing children in pilot governorates with children in neighbouring governorates. Using baseline data and global positioning system (GPS) coordinates collected from households in pilot and neighbouring districts in September and October 2016, we show that, prior to implementation of the NLG/Min Ila Programme, the characteristics of neither households nor children changed discontinuously at the borders separating pilot and non-pilot governorates. This finding is in accordance with the fact that the borders separating the governorates we study do not appear to be meaningful in people’s lives and are difficult to notice as one travels through the country. Economic and political situations do not change noticeably as one crosses these borders. Education policies are determined centrally and do not differ across governorates. Moreover, there is no indication that governorate borders affect the decisions of Syrian households on where to live.

We find no evidence that the NLG/Min Ila Programme had increased afternoon shift school enrolment or primary school enrolment in general after four months of programme

implementation (February and March of 2017). Slightly over 50 per cent of the children in pilot areas enrolled in an afternoon shift school and, hence, took up the programme during the 2016/17 school year (that is, the first year of programme implementation). This share does not change discontinuously at the pilot governorate borders. We conjecture that relatively limited impacts on afternoon shift enrolment can be ascribed primarily to capacity constraints in afternoon shift schools. Primary school enrolment rates, including, but not limited to afternoon shift school enrolment rates, rose rapidly across the country during the period of the study. Among the children in the areas neighbouring the pilot governorates, primary school enrolment increased from 63 per cent in the 2015/16 school year to nearly 80 per cent in the 2016/17 school year. An intensive back to school advocacy campaign implemented in the entire country, including both our comparison and intervention areas, is presumed to have been crucial in supporting this rise in primary school enrolment. As a result, the margin for the cash transfer programme to have an impact on enrolment was reduced. Moreover, the expansion in primary school enrolment appears to have led to capacity constraints, potentially limiting the opportunity for children to enrol in an afternoon shift school even if they had wanted to do so.

We do find a positive impact on schooling outcomes among children who enrolled in an afternoon shift (that is, children who receive NLG/Min Ila benefits). Household expenditure on the education of these children increased relative to children in the control governorates. Part of the rise in education expenditure is driven by the wider use of paid bus services to commute to and from school. Because afternoon shift schools close at nightfall during at least part of the school year, safe transport is considered a critical element of regular school attendance. Accordingly, the self-reported number of days of school attendance in the week prior to a follow-up interview several months into the school year was about 0.6 greater in the pilot governorates than in the control group, an increase of about 20 per cent. This expansion is comparable among younger children (receiving lower-value transfers) and older children and

also among boys and girls. Thus, even if the NLG/Min Ila Programme had limited impacts on school enrolment, the impacts on children's school participation conditional on enrolment in an afternoon shift school appear to have been substantial.

Our findings relate to an extensive literature on the effects of cash transfers on education outcomes in developing country settings (reviewed by Fiszbein and Schady, 2009; Saavedra and Garcia, 2012; Baird et al., 2014). They also relate to a smaller literature on the effects of cash transfers and other education interventions in humanitarian settings (reviewed by Burde et al., 2015; Doocy, Tappis, and Lyles, 2016).<sup>2</sup> These systematic reviews and meta-analyses find that cash transfer programmes average a 6 per cent improvement in school enrolment and a 3 per cent improvement in student attendance. They find a range of effect sizes on schooling outcomes that depend in part on the size of the transfer and the access to schools. However, none of the studies include cash transfers in refugee settings.

A particularly relevant and related study for our purposes was conducted by the International Rescue Committee, which evaluated a winter cash transfer programme for Syrian refugees in Lebanon in 2014 (Lehmann and Masterson, 2014). The programme provided a one-time transfer of US\$575 to each Syrian refugee living at high altitudes (above 500 metres), with the goal of keeping people warm and dry during the winter months. The primary finding was that the transfer size was too small to achieve the programme goal because people were unable to afford sufficient supplies to remain warm. However, the study found that the transfer helped increase school enrolment and reduce child labour, although these were not programme

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<sup>2</sup> Puri et al. (2015) note that, although rigorous impact evaluation methods can be helpful in learning about the effectiveness of interventions following humanitarian emergencies, such evaluations are more difficult to implement in the aftermath of humanitarian crises, where ethical concerns sometimes prevent the use of control or comparison groups. For this reason, only a few studies have examined the impact of cash transfers in humanitarian contexts in a rigorous manner.

goals. Specifically, the study found that the programme increased enrolment by 6 percentage points, resulting in 39 per cent of children attending school. The study did not investigate the share of children in the sample who had access to schools in which to enrol, and the cash transfer may have had a bigger effect on education if it had been targeted on children of school age who had access to a school.

The remainder of this paper proceeds as follows. Section 2 provides the necessary background. It gives an overview of the Syrian refugee crisis and the situation of Syrians in Lebanon, describes existing cash transfer programmes and education interventions for displaced Syrians in Lebanon, provides more detail on the NLG/Min Ila Programme, discusses the identification strategy in detail, and describes the data collection. Section 3 describes our evaluation strategy, discusses the validity of this estimation strategy, and presents estimated programme impacts on school enrolment and attendance. Section 4 discusses and concludes.

## **2. Background**

### **2.1 The Syrian refugee crisis and Syrians in Lebanon**

An estimated 11 million of a total population of 23 million were forcibly displaced either within or outside the Syrian Arab Republic. Of these people, 4.8 million have sought refuge in the neighbouring countries of Iraq, Jordan, Lebanon, and Turkey. Most Syrians arrived with limited savings and have struggled to earn steady incomes to meet the basic needs of their families, such as food, health care, and shelter. These basic needs often require immediate attention, which means that Syrian families often forgo education and the associated long-term benefits in favour of short-term needs. Consequently, more than 2.6 million children are estimated to be out of school in Egypt, Iraq, Jordan, Lebanon, the Syrian Arab Republic, and Turkey (UNHCR and UNDP, 2016).



Because of the Syrian crisis, Lebanon has one of the highest per capita ratios of registered refugees in the world (Government of Lebanon and UN, 2014). Of a population of 5.9 million, 1.5 million are displaced Syrians, including approximately 500,000 children of primary school age. The VASyR 2016 provides a representative picture of the lives of Syrian refugees in Lebanon shortly before the start of the NLG/Min Ila programme. Less than half of the children of primary school age were attending school at the time, reflecting the education crisis created by the sudden influx of the Syrian refugees (affecting also Palestinian and vulnerable Lebanese children). This share contrasts sharply with a net primary school enrolment rate in the Syrian Arab Republic of nearly 93 per cent prior to the start of the crisis.<sup>3</sup> The share of Syrian households in which all members held a residency permit was only about one in five. This is important, because, at the time, the residency permit was a legal requirement for Syrian adults to engage in economic activities in Lebanon. As the Lebanese Government implements a no-camps policy, most Syrians (about 71 per cent) were residing in residential buildings. The remainder either lived in non-residential buildings (12 per cent) or informal tented settlements (17 per cent), often in overcrowded and dangerous circumstances lacking basic sanitary facilities. A majority (70 per cent) of Syrians are living below the poverty line established by the World Bank and most households (93 per cent) experience some degree of food insecurity.

## **2.2 Existing cash transfer programmes and education interventions**

*Cash support:* The WFP electronic food voucher (e-card) is the largest cash support programme for displaced Syrians in Lebanon. Beneficiaries receive a monthly payment loaded on an e-card at the beginning of each month. The money can be used to purchase food from

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<sup>3</sup> See Education (database), Institute for Statistics, United Nations Educational, Scientific, and Cultural Organization, Montreal, <http://data.uis.unesco.org/>; EdStats: Education Statistics (database), World Bank, Washington, DC, <http://datatopics.worldbank.org/education/>.

more than 400 local shops. The programme initially provided this service to 900,000 refugees, but the coverage has fluctuated since then because of volatile funding. The United Nations Refugee Agency (UNHCR) and the Lebanon Cash Consortium, which consists of four international non-governmental organizations (NGOs), implement a Multipurpose Cash Assistance Programme providing a smaller number of highly and severely vulnerable Syrian refugee families with monthly payments and an additional winter subsidy.<sup>4</sup> UNICEF provides winter-related cash support for children living in informal tented settlements and collective shelters.

*Education interventions:* Since the onset of the Syrian crisis, the MEHE, together with UNICEF and other partners, has worked to ensure access to education among Syrian children through its strategy of Reaching All Children with Education. The strategy aims to provide all school-age children with formal and accredited education opportunities. To reduce school-related expenses, the MEHE has waived fees at the primary level, provided students with basic supplies, and waived the need for residency documentation. In 2013, the MEHE, with support from bilateral donors, the UNHCR, UNICEF, and the World Bank, also launched an afternoon shift for Syrian children to accommodate the growing number of Syrian refugee children in Lebanese public schools. These schools follow the Lebanese curriculum, which is mostly taught in Arabic, though some classes are taught in French, potentially creating challenges among Syrian children who do not speak French. To facilitate the transition of Syrian children from the Syrian curriculum to the Lebanese curriculum, the MEHE and UNICEF have developed the Accelerated Learning Programme. Programme classes are designed for refugee children who have been out of school for a prolonged period and children with language

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<sup>4</sup> When the present study was designed, the value of the monthly WFP payment was US\$27, the value of the monthly Multipurpose Cash Assistance Programme benefit was US\$174, and the value of the winter subsidy was US\$100–US\$147.

deficiencies and are intended to enable these children to (re-)enrol in age-appropriate grades. UNICEF and Caritas also offer transportation to school for the most vulnerable refugees who meet one of the following criteria: live 2.5 kilometres or more from the nearest school, have a disability, or live at a high altitude.

### **2.3 The NLG/Min Ila Programme**

The VASyR 2016 showed that nearly half of all displaced Syrian children of primary school age (6–14 years) in Lebanon were out of school despite the cash transfer programmes and education interventions. The NLG/Min Ila Programme was designed to address two critical demand-side barriers to school participation identified in the VASyR 2016: the cost of education and household reliance on children for income generation.

The NLG/Min Ila Programme provides income transfers to households for children enrolled in an afternoon shift. Younger children, ages 5–9, receive US\$20 each month, which is estimated to be sufficient to offset the cost of commuting to school for the average Syrian child in Lebanon.<sup>5</sup> Older children, ages 10–14, receive a higher amount, US\$65 a month. This is estimated to be sufficient to offset a substantive portion of the average monthly indirect costs of schooling and the earnings of a working child. Thus, the cash transfer programme is expected to assist in offsetting the opportunity costs of school attendance among older children. The transfers are unconditional, but they are labelled by requesting households to sign an agreement when they register as pilot beneficiaries. The agreement states that households understand that the cash is intended to facilitate their children's school attendance and that they are willing to

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<sup>5</sup> US\$20 is the average amount spent per child on the UNICEF-Caritas bus services.

be visited by pilot actors for referral to complementary services if their children are absent for more than 10 consecutive schooldays.<sup>6</sup>

The Government took the decision to pilot the NLG/Min Ila Programme at scale in the governorates of Akkar and Mount Lebanon during the 2016/17 school year. These governorates were selected during conversations between the MEHE and UNICEF. They were selected because they are different in terms of populations and programme implementation challenges, thereby allowing the generation of lessons that could be applicable to the entire country.

## **2.4 Study design**

We rely on a longitudinal, geographical regression discontinuity design comparing eligible households from pilot governorates with similar households in neighbouring governorates – North Governorate for Akkar and South Governorate and Nabatieh Governorate for Mount Lebanon – that had not begun receiving the transfers during the period of the study. The 74 schools offering afternoon shift education closest to the borders separating the pilot governorates and the comparison governorates (roughly half the afternoon shift schools in the governorates) were selected to facilitate the implementation of a geographical regression discontinuity design: 21 in Akkar, 22 in North Governorate, 20 in Mount Lebanon, and 11 in South Governorate and Nabatieh. To ensure that all selected schools would be located in similar peri-urban and rural areas, schools located in the three largest cities of Lebanon (Beirut in

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<sup>6</sup> The idea is that the reason for non-attendance would be established during this visit and that members could be referred to complementary services offered by the Government, UNICEF and other agencies, which address non-income-related constraints (such as the need for psychosocial support or difficulty keeping up with the Lebanese curriculum). In this way, the cash transfer programme contributes to an integrated package of support. This process had not yet been launched at the time of the follow-up data collection on which we report in this study.

Mount Lebanon, Tripoli in North Governorate, and Sidon in South Governorate) were not considered.

Subsequently, Syrian households living in cadastres in which the schools were located were sampled into the study. Cadastres are small administrative geographical units, somewhat comparable in size to census enumeration areas in other countries. For sampling, we relied on the UNHCR's registry of Syrian households in Lebanon (at the time, the majority of displaced Syrians in Lebanon were presumed to be registered with the UNHCR). The UNHCR provided a list of up to 100 randomly drawn eligible households (that is, households with children ages 5–14) in each cadastre.<sup>7</sup> These households were sorted in random order, and survey teams visited households in the order of this ranking until 20 households had been interviewed.<sup>8</sup> This procedure resulted in a sample of 1,440 households with 1,784 children ages 6–9 and 1,647 children ages 10–14.<sup>9</sup> GPS coordinates were collected for each household, enabling us to calculate the distance of the household from the border with the paired pilot or comparison governorate. Map 1 shows the geographical distribution of afternoon shift schools and study households. The large circles denote the 2.5 kilometre radius around the afternoon shift schools; the small green circles denote each pilot household, and the small red triangles denote each comparison household. The majority of households are within a 2.5 kilometre radius of an afternoon shift school, and the study design was based on the assumption that children living

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<sup>7</sup> If the list provided by the UNHCR contained fewer than 90 households, the evaluation team included additional neighbouring cadastres as necessary in an attempt to obtain a list of at least 90 households in the vicinity of the school.

<sup>8</sup> It typically required over 50 households on a list to find and reach the needed 20 households per cadastre for the study.

<sup>9</sup> The target sample was 20 households per cadastre, for a total of 1,480 households. However, 40 households either did not meet the eligibility criterion of the presence of a child 5–14 years of age or could not be interviewed.

within this radius would not be out of school because of supply constraints on school availability.<sup>10</sup>

A key concern regarding the validity of the study design is that there could be structural differences that distinguish pilot governorates relative to comparison governorates. However, based on extensive discussions with local counterparts, we conclude that no substantive structural differences exist. The borders separating our pilot and comparison governorates do not appear to be meaningful in people's lives and are difficult to notice as one travels through the country. Economic and political situations do not change noticeably as one crosses these borders. Education policies are determined centrally and do not differ across governorates. Moreover, there is no reason to assume that governorate borders affect or have affected the (re-)location decisions of Syrian households. Accordingly, as discussed below, we find that the pre-intervention characteristics of the households in our sample do not change discontinuously at the borders.

## **2.5 Data collection**

A baseline questionnaire was administered to each of the 1,440 households before the start of the 2016/17 school year in September and October 2016, that is, the year in which the pilot cash transfer programme was launched. The questionnaire, which was administered to a knowledgeable household member, covered the following domains: household demographics, health, education, economic activities, assets, living conditions, household enterprises, access to credit, access to facilities and services, poverty and food security. A follow-up questionnaire

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<sup>10</sup> During the 2015/16 school year, UNICEF and Caritas ran a school bus programme that provided transport to school for children living far from an afternoon shift school. This programme was stopped in the governorates of Akkar and Mount Lebanon during the 2016/17 school year, but continued in the rest of the country. However, because children living within the 2.5 kilometre radius from an afternoon shift school do not benefit from the bus services, this programme is not expected to confound the results presented in this study.

was administered to the same households by telephone in March 2017, several months into the programme and the school year. The follow-up data collection focused on education outcomes among children, specifically, enrolment and attendance during the 2016/17 school year.

The evaluation team took care to comply with the highest level of ethics and standards for working with individuals as part of the study. The study design, instruments, and data-collection procedures had to pass the scrutiny of the Institutional Review Board of the American Institutes for Research. Respondents were informed that participation in the interview would help UNICEF improve the organization’s programming for refugee children, that it was entirely voluntary, that it would not affect household eligibility for any programme benefits, and that respondents could decide not to answer any questions. Respondents were asked to provide verbal consent.

### 3. Estimation strategy and results

#### 3.1 Estimation strategy

We rely on the following regression specification to estimate the intent-to-treat effect of the programme on the outcome variables of interest:

$$Y_{ihsgl} = \beta_0 + \beta_1 D_g + f(\text{distance}_{ihsg0}) + \beta_2' X_{ihsg0} + \beta_3 \text{Pair}_g + \varepsilon_{ihsgl}, \quad (1)$$

where  $Y_{ihsgl}$  is the outcome variable for child  $i$  in household  $h$  living in the vicinity of school  $s$  in governorate  $g$  at follow-up (denoted by subscript  $l$ ).  $D_g$  indicates residence in a pilot governorate, and  $\text{distance}_{ihsg0}$  is the assignment variable measuring distance to the border at baseline ( $0$ ). The assignment variable is negative in comparison governorates and positive in pilot governorates.  $X_{ihsg0}$  is a vector of baseline covariates that include child age, child gender, and an indicator taking the value 1 if the child’s parents had studied beyond primary

school. We cluster standard errors at the school level to allow for correlation of the error term,  $\varepsilon_{ihsgt}$ , meaning  $Cov(\varepsilon_{ihsg1}, \varepsilon_{ihsg1}) \neq 0$  for  $i$  and  $j$  near the same school.

The regression discontinuity design in this context relies on households that are located along one of two borders: the Akkar-North border and the Mount Lebanon–South border. The term  $Pair_g$  represents a fixed effect to account for differences between households located near the two borders (that is,  $Pair_g$  takes the value 1 for Akkar and North governorates and 0 otherwise). By including a border fixed effect in all estimating equations, we essentially treat the sample as though all households are located near a single border. The term  $f(distance_{ihsg0})$  represents the functional relationship between the distance of households to the border and the outcome variable of interest. In this study, we report on a simple linear functional form and a slope that may differ outside and inside pilot governorates (that is,  $f(distance_{ihsg0}) = \beta_{4a} distance_{ihsg0} + \beta_{4b} distance_{ihsg0} * D_g$ ). Our coefficient of interest is  $\beta_3$ , which gives the impact of the programme.

### **3.2 Attrition, descriptive statistics and baseline balance**

#### *Attrition*

In this discussion and in the remainder of the paper, we restrict our sample to households and children living within a 2.5 kilometre radius of an afternoon shift school. Of the 2900 children aged 5–14 observed at baseline and living within the 2.5 kilometre radius, the average interview rate at follow-up was nearly 96 per cent. At the borders separating treatment and control governorates, attrition was about 7 percentage points higher in the control group than in the pilot group (see Appendix Figure 1; formal estimation results available on request). As we proceed to show below, however, the difference in attrition rates does not appear to have resulted in an imbalance in the baseline characteristics of households and children.



### *Descriptive statistics*

We first summarize the initial characteristics of households in the treatment governorates (that is, potential programme beneficiaries) that were observed also at follow-up. We focus on household demographics, housing conditions, economic well-being, adult characteristics, and child characteristics. Table 1 describes the demographic characteristics of the sample households. The average eligible beneficiary household in the sample contains a little more than six people (see Treatment Mean column), including about 2.5 children aged 5–14 years (that is, the cash transfer recipient age). In principle, the average eligible beneficiary household is therefore eligible to receive multiple transfers each month, potentially including both smaller and larger transfers. The remainder of the beneficiary households is primarily made up of working-age adults and children; less than 1 per cent are aged 65 or older (not displayed). The average household left the Syrian Arab Republic about four years before the baseline, suggesting that households stayed in the country for about one or two years after fighting broke out in April 2011. Although we cannot say how long they have lived in their current location, the assumption seems reasonable that households had been in Lebanon a sufficient time to understand key processes such as school enrolment or searching for jobs.

As shown in Table 2, there are 2,234 adult members in eligible beneficiary households, approximately half of whom (51 per cent) are women. The average adult is 33 years old. Over half the adults (55 per cent) had not completed middle school, and the literacy rate is 85 per cent. Labour force participation is low among adults in eligible beneficiary households, probably reflecting the constraints on adult engagement in economic activities (described above). Only 25 per cent of adults had worked during the week prior to the baseline survey. The health of about half of adult household members was rated as good or very good, and about two thirds of adult household members could walk 5 kilometres easily or with some difficulty.

Households mostly reside in unfavourable circumstances, as shown in Table 3. Roughly 65 per cent of households are in houses, 17 per cent in tented settlements, and the remainder in other arrangements, such as garages; this roughly corresponds with national averages. About one third of households are in overcrowded locations, and dwellings in poor (12 per cent) or even dangerous (6 per cent) condition are not uncommon. Most households have access to legal electricity (92 per cent) and toilets or latrines (100 per cent), but only 33 per cent have running water in the dwelling.

Table 4 shows that eligible beneficiaries survive on low levels of income (most of which is derived from cash earnings and United Nations cash assistance), take on debt to meet needs, and face frequent food insecurity. Daily income per capita is less than half the Lebanese poverty line, which is US\$3.84 per person per day, suggesting that eligible beneficiaries do not receive enough to meet basic needs.<sup>11</sup> Among the 89 per cent of households renting homes, nearly three quarters of income goes toward the rent (not displayed). Slightly more than half the households (55 per cent) reported they did not have sufficient food in the seven days prior to the survey. Children with poor diets are likely to have poor school attendance (Drake et al., 2016). However, children appear to suffer less from food insecurity than adults. Although 42 per cent of households reported that someone had skipped a meal, only 13 per cent of eligible beneficiaries reported that a child had skipped a meal, suggesting that adults assume at least part of the burden of food insecurity. We linked administrative United Nations data about other cash transfer programmes to our sample to determine how many transfers each household receives, in addition to the NLG/Min Ila Programme's cash transfers. Almost all households (99 per cent) receive at least one other type of humanitarian cash transfer.

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<sup>11</sup> We calculate per capita income by summing household income from wages, self-employment, cash from friends, cash from support agencies, food aid, remittances, and the sale of assets over the previous 30 days, and then dividing by household size.

As shown in Table 5, the average child in the sample was 9 years old, and approximately 50 per cent of the children in the sample were girls. About 65 per cent of children were enrolled in school at baseline; enrolment in afternoon shift schools was about 30 per cent. Boys and girls were equally likely to be enrolled in school, including afternoon shift schools. School enrolment rates, including in afternoon shift schools, were also similar among younger (aged 5–9) and older (10–14) children.<sup>12</sup> Among nearly half the children who were not in school, the primary reason for non-enrolment was cost (not displayed).

Among the children enrolled in an afternoon shift school, annual education expenditure averaged US\$56. Education expenditure appears to be higher for girls than for boys, potentially reflecting the fact that girls in the pilot areas are more likely than boys to travel to school by bus (47 v 40 per cent). This gender pattern is not observed in the comparison areas. Average annual education expenditure and the probability of commuting to school by bus are similar for younger and older children.

### *Baseline equivalence*

On average, households in the governorates neighbouring the pilot governorates are more well off in some respects. They have somewhat higher per capita incomes and experience markedly less food insecurity. These findings reflect the fact that there appears to be a gradient in well-being: areas towards the south of Lebanon are better off than those farther towards the north. (Both of the comparison areas are to the south of the pilot governorates.) There is no evidence, however, that baseline characteristics change discontinuously at the borders separating the pilot and non-pilot governorates. Using our regression discontinuity estimation procedure, we find no systematic difference in baseline characteristics between the pilot and

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<sup>12</sup> School enrolment has an inverted U-shaped relationship with age. School enrolment peaks roughly at the age of 10 (not displayed).

comparison households and individuals. Estimated discontinuities at the borders separating pilot and neighbouring governorates (Tables 1–5, columns 5 and 6) are generally limited in magnitude and not statistically significant, suggesting that a geographical regression discontinuity approach is valid.

In the remainder of this subsection, we discuss the balance of our main outcome variables in more detail.

Figure 1 examines baseline primary school enrolment. The horizontal axis in Figure 1 represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures the share of children enrolled in an afternoon shift school at the time of the follow-up interview. Dots represent local averages for clusters of households. Bigger dots represent more households. Linear ordinary least squares regression lines were fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line. There is no visible jump in enrolment rates at the border separating pilot and comparison governorates, suggesting balance at baseline. Similarly, Figures 2, 3, and 4 respectively show that, conditional on enrolment in afternoon shift schools, per child annual education expenditures (in US dollars) and the use of bus transport to commute to school were all balanced at baseline.

These findings are confirmed in the formal estimates displayed in Table 5. Differences in enrolment and afternoon shift enrolment at the borders separating pilot and comparison areas were not statistically significant at baseline. Next, we look at education expenditures and bus transport to school, both conditional on enrolment in an afternoon shift school. Education expenditures are significantly lower in pilot areas than in comparison areas. Children in pilot and comparison areas are, however, equally likely to commute to school by bus.

### 3.3 Impacts on school enrolment

Aggregate administrative MEHE data (not displayed) suggest that formal school enrolment rates among displaced Syrian children rose rapidly across the country from the 2015/16 school year to the 2016/17 school year. The increase in overall afternoon shift school enrolment appears to have been particularly pronounced in pilot areas: the average enrolment in afternoon shifts increased by 51 per cent in NLG/Min Ila pilot areas compared with 41 per cent in the rest of the country, potentially signalling an impact of the cash transfer programme on enrolment outcomes.

However, we cannot confirm that the programme increased enrolment based on our regression discontinuity estimates. The data collected for this study confirm that overall school enrolment and afternoon shift enrolment rates rose substantively both in pilot areas and in comparison areas. Overall school enrolment rates increased from nearly 60 per cent at baseline to nearly 80 per cent at follow-up both in pilot areas and in comparison areas. Afternoon shift school enrolment rates rose from about 31 to 51 per cent among children in the evaluation sample in treatment areas and from about 41 to 48 per cent among children in the comparison areas. However, school enrolment rates do not jump when crossing the Akkar-North and Mount Lebanon–South borders at follow-up, and we therefore cannot confirm that the more pronounced average increase in afternoon shift enrolment in pilot areas (relative to comparison areas) was driven by the cash transfer programme. Figure 5 shows our regression discontinuity estimates graphically, while Column 1 of Table 6 shows the regression estimates of the impact of the programme. Neither suggests that the NLG/Min Ila Programme significantly raised overall school enrolment. We find no significant impacts among subgroups either (younger or older children and boys or girls). Similarly, we observe no programme impacts on afternoon shift school enrolment (Figure 6 and Table 6, Column 2).

We rule out the possibility that the lack of impact on afternoon shift enrolment may be driven by households from neighbouring governorates taking up the programme. Essentially no households (about 1.6 per cent) in neighbouring governorates accessed the programme. This is confirmed by administrative programme data. Figure 7 shows that the probability of benefiting from the NLG/Min Ila Programme is clustered around 0 among households in comparison areas and jumps to about 50 per cent in pilot areas, in accordance with measured afternoon shift enrolment rates. Similarly, the formal estimates (Table 6, column 3) suggest that NLG/Min Ila enrolment jumps by about 50 percentage points at the borders separating pilot and comparison areas.

There are several potential reasons a household might not have enrolled children in an afternoon shift school. The nearest afternoon shift school may have been overenrolled and hence may not have allowed new pupils to enter. Households may have preferred schools of another type (such as first shift or private schools). Households may not have known about or may not have been interested in the NLG/Min Ila Programme. We discuss each of these three potential explanations here.

We have evidence that school capacity constraints may have played a critical role in limiting the impacts of the programme on enrolment. Administrative MEHE data indicate that over half the afternoon shift schools in the study had reached full capacity during the registration phase, preventing children from enrolling in school and hence in the NLG/Min Ila Programme.<sup>13</sup> Moreover, a majority of households continues to report that cost is an important reason older children are kept out of school. This would be a logical finding if afternoon shift

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<sup>13</sup> New afternoon shifts were opened in response to the increased demand in *other* parts of the pilot governorates; however, this change was not captured by the study because the sample was selected from those households living in the vicinity of pre-existing afternoon shift schools.

schools are at capacity, and only other school types that are not eligible for the NLG/Min Ila Programme are available. Continued participation in other school types also appears to limit programme impacts on afternoon shift enrolment. About 30 per cent of children continue to attend a first shift public school or a private school. A possible reason is that these schools offer higher-quality education (perhaps partly because of overenrolment in afternoon shift schools). The possibility that households did not know about or were not interested in the NLG/Min Ila Programme is unlikely. Most Syrian households are in urgent need of income, and information about support programmes spreads quickly.

### **3.4 Impacts on education expenditure, bus transport, and school attendance**

Despite limited impacts at the extensive margin, the NLG/Min Ila Programme appears to have led to improvements in education outcomes among children enrolled in an afternoon shift. Figures 8 and 9 indicate that, conditional on enrolment in an afternoon shift, education expenditure and reliance on bus transport for commuting to school rose significantly in pilot governorates. The estimates presented in columns 4 and 5 of Table 6 indicate that annual education expenditure per child increased by about US\$73, while the probability of commuting to school by bus increased by 14 percentage points.

Concurrently, we observe a rise in the number of days of school attendance among children enrolled in afternoon shift schools.<sup>14</sup> Figure 10 shows a discontinuity in the number of days of school attended in the week prior to the follow-up interview among children enrolled in afternoon shift schools. Table 6 shows that the average increase is about 0.6 days per week, which translates into an additional month of attendance annually among children in the pilot

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<sup>14</sup> Because we do not have baseline statistics on attendance in the week prior to the interview (because we conducted baseline during the summer break), we cannot determine how these groups changed over time, only how they compared with each other at follow-up.

programme. In other terms, children enrolled in afternoon shifts spent roughly 20 per cent more time in school relative to similar children in comparison areas. Children receiving the NLG/Min Ila pilot programme benefits attend school 4.1 days per week on average, which means they are in school during more than 80 per cent of the possible time. The impact of the programme on education expenditure, bus transport, and days of school attendance is similar among younger and older children and among boys and girls.

### **3.5 Study limitations**

We highlight two limitations of this study. First, the study focuses on the impacts of the NLG/Min Ila Programme on schooling outcomes and does not examine impacts in other key areas of children's psychosocial development and well-being, including mental health, parental involvement in children's education, engagement in economic activities and household chores, nutrition, and so on. Additional follow-up data will explore these dimensions of programme impact in more detail.

Second, the geographical regression discontinuity design leaves open the possibility that observed differences between pilot and comparison households result from an effect other than the cash transfers, such as structural differences in other education policies in pilot and comparison governorates over the period of the study. We have no indications of such structural differences between governorates, but, because of the complex situation in Lebanon whereby many actors are implementing interventions, we cannot rule out this possibility with complete certainty.

## **4. Conclusion**

This study examines the impacts of the NLG/Min Ila pilot cash programme on education outcomes (attendance and enrolment) after a few months of programme



implementation. Over the period of the study, school enrolment increased across the country, including in our pilot and comparison governorates. Presumably because of resulting capacity constraints in afternoon shift schools, the study does not identify a programme impact on school enrolment in pilot governorates over and above the nationwide increase in enrolment. However, we do find a beneficial impact of the programme on the education outcomes of children enrolled in school. School expenditures, use of bus transport, and school attendance increase among all subgroups of children, including by age and gender. Improving school attendance among children is important because the benefits of schooling accumulate as more time is spent in the classroom; the more time children spend in school, the more they are likely to learn and the more they will benefit in other ways as well.

There are many other settings in which humanitarian organizations rely on comparable programmes to assist refugees. Cash transfer programmes similar to the NLG/Min Ila Programme, for instance, jointly support hundreds of thousands of Syrian refugee children in Jordan and Turkey. Yet, few humanitarian cash transfer programmes have been rigorously evaluated, leaving an important gap in our knowledge about the programmes that are successful in helping refugees. The evidence generated by this study advances our understanding of the effects of cash-based education programming in humanitarian settings and may prove useful in helping policymakers and financing agencies make informed decisions about the allocation of scarce resources to confront the growing problem of refugees in low- and middle-income countries.

We end by highlighting two key take-aways. First, in our view, the finding that capacity constraints in afternoon shift schools limited programme impacts on school enrolment provides an important lesson for humanitarian programming. In settings of massive displacement such as Lebanon, supply-side constraints may hamper the delivery of goods and services to populations in need in many different sectors, including not only education, but also health,

hygiene, nutrition, and so on. As a result, demand-side interventions may not fully achieve desired effects unless implemented in coordination with supply-side interventions.

Second, the refugee setting creates many challenges in the design and implementation of a rigorous evaluation. However, as demonstrated by this and a small group of other studies, it is possible and important to identify opportunities for carrying out rigorous evaluations of strategic humanitarian interventions even in challenging contexts. A key lesson for the study team is that opportunities for such research arise especially during the early stages of programme design. Involvement of a study team in this stage may help both to take lessons from other settings into account in programmatic decisions and to identify a study design that can credibly establish program effects.

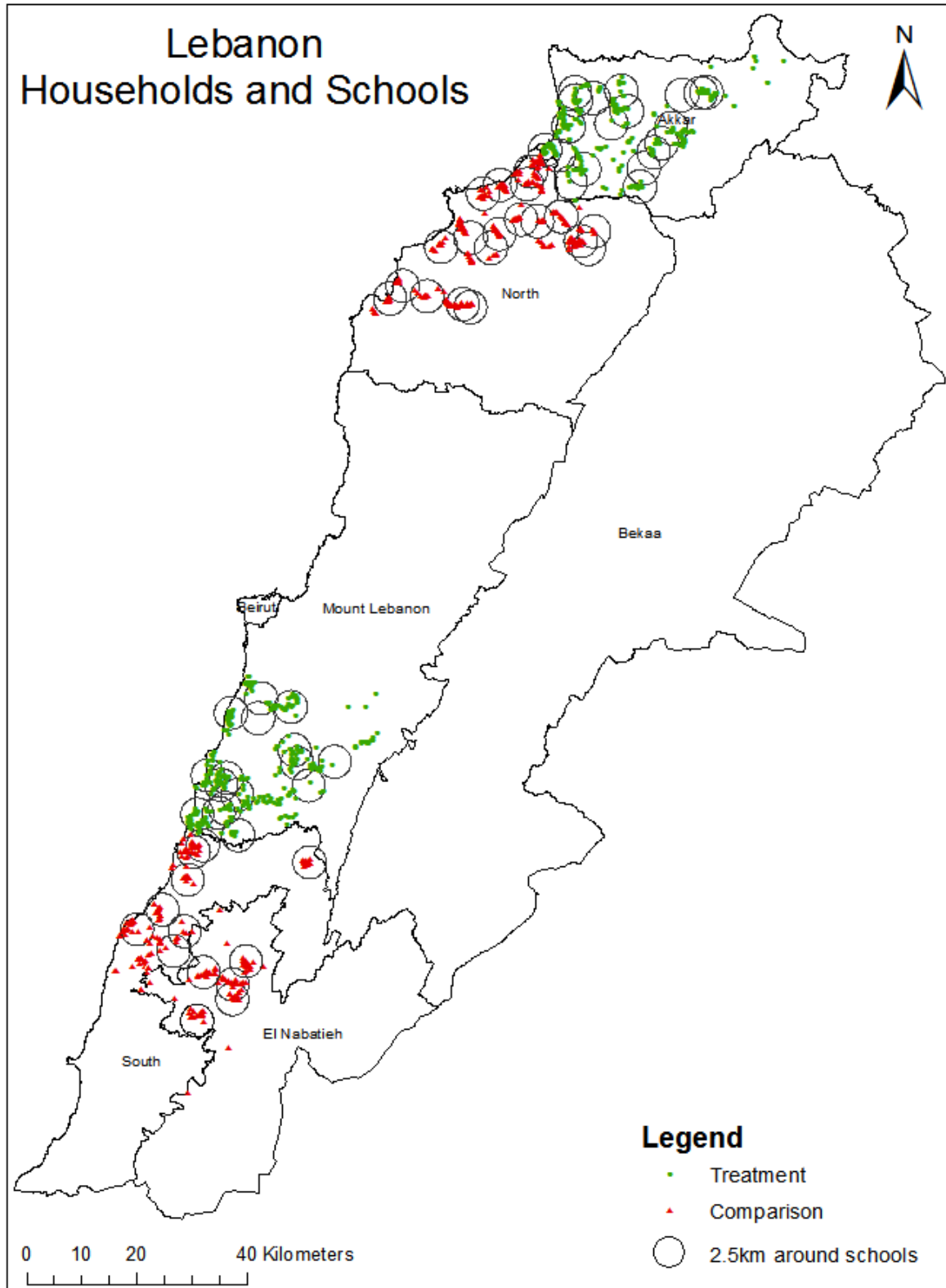
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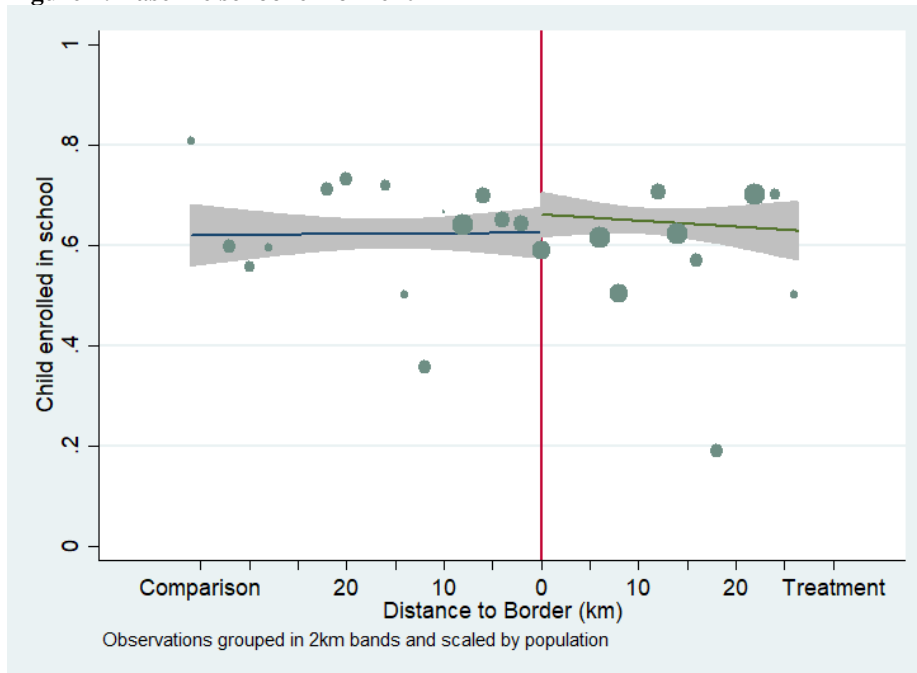
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## Figures

Map 1: Map of pilot and comparison households

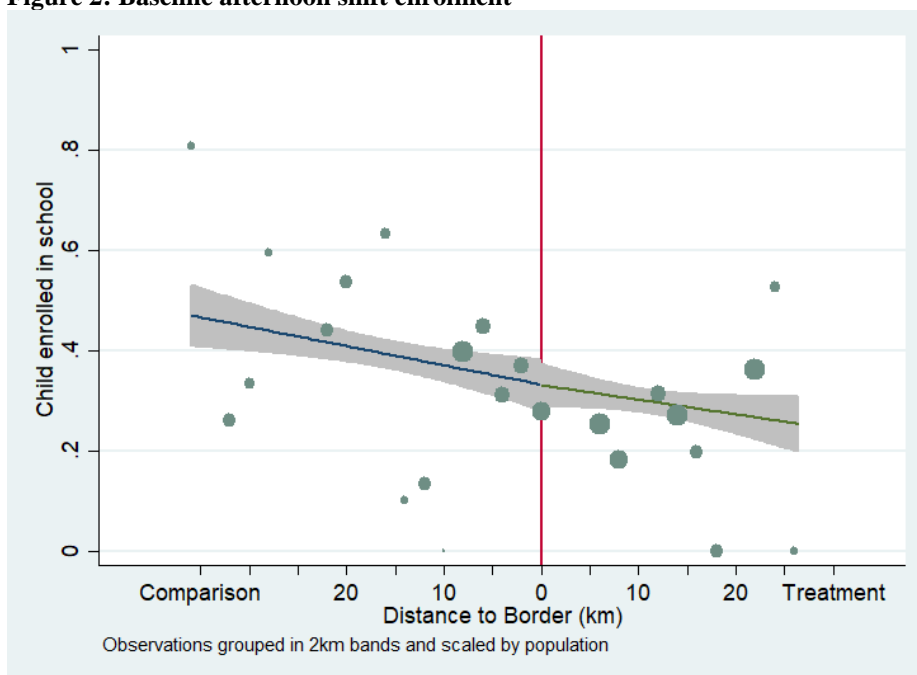


**Figure 1: Baseline school enrolment**



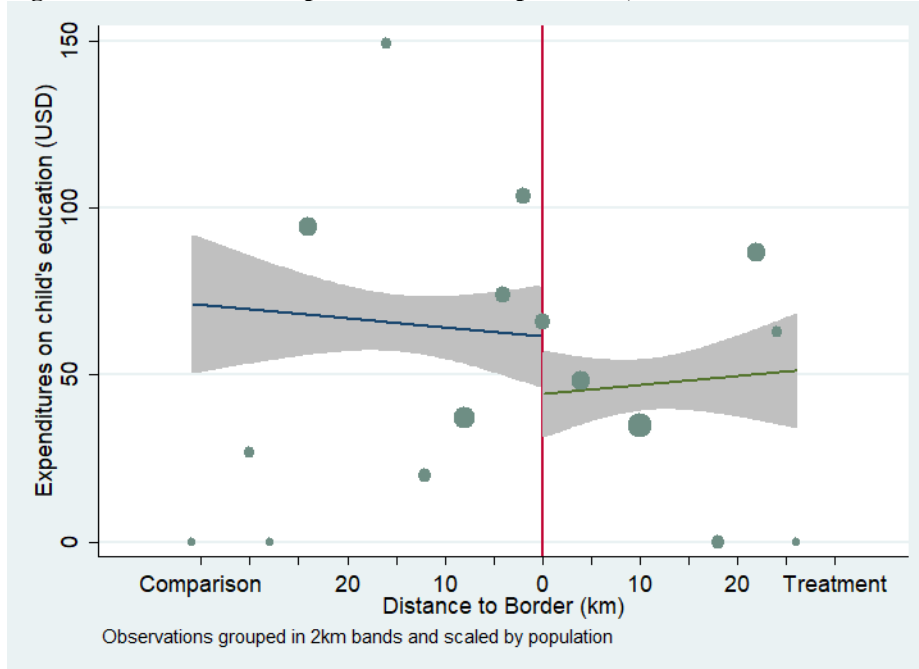
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures enrolment at baseline. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 2: Baseline afternoon shift enrolment**



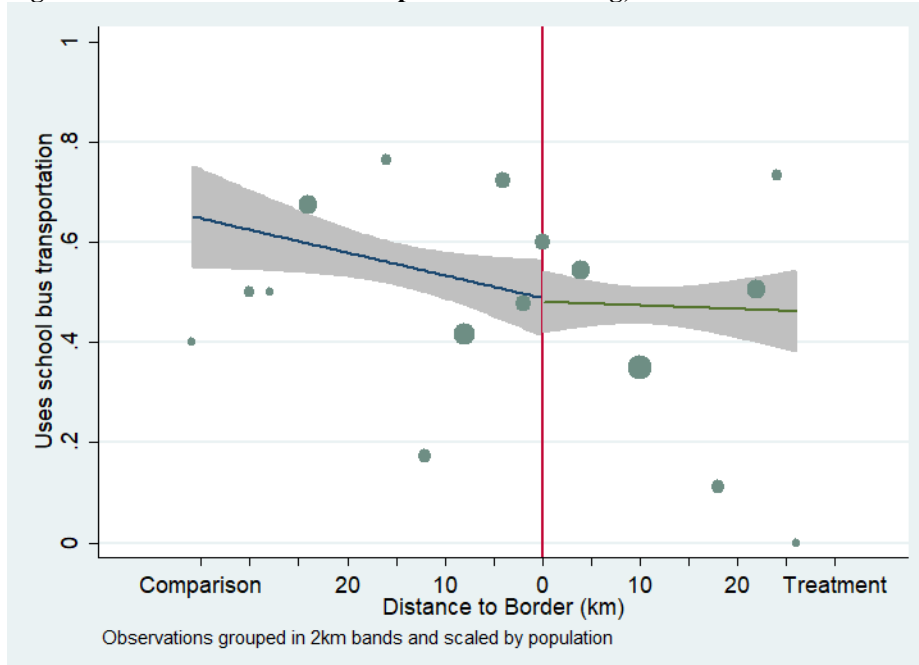
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures enrolment in an afternoon shift school at baseline. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 3: Baseline annual per child school expenditure, conditional on enrolment in an afternoon shift**



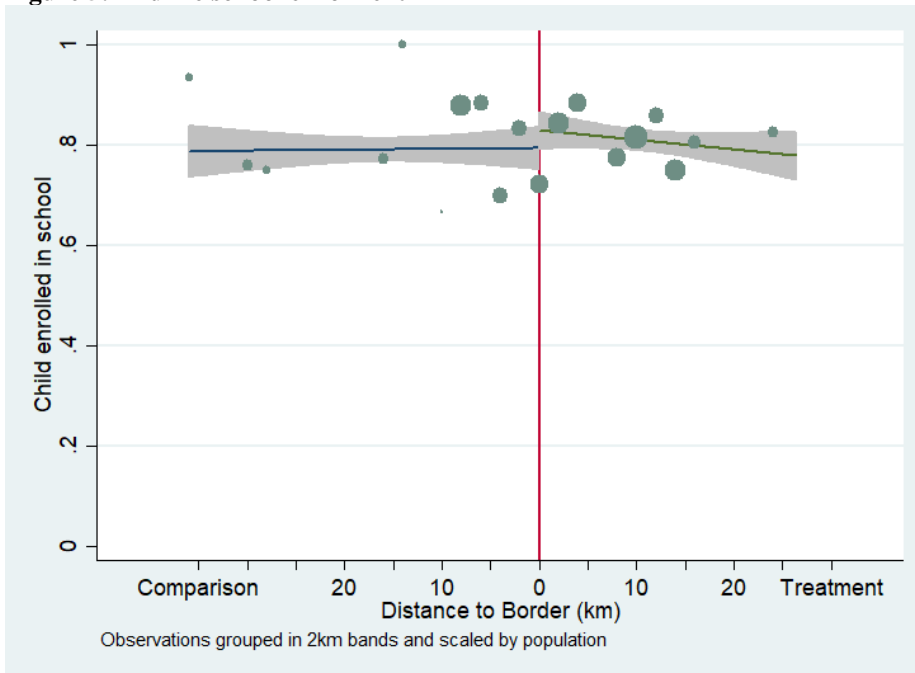
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures education expenditure in US dollars at baseline, conditional on enrolment in an afternoon shift. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 4: Baseline use of bus transport for commuting, conditional on enrolment in an afternoon shift**



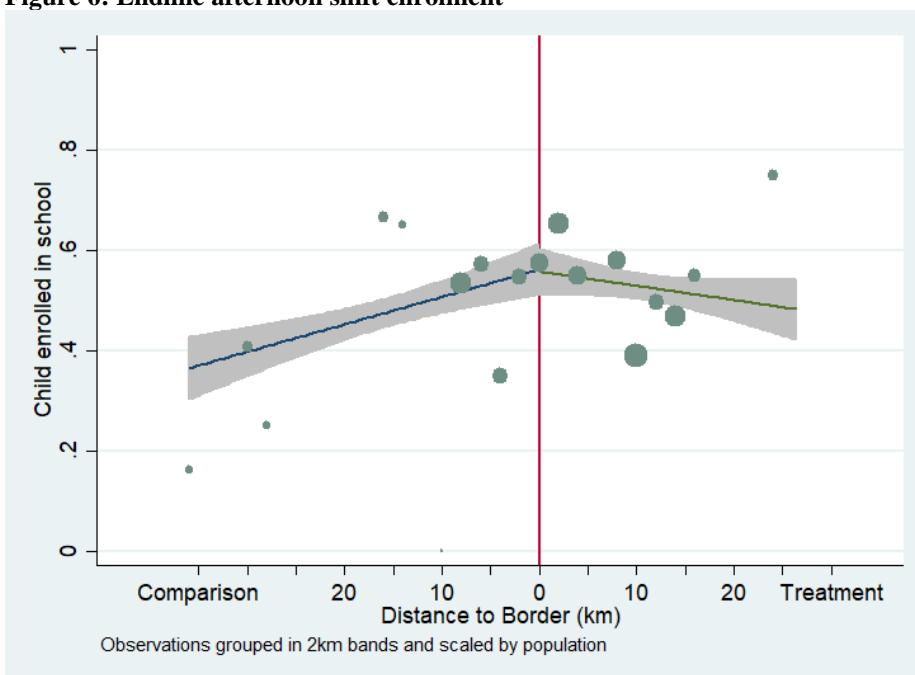
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures bus transport for commuting to school at baseline, conditional on enrolment in an afternoon shift. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 5: Endline school enrolment**



*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures enrolment at follow-up. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

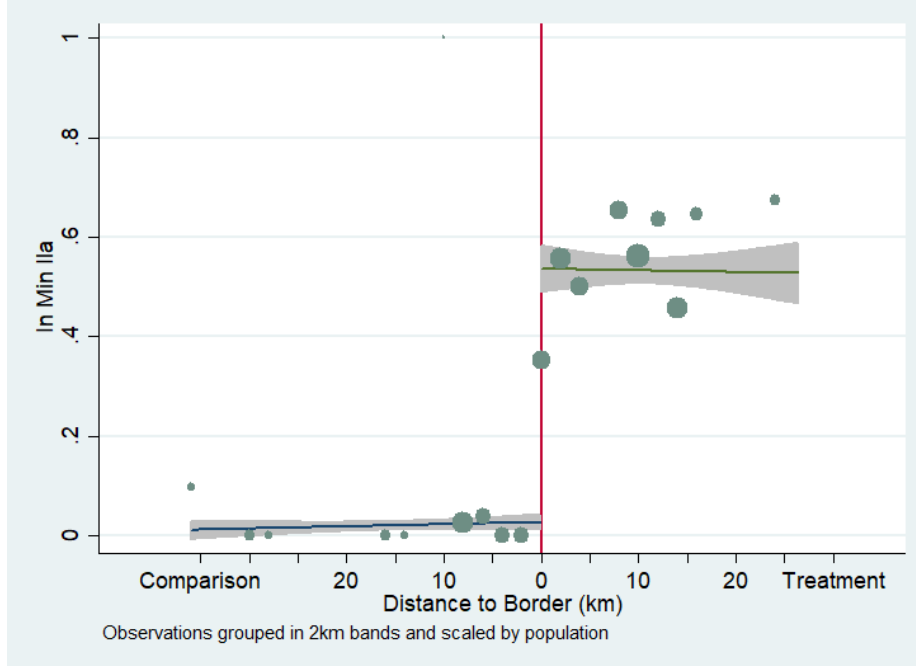
**Figure 6: Endline afternoon shift enrolment**



*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures enrolment in an afternoon shift school at follow-up. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

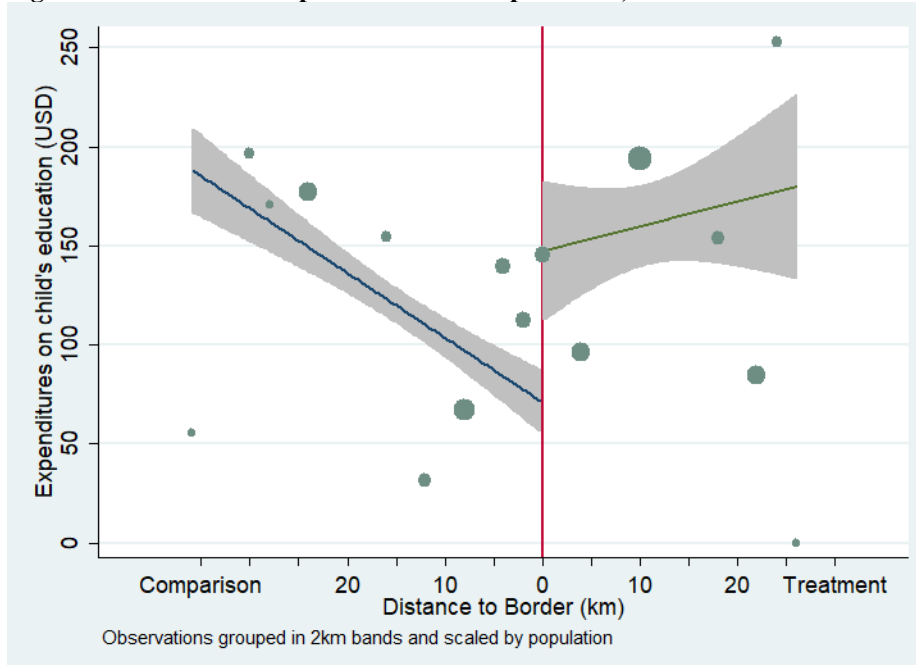


**Figure 7: Endline NLG/Min Ila beneficiaries, at the household level, based on administrative data**



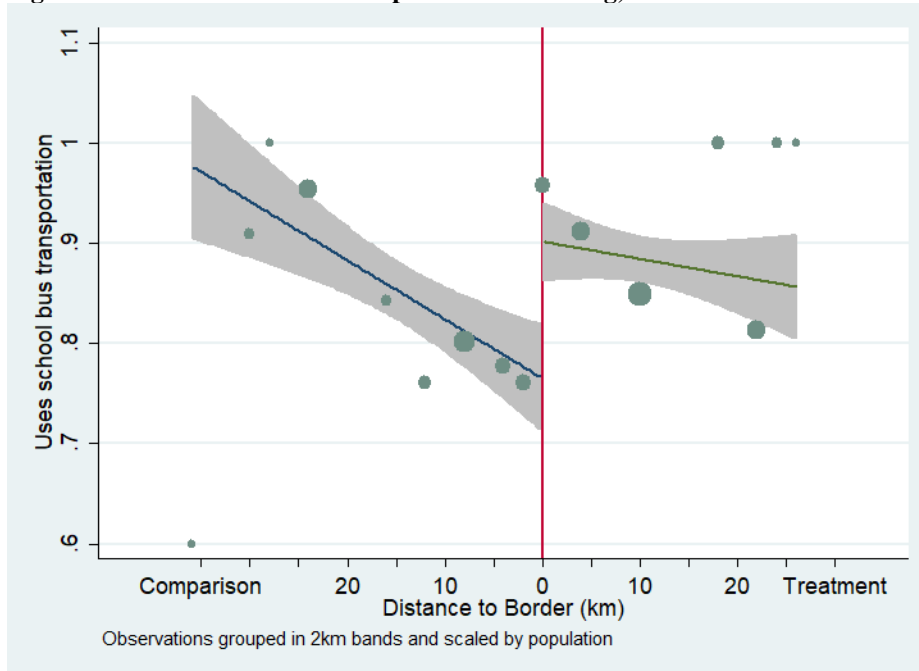
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures enrolment in the NLG/Min Ila Programme at follow-up. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 8: Endline annual per child school expenditure, conditional on afternoon shift enrolment**



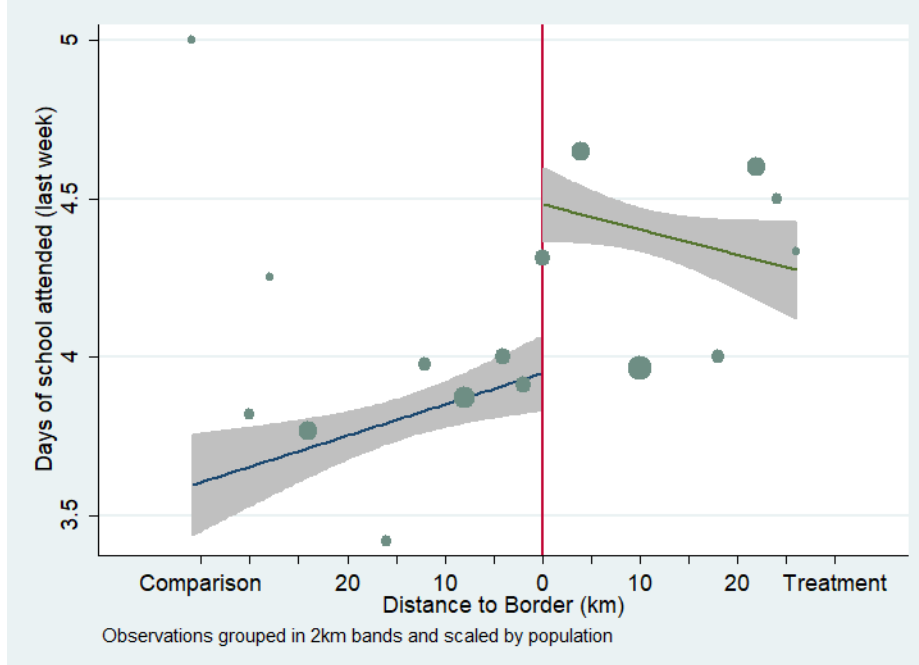
*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures education expenditure in US dollars at follow-up, conditional on enrolment in an afternoon shift. Dots represent local averages for clusters of households, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

**Figure 9: Endline use of bus transport for commuting, conditional on enrolment in an afternoon shift**



*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures bus transport for commuting to school at follow-up, conditional on enrolment in an afternoon shift. Dots represent local averages for clusters of households, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

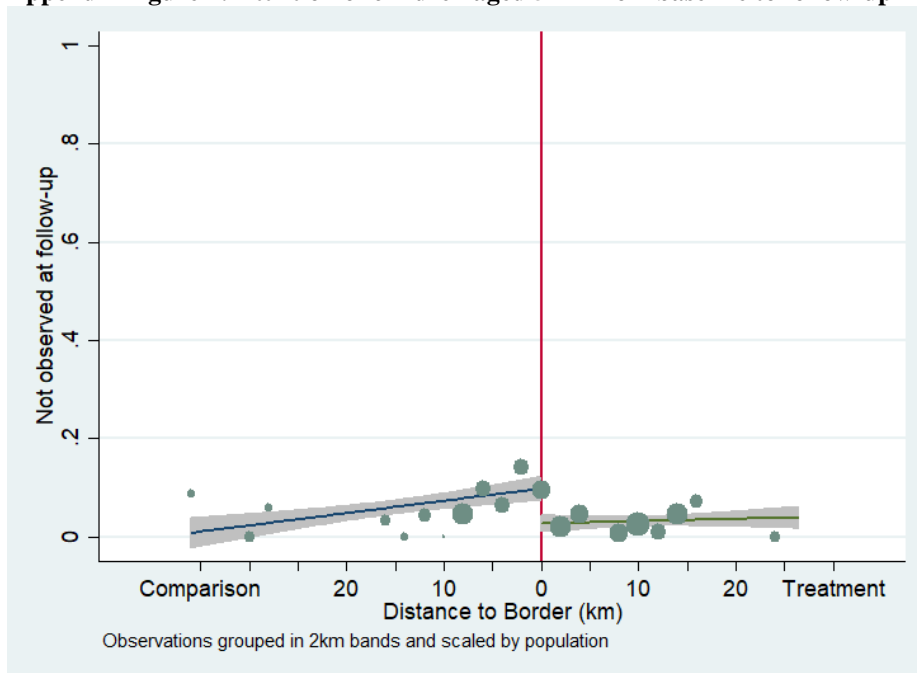
**Figure 10: Endline school attendance, conditional on enrolment in an afternoon shift**



*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures days of school attendance in the seven days before the follow-up interview, conditional on afternoon shift enrolment. Dots represent local averages for clusters of households, scaled by the number of households. Linear ordinary least squares regression lines have been fitted left and right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

## Appendix figures

Appendix Figure 1: Attrition of children aged 5–14 from baseline to follow-up



*Note:* The horizontal axis represents distance (in kilometres) to the border separating the pilot governorates (Akkar and Mount Lebanon) from the comparison governorates (North, South, and Nabatieh). The vertical red line represents the border itself. The vertical axis measures the percentage of households that remain in the sample at follow-up. Dots represent local averages, scaled by the number of households. Linear ordinary least squares regression lines have been fitted to the left and the right of the border. Grey areas represent the 95 per cent confidence interval around the regression line.

## Tables

**Table 1: Household demographic and composition characteristics at baseline**

| Variables                       | Control |     | Treatment |     | Balance Test |             |
|---------------------------------|---------|-----|-----------|-----|--------------|-------------|
|                                 | Mean    | N1  | Mean      | N2  | Diff         | Significant |
| Household Size                  | 6.07    | 497 | 6.35      | 590 | -0.04        | -           |
| # Children (0-14) per household | 2.56    | 497 | 2.70      | 590 | 0.13         | -           |
| # Young children (5-9) per HH   | 1.48    | 497 | 1.45      | 590 | 0.09         | -           |
| # Older children (10-14) per HH | 1.08    | 497 | 1.25      | 590 | 0.04         | -           |
| Time Displaced (years)          | 3.84    | 497 | 3.97      | 588 | 0.27         | <0.05       |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), without covariates. All outcomes measure the proportion of households unless otherwise indicated.

**Table 2: Adult demographic characteristics (aged 17+) at baseline**

| Variables              | Control |       | Treatment |       | Balance Test |             |
|------------------------|---------|-------|-----------|-------|--------------|-------------|
|                        | Mean    | N1    | Mean      | N2    | Diff         | Significant |
| Female                 | 0.51    | 1,763 | 0.51      | 2,234 | 0.01         | -           |
| Age (years)            | 32.82   | 1,763 | 33.12     | 2,228 | 0.6          | -           |
| Literate               | 0.85    | 1,762 | 0.83      | 2,216 | -0.09        | <0.05       |
| Attended middle school | 0.46    | 2,956 | 0.45      | 3,663 | 0.07         | -           |
| Employed (last 7 days) | 0.25    | 1,762 | 0.25      | 1,968 | 0.05         | -           |
| Good Health            | 0.63    | 1,757 | 0.51      | 2,214 | 0.05         | -           |
| Able to walk           | 0.63    | 1,757 | 0.6       | 2,211 | 0.01         | -           |
| Able to sweep          | 0.25    | 1,762 | 0.25      | 1,968 | 0.05         | -           |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), without covariates. All outcomes measure the proportion of adults unless otherwise indicated.

**Table 3: Housing quality and access to basic services at baseline**

| Variables                          | Control |     | Treatment |     | Balance Test |             |
|------------------------------------|---------|-----|-----------|-----|--------------|-------------|
|                                    | Mean    | N1  | Mean      | N2  | Diff         | Significant |
| Lives in a house                   | 0.75    | 497 | 0.64      | 590 | -0.18        | -           |
| Lives in a tent                    | 0.09    | 497 | 0.17      | 590 | 0.04         | -           |
| Dwelling in crowded location*      | 0.49    | 497 | 0.34      | 590 | -0.03        | -           |
| Dwelling in poor conditions*       | 0.11    | 497 | 0.12      | 590 | -0.08        | -           |
| Dwelling has dangerous conditions* | 0.03    | 497 | 0.06      | 590 | 0.06         | <0.05       |
| Electric Energy Source             | 0.83    | 495 | 0.92      | 588 | -0.01        | -           |
| Access to pumped water             | 0.40    | 497 | 0.33      | 590 | -0.11        | -           |
| Access to toilet/latrine           | 0.99    | 497 | 1.00      | 590 | 0.01         | -           |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), without covariates. All outcomes measure the proportion of households unless otherwise indicated.

\* Quality was judged by enumerator-assessed perception of the housing.

**Table 4: Household economic well-being and exposure to aid at baseline**

| Variables                           | Control |     | Treatment |     | Balance Test |             |
|-------------------------------------|---------|-----|-----------|-----|--------------|-------------|
|                                     | Mean    | N1  | Mean      | N2  | Diff         | Significant |
| Total income PC USD (past 30 days)  | 54.29   | 497 | 50.10     | 590 | -6.77        | -           |
| Rents housing                       | 0.04    | 497 | 0.12      | 590 | 0.04         | -           |
| Not enough food (past 7 days)       | 0.32    | 496 | 0.55      | 590 | 0.14         | -           |
| Anyone skipped meal (past 7 days)   | 0.11    | 496 | 0.42      | 590 | 0.17         | <0.05       |
| Children skipped meal (past 7 days) | 0.03    | 496 | 0.13      | 590 | -0.02        | -           |
| Any Assistance (proportion of HH)   | 0.98    | 494 | 0.99      | 545 | 0.01         | -           |
| MPCA/LCC Assistance                 | 0.35    | 494 | 0.40      | 545 | 0.07         | -           |
| WFP Assistance                      | 0.91    | 494 | 0.92      | 545 | 0.00         | -           |
| UNICEF Winter                       | 0.10    | 494 | 0.19      | 545 | 0.01         | -           |
| UNHCR Winter (\$147)                | 0.57    | 494 | 0.59      | 545 | -0.03        | -           |
| UNHCR Winter (\$75)                 | 0.18    | 494 | 0.26      | 545 | 0.11         | <0.10       |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), without covariates. All outcomes measure the proportion of households unless otherwise indicated.

**Table 5: Children aged 5–14: demographic characteristics, education, and time use at baseline**

| Variables                                 | Control |       | Treatment |       | Balance Test |             |
|---|---------|-------|-----------|-------|--------------|-------------|
|   | Mean    | N1    | Mean      | N2    | Diff         | Significant |
| Female                                    | 0.49    | 1,237 | 0.48      | 1,530 | 0.01         | -           |
| Age (years)                               | 9.1     | 1,237 | 9.25      | 1,530 | -0.12        | -           |
| Enrolled in school                        | 0.62    | 1,237 | 0.65      | 1,530 | 0.01         | -           |
| Boys                                      | 0.63    | 630   | 0.64      | 791   | 0            | -           |
| Girls                                     | 0.61    | 607   | 0.66      | 739   | 0.02         | -           |
| Young (5-9)                               | 0.65    | 714   | 0.64      | 828   | -0.03        | -           |
| Old (10-14)                               | 0.59    | 523   | 0.66      | 702   | 0.05         | -           |
| Enrolled in afternoon-shift               | 0.39    | 1,237 | 0.3       | 1,530 | -0.02        | -           |
| Boys                                      | 0.39    | 630   | 0.29      | 791   | 0.03         | -           |
| Girls                                     | 0.39    | 607   | 0.31      | 739   | -0.06        | -           |
| Young (5-9)                               | 0.4     | 714   | 0.31      | 828   | -0.06        | -           |
| Old (10-14)                               | 0.37    | 523   | 0.29      | 702   | 0.04         | -           |
| Conditional on afternoon-shift enrolment: |         |       |           |       |              |             |
| Education expenditure                     | 55.68   | 1,237 | 56.24     | 1,530 | -22.62       | <0.05       |
| Boys                                      | 54.36   | 630   | 50.76     | 791   | -23.49       | <0.10       |
| Girls                                     | 57.06   | 607   | 62.11     | 739   | -21.54       | <0.05       |
| Young (5-9)                               | 56.4    | 714   | 55.96     | 828   | -11.64       | -           |
| Old (10-14)                               | 54.71   | 523   | 56.58     | 702   | -36.15       | <0.01       |
| Commutes by bus                           | 0.48    | 1,237 | 0.43      | 1,530 | 0.02         | -           |
| Boys                                      | 0.5     | 630   | 0.4       | 791   | -0.05        | -           |
| Girls                                     | 0.45    | 607   | 0.47      | 739   | 0.1          | -           |
| Young (5-9)                               | 0.51    | 714   | 0.42      | 828   | -0.01        | -           |
| Old (10-14)                               | 0.44    | 523   | 0.44      | 702   | 0.06         | -           |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), without covariates. All outcomes measure the proportion of children unless otherwise indicated.

**Table 6: Regression results**

| Subgroup                     | Enrolled in school | Enrolled in afternoon shift | In Min/Ila          | Conditional on second shift school attendance |                    |                                  |
|------------------------------|--------------------|-----------------------------|---------------------|---|--------------------|----------------------------------|
|                              |                    |                             |                     | Education expenditure                         | Commutes by bus    | Days attended school (past week) |
| All                          | 0.046<br>(0.049)   | -0.003<br>(0.076)           | 0.518***<br>(0.075) | 73.350*<br>(37.132)                           | 0.138**<br>(0.066) | 0.607***<br>(0.176)              |
| Boys                         | 0.044<br>(0.060)   | 0.025<br>(0.086)            | 0.511***<br>(0.080) | 68.070*<br>(39.491)                           | 0.133*<br>(0.076)  | 0.649***<br>(0.168)              |
| Girls                        | 0.055<br>(0.048)   | -0.031<br>(0.078)           | 0.518***<br>(0.079) | 80.086**<br>(37.495)                          | 0.144**<br>(0.065) | 0.552***<br>(0.201)              |
| Young (5-9)                  | 0.041<br>(0.042)   | -0.006<br>(0.096)           | 0.510***<br>(0.078) | 88.490**<br>(38.233)                          | 0.160**<br>(0.065) | 0.684***<br>(0.164)              |
| Old (10-14)                  | 0.063<br>(0.078)   | 0.012<br>(0.086)            | 0.535***<br>(0.081) | 50.759<br>(40.585)                            | 0.101<br>(0.083)   | 0.511**<br>(0.212)               |
| Observations:                |                    |                             |                     |   |                    |                                  |
| All                          | 2,767              | 2,767                       | 2,767               | 1,392   | 1,392              | 1,392                            |
| Boys                         | 1,421              | 1,421                       | 1,421               | 701   | 701                | 701                              |
| Girls                        | 1,346              | 1,346                       | 1,346               | 691   | 691                | 691                              |
| Young                        | 1,542              | 1,542                       | 1,542               | 855   | 855                | 855                              |
| Old                          | 1,225              | 1,225                       | 1,225               | 537   | 537                | 537                              |
| Endline control group means: |                    |                             |                     |   |                    |                                  |
| All                          | 0.79               | 0.47                        | 0.02                | 117.81  | 0.85               | 3.81                             |
| Boys                         | 0.79               | 0.47                        | 0.02                | 119.81  | 0.85               | 3.81                             |
| Girls                        | 0.79               | 0.48                        | 0.02                | 115.75  | 0.85               | 3.80                             |
| Young                        | 0.90               | 0.53                        | 0.02                | 114.10  | 0.86               | 3.74                             |
| Old                          | 0.64               | 0.41                        | 0.02                | 124.36  | 0.83               | 3.92                             |

*Note:* Standard errors are robust to heteroscedasticity and clustered at the school level. Differences are estimated based on equation (1), with covariates. All outcomes measure the proportion of children unless otherwise indicated.

\*\*\* p < .01 \*\* p < .05 \* p < .1