Oxford Review of Economic Policy, Volume 38, Number 3, 2022, pp. 625–653

The Syrian refugee life study: first glance

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Abstract: This paper presents descriptive statistics from the first wave of the Syrian Refugee Life Study (S-RLS), which began in 2020. S-RLS is a longitudinal study that tracks a representative sample of approximately 2,500 registered Syrian refugee households in Jordan. It collects comprehensive data on sociodemographic variables, health and well-being, preferences, social capital, attitudes, and safety and crime perceptions. We use these data to document sociodemographic characteristics of Syrian refugees in Jordan and compare them to representative populations in the 2016 Jordan Labor Market Panel Survey (JLMPS). Our findings point to lags in basic service access, housing quality, and educational attainment for Syrian refugees relative to non-refugees. The impacts of the pandemic may partially explain these disparities. The data also show that most Syrian refugees have not recovered economically after Covid-19 and have larger gender disparities in income, employment, prevalence of child marriage, and gender attitudes than their non-refugee counterparts. Finally, mental health problems were common for Syrian refugees in 2020, with depression indicated among more than 45 per cent of the phone survey sample and 61 per cent of the in-person survey sample.

Keywords: refugees, Syria, Jordan, sociodemographics

JEL classification: O15, R2, F22

I. Introduction

As the number of refugees worldwide continues to grow, research on displaced populations has become critically important for governments and support organizations alike. Climate change will likely only exacerbate these issues and heighten the urgency of

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We gratefully acknowledge support from the UK Foreign, Commonwealth and Development Office through Innovation for Poverty Action's Peace and Recovery Program. We also thank the United Nations High Commissioner for Refugees for providing the data to construct the sampling frame for this study, and Mindset, our excellent research firm. We are grateful for excellent research assistance from Elisa Cascardi, Joaquin Fuenzalida, John Gorham, and Andy Theocharous. We are also grateful for the support of Samuel Leone, a foundational member of the Syrian Refugee Life Study team. We thank attendees at our September 2020 meeting for their useful comments and suggestions. All errors are our own. The first five authors are ordered randomly. This ordering was generated by the AEA randomization tool and is archived under confirmation code X3E-JmnvF2bA.
https://doi.org/10.1093/oxrep/grac023

creating strong data infrastructure. It is challenging, however, to generate high-quality, long-term data for refugee populations. These people are often victims of political persecution and violence, undergo long and difficult journeys, and are highly mobile. Many are forced to migrate without full documentation, making them reluctant to share personal information with outsiders. As such, sampling frames are rarely available to construct representative data for these populations in hosting locations.

The Syrian Refugee Life Survey (S-RLS) is one of the first longitudinal studies of a representative sample of refugees. The Syrian Arab Republic is the largest source of refugees worldwide, with over 6.8 million registered individuals displaced internationally as of mid-2021 (UNHCR, 2021). The survey examines the life characteristics of Syrian refugees in the Hashemite Kingdom of Jordan. The country hosts approximately 12 per cent of registered Syrian refugees (~655,000 people), representing a migration shock equal to 6.8 per cent of Jordan's total population. The survey sample is selected from the universe of registered households with the United Nations High Commissioner for Refugees (UNHCR), and it includes approximately 2,500 Syrian refugee households residing in camps and in Jordanian host communities. The S-RLS aims to (i) provide longitudinal data to enable researchers and policy-makers to track individuals and households over time and (ii) to amplify the information about this population, including measures of risk and time preferences, detailed migration histories, and child outcomes, among others. This effort extends the repeated cross-sectional data that UNHCR routinely collects on Syrian refugees in Jordan regarding a relevant set of outcomes.[1]

Specifically, the S-RLS collects information on Syrian refugees' household characteristics and family life; consumption and expenditures; income, education, cognition, and preferences; health and well-being; child outcomes, attitudes, and crime victimization. This paper presents descriptive statistics on those variables by using two sources of data: a partial in-person wave of approximately 500 refugee households concentrated in urban areas (collected just before the pandemic) and a complete representative wave using phone surveys (collected during the pandemic). Both waves were collected in 2020. Section II presents details on each wave of the S-RLS survey including modules, representativeness, and sampling frame. We discuss the results of these surveys in sections III, IV, and V.

Section III uses the representative S-RLS phone survey data to compare basic sociodemographic characteristics of Syrian refugees in 2020 with those of non-refugees and Syrian refugees living in Jordan in 2016. The comparison data comes from the Jordanian Labor Market Panel Survey (JLMPS), which was the most recent comprehensive, publically available representative survey of residents in Jordan. We find that Syrian refugees in 2020 had larger households, were disproportionately younger, and faced larger lags in terms of public service access (including education attainment and access) compared to non-refugee households in the 2016 JLMPS. Syrian refugees in 2020 also had worse housing quality and food security than 2016 non-refugees. Relative to refugees in the 2016 JLMPS, Syrian refugees in the 2020 S-RLS had less food security, worse housing

[1] For example, the 2019 Vulnerability Assessment Framework population study explored different dimensions of vulnerability across multiple sectors from a representative sample of registered Syrian refugees in Jordan. This study provided information about vulnerabilities in the targeted population and contributed to UNHCR's interpretation of their home visit assessments.

quality, and less access to public services, except in the case of education, which experienced an opposite trend. These trends were driven by refugees residing outside refugee camps and were presumably related to the impacts of the Covid-19 pandemic.

Section IV presents evidence on the economic impacts refugees experienced as a result of the Covid-19 pandemic. The statistics reported throughout this section are based on changes in population means before, during, and after the spring 2020 lockdown. The pandemic devastated the household income of Syrian refugees in Jordan; they suffered an 80 per cent reduction in household income on average during the Covid-19 lockdown, while the number of households with a member working fell to a quarter of the pre-lockdown level. After the lockdown ended, these households only recovered 72 per cent of income lost during the pandemic. The number of Syrian refugee households with at least one member earning income declined by 12 per cent from before to after the lockdown.[2] Pandemic-related income variation was more pronounced for households living outside camps relative to those in camps. The former saw a larger reduction in *per capita* income during the lockdown, but also a larger recovery after the lockdown.

Section V reports a range of descriptive statistics that offer a richer understanding of study participants' lives, with measures including child marriage, sources of aid, intentions to return to Syria, and mental health. The data herein largely come from the in-person comprehensive survey collected for only 468 of the study sample households before the Covid-19 pandemic unexpectedly halted data collection.[3] The in-person survey subsample is more urban than the full representative sample captured in the phone survey because enumeration was geographically clustered to reduce costs and began in urban centres. The data illustrate large gender disparities in employment access, prevalence of child marriage, and gender attitudes. Moreover, the data indicate that refugee populations are not fully integrated into Jordanian society. For example, more than a quarter of Syrian refugee children living in Jordan's host communities did not have any Jordanian friends and did not share recreational spaces with Jordanian children. Refugees also had negligible access to formal financial services and relied on friends and relatives for loans. Another important pattern shows that most refugees did not expect to return to Syria within 2 years of the conflict ending. Finally, a large share of refugees experienced mental health concerns—that is, 45 per cent of the phone survey sample met Centre for Epidemiological Studies Depression (CES-D) criteria for depression—and caregivers' mental health correlated greatly with their children's mental health.[4]

(i) Relation to the literature

We advance the literature concerning the economic, social, and political roles of refugees in Jordan by presenting previously uncollected data about this population. We

[2] A 12 per cent decline follows from comparing the number of households with non-zero household income before the lockdown (2,062) and after the lockdown (1,807). These figures are reported in Table 5 as the sample sizes of households with non-zero household income.

[3] The depression statistics are the sole exception; we report these using the representative phone survey sample.

[4] Figure 6, which reports the prevalence of depression among Syrian refugees, uses phone survey data; Table 12, which reports child mental health with parent mental health, uses the in-person sample.

focus here on summarizing literature relevant to Syrian refugees since the literature on refugees in general is large and summarized well by other scholars.[5] While there is a growing literature on topics related to the forced migration of Syrian refugees, a significant gap remains about their economic conditions.

Existing literature focuses on understanding refugees' economic and social relationships with their host communities. Researchers have found evidence of meaningful economic impacts from refugee flows in countries bordering Syria, including Jordan, Turkey, and Lebanon. Rozo and Sviatschi (2021) compare regions near and far from refugee camps in Jordan to show that refugee inflows increased rents due to fixed housing supply. Jordanian renters pay higher rents and Jordanian owners earn more rental income. Using evidence from Turkey, Tumen (2016) finds that refugee flows reduce native employment, especially in the informal sector. He finds no wage effects and documents declines in consumer prices. These price decreases likely arise from declines in informal labour costs. In contrast to these labour market estimates, researchers have found null effects on educational and health outcomes of natives. Aygün, *et al.* (2021) find no effect of refugee arrivals on native health outcomes in Turkey after controlling for endogenous location choice, and Assaad *et al.* (2018) find no effect of Syrian refugee concentration on Jordanian educational attainment. We advance this literature beyond the focus on natives—for whom more data are available—by presenting new facts on the economic, educational, and health conditions of Syrian refugees.

The literature also documents fairly mixed evidence regarding social relations between refugees and natives in host communities in the Syrian context. Barron *et al.* (2020) find relatively little cross-ethnic bias among Syrian and Jordanian children (in either direction). In a study of Jordanian adults, Alrababa'h *et al.* (2021) find that anti-refugee sentiment is not more pronounced among Jordanians who were more economically hurt by the migration influx. Similarly, Altindag and Kaushal (2021) find that migrant flows in Turkey have no effect on native political preferences. On the other hand, Lehmann and Masterson (2020) document moderate rates of anti-refugee violence in Lebanon but find no evidence that gains in aid to Syrian refugees in Lebanon increased the prevalence of this violence. Finally, Bertoli *et al.* (2021) use cell phone data to document segregation patterns of refugees in Turkey and show that segregation decreased with the share of refugees in an area. They also indicate that refugees chose to locate in places with low segregation and higher shares, while natives were indifferent. We contribute to these topics by presenting data on integration into the Jordanian community alongside gender and political attitudes.

Much of the evidence regarding refugees themselves is limited to migration decisions. Balcilar and Nugent (2019) and Beaman *et al.* (2021) study the determinants of refugees' likelihood of returning to Syria. Balcilar and Nugent (2019) document that worse conflict in the Syrian place of origin and better-quality services in Turkey decrease the likelihood of return. Similarly, Beaman *et al.* (2021) find that better security and better availability of services in Syria predict return. We complement this literature by presenting statistics on intent to return among a representative sample of refugees in Jordan. These data plus information from future waves will advance research on how

[5] In particular, see Jacobsen (2005), Ruiz and Vargas-Silva (2013), Betts *et al.* (2016), Alloush *et al.* (2017), and Verme and Schuettler (2021).

refugees make migration decisions, and how intent to return and actual return may vary across individuals and over time.

II. The Syrian Refugee Life Panel Survey

The first wave of the S-RLS survey was collected in early 2020 and was initially planned as in-person interviews. However, due to the Covid-19 pandemic, only 468 in-person surveys (approximately 20 per cent of the sample) were completed before in-person activities were halted. The survey was subsequently shortened and conducted via a phone interview. The new, shorter phone survey took place in late 2020 and covered the full sample, including households previously surveyed in person. Table 1 describes in detail the modules included in the in-person and phone survey rounds to date.

(i) Sampling frame

The sampling frame for the S-RLS was constructed from the universe of 323,746 adult Syrian refugees registered with UNHCR in Jordan as observed until early 2020. As reported by the media and our data, the bulk of migration from Syria occurred between 2011 and 2015, so the number of Syrian refugees in Jordan is not expected to dramatically increase. UNHCR manages the Syrian refugee presence in Jordan in collaboration with the Jordanian government and coordinates all international humanitarian actors under the UNHCR umbrella. Because the majority of humanitarian support in Jordan comes through UNHCR, registration rates are believed to be high.

That said, reliable estimates for the exact number of unregistered Syrian refugees are not available. Government estimates conducted in 2017 concluded there were approximately 1.3 million Syrian refugees in the country, which would suggest that nearly 50 per cent of Syrians in Jordan are not registered with UNHCR (UNHCR, 2022; Ghazal, 2017). However, estimates from the JLMPS suggest a much smaller number of unregistered refugees. According to the 2016 JLMPS, 81 per cent of individuals aged 15–59 with Syrian nationality and not born in Jordan are registered with UNHCR.[6] The government of Jordan and UNHCR also partnered from 2018–19 in a 'rectification campaign' to register refugees who had either never registered or who had lost their status by leaving camps without authorization prior to 2017 (El-Fayez, 2018). Therefore, the current number of unregistered refugees is likely smaller than 2016 JLMPS estimates suggest.

The socioeconomic status of unregistered refugees is not well-documented. Since legal documentation is necessary to access most social services in Jordan, unregistered refugees are likely positively selected. Other plausible reasons for lack of registration also suggest lower vulnerability, including marriage to a Jordanian or flight from Syria prior to 2013 when Jordan began to require an asylum seeker certificate for legal residence (NRC, 2016). Empirically, unregistered Syrians in the 2016 JLMPS are positively

[6] Authors' calculation.

Table 1: S-RLS survey modules

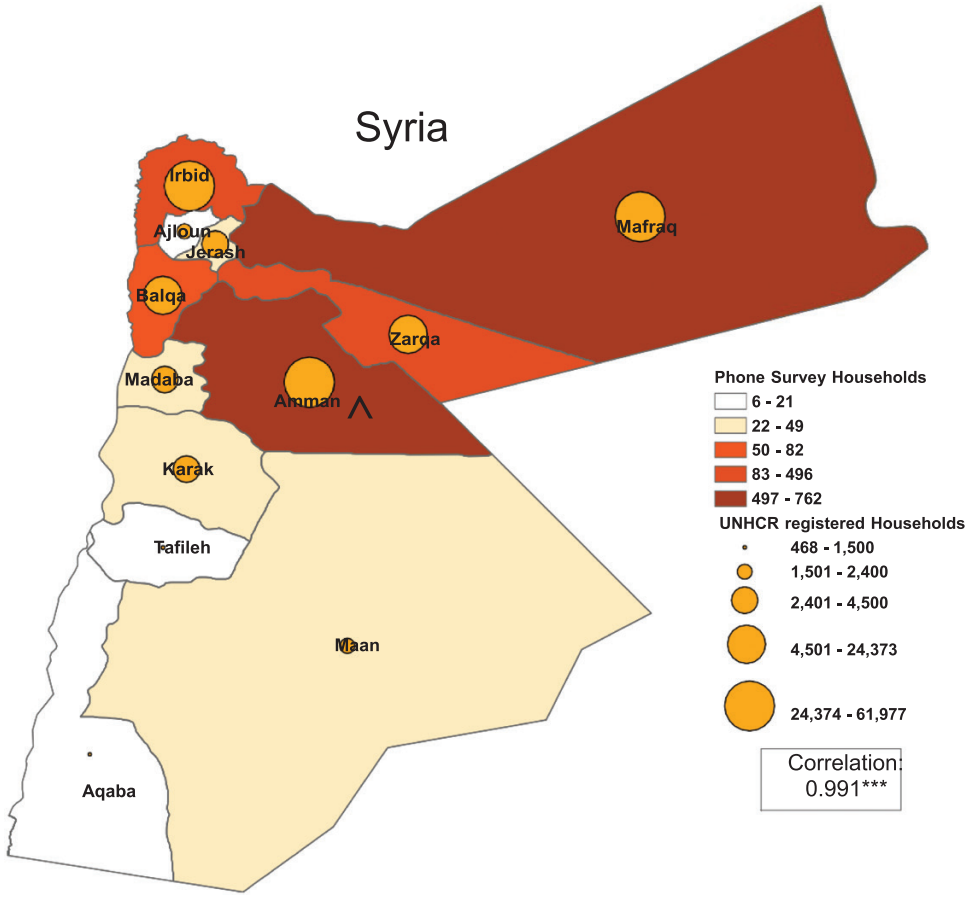
Module	In-person	Phone survey
Panel A: Household characteristics and family life		
Current household roster	X	X
2011 household roster	X	
Dwelling characteristics	X	X
Marriage & fertility	X	
Migration	X	X
Panel B: Consumption and expenditures		
Food consumption: staples	X	
Food security	X	X
Frequent non-food purchases & durables	X	
Panel C: Income		
Economic outcomes		X
Agriculture	X	
Self-employment: current & history	X	
Employment: current & history	X	
Transfers, savings, & credit	X	
NGOs & government assistance	X	
Panel D: Education, cognition, and preferences		
Schooling history	X	
Risk & time preferences	X	
Ambiguity, altruism, & trust	X	
Raven's tests	X	
Panel E: Health and well-being		
Physical & mental health	X	X
Sleep	X	
Perceived stress	X	X
Grit	X	
Covid-19		X
Panel F: Child outcomes		
Child strengths & difficulties	X	
Sleep patterns: children	X	
Other child outcomes	X	
Panel G: Social capital, attitudes, and safety		
Religion	X	
Norms & host community relations	X	
Community groups, social capital, & political attitudes	X	
Community problems	X	
Safety & crime victimization	X	
N	468	2,516

selected in terms of wealth, income, years of schooling, and employment.[7] For these reasons, the S-RLS may not be generalizable to unregistered refugees but is likely representative of the majority of Syrian refugees in Jordan.

The S-RLS was drawn from a random sample of UNHCR's registered refugees at the individual level. It was stratified by gender, age, governorate, and camp status—dimensions the research team deemed important in examining demographics of refugees in the region. Figure 1 illustrates the number of households registered with UNHCR

[7] This positive selection is based on authors' calculation of t-tests comparing individuals with Syrian nationality and not born in Jordan who are/are not registered with UNHCR. We caution that there are fewer than 100 Syrians in the 2016 JLMPS who are not registered with UNHCR, although the positive selection described in the text is statistically significant.

Figure 1: S-RLS sampling frame.



Notes: This figure compares the number of UNHCR-registered households with the number of households in the representative phone survey, by governorate. The correlation between these two governorate-level values is 0.991, which supports its representativeness.

in 2020 (the S-RLS sampling frame) and the number of households in the longitudinal S-RLS study. The majority of the S-RLS sample (85 per cent) is concentrated in four governorates: Amman, Mafraq, Zarqa, and Irbid.

(ii) The 2020 in-person survey

Tables A1 and A2 illustrate the geographic and household representativeness of the in-person survey—the survey round left uncompleted due to Covid-19 that collected a richer set of modules as described in Table 1. As shown in Table A1, the in-person survey was concentrated in the Jordanian governorates of Amman and Irbid, two highly populated ones. This is an artefact of the geographically clustered initial rollout, which was designed to control costs. As such, the in-person survey is more urban than the representative phone sample.

Table A2 reports average household characteristics for the representative phone survey (column (2)) and the difference between the in-person survey and the representative phone survey (column (3)). Panel A compares household characteristics as reported by the focus respondent; panel B compares household labour statistics before, during, and after the Covid-19 lockdown (March–May 2020);[8] and panel C compares individual characteristics for the complete household roster.[9] Individuals in the in-person survey generally had larger households, more children, more education, and better access to public services (such as electricity, water, and housing quality), relative to the phone survey sample. Panel B also illustrates that the in-person sample had higher incomes before and after the lockdown (although not during) and sustained larger reductions in hours worked during the lockdown. These characteristics align with their location in urban centres. The in-person survey did not include people living in refugee camps, as data collection in the camps had not been launched yet when the pandemic halted the survey.

As a robustness measure, we used basic demographic data from the UNHCR register— age, sex, marital status, Jordanian governorate and district, and Syrian governorate and district, to generate an inverse probability weight to improve the representativeness of the in-person survey. While these weights are limited by the relatively basic information used to construct them, we are reassured that none of the patterns observed in the in-person data reported in this paper qualitatively changes by including them.

III. Syrian refugees relative to the Jordanian population

This section compares the sociodemographic characteristics of the Syrian refugees interviewed in the S-RLS phone survey of 2020 with the non-refugee Jordanian residents and registered Syrian refugee populations interviewed in the JLMPS 2016 and the Jordanian Population Census of 2015. The JLMPS is a nationally representative labour market panel survey collected in 2010 and 2016. It has information on non-refugees and refugees, a status directly reported by the individuals interviewed. The 2016 JLMPS oversampled neighbourhoods with high proportions of non-Jordanian households, including refugee camps, as ascertained by the 2015 Population Census. Thus it is the most recent comprehensive effort to collect representative demographic information for Jordanians and non-Jordanians alike, and to make these data publicly available.[10]

(i) Household size

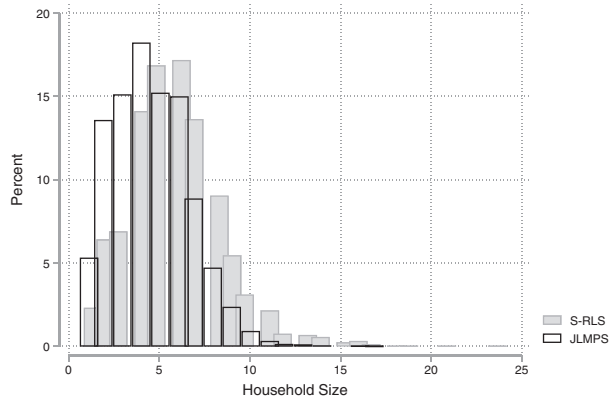
Syrian refugee households were larger than Jordanian-headed households. Figure 2 reports the household size distribution of Syrian refugees in 2020 and Jordanian-headed

[8] This data was collected for the in-person sample in a follow-up call in October 2020.

[9] The household roster collects basic information including age, gender, educational attainment, school attendance, and occupation for each individual in the household.

[10] Other recent cross-sectional efforts include the Household Expenditure and Income surveys of 2017–18.

Figure 2: Household size distribution (S-RLS phone survey).



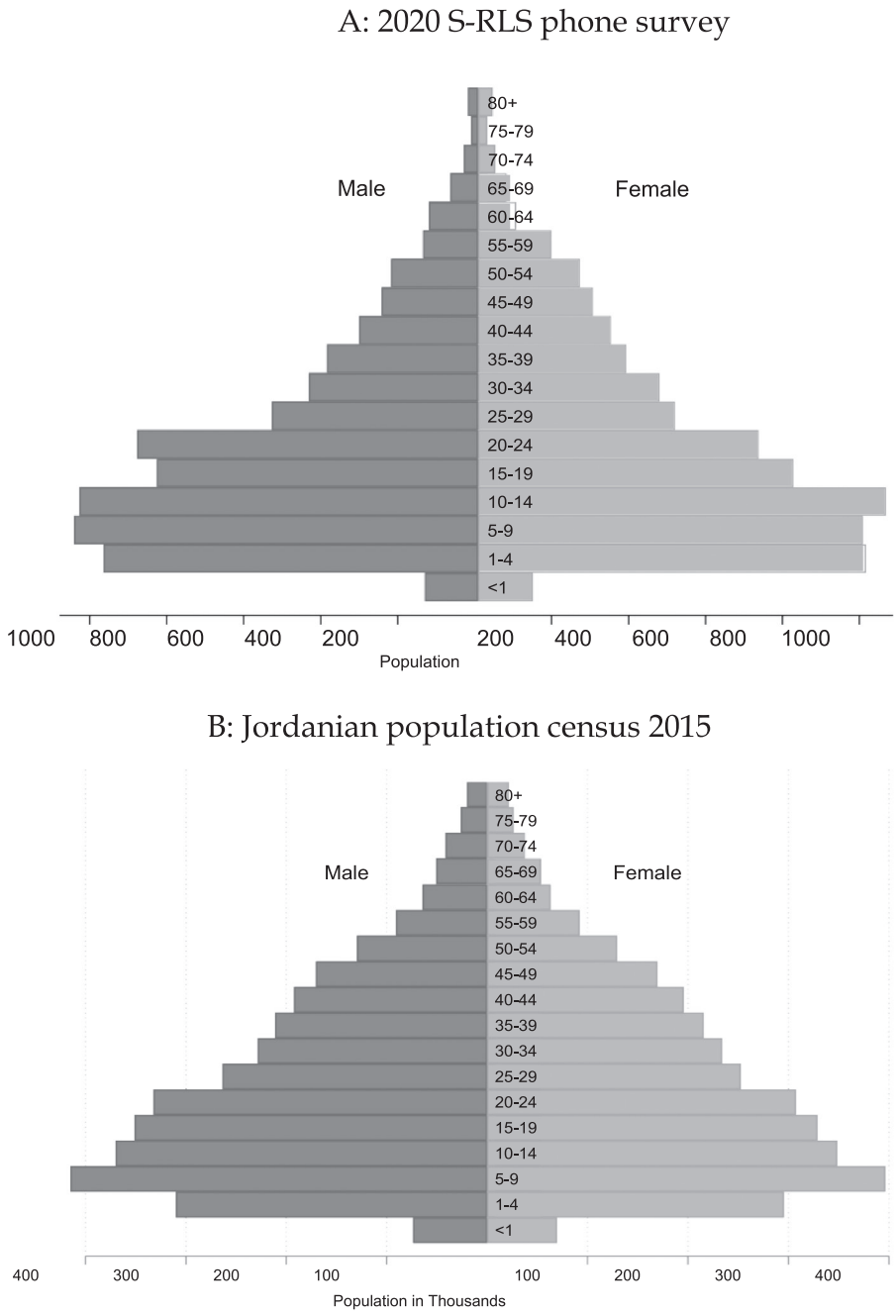
Notes: The S-RLS bars report the size distribution of households surveyed using the representative phone survey. We used the 2016 JLMPS data to create the frequency household-level weights and kept the households with a Jordanian household head for comparison purposes.

households in 2016. Table 4 indicates that, on average, Syrian refugee households had 5.96 members and non-refugee households had 4.61 members. This difference in size is largely driven by the number of children. As reported in Table 4, the average Syrian refugee household in 2020 had 3.01 children, while the average non-refugee 2016 household in Jordan had 2.12 children. Although the average number of adults in refugee vs non-refugee households is similar, the mean masks important variation. S-RLS households in 2020 were more likely to have one adult or more than two adults than non-refugee JLMPS households in 2016, reflecting the prevalence of single-parent and other non-nuclear household arrangements among Syrian refugees.

(ii) Gender and age distribution

The Syrian refugee population in Jordan had a similar gender distribution but was on average younger than the non-refugee Jordanian population. Figure 3 illustrates the gender and age distributions of the individuals in the S-RLS phone survey (panel A) and those observed for Jordanian nationals in the Population Census of 2015 (panel B). Although roughly 50 per cent of each sample is female, the S-RLS sample disproportionately comprises younger individuals. These trends are confirmed in Table 2, which compares basic demographics for the individuals interviewed in the S-RLS phone survey (columns (1)–(3)) with those observed for the 2016 JLMPS sample (columns (4)–(7)). For each sample, the table reports statistics for the subsamples of refugees, non-refugees, refugees inside camps, and refugees outside camps. The table illustrates that among adults aged 18–59 in each sample, approximately 50 per cent of respondents were female for all population groups. The average age of Syrian refugees in the restricted S-RLS and JLMPS samples was approximately the same (32.78 and 32.98 years, respectively). The table also suggests that, on average, non-refugees in the 2016 JLMPS were slightly older (34.08 years) relative to Syrian refugees.

Figure 3: Age and gender distribution (phone survey).



Panel A: 2020 S-RLS phone survey
Panel B: Jordanian population census 2015

Table 2: Individual summary statistics

	2020 S-RLS (phone survey)						2016 JLMPS							
	Syrian refugee						Non-refugee		Syrian refugee					
	All		Camp		Non-camp				All		Camp		Non-camp	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Panel A: Demographics														
Male (=1)	0.50	6,932	0.51	981	0.50	5,935	0.54	15,866	0.46	1,069	0.49	708	0.45	361
Age (Years)	32.76	6,932	33.82	981	32.59	5,935	34.08	15,866	32.98	1,069	32.56	708	33.05	361
Panel B: Education														
In-school adult (=1)	0.06	4,589	0.07	599	0.06	3,979	0.11	16,081	0.04	1,080	0.02	715	0.04	365
Adult schooling years	7.99	4,558	8.42	596	7.92	3,951	10.84	15,865	7.42	1,068	6.58	707	7.57	361

Notes: A refugee in JLMPS is defined as someone who is registered as a refugee among those aged 15–59 years old who are neither Jordanian nationals nor born in Jordan. Thus, we restrict the S-RLS sample to those aged 18-59 to maintain comparability. Non-refugees includes Jordanians and non- Jordanians without a refugee status in Jordan. In-school are those who indicate their occupation as student in S-RLS. As for JLMPS, this question is asked directly to respondents. Adult years of schooling in S-RLS are calculated as 6 years for those whose highest level of education completed successfully is elementary school; 9 years for preparatory in Syria; 10 years for preparatory in Jordan; 12 years for vocational training and secondary; 14 years for diploma; 16 years for university; 17 years for higher diploma; and 18 years for master's. The JLMPS years of schooling are calculated by their team based on two cases. For current students and those aged less than 42 years old, the years of schooling correspond to the current grade for basic education; 10 plus current grade for vocational and secondary; 12 plus current grade for intermediate diploma and bachelor's; 16 plus current year for post-grad diploma and master's; 18 plus current year for PhD. As for those aged 42 and above, the calculation is similar, except there are two additional levels: primary and preparatory. Those who completed primary are assigned their latest grade, while those who completed preparatory are assigned 6 plus their latest completed grade. All statistics reported for the JLMPS data use sampling weights.

Table 3: Adult educational attainment (%)

	2020 S-RLS (phone survey)				2016 JLMPS		
	Syrian refugee			Non-refugee	Syrian refugee		
	All	Camp	Non-camp		All	Camp	Non-camp
Illiterate	8.69	7.38	8.83	7.37	21.82	24.33	16.9
< 10th grade	38.85	33.89	39.71	15.01	54.96	54.17	56.51
Basic education	26.88	30.7	26.32	31.35	9.55	8.2	12.19
Vocational	.22	.34	.2	.55	0	0	0
Secondary education	16.98	18.62	16.73	19.04	8.99	8.77	9.42
Post-secondary	2.74	2.68	2.73	8.31	1.97	2.55	.83
University	5.42	6.38	5.21	16.6	2.62	1.98	3.88
Post-graduate	.22	0	.25	1.78	.09	0	.28
N	4,558	596	3,951	15,865	1,068	707	361

Notes: A refugee in JLMPS is defined as someone who is registered with the United Nations High Commissioner for Refugees (UNHCR), excluding Jordanian nationals and those born in Jordan. Non-refugees includes Jordanians and non-Jordanians without refugee status in Jordan. The JLMPS sample is also restricted to those aged 15–59 years. For our analysis of JLMPS and S-RLS, data are at the individual level and limited to adults 18–59 years old. For JLMPS, the 'Read & Write' category is relabelled as '< 10th grade' because Basic Education includes some individuals over age 42 in the JLMPS with 9 years of education due to a schooling reform. For S-RLS, the focus respondent is excluded as he/she was not included in the roster. Education categories in S-RLS are regrouped to make JLMPS and S-RLS comparable; the original S-RLS education categories are: Nursery, Illiterate, Read & Write, Elementary, Preparatory, Vocational Training, Secondary, Diploma, BA, Higher Diploma, MA, and PhD.

(iii) Education access and attainment

Syrian refugees in 2020 had lower educational access and attainment relative to non-refugees in Jordan in 2016. Panel B of Table 2 shows that the average years of education for adults in the S-RLS were 8.0, relative to 10.8 for non-refugee adults in the JLMPS. A larger gap was observed in the 2016 JLMPS between refugees (7.4 years) and non-refugees (10.8 years). The large disparities across the Syrian refugee population and non-refugees in the JLMPS are also illustrated in Table 3, where individuals in the S-RLS and JLMPS were divided across educational attainment. Educational attainment was substantially lower for Syrian refugees in 2020 in every category of education relative to non-refugees. In fact, in 2020 the majority of Syrian refugees (74.4 per cent) had, at most, basic education.

Syrian refugees in 2020 had better educational attainment and access on average than Syrian refugees interviewed in the 2016 JLMPS. The positive dynamic trend is observed for refugees residing inside and outside camps. As illustrated in panel B of Table 2, when comparing refugees in the 2020 S-RLS phone survey with refugees in the 2016 JLMPS, educational access and attainment were higher for refugee populations in 2020. These differences could be driven by differences in the S-RLS and JLMPS samples. However, the maintenance of the trend in the camp sample (where sampling differences would be less likely) supports the idea that the data capture a dynamic trend.

(iv) Food security, housing quality, and access to public services

Syrian refugee households were on average more vulnerable than the representative non-refugee Jordanian household. Table 4 illustrates that on average and relative to the

Table 4: Household summary statistics

	2020 S-RLS (phone survey)								2016 JLMPS					
	Syrian refugee						Non-refugee		Syrian refugee					
	All		Camp		Non-camp				All		Camp		Non-camp	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Panel A: Basic demographics														
Household size	5.96	2,343	5.96	382	5.96	1,956	4.61	5,175	5.38	470	5.28	327	5.40	143
Children	3.01	2,343	3.43	382	2.93	1,956	2.12	5,175	3.13	470	3.22	327	3.11	143
Individuals per room	2.34	2,343	3.57	382	2.10	1,956	1.50	5,174	2.54	470	4.25	327	2.11	143
Male head	0.77	2,343	0.81	382	0.77	1,956	0.91	5,174	0.74	470	0.85	327	0.72	143
Three meals (=1)	0.17	2,343	0.32	382	0.14	1,956	0.62	5,121	0.50	470	0.33	327	0.54	143
Panel B: Housing														
Permanent floor (=1)	0.76	2,343	0.01	382	0.90	1,956	0.99	5,173	0.91	470	0.59	327	0.99	143
Permanent roof (=1)	0.68	2,343	0.00	382	0.82	1,956	0.95	5,173	0.77	470	0.03	327	0.96	143
Toilet (=1)	0.96	2,343	0.99	382	0.95	1,956	1.00	5,173	0.98	470	0.94	327	0.99	143
Piped water (=1)	0.82	2,343	0.80	382	0.82	1,956	0.98	5,173	0.86	470	0.39	327	0.98	143
Electrical grid (=1)	0.91	2,279	0.89	371	0.91	1,903	0.99	5,173	1.00	470	0.99	327	1.00	143
Panel C: Adult labor market														
Annual income (USD PPP)	8,404	2,317	5,816	382	8,922	1,933	10,500	5,126	3,239	469	1,631	327	3,646	142
Weekly hours	42	2,309	31	379	44	1,928	45	4,462	27	354	15	252	29	102

Notes: The table shows statistics from the representative phone S-RLS wave collected in 2020 and the 2016 JLMPS. A refugee in JLMPS is defined as someone who is registered as a refugee among those aged 15–59 years old who are neither Jordanian nationals nor born in Jordan. Non-refugees includes Jordanians and non-Jordanians without refugee status in Jordan. Since the comparison in this table is at the household level, we assign a JLMPS household as being refugee or camp based following the household head's status and restrict the sample to those aged 18–59. Three meals is defined as eating at least three meals the day prior in the S-RLS survey, and as eating almost three meals each day over the last 12 months in the JLMPS survey. Permanent floor indicator is defined as one if the floor material is cement or tiles, and zero otherwise (mud, soil, fabricated unit, or other) in S-RLS; for JLMPS, it is defined as one if the floor material is cement, tiles/ceramic, or wood, and zero otherwise (steel/zinc, dirt, other). Permanent roof indicator is defined as one if the roof is bricks with stone, finished concrete, or tiles, and zero otherwise (rudimentary mud bricks, tin, tent/tarp, unfinished/incomplete roof, fabricated unit, other) in S-RLS; for JLMPS, it is defined as one if the roof material is reinforced concrete, or wood, and zero otherwise (iron, corrugated roofing, tarp/cloth or other). Piped Water is defined as an indicator that equals one if the main water source is pipe, and zero otherwise (well, water trucks, borehole well, bottled water/vendor, or neighbours) in S-RLS; for JLMPS, it is defined as an indicator that equals one if the other water source for other purposes (non-drinking) is public water use/filter, and zero otherwise (water tank, rainwater well, artesian well, channel, dam, pond water, spring, or other). Electrical grid is defined as one if the source of electricity is connection to grid and zero otherwise (generator, car battery, solar home system, connection through neighbour, or other) for S-RLS; for JLMPS, it is defined as one if the lighting source is public/general electric network and zero otherwise (private generator, gas, kerosene, and other). Income for S-RLS is annualized as the survey asks for weekly household income from adult labour before the start of the Covid-19 pandemic; for JLMPS, it is the total net salary of all workers in a household, converted to annual wages. JLMPS individuals who are not working are assigned an income of zero to maintain comparability with S-RLS. Hours worked in S-RLS also refers to pre-pandemic adult hours, while in JLMPS it is the current number of Hours for Market & Subsistence Work. Income and hours are winsorized at the top 1 per cent of values in order to limit the influence of outliers as prespecified. All statistics reported for the JLMPS data use sampling weights.

non-refugee sample in the JLMPS, Syrian refugee households had a lower proportion of male-headed households (0.77 vs 0.91) and lived in more crowded spaces (2.34 individuals per room vs 1.5 individuals per room). Syrian refugee households also reported higher levels of food insecurity, worse housing quality, and lower access to public services (such as piped water or the electrical grid), relative to non-refugee households in the 2016 JLMPS.

Relative to refugees in the 2016 JLMPS, refugees in the 2020 S-RLS had less food security, worse housing quality, and less access to public services. The trends in food security and public service access were driven by refugees residing outside refugee camps and were presumably related to impacts of the Covid-19 pandemic. On average and relative to the sample of refugees in the JLMPS (columns (1) and (5) of Table 4), Syrian refugees in the S-RLS sample had similar household sizes and numbers of children. Refugees in 2020 also reported lower-quality housing materials and less access to public services relative to those interviewed in 2016. They also reported consuming a smaller number of meals. In fact, only 17 per cent of the individuals in the S-RLS sample had three meals on the day prior to the survey, relative to 51 per cent of individuals in the JLMPS sample.[11]

When comparing refugees in camps in both surveys (columns (2) and (6)), we observe similar basic demographics. Compared to refugees interviewed in the 2016 JLMPS, S-RLS refugees in 2020 reported better access to toilets and piped water, although public electricity provision appears to have declined slightly. The definitions of permanent flooring and roofing differ dramatically between the S-RLS and the JLMPS with respect to prefabricated housing units. This makes it particularly difficult to interpret the make-up of building materials in refugee camps. As a result, we do not place much weight on the large differences in these variables.

Refugees living outside camps displayed similar basic demographics (columns (3) and (7)), but Syrian refugees in the 2020 S-RLS reported having fewer permanent housing materials and less access to public services, relative to refugees interviewed in the 2016 JLMPS. These trends suggests material conditions of refugees outside camps in Jordan are not improving over time or may have deteriorated amid the Covid-19 pandemic.

IV. The economic impacts of Covid-19 on Syrian refugees

This section illustrates the economic impacts of the Covid-19 pandemic on Syrian refugees in Jordan. The analysis, found in Table 5, centres on comparisons of the average income and hours worked pre-lockdown (January through 15 March 2020: panel A); during lockdown (15 March through 15 May 2020: panel B); and post-lockdown (since 15 May 2020: panel C) for all refugees in the S-RLS phone sample (column (1)), those living in camps (column (2)), and those living outside camps (column (3)). These data are based on retrospective self-reports and were collected in the phone survey. The statistics in Table 5 and discussed below are based on changes in group means, not mean household-level nor individual-level changes.[12] We find that:

[11] The JLMPS asks whether refugees have eaten three meals almost every day over the last 12 months.

[12] By comparing group means, we may miss heterogeneous household-level impacts. We leave this analysis to future work.

Table 5: Labour market statistics (phone survey)

	All		In-camp		Out-of-camp	
	Mean	N	Mean	N	Mean	N
	(1)		(2)		(3)	
Panel A: Pre-lockdown						
A1. All data						
Total income (annualized USD PPP)	8,266	2,481	5,714	401	8,765	2,078
Per-adult income (annualized USD PPP)	2,153	2,481	1,626	401	2,256	2,078
% working (per week)	81	2,469	70	397	83	2,070
Total hours worked (per week)	42	2,469	31	397	44	2,070
Per-adult hours worked (per week)	11	2,469	9	397	11	2,070
A2. Positive amounts						
Total income (annualized USD PPP)	9,946	2,062	7,874	291	10,290	1,770
Per-adult income (annualized USD PPP)	2,590	2,062	2,240	291	2,649	1,770
Total hours worked (per week)	51	1,993	44	277	53	1,715
Per-adult hours worked (per week)	13	1,993	13	277	13	1,715
Panel B: Lockdown						
B1. All data						
Total income (annualized USD PPP)	1,593	2,494	1,528	402	1,605	2,090
Per-adult income (annualized USD PPP)	425	2,494	442	402	421	2,090
% working (per week)	9	2,494	11	402	8	2,090
Total hours worked (per week)	3	2,494	4	402	3	2,090
Per-adult hours worked (per week)	1	2,494	1	402	1	2,090
B2. Positive amounts						
Total income (annualized USD PPP)	7,538	527	7,312	84	7,589	442
Per-adult income (annualized USD PPP)	2,012	527	2,118	84	1,993	442
Total hours worked (per week)	34	213	34	46	33	166
Per-adult hours worked (per week)	9	213	9	46	8	166
Panel C: Post-lockdown						
C1. All data						
Total income (annualized USD PPP)	6,394	2,483	4,061	402	6,841	2,080
Per-adult income (annualized USD PPP)	1,658	2,483	1,132	402	1,758	2,080
% working (per week)	66	2,489	49	401	69	2,086
Total hours worked (per week)	29	2,489	19	401	31	2,086
Per-adult hours worked (per week)	8	2,489	6	401	8	2,086
C2. Positive amounts						
Total income (annualized USD PPP)	8,786	1,807	7,097	230	9,028	1,576
Per-adult income (annualized USD PPP)	2,278	1,807	1,979	230	2,320	1,576
Total hours worked (per week)	45	1,634	40	195	46	1,438
Per-adult hours worked (per week)	11	1,634	12	195	11	1,438

Notes: This table displays descriptive results on household employment and income. Panel A shows pre-lockdown numbers, Panel B shows lockdown numbers, Panel C shows post-lockdown numbers. Data are at the household-level. Income is annualized as the survey asks for weekly household income from adult labour. All income and hours data are winsorized at the top 1% of values in order to limit the influence of outliers.

1. *Syrian refugees in Jordan experienced an average reduction of 80 per cent in per-adult income during the Covid-19 lockdown.* The table suggests the lockdown had a sharply negative impact on per-adult income and hours worked for Syrian refugees. Annualized per-adult income in each household fell from US$2,153 purchasing power parity (PPP) pre-lockdown to US$425 PPP during lockdown (a reduction of 80.3 per cent). Per-adult hours worked fell from 11 hours to 1 hour per week (a reduction of 90.9 per cent), an almost complete

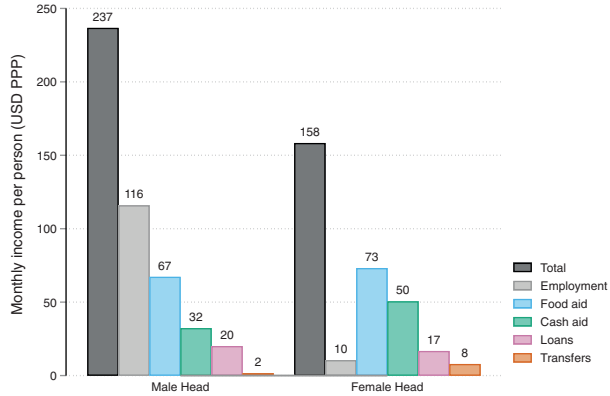
labour shutdown. The reductions in labour income were sharp for refugees residing both inside and outside camps, but were larger for the latter. Refugees inside camps experienced a reduction of 72.8 per cent and those outside camps suffered a reduction of 81.3 per cent in per-adult income.

2. *Only 21.1 per cent of Syrian refugee households in Jordan had an employed household member during the Covid-19 lockdown. The income shock was still negative but less severe for these households.* For those households with an employed member during the pandemic (roughly 21.1 per cent of the sample), income still fell substantially but less dramatically than for those households where no one kept a job. Particularly, per-adult income fell from US$2,590 pre-lockdown to US$2,012 during lockdown (a reduction of 22.3 per cent). Approximately 20.9 per cent of refugee households living inside camps had an employed member during lockdown, compared to 72.3 per cent before lockdown. The comparable figure was 21.1 per cent for refugee households outside camps, compared to 85.5 per cent before lockdown.
3. *Post-lockdown income per adult for Syrian refugees in Jordan was 77 per cent of the pre- lockdown level.* Per-adult income after the lockdown was on average US$1,658 PPP, approximately 77 per cent of the US$2,153 PPP income observed before the lockdown. Recovery was better among the employed; post-lockdown income of households with non-zero labour income was around 88 per cent of pre-lockdown levels. A similar trend was observed for hours worked; per-adult hours worked fell from 13 hours before the lockdown to 11 afterward (84.6 per cent of pre-lockdown levels). Refugees inside camps experienced a recovery in income per adult of 71.1 per cent. The rebound was stronger for refugees outside camps, who recovered 78.0 per cent of their pre-lockdown, per-adult income.
4. *The number of households with positive labour income declined by 12.4 per cent after the lockdown.* Prior to the lockdown, 2,062 households had positive labour income. This number declined to 1,807 after the lockdown (a 12.4 per cent loss). In camps, the loss was larger. The number of households in refugee camps with positive labour income declined by 21 per cent. This number was lower for refugees outside camps (where the number of employed households dropped 11 per cent).
5. *The income variation produced by the pandemic among refugee households was more pronounced for those outside camps than those in camps.* The former witnessed a larger reduction in per-adult income during the lockdown but also a more rapid recovery afterward. Per-adult income for households inside and outside camps fell 73.3 and 81.7 per cent during the lockdown, respectively. However, households inside and outside camps recovered 71.1 and 78.0 per cent of their pre-lockdown income, respectively.

V. New data: social attitudes and mental health

This section documents some of the novel and unusual data available in the S-RLS. These data come primarily from the comprehensive in-person survey of 468 households before the pandemic. These data are not available for the complete phone

Figure 4: Monthly income by gender: household heads (in-person survey).



Notes: The figure reports data for the focus respondents who are the household heads in the S-RLS in-person survey. We additionally restricted it to households for which data on each income stream is non-missing. This includes 163 male household heads and 52 female household heads. We winsorize each of the component income streams at the top 1% level (of the distribution excluding zeros) as prespecified, and all bars include observations with zeros. Employment includes self- and regular employment and is reported in monthly terms. The employment statistic reports take-home income and includes additional work benefits where available. Transfers, cash assistance, and loans are reported annually and divided by 12. Transfers include all remittances and other household-to-household transfers. Cash aid includes cash assistance from the government and NGOs, religious organizations, etc. Loans include commercial and informal loans. Interest is not included. Food aid was reported for the typical week and multiplied by four. Food aid data were collected in the context of food consumption in a separate section from cash aid. Food aid was reported in dinars or by weight. Food quantities reported by weight were translated to dinars using monthly governorate-level data from the UN World Food Programme on food prices for a typical basket of foods. All quantities were translated into dollars (PPP) and divided by the number of people in the household. Households that reported not knowing the value of an income stream other than food aid are marked as missing. Fourteen households did not know the quantity of food aid received in one of nine food categories, and three did not know the quantity received in two of nine categories. These DKs are marked as zero and totalled with the rest of the food categories.

survey since the instrument was shortened to prevent phone survey fatigue. The next subsections detail some interesting patterns observed for Syrian refugees in Jordan in early 2020.

(i) Sources of income by gender

Female-headed households were highly dependent on aid and had far lower income than male- headed households. Figure 4 illustrates the *per capita* income of male- and female-headed households. The reported sample is small (163 male-headed households and 52 female-headed households), but the data illustrate the large gender disparities between these households and the high vulnerability of female-headed households. In particular, total *per capita* income of female-headed households was only 66.7 per cent of that observed in male-headed households. The majority of the income in female-headed households came from cash and food aid (77.8 per cent of total income), whereas employment income was extremely low (6.3 per cent). By comparison, 49 per cent of total income in male-headed households came from employment.

(ii) Prevalence of child marriage

Child marriage was more common among Syrian refugees than Jordanian nationals. In both nationality groups, primarily girls married before age 18. Figure 5 reports the share of females and males married by age for Syrian and Jordanian nationals living in Jordan, before and after the onset of the conflict in Syria.[13] The figure suggests that child marriage (marriage for individuals younger than 18 years) was more common among Syrian refugees than Jordanian nationals. Child marriage was dramatically higher for females than males. The figure also illustrates that child marriage was slightly lower for females after the onset of the conflict in Syria.

(iii) Financial access

Formal financial access was negligible for Syrian refugees. However, informal loan access was prevalent, with family and friends as the most common sources of loans. Table 6 reports that only 1.1 per cent of the 467 households interviewed had a bank account. However, 48.6 per cent of these households asked for a loan and 44.8 per cent of households received one from family or friends. Most loans (92.6 per cent) were free of interest and the majority of past loans were not paid back in a timely manner (62.9 per cent of loans were reported in default).

(iv) Intentions to return

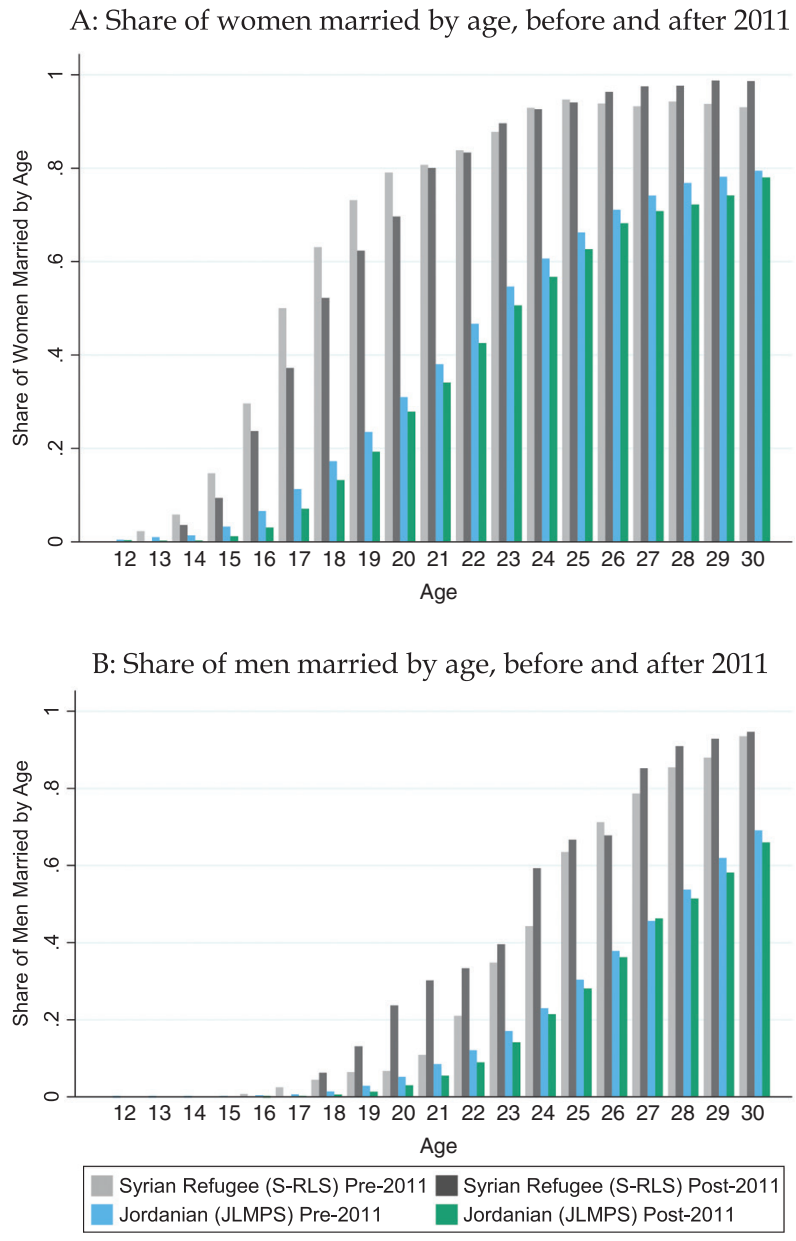
A majority of refugees believed the Syrian Civil War would not be resolved in the near future. Even if the conflict ended, more than half of refugees did not expect to return to Syria soon. Table 7 reports the responses of the S-RLS focus respondent to four questions: 'Will the conflict end in the next two years?' (panel A); 'Would you return in the next two years if the conflict is unresolved?' (panel B); 'Would you return to Syria within one year of the conflict ending?' (panel C); and 'When the conflict ends would you like to stay in Jordan?' (panel D). Of the refugees who answered these questions, 62.5 per cent said it was unlikely or very unlikely that the Syrian Civil War would be resolved in the next 2 years. Moreover, 85.6 per cent of the refugees said they would be unlikely or very unlikely to return to Syria if the conflict were unresolved. Some 52.7 per cent of refugees said it was unlikely or very unlikely that they would return to Syria within 1 year of the conflict ending, and 41.8 per cent said they expected to stay in Jordan after the conflict ended.

(v) Aid

In a typical week, more than 90 per cent of refugee households received food aid. More than half of refugee households received cash aid, which was mostly given by non-governmental organizations (NGOs). More than 90 per cent of the refugees received food aid; its

[13] We compare S-RLS individuals to Jordanian nationals, unlike in Tables 2, 3, and 4, which compare SRLS to all non-refugees in Jordan, because the JLMPS only asks individuals aged 15–59 if they are registered refugees.

Figure 5: Refugees' marriage patterns (in-person survey).



Panel A: Share of women married by age, before and after 2011
Panel B: Share of men married by age, before and after 2011
Notes: Panel A reports the share of women who were married at each age, separated by Syrian/Jordanian and whether they attained that age before or after 2011. Syrian bars include all focus respondents in the long-form S-RLS panel survey, and Jordanian bars include all individuals reporting Jordanian citizenship in the JLMPS. To focus on the effect of the war and abstract from the large increases in age at first marriage in the late twentieth century, the figure only includes women born between 1970 and 2001. 2001 was chosen as the upper bound since this question was only asked of focus respondents in the S-RLS, who were at least 18 in 2020. 1970 was chosen as a lower bound to include women who were between ages 10 and 30 years from 2000 to 2020.

Table 6: Financial access (in-person survey)

Panel A. Financial access	**% of hhs**
Bank account (Y/N)	1.1
Community savings group (Y/N)	1.9
Applied for formal or informal loan (year)	48.6
Denied formal or informal loan (year)	7.3
Lent money (Y/N, year)	0.6
Mean loan value (annual total, USD PPP)	1,693.8
N	467
Panel B. Any loans?	% of hhs
No	52.7
Yes – Commercial bank	0.4
Yes – Formal money lender	3.0
Yes – Mobile lender	0.0
Yes – Friends or family	44.8
N	467
Panel C. Most recent loan	% of hhs w/ loan
Loan interest free (%)	92.6
N	216
Most recent loan in default (%)	62.9
N	221

Notes: 'Applied for loan' is an imputed value that reflects the share of households that either took out a loan or reported being denied a loan in the past year. These groups are not mutually exclusive; some households were denied at some point but were still able to get a loan. Mean loan value refers to loans received and is winsorized at the top 1 per cent as prespecified.

typical weekly cash value was approximately US$18 PPP (or more than $900 per year). Table 8 illustrates that 61.5 per cent of male-headed and 70 per cent of female-headed households reported receiving cash assistance from an NGO. The percentage was negligible for cash assistance received from the Jordanian government, which makes sense because refugees in Jordan are not part of the government's safety net programmes. (As noted above, assistance to refugees is managed by UNHCR and NGOs.) The annual cash value of the cash transfers was US$674 and US$767 PPP for male- and female-headed households, respectively.

(vi) Integration into Jordanian society

More than a quarter of Syrian refugee children living in Jordan did not have Jordanian friends and did not share recreational spaces with Jordanian children. Table 9 illustrates the responses of the S-RLS focus respondent to two questions: 'Do the children in this house have any Jordanian friends?' (panel A) and 'Do the children share any recreational spaces with Jordanian children?' (panel B). Among households, 27.8 per cent indicated that children in their households did not have Jordanian friends and 41.4 per cent did not share recreational spaces with Jordanian children.

(vii) Gender attitudes

Males reported more conservative attitudes than did females regarding the role of women. Table 10 illustrates the responses of the S-RLS focus respondent to two questions: 'It is

Table 7: Intentions to return to Syria (in-person survey)

	Per cent
Panel A. Will the conflict end in the next two years?	
Very likely	1.7
Likely	17.6
Unlikely	24.4
Very unlikely	38.1
Do not know/ Depends	17.3
Refuses to answer	0.9
N	467
Panel B. Return in next two years if conflict unresolved?	
Very likely I will return	3.6
Likely I will return	9.4
Unlikely I will return	33.8
Very unlikely I will return	51.8
Do not know/ Depends	1.3
N	467
Panel C. Return to Syria within one year of the conflict ending?	
Very likely I will return	13.1
Likely I will return	30.6
Unlikely I will return	30.4
Very unlikely I will return	22.3
Do not know/ Depends	3.2
Refuses to answer	0.4
N	467
Panel D. When the conflict ends, would you like to stay in Jordan?	
Yes	41.8
No	54.0
Do not know/ Depends	3.9
Refuses to answer	0.4
N	467

Notes: This table reports responses from the focus respondent. Privacy was ensured during this section of the survey.

Table 8: Aid (in-person survey)

	Male-headed household		Female-headed household	
Type of assistance	**Gov't**	**NGO**	**Gov't**	**NGO**
By household:				
Any cash assistance, annual (%)	0.5	61.5	2.2	70.0
Annual cash value pp, (USD PPP>0)	20.5	673.9	125.4	767.3
N	377	377	90	90
Any food aid, typical week (%)		91.0		93.3
Typical weekly cash value pp, (USD PPP>0)		17.8		17.9
N		378		90

Notes: Any [type] assistance (%) reports what per cent of households received any assistance of that type. Currencies were translated to USD PPP. We calculated the approximate dollar value of food reported in kilograms or litres using monthly data from the World Food Programme (WFP) on governorate-level food prices in Jordan. Cash values are winsorized at the top 1 per cent level as prespecified.

Table 9: Integration with Jordanian community (in-person survey)

Panel A. Do the children in this house have any Jordanian friends?	
Yes	71.5
No	27.8
Do not know/ Depends	0.8
N	396
Panel B. Do the children share recreational spaces with Jordanian children?	
Yes	58.1
No	41.4
Do not know/ Depends	0.5
N	394

Notes: This table reports responses from focus respondents with children in the household.

Table 10: Gender attitudes (in-person survey)

	Per cent	
	Men	**Women**
Panel A. It is okay for a woman to work outside the house.		
Strongly agree	12.1	47.1
Agree	51.0	46.0
Neither agree or disagree	4.4	1.1
Disagree	20.4	4.2
Strongly disagree	12.1	1.1
Do not know/ Depends	0.0	0.4
N	206	261
Panel B. The important decisions in the family should be made by the men of the family.		
Strongly agree	14.1	9.6
Agree	34.0	24.1
Neither agree or disagree	4.9	1.1
Disagree	42.7	51.0
Strongly disagree	4.4	13.8
Do not know/ Depends	0.0	0.4
N	206	261

Notes: This table reports responses from the focus respondent.

okay for a woman to work outside the house' (panel A) and 'The important decisions in the family should be made by the men of the family' (panel B). The data show that 32.5 per cent of men disagreed or strongly disagreed that it was acceptable for women to work outside the home (vs 5.6 per cent for women). In a similar vein, 48.1 per cent of men agreed or strongly agreed with the statement that 'The important decisions in the family should be made by the men of the family.' In comparison, only 33.7 per cent of women agreed or strongly agreed with this idea.

(viii) Political attitudes

The majority of respondents reported that politics were irrelevant to them. Table 11 illustrates the political attitudes of the S-RLS focus respondents related to their views on democracy (panel A) and the importance of politics (panel B). Close to half of

Table 11: Political attitudes (in-person survey)

	Per cent	
	Men	**Women**
Panel A. Which is closest to your opinion?		
Democracy is preferable to any other kind of government	47.6	34.5
In some circumstances, a non-democratic government can be preferable	3.9	3.8
For someone like me, it doesn't matter what kind of government we have.	40.8	49.8
Do not know/ Depends	4.4	9.2
Refuses to answer	3.4	2.7
N	206	261
Panel B. Which is closest to your opinion?		
Politics are very important to me.	5.8	3.8
I follow politics in the media but do not really care about it.	36.4	19.9
Politics are irrelevant for someone like me.	55.3	71.3
Do not know/ Depends	1.0	3.1
Refuses to answer	1.5	1.9
N	206	261

Notes: This table reports responses from the focus respondent.

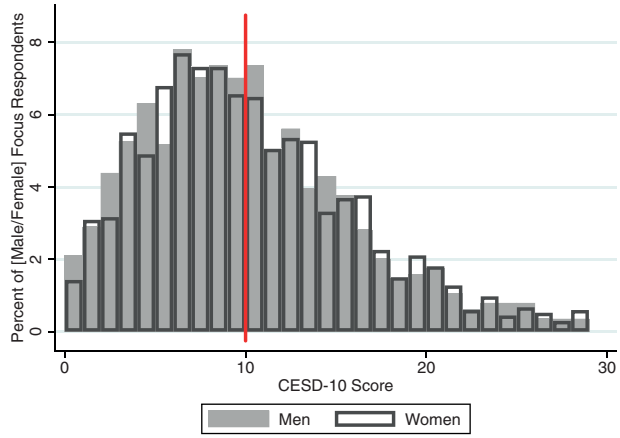
respondents said they did not care about these topics, perhaps reflecting disappointment in public institutions or fear of expressing their views.

(ix) Depression

Among refugees interviewed in the phone survey, 45 per cent screened 'likely' for depression. The rate was even higher in the in-person sample (61 per cent). Figure 6 reports the distribution of the 10-item Centre for Epidemiological Studies Depression Scale (CES-D-10) for phone survey respondents. A score of ≥ 10 is commonly considered an indication of depression.[14] The figure illustrates the dramatic mental health condition of the Syrian refugee population. The mean CES-D-10 score observed for the phone survey sample was 9.7 and the median was 9. If 10 is the threshold used to define depression, 45 per cent of the phone survey sample was depressed at the time of the interview.*Refugee mothers' mental health correlated with the mental health problems of their children.* Table 12 reports the strengths and difficulties score (Strengths and Difficulties Questionnaire, SDQ) collected for a randomly selected child during the in-person S-RLS. The SDQ is a globally recognized instrument for assessing mental health status of children and young people (see Goodman and Goodman (2009) for details). It comprises 25 questions divided into five scales of five items each. The table illustrates results for the five scales of the SDQ by the depression status of the parents of the child (as defined by the CES-D-10 scale, measured during the in-person interview). It is noteworthy that mothers' depression appears to correlate with borderline and abnormal scores of mental health for their children. These patterns reinforce the urgency of addressing the mental health challenges that refugees face, and they suggest

[14] We note that recent studies validating the CES-D-10 in low- and middle-income contexts have found that thresholds as high as 16 may be appropriate depending on the setting (Baron *et al.*, 2017). Even with a much higher threshold, a considerable share of our sample was at risk for depression.

Figure 6: Depression scores by gender (phone survey).



Notes: These figures report responses from the phone survey focus respondent. They reflect the distribution of scores on the 10-item Centre for Epidemiological Studies Depression (CES-D-10) Scale. Following Andresen (1994), a score of ≥ 10 is considered depressed. It should be noted that other studies such as Baron *et al.* (2017) validating the CES-D-10 in developing settings have found that thresholds as high as 16 are optimal depending on the setting.

that family-oriented approaches (as opposed to those focusing only on individuals) may be beneficial.

(x) School attendance

School attendance was significantly lower for Syrian refugees after their fourteenth birthday, relative to Jordanian nationals. The gap widens with age and exists for girls and boys. Figure 7 compares the average number of days in school in the last week for children aged 6 to 18 years. It compares the data observed in the in-person survey collected for the partial sample of Syrian refugees in early 2020 with the data reported for children with Jordanian citizenship in the 2016 JLMPS.[15] The figure illustrates that school attendance decreases for refugee children of any gender who are 15 years and older. The gap between Syrian refugees and Jordanian nationals widens for older cohorts of children; this suggests that the financial imperative to contribute to household income may reduce school attendance.

VI. Concluding remarks

This study offers a first look at data from the first waves of the Syrian Refugee Life Study (S-RLS), a new and uniquely representative longitudinal study of the sociodemographic

[15] We compare S-RLS children to Jordanian nationals, unlike Tables 2, 3, and 4, which compare S-RLS individuals to all non-refugees in Jordan, because the JLMPS only asks individuals aged 15–59 if they are registered refugees.

Table 12: Child's strengths and difficulties by focus respondent's CES-D score: parents only

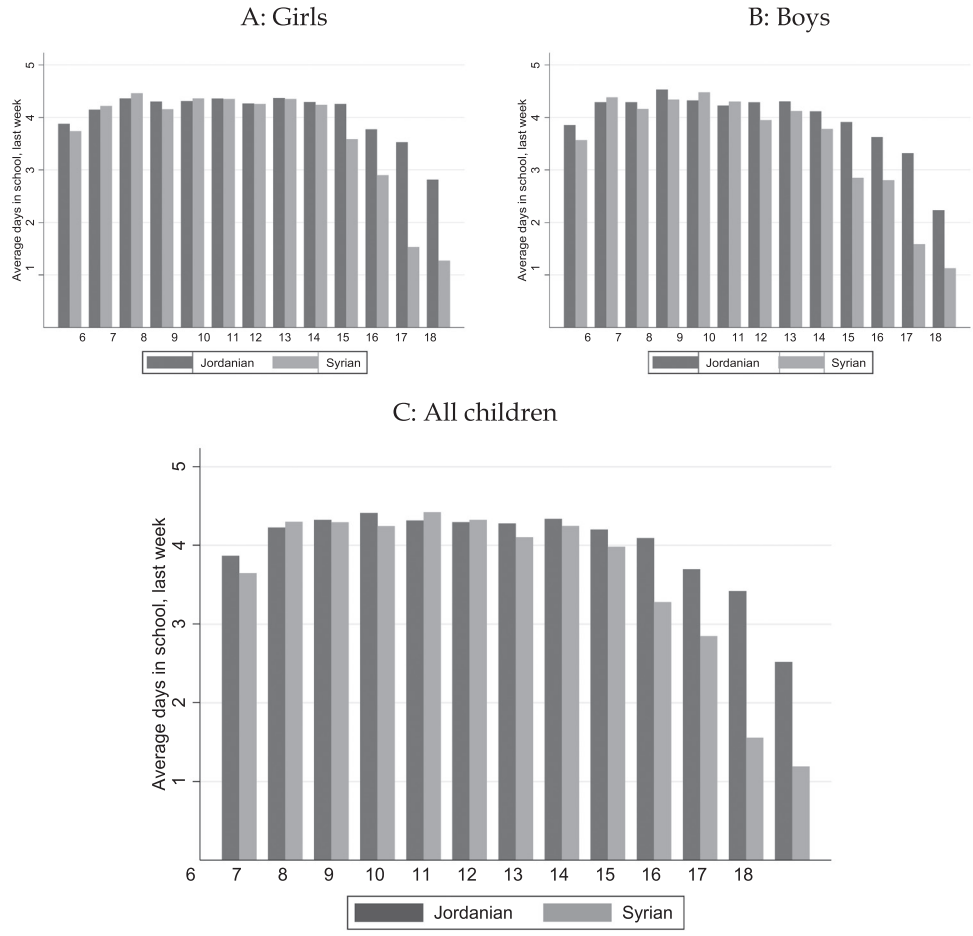
	Respondent characteristics			
	Not depressed		Depressed	
	Mother	Father	Mother	Father
Emotional problems score				
Normal	71.7	69.4	50.6	52.5
Borderline	15.2	0.0	10.4	22.0
Abnormal	13.0	30.6	39.0	25.4
N	46	36	77	59
Conduct problems score				
Normal	68.8	50.0	50.0	45.5
Borderline	14.6	25.0	15.4	25.5
Abnormal	16.7	25.0	34.6	29.1
N	48	36	78	55
Hyperactivity score				
Normal	62.5	71.4	65.0	66.1
Borderline	25.0	14.3	16.2	16.9
Abnormal	12.5	14.3	18.8	16.9
N	48	35	80	59
Peer problems score				
Normal	58.3	61.1	33.8	44.1
Borderline	20.8	16.7	31.2	18.6
Abnormal	20.8	22.2	35.0	37.3
N	48	36	80	59
Prosocial score				
Normal	74.5	74.3	75.0	91.5
Borderline	14.9	17.1	15.0	6.8
Abnormal	10.6	8.6	10.0	1.7
N	47	35	80	59

Notes: This table reports the strength and difficulty scores (SDQ) restricted to focus respondents who are the parent of the randomly selected child. Columns (1) and (2) report the SDQ scores of children whose evaluating parent is not depressed, according to the parent's. CES-D-10 score. Columns (3) and (4) report the SDQ scores of children whose evaluating parent scored ≥ 10 on the CES-D-10 evaluation in the same survey. Focus respondents have a non-missing observation for each score if they responded to at least three of the five relevant questions, per official scoring guidelines.

characteristics of Syrian refugees in Jordan. We find Syrian refugees are more vulnerable than the Jordanian population and—perhaps more surprisingly—that the gap between refugees and non-refugees appears to have expanded since 2016. While speculative, this growing gap may suggest disproportionate effects of the Covid-19 pandemic. Indeed, we find that refugees did not recover economically from the 2020 lockdowns by 2021. Since more than 40 per cent of refugees interviewed during the in-person survey intended to stay in Jordan even after the conflict ended, our results underscore the importance of understanding this vulnerable population.

Beyond the direct insights gleaned from this analysis, we hope the S-RLS will continue to open new avenues for knowledge generation about the economic, social, and political roles of refugees. Its longitudinal (panel) data dimension may also yield an opportunity to study the effectiveness of various humanitarian interventions and policy changes as well as the impacts of refugee inflows on local economies.

Figure 7: Average number of days in school, children aged 6–18 (in-person survey).



Notes: Syrian bars report the days spent in school in the last week (that school was in session) of all children under 18 in the S-RLS panel survey. Fifteen focus respondents were 18 years old, so they were excluded from this figure. Jordanian bars report the number of days that children with Jordanian citizenship attended school in the past week according to JLMPS data. The JLMPS data use frequency weights.

Table A1: Geographic representativeness of in-person survey

	Population (thousands)	Phone survey	Diff (in-person– phone)
Jordanian Governorate in 2020			
Amman	4,536	0.30	0.11***
Balqa	557	0.03	0.01
Zarqa	1,545	0.13	−0.02
Madaba	214	0.02	0.00
Irbid	2,004	0.20	0.05**
Mafraq	622	0.25	−0.12***
Jerash	268	0.02	0.01*
Ajloun	199	0.01	0.00
Karak	358	0.02	−0.02***
Tafileh	109	0.00	−0.00
Maan	179	0.01	−0.01***
Aqaba	213	0.01	−0.01*

Notes: Column 1 reports the official Jordanian 2020 estimate of the number of individuals living in each governorate. Column 2 reports what share of the phone survey population was living in each governorate in 2011 and 2020 respectively. Column 3 reports the difference between the phone survey and the in-person survey. Stars reflect whether or not the difference is statistically significant from zero in a standard t-test statistic.

Table A2: Household representativeness of in-person survey

	Phone survey	Diff (in-person – phone)
Panel A: Focus respondent		
HH size	5.91	0.33**
# ≤ 18	3.06	0.22**
Access to electricity	0.97	0.03***
Piped water	0.82	0.11***
Perm. floors and roof	0.84	0.12***
Ppl per occupied room	2.31	–0.79***
Meals yesterday	2.02	–0.06**
Days FR slept hungry	0.49	0.10
Days adults slept hungry	0.45	0.11*
Days children slept hungry	0.36	0.10*
Lives in camp	0.16	–0.16***
Panel B: Household labour		
Adult hours (pre-lockdown)	42.09	2.58
Adult income (USD PPP pre-lockdown	161.04	22.58***
Adult hours (during lockdown)	3.95	–2.68***
Adult income (USD PPP during lockdown	34.03	–1.21
Adult hours (post-lockdown)	36.61	1.18
Adult income (USD PPP post-lockdown	125.49	19.60**
Panel C: Complete roster		
Age	18.90	2.46***
Male	0.51	–0.01
Yrs schooling ≥ 6	6.60	1.11***

Table A2: Continued

	Phone survey	Diff (in-person – phone)
Yrs schooling ≥ 22	7.52	0.71***
Attendance	3.00	1.60***

Notes: Column 1 reports statistics from the phone survey population. Column 2 reports the difference between the phone survey and the in-person survey. Stars reflect whether or not the difference is statistically significant from zero in a standard t-test. Panel A reports statistics collected from the focus respondent (FR) of each survey. HH size reflects the number of individuals including the respondent in the household. # ≤ 18 reports the number of individuals in the household aged 18 or under. Ppl per occupied room reports the number of occupied rooms divided by household size. (Rooms separated by sheets, bathrooms, and kitchens are occupied. Detached storerooms or toilet rooms are not counted.) HH head male reports the share of households headed by a male. Meals yesterday reports the number of meals eaten by the FR yesterday. Days [group] slept hungry reports the number of days in the past week that the individual or group did not have enough to eat. Permanent roofing includes bricks, concrete or tile. Corrugated metal is not considered permanent. Permanent flooring includes cement or tiles and excludes earthen floors. Piped water reports the share of households whose main source of water in the past 7 days was a pipe. Lives in camp reports the share of households currently living in a refugee camp. Panel B reports the same statistics as those reported in Table 5. Panel C reports statistics over all individuals in the household (according to the household roster). Years of schooling ≥ 6 reports average imputed years of schooling for all individuals at or above 6 years of age. Years of schooling ≥ 22 reports the same statistic for all individual at or above 22 years of age. Attendance reports the average number of days children between the ages of 9 and 18 attended school in the past week. This statistic may have been affected by Covid-19 shutdowns.

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