Determinants of Syrian Refugees' Return

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Abstract

This paper examines the drivers of refugee return from Jordan to Syria following the collapse of the Assad government in December 2024. Drawing on linked data from UNHCR administrative registries, verified border-crossing records, and a 2023 Skills Mapping Census, the analysis documents how return decisions are shaped by a combination of conditions in the host country and the country of origin, and reveals significant heterogeneity across welfare levels, economic integration, and geography. Return rates vary considerably by governorate of origin, reflecting an impact of distance and intensity of conflict on the decision to return. Cash assistance plays a nuanced and consequential role. Reductions in monthly transfers push those refugees who lose eligibility toward return, yet for the most vulnerable households, the loss of assistance constrains rather than enables movement: without sufficient liquidity to cover return and reintegration costs, the poorest cannot return. In refugee camps, this dynamic compounds over time as wealthier households return first, leaving behind a progressively more vulnerable population. Economic integration in Jordan, measured through education and employment, modestly reduces the likelihood of return, suggesting that those most invested in the host country are also the most likely to stay. Conversely, prior economic ties to Syria significantly increase return propensity; this pattern is consistent with a framework in which refugees weigh relative economic opportunities across the two countries.

JEL classification: F22, O15, R23, I3

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1. Introduction

The conditions under which refugees choose to return to their country of origin (CoO) have received relatively limited attention in the research literature. This paper presents an empirical analysis of the decision-making process of Syrian refugees in Jordan to return home, following a significant improvement in the security environment in their homeland after the fall of the Assad government in December 2024.

The Hashemite Kingdom of Jordan has a long tradition of generously hosting people fleeing from conflicts and violence in the region. When violence escalated in neighboring Syria in 2012, Jordan opened its doors and welcomed Syrians seeking safety, most of them coming from Daraa. As of November 30, 2024, before the fall of Assad, Jordan was hosting almost 620,000 Syrians alongside about 66,000 refugees from other nationalities registered with UNHCR (UNHCR, 2024a)[2] in addition to 2.3 million Palestinian refugees under UNRWA's mandate (UNRWA, 2024) . Twenty percent of Syrian refugees resided in camps while the rest lived in mostly urban areas among host communities. Bolstered by support from the international community, the government of Jordan granted refugees access to public education and health services, as well as to work opportunities through a work permit program. Between 2012 and 2024[3], only a few thousand refugees returned to Syria per year (see **Figure 1**).

The fall of the Assad on December 8, 2024, marked a turning point; for the first time in more than a decade of displacement, many Syrian refugees around the world started making plans to go home. As of December 31, 2025, an estimated 177,000 registered refugees had returned from Jordan. **Figure 1** and **Figure 2** illustrate return trends of refugees registered with UNHCR, following thorough cross-checking with Jordanian border authority data, respectively since 2018 and after December 8, 2024, highlighting the sharp increase in the number of returnees following the Assad government's collapse.

By matching micro-data on registered refugees in Jordan with observed return data at the border, this paper proposes to investigate the key drivers behind these return decisions. This approach brings two critical contributions. First, it observes actual returns rather than intentions, as the existing literature suggests a significant gap between the two (Joint Data Center on Forced Displacement, 2024). Second, the analysis leverages a unique administrative database containing information on all refugees registered with the United Nations High Commissioner for Refugees (UNHCR) in Jordan, mitigating concerns of observation bias and selection into the sample.

[2] The government of Jordan also reports Syrian refugees not registered with UNHCR.
[3] Date at which the border was reopened for individual crossing 2018.

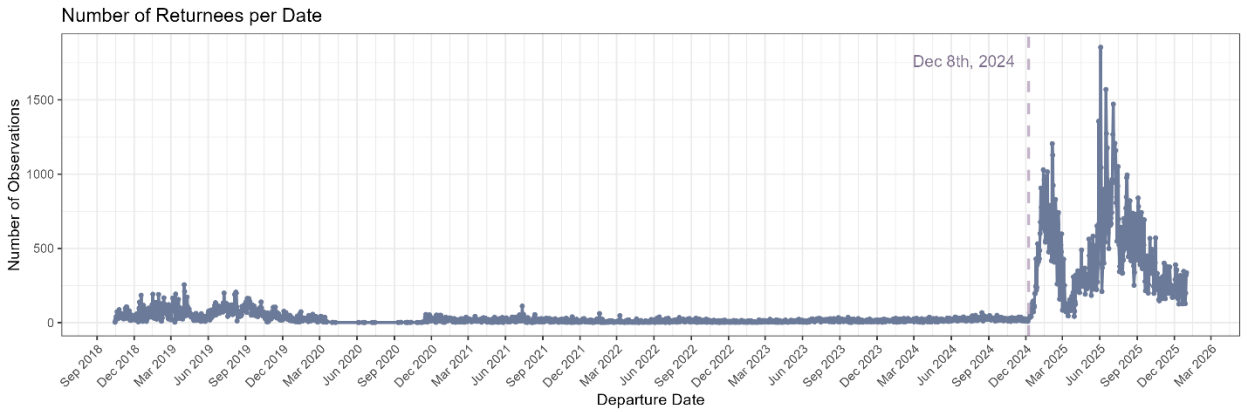


Figure 1. Time Trend of Refugee Returns (UNHCR, December 31, 2025)

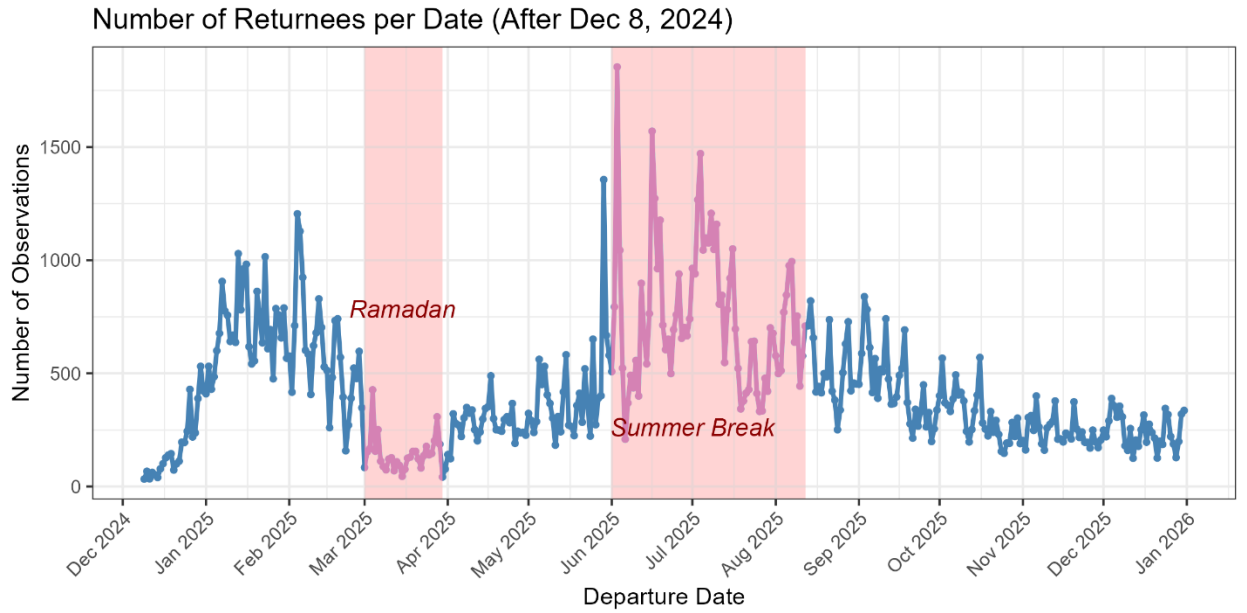


Figure 2. Time Trend of Syrian Refugee Return from the fall of the Assad Government (UNHCR, December 31, 2025)

The analysis offers four critical insights to inform a policy response:

1. *Return rates differ substantially by governorates of origin.* Refugees originating from areas geographically closer to Jordan, or from governorates with historically lower conflict intensity, exhibit significantly higher return propensities. This points to the importance of local security conditions and the state of infrastructure and economic reconstruction in shaping individual return decisions as well as higher costs incurred to return to further localities and suggests that aggregate return figures mask considerable geographic heterogeneity.

2. *Cash assistance cuts have acted as a push factor, but the poorest face a liquidity barrier to return.* The reduction in cash assistance has increased the probability of returns among host community refugees who were removed from cash lists, consistent with a welfare-reduction push effect. However, this effect does not hold uniformly: among the poorest households, losing assistance appears to constrain rather than enable return, likely because a minimum level of liquidity is required to finance return and reintegration costs. Separately, looking across the welfare distribution, both the poorest and the relatively wealthiest households are more likely to return than those in the middle tercile. The poorest may face the strongest push conditions with fewest alternatives; the wealthiest face the lowest financial barrier to moving. Middle-income households, by contrast, face the highest opportunity cost of leaving and the least acute push pressure. The impact of one-off transfers seems to address some of the financial constraints.
3. *The relationship between welfare and likelihood of returning to Syria among camp residents shifted over time.* Relatively better-off camp households returned first, and later the poorest. With a significant stock of wealthier households having left and a population that shrank by close to 30 percent, economic activity within camps will continue to decline, compounding the effects of reduced cash assistance in what remain largely closed-economy systems.
4. *Economic integration in Jordan has a small but statistically significant negative effect on return, while prior economic ties to Syria point in the opposite direction.* Refugees with higher education levels or formal employment in Jordan are marginally less likely to return, by 2 to 4 percentage points. However, refugees who worked in Syria before displacement are significantly more likely to return, suggesting that previous economic networks, or livelihood prospects back home are an important pull factor. Taken together, these results suggest that it is the relative quality of economic opportunity that shapes the return decision, rather than integration or displacement per se. More research will be needed on economic opportunities inside Syria.

The Syrian civil war and the fall of the Assad Government

The fall of Assad in late 2024 marked a pivotal moment in Syria's modern history, effectively ending over five decades of Ba'athist rule that began with Hafez al-Assad in 1971 and continued under his son, Bashar al-Assad, from 2000. The roots of Syria's conflict trace back to 2011, when peaceful protests inspired by the Arab Spring were met with violent government crackdowns, rapidly escalating into a brutal civil war. Syria became the epicenter of a complex, multi-sided conflict involving government forces, opposition groups, extremist factions like ISIS, and international actors including Russia, Iran, the United States, and Turkey. The war lasted almost 14 years, devastating most of the country's infrastructure, killing or injuring hundreds of thousands and forcibly displacing over 13 million people – half the pre-war population. Six million crossed borders to seek safety as refugees, mainly in neighboring countries including Turkey, Lebanon and

Jordan, but also in Europe and other countries around the world (UNHCR, 2024b). This is one of the largest refugee crises in modern times.

On December 8, 2024, the government collapsed following a major offensive by opposition forces, with the departure of Assad, creating new conditions that significantly influenced the decisions of Syrian refugees living abroad. For many displaced Syrians, fall of the Assad government—long associated with brutal repression and violence against civilians—raised hopes for improved safety, political reform, and the possibility of rebuilding their lives in their homeland.

Syrian Refugees in Jordan

The Hashemite Kingdom of Jordan offers a favorable protection environment for registered Syrian refugees. In the absence of a governing legal framework and of a national asylum system in Jordan, registration and refugee status determination are conducted by UNHCR. Syrian refugees are registered and documented by UNHCR and obtain a Ministry of Interior (MOI) Service Card issued by the authorities, which serves as a valid identity document for most life event[4]. Refugees in host communities enjoy freedom of movement, while those residing in the camps are required to apply for leave permits and report changes of address. Registered Syrian refugees can obtain civil and legal documentation.

Despite economic challenges and limited fiscal space, Syrian refugees have been granted access to basic services and some economic opportunities. In host communities, the Jordanian school system absorbed the new influx of children through a double shift system, enabling continuity of education free of charges; Syrian refugees also access public health care facilities at a heavily subsidized rate. In line with the 2016 Jordan Compact commitment by the Government of Jordan, generous policy changes were introduced to facilitate access to work and livelihood opportunities for Syrian refugees. Work permits were issued in authorized sectors (manufacturing, services, agriculture, hospitality) for a small nominal fee until June 2024. Consequently, most refugee households managed to raise some income (Fallah et al., 2019; Caria et al., 2022), yet poverty rates remained high. The poverty rate in 2023 was estimated at 67% for the refugee population according to UNHCR's Vulnerability Assessment Framework (VAF) (UNHCR, 2024a), revealing a significant rise from 57% in 2021 (Obi, 2023).

Originally a well-funded, large component of the refugee response, UNHCR and WFP provided monthly cash assistance to a substantial portion of the refugee population. At the height of its cash assistance program, UNHCR recorded 57,000 refugee households on its monthly cash assistance list[5], plus 27,000 households receiving additional winter assistance to support them with additional

[4] As of March 2018, the Government of Jordan (GoJ) stopped issuing MOI Service Cards to Syrian refugees arriving unless under specific categories (children of Jordanian mothers, husbands of Jordanian wives, investors, and students enrolled in accredited academies/Universities).

[5] Just under 40% of the total refugee caseload, with blank coverage in the camps and targeting of the most vulnerable of refugees living in host communities.

costs during the cold months until 2023. However, since 2022, with a significant decrease in humanitarian funding, both UNHCR and WFP cash assistance programs have dramatically reduced. The number of UNHCR household recipients of monthly cash assistance dropped to 16,000 by the end of 2025, with reduced amounts over the years now estimated below what covering basic needs would require. Refugees in camps continue as of April 2026 to receive blanket assistance putting the burden of reduced assistance largely to the population living in host communities.

The hospitality of the Kingdom reflects the generosity of the Jordanian people. Despite difficult economic conditions, host communities' perceptions of refugees have remained positive throughout the Syrian crisis, with the latest survey showing 96% of locals expressing sympathy for refugees (UNHCR, 2025b).

The Dynamics of Refugee Voluntary Return

As of late 2025, UNHCR estimates indicate that nearly 1.2 million Syrian refugees had returned from neighboring countries, while around 1.9 million internally displaced persons (IDPs) returned to their areas of origin (UNHCR, 2025a). By December 2025, almost 180,000 refugees registered with UNHCR in Jordan returned home, including more than 75,000 children, with women and girls representing 49 percent of overall returnees. 5 percent are of working age (18-59). 21 percent of returnees resided in the camps, while 79 percent of returnees lived in host communities, with just under a quarter of them coming from Amman and Irbid, respectively. While UNHCR does not track the location of return, UNHCR administrative data available shows that 40 percent originated from Daraa, 20 percent from Homs, with small percentages from Damascus, Rural Damascus, Aleppo and Hama[6].

Figure 3 below shows the spatial distribution pattern of returnees according to the governorates of residence in Jordan, and governorate of origin in Syria. The Sankey Diagram of the Pattern of Refugee Return displays in **Figure 4** underlines the spatial complexity of the return patterns.

UNHCR in Jordan has provided free transportation for those requesting assistance to return home, reaching over 10,000 refugees by the end of December 2025 and provided one-off cash for return grants for over 3,200 refugees residing in camps from September to December. In Syria, some support was granted, ranging from house repairs to legal aid for the replacement of lost identity and property documents. From June 2025 onwards, UNHCR Syria began providing an additional one-off cash grant per household to those eligible to cash assistance in their country of asylum.

[6] Recent regional UNHCR-World Bank Enhanced Return Intentions survey data shows that 85% of refugees intended to return to Syria from Jordan would go back to their place of origin or nearby.

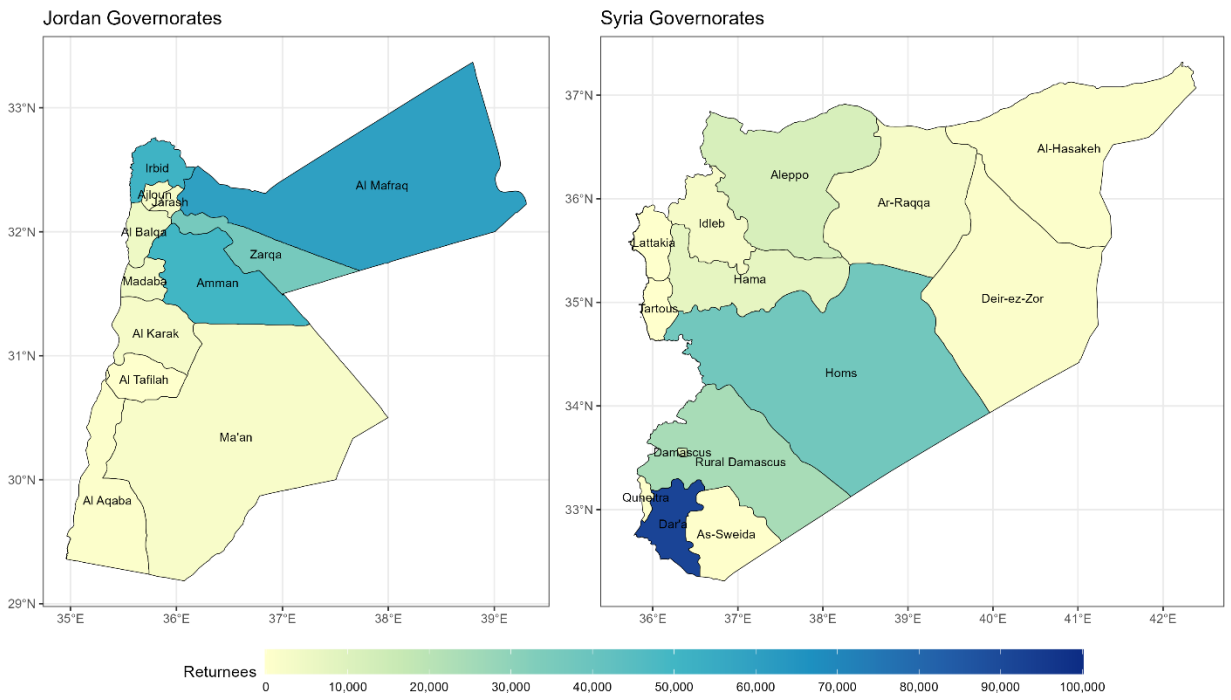


Figure 3: The Spatial Distribution of Returnees

Notes: This figure is based on the refugee list provided by the Jordanian authorities as of December 31, 2025. The list was matched with UNHCR-registered refugee data to obtain detailed information on the governorates in both the country of origin (CoO, Syria) and the country of asylum (CoA, Jordan). While returnees do not explicitly report whether they return to their area of origin, evidence from the latest survey conducted by UNHCR and the World Bank shows that, among Syrian refugees planning to return, 87% intend to return to their place of origin. This suggests that the vast majority of returnees are likely to return to their governorate of origin.[7] The map shapefiles of Syria and Jordan is downloaded from GADM v4.1 (https://gadm.org/index.html), the geographical coordinate reference system (CRS) is longitude/latitude and the WGS84 datum.

[7] Enhanced regional survey on Syrian refugees' perceptions and intentions on return to Syria eRPIS wave2 (April 2026) (UNHCR & World Bank, 2026)

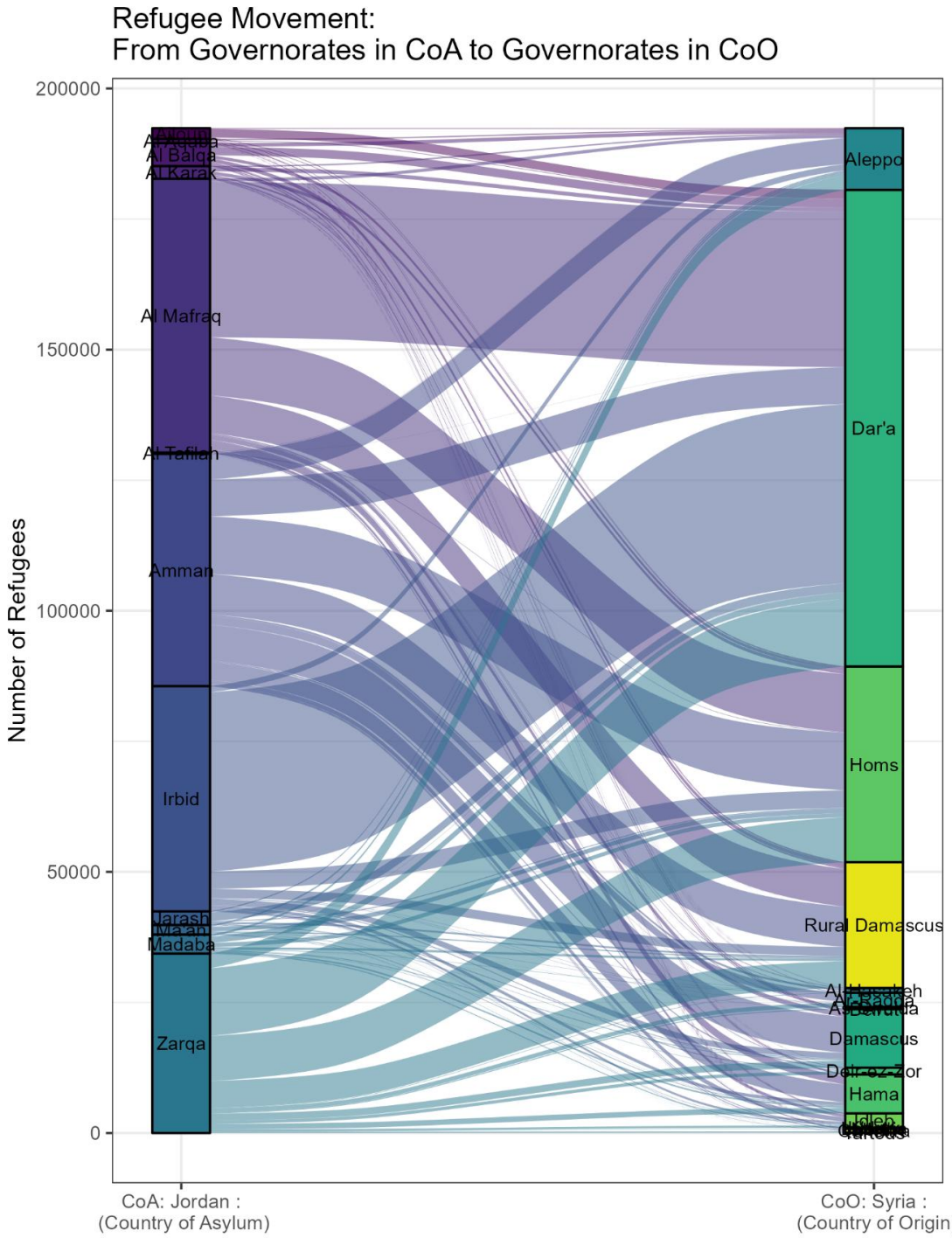


Figure 4: Sankey Diagram of the Pattern of Refugee Return

Notes: This Sankey diagram visualizes the return movement of Syrian refugees from their governorates of asylum in Jordan (left) to their governorates of origin in Syria (right). The width of each flow represents the number of individuals originating from a specific Syrian governorate who are currently residing in each Jordanian governorate, based on matched records from the UNHCR-registered refugee data and the official refugee list provided by Jordanian authorities as of December 31, 2025.

2. Literature Review

Our analysis complements a rapidly growing literature on the economic analysis of forced displacement, by bringing insights into actual return decisions using comprehensive refugee population data.

Determinants of Refugee Return: Push and Pull Factors

Decisions regarding refugee return are shaped by a combination of pull factors—such as improved security, political stabilization, and economic opportunities in the country of origin—and push factors, including hardship and limited rights in host countries. IMPACT (2018) examines these dynamics among refugees and internally displaced persons in Syria and finds that improved safety in the community of origin is the most important pull factor. Emotional considerations, such as homesickness and nostalgia, also play a significant role. In contrast, key push factors include limited employment opportunities, inadequate access to services, and insecurity in areas of displacement. Notably, the presence of humanitarian assistance in the area of origin does not appear to significantly influence return decisions.

A growing body of literature focuses on return intentions. Arias et al. (2014) show that return intentions are closely associated with household characteristics and the nature of displacement. Households displaced by direct threats—such as violence, abduction, or extortion—are less likely to intend to return, whereas those with land ownership and agricultural ties in their home regions are more likely to express a desire to go back. Alrababah et al. (2023) challenge the traditional push–pull framework by demonstrating that conditions in host countries play a limited role in shaping return intentions. Even under adverse conditions in host countries, refugees are unlikely to return unless conditions in their country of origin improve substantially, highlighting the dominant role of origin-country factors.

In the Syrian context, Ghosn et al. (2021) analyze return intentions among Syrian refugees in Lebanon and find that exposure to violence is associated with a stronger attachment to Syria and a higher likelihood of preferring return. Additionally, refugees living in predominantly Syrian communities in the host country exhibit stronger return preferences. These findings suggest that return intentions are influenced by a complex interplay of past experiences, social environments, and emotional ties.

Turning to actual return behavior, Bove et al. (2024) show that the presence of UN peacekeeping missions increases both the likelihood of return and the social acceptance of returnees in their communities. Using large-scale microdata, Beaman et al. (2022) provide evidence that conditions in Syria—such as improved security and access to services—have strong and systematic effects on refugee returns. In contrast, the role of host-country conditions is more nuanced: deteriorating living conditions in exile do not necessarily increase return. For example, access to primary education is associated with higher return rates, while this pattern does not hold for higher levels of education (Onder & Sayed, 2020), suggesting a more complex interaction between economic incentives and psychological factors. However, most of this evidence is based on relatively low

levels of return during ongoing conflict and does not capture large-scale return movements following major political shocks.

Additional factors further shape return decisions. Weber and Hartman (2022) examine the role of property rights among internally displaced persons in Iraq and find that while property ownership alone is not a strong predictor of return, property destruction significantly reduces return likelihood, whereas secure property rights strongly facilitate return. Moreover, returnees differ systematically from non-returnees in their socioeconomic characteristics. Al Husein and Wagner (2023) show that female and highly educated refugees are less likely to intend to return, while marital status also plays a role, with married individuals being less likely to return in the short term. Interestingly, poorer refugees express a stronger desire to return in the long run, highlighting the importance of temporal dynamics in return decisions.

Finally, emerging evidence examines the causal role of economic incentives. Blair and Wright (2024) exploit a natural experiment in a UNHCR cash transfer program for Afghan returnees to identify the impact of financial assistance on return decisions, showing how cash incentives interact with conflict exposure to shape repatriation behavior.

Importance of Income

Recent research on the determinants of refugee returns reveals nuanced relationships between income and the likelihood of returning to the country of origin. Beaman et al (2022) develops a simple theoretical framework using a two-period dynamic model to argue that the relationship between income in exile and the probability of return is best characterized by an inverse-U shape, which is also consistent with prior economics studies (McKenzie and Rapoport, 2007; Orrenius and Zavodny, 2005; Bazzi, 2017). In their model, refugees with intermediate incomes are most likely to return, while those at the lowest and highest ends of the income distribution are less likely to do so.

In contrast, Bijwaard & Wahba (2014) provides empirical evidence from administrative panel data on labor migrants in the Netherlands, finding a U-shaped relationship: both the lowest- and highest-income groups exhibit higher intensities of return, with the lowest-income group having the highest probability of return. Their competing risks model shows that low-income migrants are more likely to return due to limited success in the host country, while high-income migrants may return after achieving savings or skill acquisition targets. Thus, while Beaman et al. (2022) offer a theoretical rationale for an inverse-U pattern, Bijwaard & Wahba (2014)'s empirical results suggest a U-shaped relationship, highlighting the importance of context, migrant type, and data source in shaping our understanding of refugee and migrant return dynamics.

The Effects of Cash Assistance

Providing assistance to sustain the basic needs of refugees is a core component of UNHCR's mandate to support people in displacement and help them live with dignity. Increasingly, cash assistance is delivered digitally via prepaid cards or mobile money, aiming to improve efficiency

while providing recipients with greater flexibility and dignity. A growing body of research in a displacement context provides mixed quantitative evidence on the effects of cash assistance.

In Uganda, cash transfers enable households to meet urgent needs, increasing both food and non-food expenditures (Gupta et al., 2024). Returnee Afghan households receiving cash transfers are also more likely to invest in long-term assets (Esper et al., 2022). In Turkey, cash transfers have a significant effect on poverty reduction, both in terms of intensity and incidence (Robson et al., 2024), outperforming traditional aid in cost-effectiveness. Beyond consumption, cash transfers are linked to reduced reliance on negative coping strategies, more diverse diets, improved food security, and better health-seeking behavior. These include timely vaccinations, enhanced psychological well-being, greater labor market participation, increased use of trained professionals during childbirth, higher likelihood of homeownership and obtaining legal documents, and reduced indebtedness (Lyles et al., 2021; Grijalva-Eternod et al., 2023; Quattrochi et al., 2022; Siu et al., 2023; Barham et al., 2024; Cahyadi et al., 2020; MacPherson & Sterck, 2021; Mastrorillo et al., 2024). Evidence also points to broader community benefits, such as reduced anti-refugee violence in Lebanon (Lehmann & Masterson, 2020), and large positive spillover effects on non-recipient households and firms in Kenya (Egger et al., 2022).

Numerous studies also focus on the impact of cash assistance for Syrian refugees. Research in Lebanon (Salti et al., 2022; Altındağ & Connell, 2023; Moussa et al., 2022) shows that while short-term cash assistance reduces deprivation, longer-term programs yield more durable benefits. These include improved child enrollment, better housing access, reduced child labor and early marriage, and improved health and educational outcomes for both pre-primary and school-aged children. Studies in Jordan (Sieverding & Jamaluddine, 2025; Hamad et al., 2025) reveal that larger cash transfers are associated with improved well-being among Syrian youth, as well as enhanced adolescent social cohesion, connectedness, and resilience, particularly for girls and older adolescents. Finally, experimental research in refugee camps in Bangladesh suggest that jobs yield stronger psychological and social integration effects than cash alone (Hussam et al., 2022).

However, the literature also documents several limitations of cash assistance. There has been increasing debate regarding the effectiveness of assistance, optimal levels of support, and the impact of conditionality (Baird et al., 2011). In many cases, the benefits of cash assistance fade once the assistance ends, with households often liquidating assets and savings (Altındağ & Connell, 2023). Cash transfers can also generate unintended effects, including local price inflation in thin markets (Cunha et al., 2019), vendor rents from restricted e-cash systems (Delius & Sterck, 2024), and more school enrollment but worse learning outcomes (Gazeaud & Ricard, 2024). Additionally, the efficiency of targeting can be impaired as households may strategically adjust their size and composition to qualify for benefits (Özler et al., 2021).

3. Data and Descriptive Statistics

Data Sources

The analysis in this paper relies on unique datasets providing comprehensive key socio-demographic characteristics of the refugee population registered by UNHCR in Jordan, whether they decided to return home or not:

(i) UNHCR ProGres (refugee registration data), matched to the verified list of returnees from the authorities;
(ii) UNHCR cash assistance management dataset; and
(iii) WFP-UNHCR Skills Mapping (SKM) dataset.

ProGres[8] (**Pro**file **G**lobal **Re**gistration **S**ystem database) is UNHCR's global corporate tool that records each person approaching UNHCR and seeking asylum, having crossed an international board. Family registered receive a case number, and individuals are allocated a unique identifier – demographics (as well as biometrics and possible protection concerns among other information) are recorded by trained registration staff through standardized modules available to each UNHCR country operation. In Jordan, refugees and asylum seekers are required to renew their file every year by visiting UNHCR registration centers in the country. UNHCR keeps a record of each refugee through ProGres and deactivates/closes or transfers files if refugees leave. The focus of this analysis is on adults, who constitutes 53.6% of Syrians registered with UNHCR.

ProGres is matched for the purpose of the analysis with returnee lists obtained weekly by UNHCR from the Jordanian authorities through unique individual identifiers (updated to December 31, 2025, for this analysis). The lists enable UNHCR to identify all UNHCR-registered Syrian refugees who have voluntarily returned from Jordan to Syria, as well as their actual date of return – their files are then closed as per standard procedure[9].

UNHCR cash assistance is managed through the Cash Assist corporate tool. Households are selected for assistance based on estimated poverty level, based on 20 variables extracted from ProGres data (5) and household home visits[10](15), and a set of filters. The targeting model was developed in collaboration between the World Bank and UNHCR. UNHCR and WFP launched in 2023, resulting in a large overlap at least until 2024. Each quarter lists of prioritized households for cash assistance are compiled based on the ranking of households among those eligible and available funding.

The WFP-UNHCR Skills Mapping Survey (SKM) dataset provides additional characteristics on individual education background, skills, professional experience, possible barriers to employment and aspirations. It was conducted by WFP and UNHCR jointly and aimed to collect data on all

[8] UNHCR Jordan uses ProGres v4.
[9] Reopening of files take place for certain cases.
[10] Home visits are conducted on a rolling two years, by either UNHCR or WFP.

working age refugees aged 18-64 for both Syrians and non-Syrians, living in or out of camp. The data collection was rolled out in 2 phases with in person interviews using ProGres as a universe: (i) round 1 (between January and May 2023) in which all WFP beneficiaries were surveyed, (ii) round 2 (between December 2023 and March 2024), in which all others (in and out of camps) who had been in touch with UNHCR in the past 18 months[11] were interviewed. Overall, a total of 230,867 Syrian refugees were interviewed, with an estimated attrition of 22.8% for Syrian refugees. The merge between ProGres and the SKM data using Individual ID, enables to further investigate possible economic drivers behind the decision to return on a large sub-sample of 205,471 adult Syrian refugees. The possible bias resulting from attrition is displayed in **Appendix IV**.

Comparison between Returnees vs. non-Returnees

Table 1 below compares means of variables of interests for 351,873 adult Syrian refugees registered by UNHCR, including those still residing in Jordan as of December 31, 2025, and those having returned since Dec.8 2024.[12] Definitions of variables are provided in **Table A1** in **Appendix I**.

[11] In detail, there are five main sections in the SKM survey: 1) Education, both formal and informal; 2) Employment history, both in the country of origin and since moving to Jordan; 3) Barriers to employment for those who tried to work; 4) Skills, both transversal and skills that may have been acquired without any specific training (such as cooking, handicrafts, construction, etc.), 5) Work aspirations and flexibility for those interested in working.

[12] The paper treats December 8th, 2024, and the fall of Assad as an inflection point, both because the pace of returns dramatically accelerated after that date and because of the widespread perception in the media and public opinion that this marked the effective 'end' of the Syrian conflict. This is notwithstanding subsequent flare ups of violence in different parts of the country, which are an ongoing concern.

Table 1: Descriptive Statistics and t-test Results (returnee vs. non-returnee)

variable	Total	Non-returnees	Returnees	T-Test	Cohen's d	magnitude
Panel A: ProGres (full sample)						
Male, d	0.48	0.47	0.50	***	-0.06	negligible
Age, in years	36.76	36.64	37.11	***	-0.03	negligible
Family size	4.97	4.95	5.03	***	-0.03	negligible
Child dependency	0.32	0.31	0.34	***	-0.11	negligible
HH has at least a school age child, d	0.56	0.56	0.57	***	-0.04	negligible
Camp, d	0.18	0.17	0.21	***	-0.11	negligible
Governorate of Origin, d:						
Daraa	0.38	0.37	0.41	***	-0.08	negligible
Homs	0.16	0.14	0.22	***	-0.21	small
Aleppo	0.10	0.12	0.05	***	0.24	small
Damascus	0.07	0.08	0.06	***	0.09	negligible
rural Damascus	0.12	0.12	0.11	*	0.01	negligible
Others	0.16	0.16	0.15	***	0.05	negligible
Cash beneficiary, d*	0.10	0.09	0.13	***	-0.11	negligible
Added to cash list, d*	0.02	0.03	0.02	***	0.07	negligible
Removed from cash list, d*	0.04	0.04	0.07	***	-0.14	negligible
Received temporary cash assistance, end of 2024, d*	0.11	0.11	0.13	***	-0.05	negligible
PMT score	107.48	108.57	104.43	***	0.09	negligible
N	351,873	258,719	93,154			
Panel B: SKM (subsample)						
Education level, d:						
basic	0.58	0.56	0.61	***	-0.09	negligible
secondary	0.18	0.19	0.18	***	0.02	negligible
tertiary	0.05	0.05	0.05	*	-0.01	negligible
Highest education completed in Jordan, d	0.17	0.18	0.15	***	0.06	negligible
Worked in Syria, d	0.29	0.28	0.31	***	-0.07	negligible
Work proxy (2023), d	0.20	0.20	0.20	**	0.01	negligible
Proxy formal employment (2023), d	0.04	0.04	0.04	***	0.01	negligible
N	205,471	141,097	64,374			

Notes: Significance codes: *** p<0.01, ** p<0.05, * p<0.1. The interpretation of Cohen's d is < 0.2→negligible, 0.2-0.5→small, 0.5-0.8→medium, >0.8→large; d: binary variable; *Because the cash assistance is blanket for refugees living in the camps, the descriptive statistics reported here are among only the refugees living out of the camps. The total number of the refugees living out of the camps is 287,837, with 214,621 non-returnees and 73,216 returnees.

4. Empirical Analysis: Determinants of Return

Regression Model

To find the possible determinants of return for refugees, we use a Linear Probability Model (LPM) specified as below:

$$Returnee_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + GoO_i + GoA_i$$

where:

- $Returnee_i$ is a binary variable of being a returnee (1 = the refugee i has returned to Syria).
- β_0 is the intercept.
- β_i ... are the coefficients estimated by the model.
- X_i ... are selected predictor variables (as displayed in the descriptive statistics section).
- GoO_i are the fixed effects of governorate in country of origin.
- GoA_i are the fixed effects of governorate in country of asylum (only for non-camp group)

We approach the analysis in three stages:

(i) Starting with the full sample using only ProGres and cash assistance variables.
(ii) We then add proxies of poverty with PMT score quantiles and interactions with cash assistance variables to investigate specific poverty related patterns, for the subset of households with a PMT score.
(iii) Using socio economic variables from the SKM dataset to assess the role of economic integration in the host country and previous experience in the Syria labor market for the subset of observations where we have labor market data.

We separate analysis for refugees living in camps and host communities assuming different decision-making frameworks attributable to the very different living conditions. Refugees living in host communities generally work, pay rent and access public services, while those in camps live in UNHCR provided shelters and benefit from blanket cash assistance. Results are presented in **Table 2, 3**, and **4** below. We ran a series of robustness tests presented in **Appendix V**.

Given the large sample size, we expect a small R-squared for our specification. While this affects the out-of-sample predictive power of the model, the statistical interpretation of the coefficients remains valid and useful for policy purposes, as these highlight effects that affect the probability of return at the margins.

We also conducted dynamic analysis for the variables of interest whereby we estimated the LPM regressions month by month. For each monthly estimation, we excluded returnees who had already returned and retained the remaining individuals. Those who returned in that specific month were coded as returnee = 1, while all others were coded as returnee = 0. This approach generates a

monthly series of coefficients for each variable in the LPM specification, which we then plot over time. The x-axis represents the monthly timeline, allowing us to examine the dynamic patterns of key variables in a way like an event-study framework in economics. Selected results of the dynamic analysis are presented in **Appendix II**.

LPM 1 - Full ProGres sample, unconditional on PMT

Our baseline specification looks at the determinants of return probabilities for all refugees in the ProGres database, disaggregated by camp and non-camp (see **Table 2**). Column (1) is the coefficients (can be directly interpreted as marginal effects of return) for camp samples, respectively, and Column (2) is for corresponding non-camp samples. Receipt of cash-assistance is only relevant for non-camp refugees as all camp refugees receive cash-assistance, leading to collinearity. The resultant probabilities are illustrated visually in **Figure 5** below.

The first insight from **Table 2** below is how different the camp and non-camp populations are in their incentive structures. Average marginal effects are graphed in **Figure 5**. Having at least one child in school age in the household is only significant for those living in host communities, reducing the probability of returning by 4 percentage points.

The effect of being a cash beneficiary decreases the probability of return, while being removed from the monthly cash assistance list is a detectable 'push' factor that increases return. [13] The sum of the effects is statistically significant; it increases the probability of return by 8.1 percentage point, *ceteris paribus*.[14] For the very few who were added to the cash assistance lists, the effect is symmetrical, decreasing the probability of return by 8.6 percentage points.[15] We also find evidence that a temporary boost in cash assistance at the end of 2024 tied further increased the probability of return by 3.4 percentage points, likely by enabling individuals to meet some of the financial constraints of moving home.[16]

Controlling for governorates of origin, as a proxy for the destination of return, geographical patterns are highlighted, with refugees from Aleppo and Damascus being less likely to go home than the baseline reference (Daraa), possibly due to high level of destructions and little employment available, and in the case of Aleppo distance likely linked to increased return costs, while refugees from Homs are more likely to return.

[13] 10% of households were removed from cash assistance lists, largely due to reduced funding, over the reference period.

[14] $\hat{\beta}_{cash} + \hat{\beta}_{remove\ cash} \approx$ -0.030+0.110 = .081

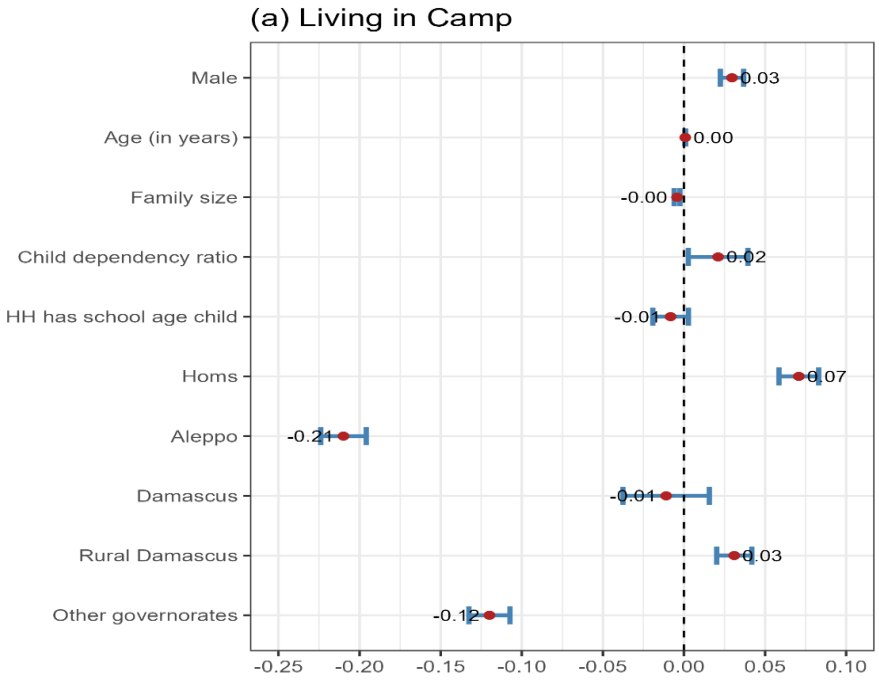
[15] $\hat{\beta}_{cash} + \hat{\beta}_{add\ cash}$

[16] At the end of 2024, UNHCR received additional funding at the end of the year, enabling additional eligible vulnerable households to receive cash assistance. These additional beneficiaries were likely aware of that it was temporary, and the variable was coded accordingly.

Table 2: Probability of Refugee Return, Camp and Non-Camp (LPM)

Dependent variable	whether this refugee has returned to Syria (dummy)	
	Camp	non-Camp
	(1)	(2)
	Coefficients/Marginal Effects	Coefficients/Marginal Effects
Male	0.030***	0.031***
	(0.004)	(0.002)
Age (in years)	0.001***	0.001***
	(0.000)	(0.000)
Family size	-0.004***	-0.002***
	(0.001)	(0.000)
Child dependency ratio	0.021**	0.176***
	(0.009)	(0.004)
HH has school age child	-0.008	-0.041***
	(0.006)	(0.003)
Homs	0.071***	0.110***
	(0.006)	(0.003)
Aleppo	-0.210***	-0.109***
	(0.007)	(0.003)
Damascus	-0.011	-0.019***
	(0.014)	(0.003)
Rural Damascus	0.031***	0.007**
	(0.006)	(0.003)
Other governorates	-0.120***	-0.004
	(0.006)	(0.003)
Cash beneficiary		-0.030***
		(0.003)
Removed from cash assistance		0.110***
		(0.004)
Added to cash assistance		-0.056***
		(0.006)
Received temporary cash assistance, end 2024		0.034***
		(0.003)
Fixed effects: Governorates of Asylum		YES
Observations	64,036	287,837
Log Likelihood	-40,724	-163,575
Akaike Inf. Crit.	81,472	327,204
Adjusted R-Square	0.0256	0.0380

Notes: The dependent variable is a dummy equal to 1 if the refugee returned to Syria. Estimates are from linear probability models with robust standard errors in parentheses. Governorate-of-asylum fixed effects are included where indicated. *** p<0.01, ** p<0.05, * p<0.1.



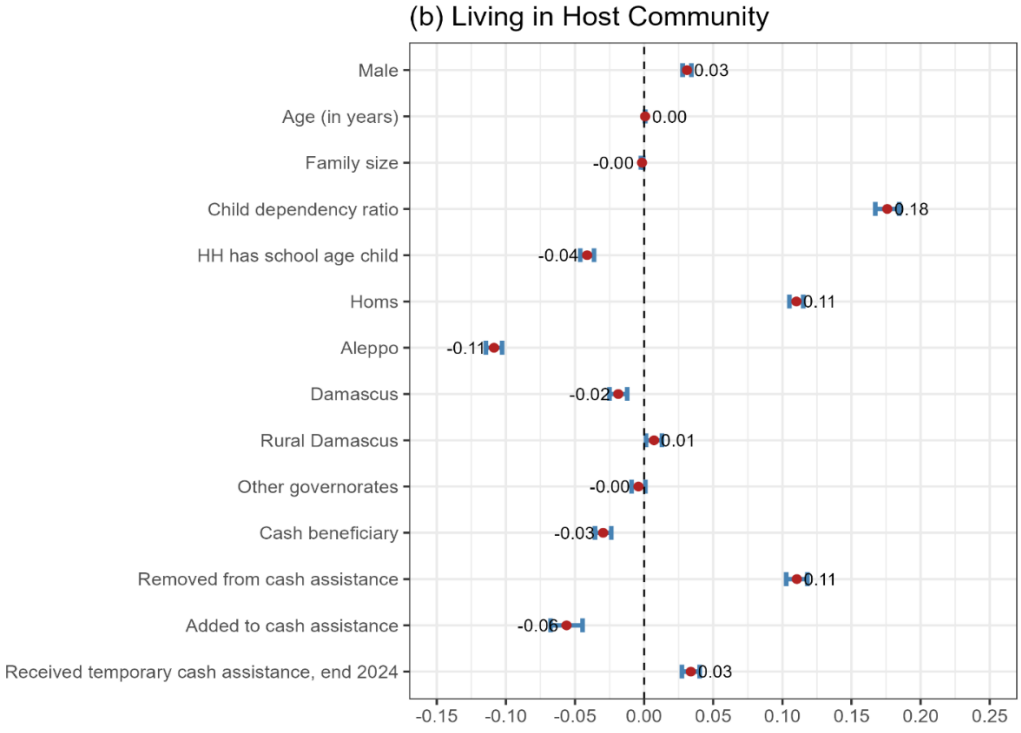


Figure 5: Coefficients (Marginal probability of return), based on full ProGres database

Notes: The figures present plot the estimated coefficients (denoted by red dots) alongside the corresponding 95% confidence intervals (represented by the blue horizontal bars). Panel (a) displays the results for refugees residing in camps, corresponding to Column (1) of **Table 2**. Panel (b) illustrates the findings for refugees living in host communities, as detailed in Column (2) of **Table 2**.

LPM 2 - Full ProGres sample, conditional on PMT

Our next specification in **Table 3** introduces welfare as a conditional variable via the estimated Proxy Means Test (PMT) score that was assigned to refugees based on their household characteristics. As this is a relative welfare ranking, it allows for the construction of welfare terciles, with the median tercile as the baseline reference. Terciles are constructed separately for camp and out of camp samples. Column (1) shows the coefficients/marginal effects accounting for the PMT terciles for the camps, while Column (2) reports result for the out of camp sample, with the interaction between the PMT tertiles and the effect of losing cash assistance. **Figure 6** illustrates the average marginal effects.

This second set of results allows us to assess the importance of a household's welfare level in determining their return[17].

In camps, the relationship is linear; relatively wealthier households are more likely to return. But this has evolved over time; a dynamic analysis of the determinants month by month shows that this is particularly true at the beginning of the period under consideration, and by mid-summer, poorer households' have caught up. This suggests that those with fewer resources need longer to prepare and accumulate the necessary liquidity (see **Appendix II**).

The findings outside of camps are more nuanced; recalling the debate in the literature as to whether return follows a 'U-shape' or 'inverse-U' shape relative to income, here the evidence suggests the former. The poorest (*PMT lower tercile*) and relatively wealthiest (*PMT higher tercile*) households are more likely to return; the former because they have had limited success in the host country, and the latter because they have the resources and the skills to make a go of it. It is the households in the middle who perhaps are doing well enough but don't have the resources to take the leap, who are the most likely to stay. Remarkably, discontinuation of cash assistance makes the poorest households less likely to return, perhaps because without this source of income they simply cannot cover their return and reintegration expenses.

[17] The PMT ranking is done separately for the camp and host community populations. Refugees in camps are a lot poorer than those in host communities, with an average/median PMT in camps of 79/76 JOD compared to 112/107 in host communities.

Table 3: Probability of Refugee Return, Conditional on Proxy Means Test (LPM)

Dependent variable	whether this refugee has returned to Syria (dummy)	
	Camp	non-Camp
	(1)	(2)
	Coefficients/Marginal Effects	Coefficients/Marginal Effects
Male	0.030***	0.031***
	(0.004)	(0.002)
Age (in years)	0.001***	0.001***
	(0.000)	(0.000)
Family size	-0.004***	-0.002***
	(0.001)	(0.001)
Child dependency ratio	0.025**	0.185***
	(0.010)	(0.005)
HH has school age child	-0.005	-0.039***
	(0.006)	(0.003)
Homs	0.071***	0.111***
	(0.006)	(0.003)
Aleppo	-0.210***	-0.111***
	(0.007)	(0.003)
Damascus	-0.011	-0.019***
	(0.014)	(0.003)
Rural Damascus	0.031***	0.008***
	(0.006)	(0.003)
Other governorates	-0.120***	-0.006**
	(0.007)	(0.003)
PMT lower tercile	0.005	0.031***
	(0.005)	(0.002)
PMT higher tercile	0.012**	0.031***
	(0.006)	(0.002)
Cash beneficiary		-0.031***
		(0.003)
Removed from cash assistance		0.108***
		(0.007)
Added to cash assistance		-0.057***
		(0.006)
Received temporary cash assistance, end 2024		0.029***
		(0.003)
PMT lower tercile × Removed from cash assistance		-0.062***
		(0.010)
PMT higher tercile × Removed from cash assistance		0.078***

		(0.010)
Fixed effects: Governorates of Asylum		YES
Observations	64,036	287,837
Log Likelihood	-40,722	-163,298
Akaike Inf. Crit.	81,471	326,658
Adjusted R-Square	0.0257	0.0398

Notes: The dependent variable is a dummy equal to 1 if the refugee returned to Syria. Estimates are from linear probability models with robust standard errors in parentheses. Governorate-of-asylum fixed effects are included where indicated. *** p<0.01, ** p<0.05, * p<0.1.

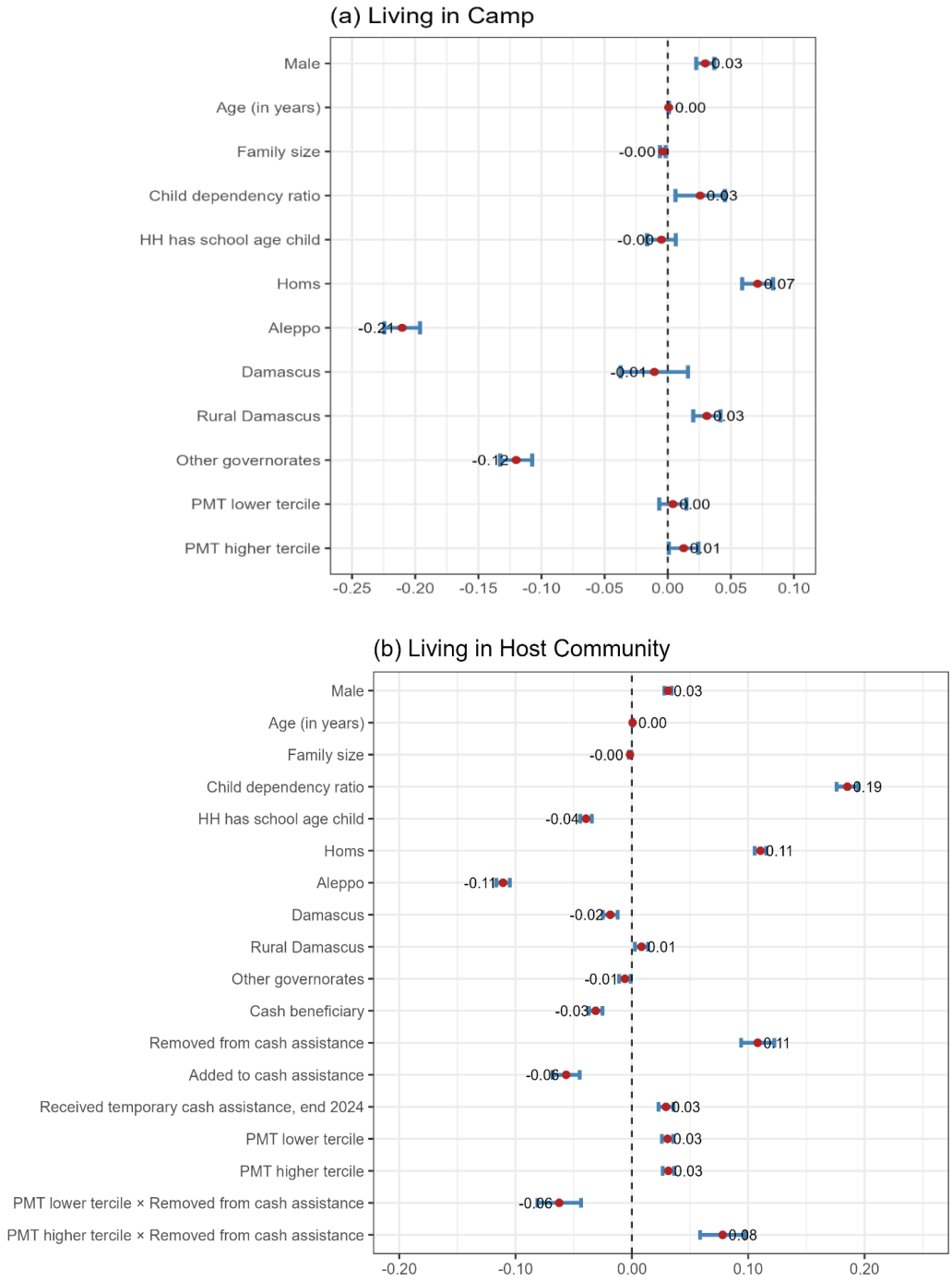


Figure 6: Coefficients (Marginal probability of return), Conditional on PMT

Notes: The figures present plot the estimated coefficients (denoted by red dots) alongside the corresponding 95% confidence intervals (represented by the blue horizontal bars). Panel (a) displays the results for refugees residing in camps, corresponding to Column (1) of **Table 3**. Panel (b) illustrates the findings for refugees living in host communities, as detailed in Column (2) of **Table 3**. Panel (c) illustrates the findings for refugees living in host communities, with interaction terms between PMT terciles and whether removed from the cash assistance list, as detailed in Column (3) of **Table 3**.

LPM 3 - SKM subsample in ProGres

This specification digs deeper into the correlation between economic integration and decision to return. To address the non-response bias identified in **Appendix IV**, we follow the methodology outlined in Zhang et al. (2023) to generate weight for each observation in the subsample surveyed by SKM in 2023. The procedure involves three main steps:

1. Estimating the propensity score for each observation using a logistic regression model.
2. Applying the method proposed by Lee (2006) to calculate the Propensity Score Weights (PSW).
3. Performing a raking adjustment after PSW to align the means of key variables between the survey of interest and the reference survey.

We then incorporate the weights value for each observation into the LPM model.

As we can see from the results in **Table 4** below, proxies for level of economic integration in Jordan do influence likelihood of return, whether residing in camps or in host communities, but the magnitude of the effect is relatively small. Adults who attained their highest level of education in Jordan (*Educated in Jordan*) are less likely to return to Syria. Interestingly, while those with a higher education are less likely to return when living outside of camps, those with a higher education living in camps more likely to return. This may be because, for this admittedly small group, there are no professional opportunities while living in the camps. Working seems to marginally dis-incentivize returns, by about a percentage point; the effect in host communities increases for those reporting formal employment (*Work proxy × Proxy formal employment (2023)*). Individuals residing in camps who reported having work permits in 2023 are also less likely to return, but it is important to highlight that since 2023 the issuance of work permits in the camps has dropped to almost null. Those who had work experience in Syria prior to displacement (*Worked in Syria*) are more inclined to return, pointing to the importance of economic opportunities as a 'pull factor'.

Table 4: Probability of Refugee Return, Conditional on Education and Work Outcomes, Camp and non-camp (LPM)

Dependent variable	whether this refugee has returned to Syria (dummy)	
	Camp	non-Camp
	(1)	(2)
	Coefficients/Marginal Effects	Coefficients/Marginal Effects
Male	0.008	0.014***
	(0.005)	(0.003)
Age (in years)	0.000	0.002***
	(0.000)	(0.000)
Family size	-0.007***	-0.008***
	(0.002)	(0.001)
Child dependency ratio	-0.053***	0.088***
	(0.013)	(0.007)
HH has school age child	0.001	0.008**
	(0.008)	(0.004)
Homs	0.048***	0.114***
	(0.009)	(0.004)
Aleppo	-0.216***	-0.148***
	(0.011)	(0.004)
Damascus	-0.008	-0.017***
	(0.017)	(0.005)
Rural Damascus	0.050***	0.016***
	(0.007)	(0.004)
Other governorates	-0.086***	-0.014***
	(0.010)	(0.004)
PMT lower tercile	0.017**	0.035***
	(0.007)	(0.003)
PMT higher tercile	-0.015*	0.021***
	(0.008)	(0.004)
Cash beneficiary		-0.138***
		(0.004)
Removed from cash assistance		0.025***
		(0.005)
Added to cash assistance		-0.030***
		(0.007)
Received temporary cash assistance, end 2024		-0.011***
		(0.004)

Completed secondary Education	0.000	-0.015***
	(0.007)	(0.003)
Completed tertiary Education	0.038***	-0.006
	(0.012)	(0.005)
Educated in Jordan	-0.019***	-0.004
	(0.008)	(0.004)
Worked in Syria	0.027***	0.008***
	(0.007)	(0.003)
Work proxy (2023)	-0.016*	-0.011***
	(0.008)	(0.003)
Work proxy × Proxy formal employment (2023)	0.043**	-0.043***
	(0.019)	(0.007)
Fixed effects: Governorates of Asylum		YES
Observations	39,604	165,867
Log Likelihood	-25,720	-104,441
Akaike Inf. Crit.	51,479	208,952
Adjusted R-Square	0.0749	0.0410

Notes: The dependent variable is a dummy equal to 1 if the refugee returned to Syria. Estimates are from linear probability models with robust standard errors in parentheses. The sample links UNHCR administrative registry data verified return records, and the 2023 WFP–UNHCR Skills Mapping Survey (SKM) and is restricted to individuals observed in the SKM module. All specifications are weighted using Lee (inverse probability–based) weights to account for non-response and sample selection into the SKM. Cash variables are constructed from monthly assistance records as described in the main text. Governorate-of-asylum fixed effects are included. *** p<0.01, ** p<0.05, * p<0.1.

Figure 7 shows the resulting average marginal effects in Camp and non-camp:

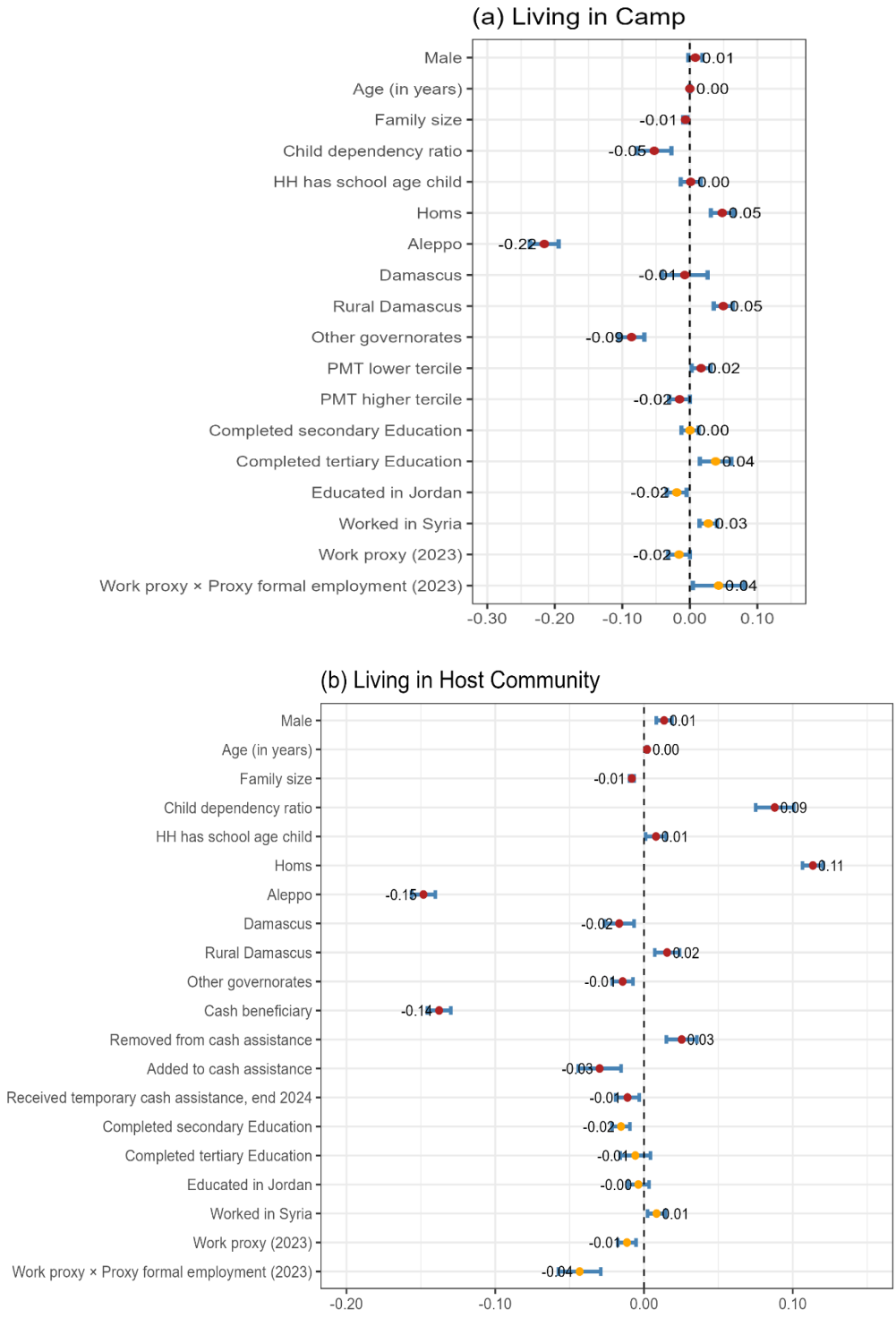


Figure 7: Marginal probability of return, conditional on education and labor outcomes

Notes: These figures plot the estimated coefficients (red dots for variable in ProGres and orange dots for variables in SKM) and 95% confidence intervals (blue horizontal bars). Panel (a) displays the results for refugees residing in camps, corresponding to Column (1) of **Table 4**. Panel (b) illustrates the findings for refugees living in host communities, as detailed in Column (2) of **Table 4**.

5. Conclusion/Policy Implications

In this paper, we analyzed the factors shaping Syrian refugees' decisions to return from Jordan following the fall of the Assad government on December 8, 2024. Using a uniquely rich dataset linking UNHCR's administrative registry with verified border-crossing records, we identify three main drivers: geography of origin, welfare level and cash assistance dynamics, and economic integration in the host country. Together, these findings offer both analytical and practical insights for policymakers and assistance providers.

Geographic origin is one of the strongest predictors of return. Return rates differ substantially by governorate of origin from governorates with lower conflict intensity returning at significantly higher rates. This heterogeneity implies that aggregate return figures conceal important local variation, and that conditions on the ground in Syria — particularly local security, infrastructure, and economic reconstruction — remain central to refugees' assessments of whether return is viable, in addition to higher costs of relocating to longer distances. Monitoring and communicating conditions at the governorate level, rather than nationally, would better support informed decision-making by refugees and more accurate projections by policymakers.

Looking across the welfare distribution, both the poor and the relatively wealthier refugees living in host communities are more likely to return than households in the middle of the distribution, generating a U-shaped pattern. The poor have the fewest alternatives in Jordan in terms of livelihood; wealthier household face the lowest financial barriers to return. Households in the middle face the highest opportunity cost of leaving, since they often have stable livelihoods but lack the capital to take the leap. Policies should account for these different underlying mechanisms rather than treating return propensity as a single uniform phenomenon.

For the subset of households receiving cash assistance, reductions have a push effect. The sharp reduction in cash assistance coverage since early 2025 has increased the likelihood of return among host community refugees who lose eligibility, consistent with a push mechanism. However, this effect does not hold for those among the most vulnerable who were receiving assistance: among the poorest households, losing assistance appears to constrain rather than enable return, likely because returning requires a minimum level of liquidity that these households cannot marshal on their own. This has direct implications for the design of return support programs. Blanket reductions in cash assistance are unlikely to facilitate voluntary, durable return among the poorest. Instead, targeted financial support — such as the UNHCR cash-for-return pilot launched in camps in late August 2025, and the recent top up available for vulnerable households since April 2026 — as witnessed by the positive effect of temporary reinclusion on the cash list at the end of the 2024 for refugees living in host communities, may be better suited to enabling this group to act on a desire to return that liquidity constraints currently prevent.

Over time, we find evidence that the residual camp population is becoming increasingly vulnerable. As wealthier households leave, the internal camp economy weakens, compounding the effects of

reduced cash assistance in what are largely closed economic systems. Ongoing monitoring of welfare composition, rather than solely headcount, is essential to ensuring that assistance remains effective as the population shrinks. This compositional change has direct implications for assistance programs calibrated to the average camp resident based on metrics that may no longer reflect current needs.

Economic integration has a modest but statistically significant negative effect on return, while prior economic ties to Syria act as a meaningful pull factor. Refugees with higher education levels, qualifications obtained in Jordan, or formal employment are marginally less likely to return. In contrast, refugees who worked in Syria before displacement are significantly more likely to return, pointing to the role of existing economic networks, livelihood assets, and employment prospects at home in driving the return decision. This pattern is consistent with a framework in which refugees weigh relative economic opportunities across the two countries: the strength of ties to Syria matters as much as the degree of integration in Jordan. Policymakers should not interpret integration support as an impediment to eventual return. Investing in economic reconstruction and labor market recovery in Syria, particularly in sectors and regions where refugees previously worked, is likely to be a more powerful lever for encouraging durable return than restricting integration opportunities in host countries.

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Appendix

Appendix I: The Definitions of Variables in Analysis

Table A1 presents the definitions of each variable used in our analysis, extracted from ProGres and SKM datasets.

Cash beneficiary status is constructed from the monthly cash assistance records. For returnees, we measure cash beneficiary status in the recorded departure month; for non-returnees, we use the December 2025 cash assistance record. This approach applies to a one-month lag in measurement and ensures consistency in the timing of the cash status definition across the two groups.

In a small number of cases, individuals may still appear as receiving cash assistance close to or even after return. This generally reflects the fact that cash assistance is administered at the case (household) level rather than the individual level. For example, if one member of a five-person household returns while the remaining household members stay behind, the case may continue to receive cash assistance. In addition, such cases may also arise from delays in updating or closing individual records in the ProGres system. These instances are relatively uncommon.

Table A1: the List of the Variables and their Definitions

Variable Name	Definition
Panel A: from ProGres	
Male	Gender of the individual (0 = Female, 1 = Male).
Age (in years)	Age of the individual in years.
Family size	The total number of individuals registered under the same household number (case number), regardless of their current status (continuous, absolute value).
Child dependency ratio	% of children in the household.
HH has school age child	A dummy variable indicating whether the household has at least one school-age child (born between 2009 and 2018, corresponding to Grades 1–10 in Jordan).
Camp	A binary variable for whether the individual resides in a refugee camp (1 = Yes, 0 = No).
Governorates or Origin	Set of binary variables for governorates of origin: Daraa, Homs, Aleppo, Damascus, and rural Damascus. Other governorates with only small numbers of refugees originating from are bulked as 'Others'.
Cash beneficiary	Indicates whether an individual's household was receiving cash assistance in the reference month used to capture pre-outcome program participation. For non-returnees, the status is defined based on the cash assistance record in December 2025. For returnees, it is defined based on the cash assistance record in the month of the recorded departure month. This definition aligns the measurement window across groups by using a one-month lagged cash assistance status.

	The variable is coded as: 1 = receiving cash assistance in the reference month; 0 = not receiving cash assistance.
Removed from cash assistance	Indicates whether an individual's household was removed from the cash assistance list after November 2024. Coded as: 1 = removed from cash assistance; 0 = no change. Reference period: for non-returnees, from November 2024 to December 2025; for returnees, from November 2024 to the recorded month of departure.[18]
Added to cash assistance	Indicates whether an individual's household was added to the cash assistance list after November 2024. Coded as: 1 = added to cash assistance; 0 = no change. Reference period: for non-returnees, from November 2024 to December 2025; for returnees, from November 2024 to the recorded month of departure.
Received temporary cash assistance, end 2024	Indicates individuals who received cash assistance only temporarily during October, November, and December 2024 as UNHCR disbursed additional finance received.
PMT terciles	The PMT terciles are defined as per PMT scores, separately for camp and non-camp population.
Panel B: from SKM	
Completed basic education	Indicator for completion of basic education (1 = Yes, 0 =No).
Completed secondary education	Indicator for completion of secondary education (1 = Yes, 0 = No).
Completed tertiary Education	Indicator for completion of tertiary education (1 = Yes, 0 = No).
Educated in Jordan	Indicator for whether the highest education level was completed in Jordan (1 = Yes, 0 = No).
Worked in Syria	Indicator for whether the individual has some work experience in Syria, prior to moving to Jordan (1 = Yes, 0 =No).
Work proxy	Binary indicator variable equal to 1 if the respondent engaged in any work activity in the past 7 days, and 0 otherwise, at the time of interview (2023). It encompasses paid work, self-employment, unpaid work in family business and those temporary absent from work at time of interview. This is used as a proxy for access to economic opportunities in Jordan prior to the fall of the Assad government.
Formal employment	Indicator for whether the refugee held a valid work permit issued by the Jordanian government at the time of interview (2023). This is used as a proxy for access to the formal economy in Jordan prior to the fall of the Assad government.

[18] We exclude individuals who were temporarily added to the cash assistance list at the end of 2024 and received assistance only in October, November, and December 2024. These individuals are therefore not classified as "removed from cash assistance," but instead captured by a separate variable, "added to cash assistance, enf of 2024."

Appendix II: Dynamic Analysis

We explore the temporal dynamics of the relationship between key household or individual characteristics and return decisions using an event-study framework. Specifically, for each month t, we construct a cross-sectional sample by excluding individuals who have already returned prior to month t, and define the dependent variable as an indicator equal to 1 if the individual returns in month t, and 0 otherwise.

We then estimate a series of linear probability models (LPM) separately for each month, keeping the specification consistent with the baseline regressions. This procedure generates a sequence of coefficient estimates over time, allowing us to trace the dynamic patterns of key variables in a manner analogous to an event-study design, as shown in **Figure A1** to **A5**.

Unless otherwise specified, the dynamic analysis based on the LPM 2 specification is estimated using the full sample without weights, while the LPM 3 specification (SKM-merged sample) is estimated using Lee weights to account for non-response bias.

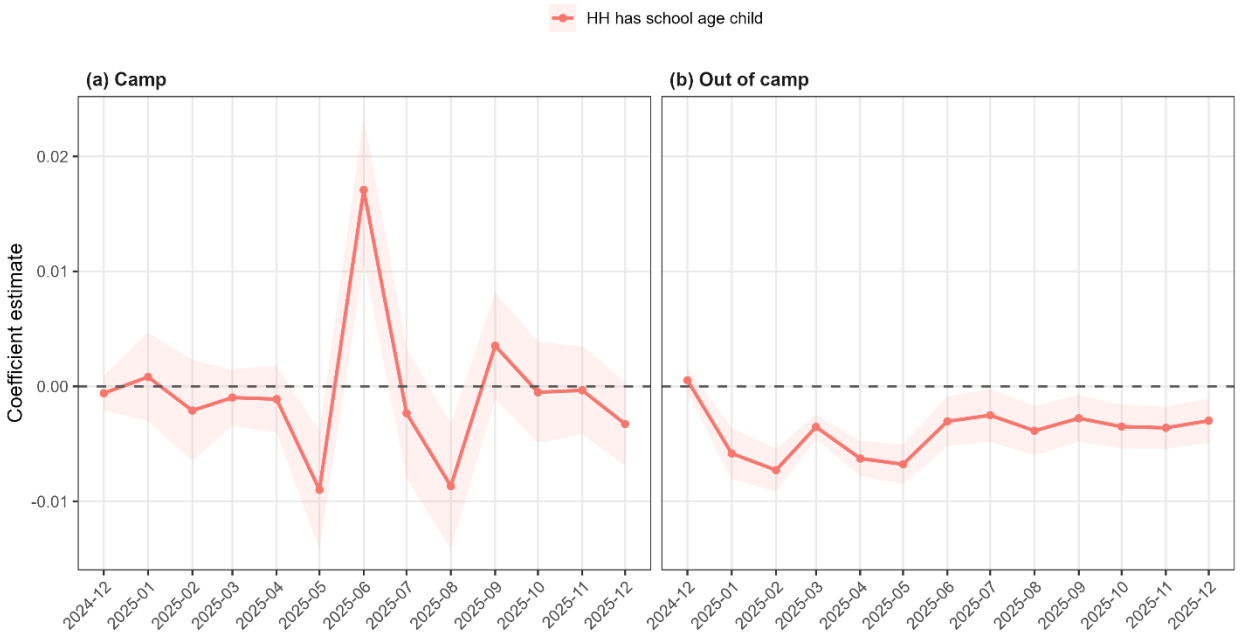

Figure A1: The event-study figure of "HH has school age child" (camp & non-camp)

Note: This figure plots the dynamic coefficients of the variable *HH has school age child*, indicating whether the household has at least one school-age child. The left panel shows results for camp refugees, and the right panel for non-camp refugees. Estimates are based on the LPM 2 specification using the full sample without weights. The shaded bands indicate 95% confidence intervals.

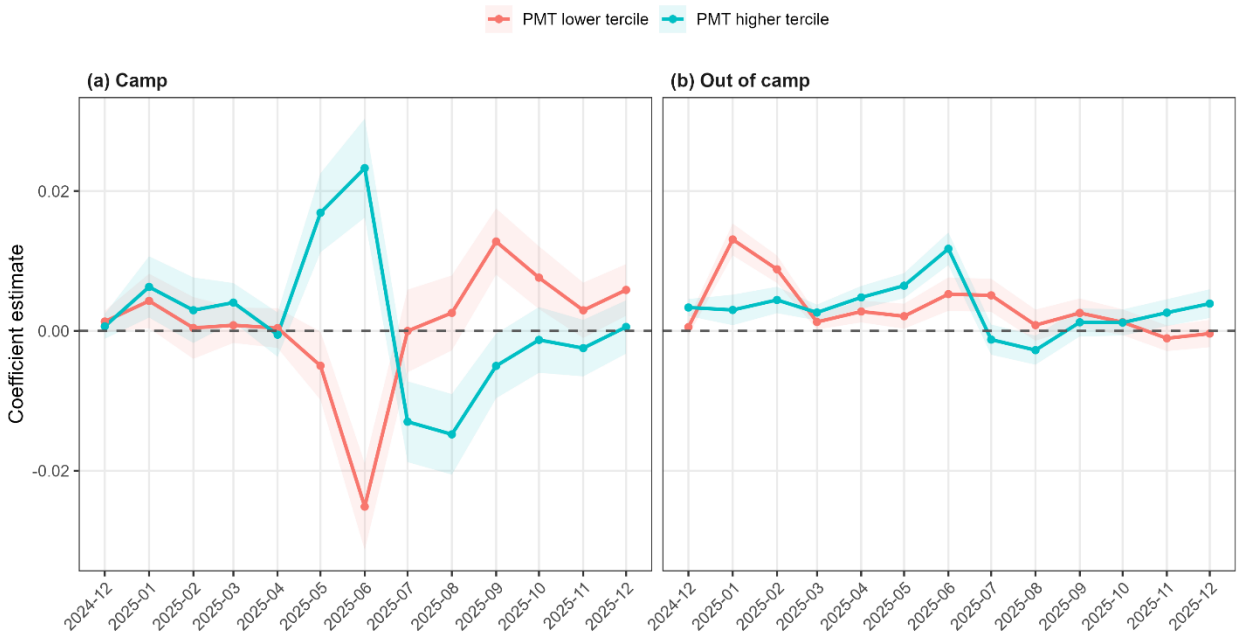

Figure A2: The event-study figure of PMT tercile (camp & non-camp)

Note: This figure presents the dynamic coefficients for PMT tercile indicators. The left panel reports results for camp refugees (*PMT lower tercile* and *PMT higher tercile*), while the right panel shows results for non-camp refugees. All estimates are based on the LPM 2 specification using the full sample without weights. The omitted category corresponds to the middle PMT group. The shaded bands indicate 95% confidence intervals.

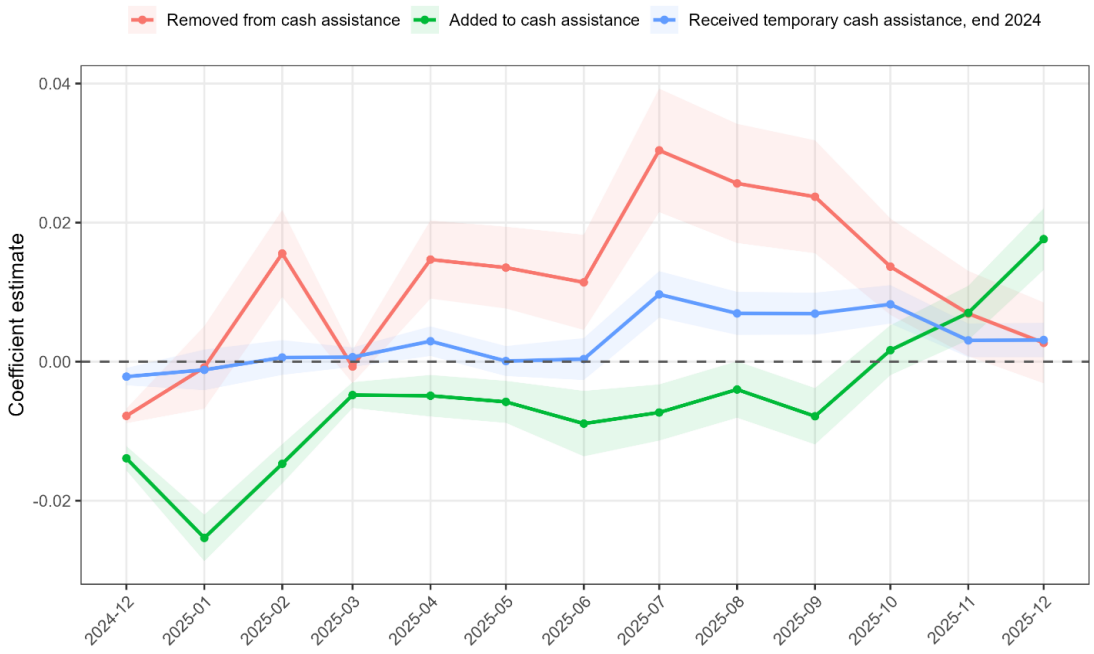

Figure A3: The event-study figure of Cash variables (non-camp only)

Note: This figure plots the dynamic coefficients of cash-related variables for non-camp refugees, including *Removed from cash assistance*, *Added to cash assistance*, and *Received temporary cash assistance, end 2024*. Estimates are based on the LPM 2 specification using the full sample without weights. The figure illustrates how the association between cash assistance status and return decisions evolves over time. The shaded bands indicate 95% confidence intervals.

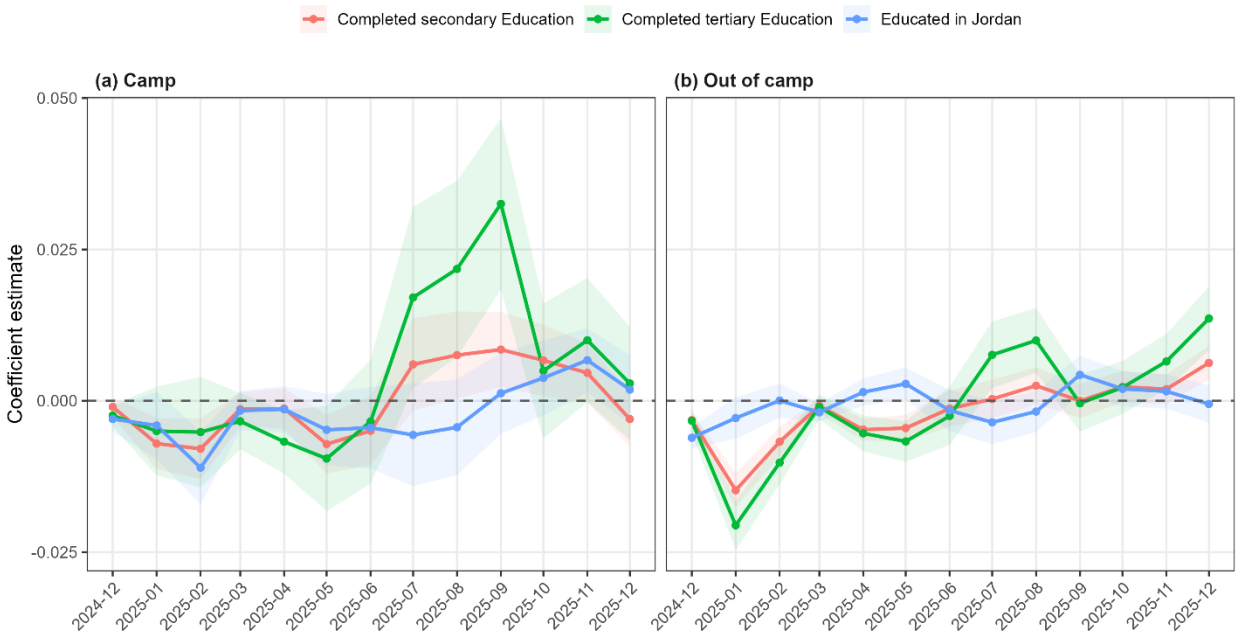

Figure A4: The event-study figure of Education (LPM 3, weighted)

Note: This figure presents the dynamic coefficients for education variables (*Completed secondary Education*, *Completed tertiary Education*, *Educated in Jordan*). The left panel corresponds to camp refugees and the right panel to non-camp refugees. Estimates are based on the LPM 3 specification using the SKM-merged sample and Lee weights. The results reflect both compositional differences and adjustments for non-response. The shaded bands indicate 95% confidence intervals.

Figure A5: The event-study figure of Employment (LPM 3, weighted)

Note: This figure plots the dynamic coefficients for employment-related variables (*Work proxy (2023)* and *Work proxy × Proxy formal employment (2023)*). The left panel shows camp refugees and the right panel shows non-camp refugees. Estimates are based on the LPM 3 specification using the SKM-merged sample with Lee weights, allowing us to account for potential non-response bias in the labor market module. The shaded bands indicate 95% confidence intervals.

Appendix III: Survival Analysis

While the Linear Probability Model is well-suited for analyzing cross-sectional data to identify key factors associated with a binary outcome, the nature of the outcome variable in this study requires a more nuanced approach. Specifically, our outcome of interest—Syrian refugee returns to Syria—involves not only whether the return occurs, but also when it occurs. This introduces a temporal dimension that the Linear Probability Model does not account for. Moreover, a significant portion of the sample consists of individuals who have not returned by the end of the observation period. These cases are considered right censored, as we only know that return has not occurred up to a certain point. Excluding such observations would result in a substantial loss of information.

To address this, we complement the LPM analysis with survival analysis, a methodological framework explicitly designed to model time-to-event data and handle censoring effectively (Efron, 1988). This allows us to capture both the timing and likelihood of return, providing a more comprehensive understanding of the determinants of refugee return.

We begin by presenting graphical evidence on the differences in survival function curves across various refugee subgroups. Survival curves are widely used in economics, particularly in labor economics, to facilitate explicit comparisons among different populations and to assess whether significant differences exist. For instance, they have been employed to analyze the impact of unemployment insurance on unemployment duration (Chetty, 2008; Kroft & Notowidigdo, 2016; Lindner & Reizer, 2020) and to examine how names influence the time between job application and employer response (Kline et al., 2022).

Similar to the Beaman et al. (2022), we use survival analysis model to estimate the transition probabilities, since this approach is able to address the right-censored nature of our panel (i.e., the majority of individuals did not return by the end of our records), which is problematic when, for example, using OLS or a binary dependent variable model, such as Logit or Probit.

The **Figure A6** below displays the Kaplan-Meier product-limit estimate of the survivor function for all refugees registered with UNHCR in Jordan.

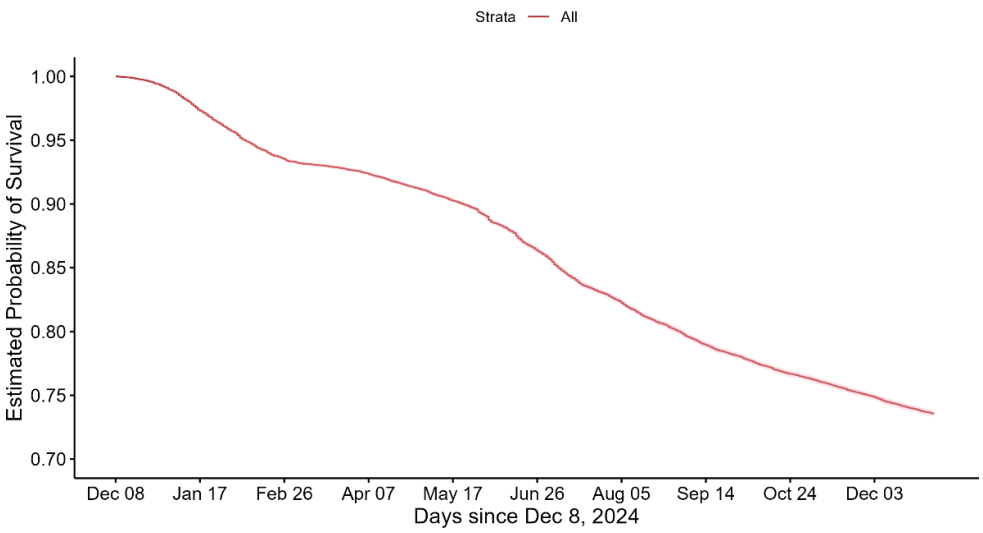

Figure A6: Estimated Kaplan–Meier Survivor Functions (full sample)

Notes: The graph displays the overall Kaplan–Meier product-limit estimate of the survivor function for all refugees registered with UNHCR in Jordan.

Figure A7 (a) to **(h)** presents the estimated Kaplan-Meier survival curves, disaggregated by gender, receipt of cash assistance, past work experience in Syria, and current employment status as of the 2023 survey. **Figure A8** presents the estimated Kaplan-Meier survival curves, disaggregated by governorate in the country of origin.

The results reveal clear differences across groups: males, those who did not receive monthly cash assistance, and those with prior work experience in Syria are more likely to return after the fall of the Assad government. In contrast, proxies' employment status appears to have a less significant impact on the decision to return.

We also ran Cox models replicating the LPM to account for temporal dynamics with consistent results. Those are presented in **Appendix V**.

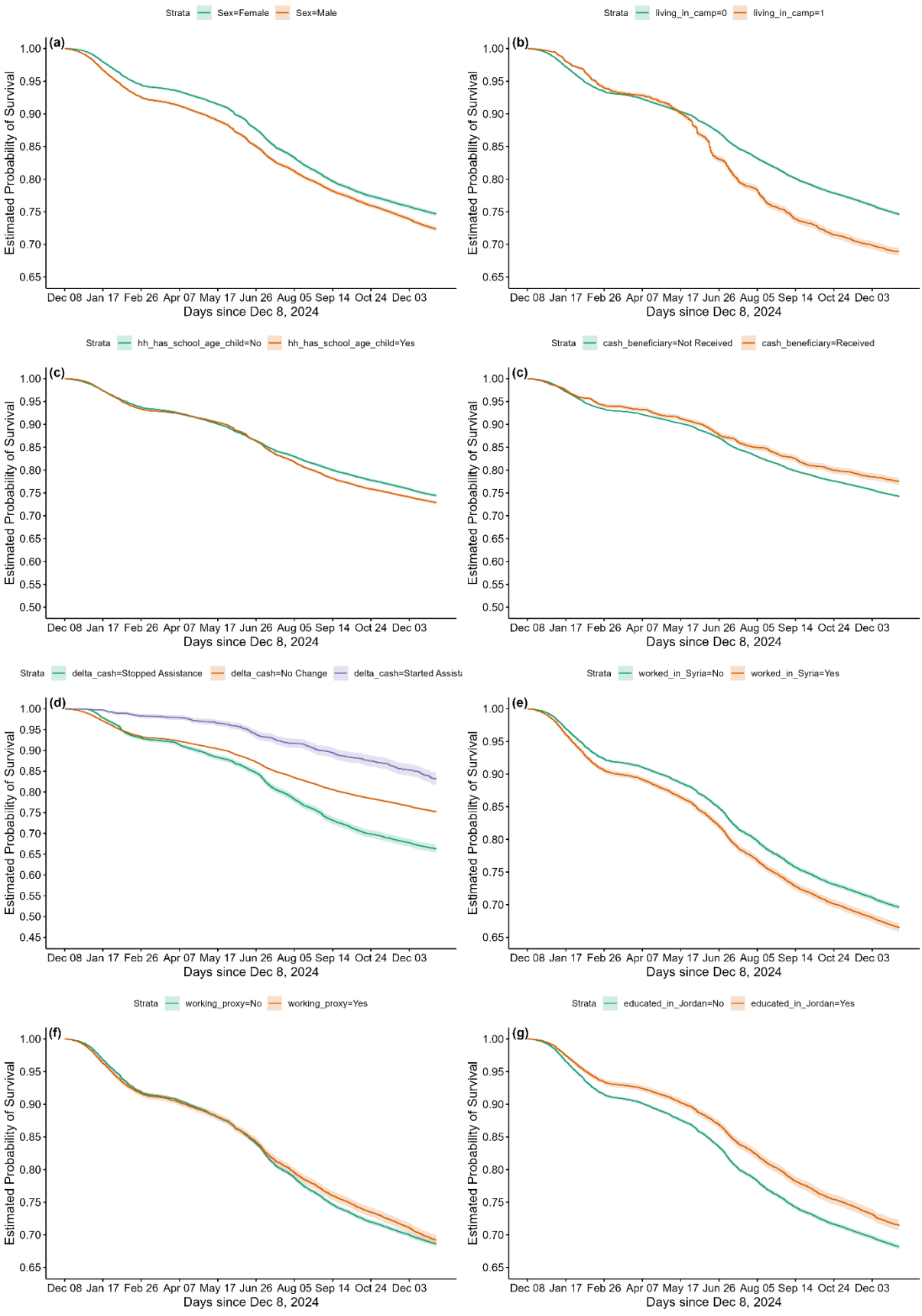
Strata Sex=Female Sex=Male
(a)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata living_in_camp=0 living_in_camp=1
(b)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata hh_has_school_age_child=No hh_has_school_age_child=Yes
(c)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65 0.60 0.55 0.50
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata cash_beneficiary=Not Received cash_beneficiary=Received
(c)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65 0.60 0.55 0.50
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata delta_cash=Stopped Assistance delta_cash=No Change delta_cash=Started Assista
(d)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65 0.60 0.55 0.50 0.45
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata worked_in_Syria=No worked_in_Syria=Yes
(e)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata working_proxy=No working_proxy=Yes
(f)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024
Strata educated_in_Jordan=No educated_in_Jordan=Yes
(g)
Estimated Probability of Survival
1.00 0.95 0.90 0.85 0.80 0.75 0.70 0.65
Dec 08 Jan 17 Feb 26 Apr 07 May 17 Jun 26 Aug 05 Sep 14 Oct 24 Dec 03
Days since Dec 8, 2024

Figure A7: Estimated Kaplan–Meier Survivor Functions (subsamples)

Notes: The graph displays the Kaplan–Meier product-limit estimate of the survivor function for different refugee samples registered with UNHCR in Jordan. The subgroup survivor functions are by gender (a), by whether living in camp (b), by whether received cash assistance (c), by whether the cash assistance status changed in the past 6 months (d), by whether worked in Syria in the past (e), by worked in the Skills Mapping Survey in 2023 (f) and by whether finished the highest education in Jordan (g). For plots (a) to (d), I use the full sample (all adult refugees in ProGres dataset), for (e) to (g), I use the subsample (ProGres matched with SKM dataset). The shaded area represents the 95% confidence intervale.

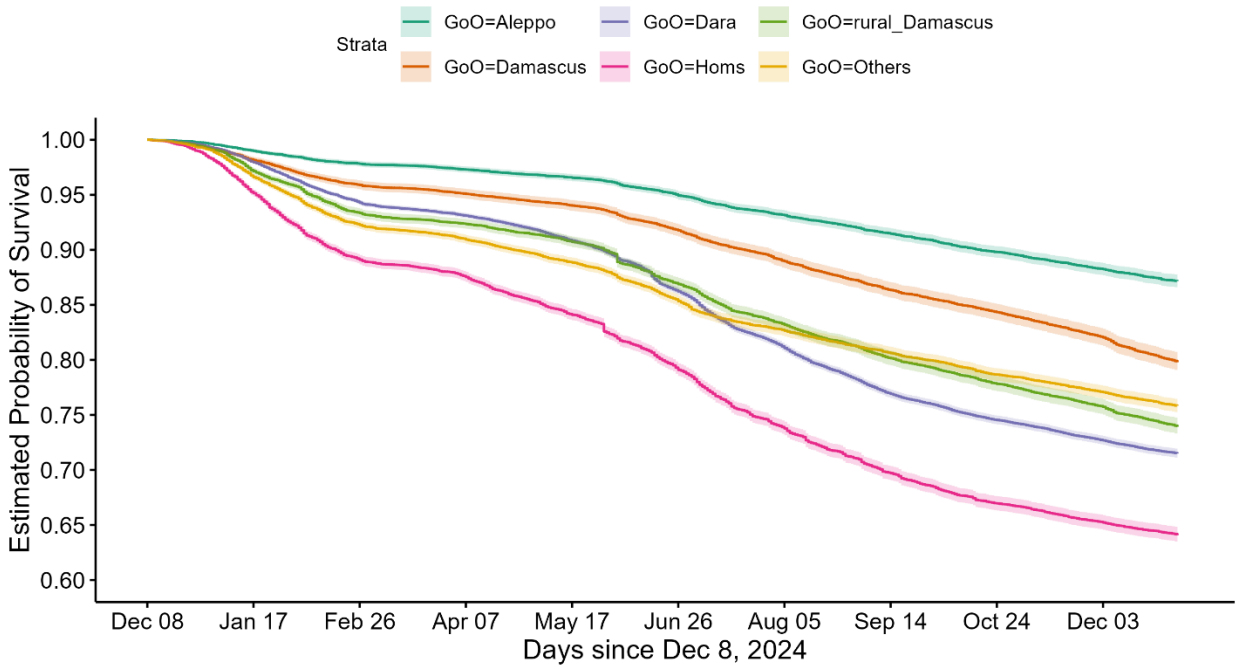

Figure A8: Estimated Kaplan–Meier Survivor Functions (subsamples, by GoO)

Notes: The graph displays the Kaplan–Meier product-limit estimate of the survivor function for different refugee samples registered with UNHCR in Jordan. The subgroup survivor functions are by governorates in the country of origin. The shaded area represents the 95% confidence intervale.

Appendix IV: The Bias between ProGres and SKM

After merging the ProGres refugee registration data with the SKM dataset, we identified a systematic bias in the SKM sample. Specifically, male refugees were more likely to be captured in ProGres but not in SKM. Additionally, adults excluded from the SKM dataset tend to have higher education levels and are less likely to receive cash assistance suggesting that individuals who are better integrated in Jordan would have been missed during the census exercise as UNHCR may not have add updated contact details. However, the bias is not so significant economically according to Cohen's d results.

Descriptive Statistics

The following two figures present the age distribution and education levels[19] among the ProGres data, comparing two groups: those matched with the SKM dataset and those not matched.

[19] When comparing the ProGres and SKM datasets, the education level from the ProGres dataset is used to compare the two groups (those included in the SKM survey and those not). For all other references to education in this write-up, the analysis is restricted to the SKM dataset; therefore, the source of education data is the SKM survey records.

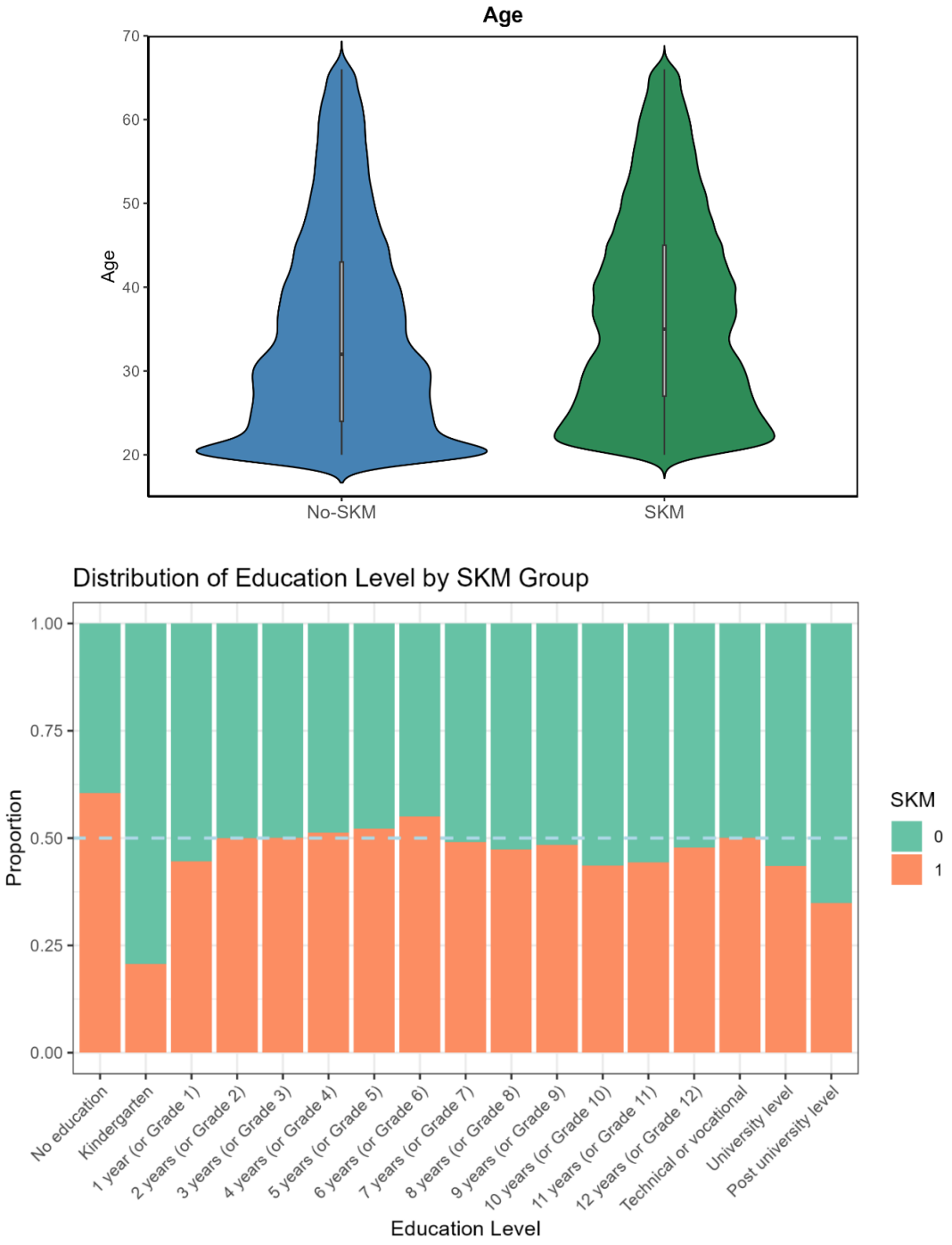

Figure A9: The Age Distribution and Education Levels among Two Groups (no-SKM vs. SKM)

From **Figure A9**, we observe that the age distribution follows similar patterns between those surveyed by SKM and those who were not. However, the distribution of education levels shows greater variation across groups.

Statistically & Economically Significant

According to **Table A2**, most variables show only small percentage-point differences in mean values. To assess whether these differences are economically meaningful, we further calculated Cohen's d as a measure of effect size. The results indicate that, for all the key variables, the differences are economically insignificant, even when most of them are statistically significant.

Table A2: descriptive statistics and t-test results of SKM vs. non-SKM refugees

variable	Sample Mean	no_SKM	n_no_SKM	SKM	n_SKM	t-test	Cohen's d	magnitude
Male	0.48	0.48	99118	0.48	205472	***	0.02	negligible
no informal	0.06	0.05	98666	0.07	205415	***	-0.10	negligible
Completed primary Education	0.33	0.30	98666	0.34	205415	***	-0.10	negligible
Completed secondary Education	0.53	0.56	98666	0.51	205415	***	0.10	negligible
Completed tertiary Education	0.08	0.10	98666	0.08	205415	***	0.06	negligible
age_(20-29)	0.37	0.42	99118	0.34	205472	***	0.16	negligible
age (30-39)	0.26	0.26	99118	0.26	205472		0.00	negligible
age (40-49)	0.20	0.17	99118	0.22	205472	***	-0.11	negligible
age (above_50)	0.17	0.15	99118	0.18	205472	***	-0.08	negligible

Notes: Significance codes: *** p<0.01, ** p<0.05, * p<0.1.

Appendix V: Robustness Check

Replace the LPM into the Probit/Logit Model

First, we replaced the LPM specification with Probit and Logit models as robustness checks. The results, reported as average marginal effects, remain consistent across model specifications. Due to space limitations, we report only the LPM 2 results in **Table A3**, while the corresponding LPM 1 and LPM 3 results are also robust. This consistency is reasonable, as the mean of the dependent variable is sufficiently high for the Logit, Probit, and LPM specifications to generate similar estimates over the approximately linear portion of the response function.

Table A3: Robustness Check using Logit/Probit (LPM 2)

Dependent variable	whether this refugee has returned to Syria (dummy)							
	Camp				non-Camp			
	(1) Logit		(2) Pogit		(3) Logit		(4) Pogit	
	Coefficient	AME	Coefficient	AME	Coefficient	AME	Coefficient	AME
Male	0.142***	0.030	0.086***	0.030	0.170***	0.031	0.102***	0.031
	(0.017)		(0.011)		(0.009)		(0.005)	
Age (in years)	0.004***	0.001	0.002***	0.001	0.003***	0.001	0.002***	0.001
	(0.001)		(0.000)		(0.000)		(0.000)	
Family size	-0.019***	-0.004	-0.011***	-0.004	-0.008**	-0.001	-0.004**	-0.001
	(0.006)		(0.003)		(0.003)		(0.002)	
Child dependency ratio	0.123**	0.026	0.073**	0.025	1.010***	0.184	0.598***	0.185
	(0.048)		(0.029)		(0.026)		(0.015)	
HH has school age child	-0.023	-0.005	-0.013	-0.005	-0.214***	-0.039	-0.126***	-0.039
	(0.028)		(0.017)		(0.014)		(0.008)	
Homs	0.308***	0.064	0.190***	0.065	0.548***	0.100	0.328***	0.101
	(0.028)		(0.017)		(0.013)		(0.008)	
Aleppo	-1.321***	-0.276	-0.753***	-0.260	-0.763***	-0.139	-0.426***	-0.132
	(0.048)		(0.025)		(0.019)		(0.011)	
Damascus	-0.049	-0.010	-0.029	-0.010	-0.118***	-0.022	-0.067***	-0.021
	(0.064)		(0.039)		(0.019)		(0.011)	
Rural Damascus	0.138***	0.029	0.084***	0.029	0.046***	0.008	0.027***	0.008
	(0.025)		(0.016)		(0.016)		(0.009)	
Other governorates	-0.627***	-0.131	-0.371***	-0.128	-0.032**	-0.006	-0.022***	-0.007
	(0.035)		(0.020)		(0.014)		(0.008)	
PMT lower tercile	0.019	0.004	0.009	0.003	0.162***	0.029	0.092***	0.028
	(0.026)		(0.016)		(0.014)		(0.008)	
PMT higher tercile	0.057**	0.012	0.036**	0.012	0.180***	0.033	0.107***	0.033
	(0.029)		(0.017)		(0.014)		(0.008)	

Cash beneficiary			-0.171***	-0.031	-0.102***	-0.031
			(0.017)		(0.010)	
Removed from cash assistance			0.550***	0.100	0.326***	0.101
			(0.037)		(0.022)	
Added to cash assistance			-0.377***	-0.069	-0.209***	-0.065
			(0.036)		(0.021)	
Received temporary cash assistance, end 2024			0.155***	0.028	0.092***	0.028
			(0.017)		(0.010)	
PMT lower tercile × Removed from cash assistance			-0.327***	-0.059	-0.190***	-0.059
			(0.048)		(0.029)	
PMT higher tercile × Removed from cash assistance			0.315***	0.057	0.197***	0.061
			(0.049)		(0.030)	
Fixed effects: Governorates of Asylum			YES		YES	
Observations	64,036	64,036	287,837		287,837	
Log Likelihood	-38,795	-38,794	-157,330		-157,345	
Akaike Inf. Crit.	77,616	77,614	314,720		314,751	
Adjusted R-Square	0.0231	0.0232	0.0361		0.0360	

Notes: The dependent variable is a dummy equal to 1 if the refugee returned to Syria. Estimates are reported as average marginal effects from Logit/Probit models, with robust standard errors in parentheses. Model fit is evaluated using McFadden's R-square. The sample links UNHCR administrative registry data verified return records, and the 2023 WFP–UNHCR Skills Mapping Census. Cash variables are constructed from monthly assistance records: for returnees, status is measured up to the month of return; for non-returnees, up to December 2025. "Received temporary cash assistance, end 2024" refers to additional cash assistance made available by additional funding received by UNHCR. PMT terciles are calculated separately for camp and host-community/non-camp refugees and are used to proxy relative household welfare within each population group; interactions capture heterogeneous effects of cash removal across welfare groups. Governorate-of-asylum fixed effects are included where indicated. *** p<0.01, ** p<0.05, * p<0.1

Cox Proportional Hazards Model

In this section, we applied the Cox proportional hazards model (Cox, 1972) which incorporates time-to-event information, effectively accounts for censoring, and provides semi-parametric estimates that allow for meaningful quantitative interpretation. It has been widely applied in economics (Chetty, 2008; Mastrobuoni & Pinotti, 2015; Kroft & Notowidigdo, 2016; Rao, 2018; Lindner & Reizer, 2020) and has inspired numerous extensions, including variants that integrate cutting-edge machine learning techniques (Deryugina et al., 2019). In this section, we employ the Cox model to offer a more accurate and nuanced analysis of the determinants of return.

In the last section, we applied the Kaplan-Meier survival function (i.e. $S(t) = Pr(T > t)$) in survival analysis to illustrate the different change trend of probability of return for refugees. In this section, we borrow Cox's proportional hazards model, also from survival analysis family, the basis of this model is the hazard function (or hazard rate, a.k.a. force of mortality) defined as below:

$$h(t) = \lim_{\Delta t \to 0} \frac{\Pr(t < T \leq t + \Delta t \mid T > t)}{\Delta t} = \frac{f(t)}{S(t)}$$

where T is the (true) survival time.

$h(t)$ is the death rate in the instant after time t, given survival up to that time, or the instantaneous rate at which events occur, given no previous events.

Therefore, the cumulative hazard describes the accumulated risk up to time t, $H(t) = \int_0^t h(u)du$, and if we know any one of the functions $S(t)$, $H(t)$, or $h(t)$, we can derive the other two functions.

$$h(t) = -\frac{\partial \log\big(S(t)\big)}{\partial t}$$

$$H(t) = -\log(S(t))$$

$$S(t) = \exp\left(-H(t)\right)$$

As for this model, the assumption states that:

$$h(t|x_i) = h_0(t)\exp(\sum_{j=1}^{p} x_{ij}\beta_j)$$

where $h_0(t) \geq 0$ is an unspecified function (i.e. no assumption about its function form, this model is semi-parametric whereas Probit if fully parametric), known as the baseline hazard. It is the hazard function for an individual with features $x_{i1} = \cdots = x_{ip} = 0$.

The name "proportional hazards" arises from the fact that the hazard function for an individual with feature vector x_i is some unknown function $h_0(t)$ times the factor $\exp(\sum_{j=1}^{p} x_{ij}\beta_j)$, which is

called the relative risk for the feature vector $x_i = (x_{i1}, \dots, x_{ip})$, relative to that for the feature vector $x_i = (0, \dots, 0)$.

To estimate this model, we use maximum likelihood estimation (MLE), the likelihood function is shown as below,

$$L\big(\beta, h_0(\cdot)\big) = \prod_{i=1}^{n} h_0(u_i)^{\delta_i} e^{\delta_i \beta' z_i}\, e^{-\int_0^{u_i} h_0(s) e^{\beta' z_i} ds}$$

And we use the partial likelihood function to handle the presence of the infinite dimensional nuisance parameter of $L\{\beta, h_0(\cdot)\}$.

The magic of this model lies in the fact that it is in fact possible to estimate β without having to specify the form of $h_0(t)$.

To accomplish this, we make use of the same "sequential in time" logic that we used to derive the Kaplan-Meier survival curve and the log-rank test. Then the total hazard at failure time y_i for the at-risk observations is:

$$\sum_{i':y_{i'} \geq y_i} h_0(y_i) \exp\Big(\sum_{j=1}^{p} x_{i'j}\beta_j\Big)$$

Therefore, the probability that the ith observation is the one to fail at time y_i (as opposed to one of the other observations in the risk set) is

$$\frac{h_0(y_i) \exp\big(\sum_{j=1}^{p} x_{ij}\beta_j\big)}{\sum_{i':y_{i'} \geq y_i} h_0(y_i) \exp\big(\sum_{j=1}^{p} x_{i'j}\beta_j\big)} = \frac{\exp\big(\sum_{j=1}^{p} x_{ij}\beta_j\big)}{\sum_{i':y_{i'} \geq y_i} \exp\big(\sum_{j=1}^{p} x_{i'j}\beta_j\big)}$$

Notice that the unspecified baseline hazard function $h_0(y_i)$ cancels out of the numerator and denominator.

The partial likelihood [20]is simply the product of these probabilities over all of the uncensored observations,

$$PL(\beta) = \prod_{i:\delta_i=1} \frac{\exp\big(\sum_{j=1}^{p} x_{ij}\beta_j\big)}{\sum_{i':y_{i'} \geq y_i} \exp\big(\sum_{j=1}^{p} x_{i'j}\beta_j\big)}$$

Critically, the partial likelihood is valid regardless of the true value of $h_0(t)$, making the model very flexible and robust.

[20] The partial likelihood gets its name because it is not exactly a likelihood. However, it is a very good approximation.

The Results of Cox Models are shown below **Table A4**.

The interpretation is based on the Hazard Ratio, for instance, in subgroup of camp, the coefficient of Male is 0.131, the hazard ratio is calculated as $e^{0.132} = 1.141$. This means that males have a higher probability of returning (since the coefficient is positive), and their likelihood of returning is 1.141 times higher than that of females, holding all other covariates constant.

The results of Cox Models are basically consistent with our LPM results, which makes sense since the setup for Cox remains the same as LPM, with only the time dimension added to the dependent variable (y) in the survival analysis.

Table A4: Robustness Check using Cox Proportional Hazards Model (LPM 2)

Dependent variable	whether this refugee has returned to Syria (dummy)			
	(1) Camp		(2) non-Camp	
	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio
Male	0.132***	1.141	0.149***	1.161
	(0.014)		(0.007)	
Age (in years)	0.003***	1.003	0.003***	1.003
	(0.000)		(0.000)	
Family size	-0.015***	0.986	-0.009***	0.991
	(0.005)		(0.003)	
Child dependency ratio	0.103***	1.108	0.854***	2.349
	(0.039)		(0.021)	
HH has school age child	-0.018	0.982	-0.180***	0.835
	(0.023)		(0.012)	
Homs	0.272***	1.312	0.487***	1.628
	(0.022)		(0.011)	
Aleppo	-1.170***	0.311	-0.686***	0.504
	(0.045)		(0.018)	
Damascus	-0.017	0.983	-0.111***	0.895
	(0.053)		(0.017)	
Rural Damascus	0.146***	1.157	0.043***	1.044
	(0.020)		(0.014)	
Others	-0.512***	0.599	0.010	1.010
	(0.031)		(0.012)	
PMT lower tercile	0.008	1.008	0.157***	1.170
	(0.022)		(0.012)	
PMT higher tercile	0.066***	1.068	0.158***	1.171
	(0.023)		(0.012)	
Cash beneficiary			-0.138***	0.871
			(0.014)	
Removed from cash assistance			0.448***	1.565
			(0.029)	

Added to cash assistance		-0.376***	0.686
		(0.032)	
Received temporary cash assistance, end 2024		0.116***	1.123
		(0.015)	
PMT lower tercile × Removed from cash assistance		-0.301***	0.740
		(0.039)	
PMT higher tercile × Removed from cash assistance		0.220***	1.246
		(0.038)	
Fixed effects: Governorates of Asylum		YES	
Observations	64,036	287,837	
the Number of the Events	19,938	73,216	
Log Likelihood	-216,225	-903,899	
Akaike Inf. Crit.	432,473	1,807,857	
Wald test	1493.4900	11981.0400	

Notes: The dependent variable is the hazard of return to Syria. Estimates are reported as hazard ratios from Cox proportional hazards models, with robust standard errors in parentheses. A hazard ratio greater than 1 indicates a higher likelihood (faster rate) of return, while a hazard ratio less than 1 indicates a lower likelihood (slower rate) of return. The sample links UNHCR administrative registry data verified return records, and the 2023 WFP–UNHCR Skills Mapping Census. Cash variables are constructed from monthly assistance records: for returnees, status is measured up to the month of return; for non-returnees, up to December 2025. PMT terciles are calculated separately for camp and host-community/non-camp refugees and are used to proxy relative household welfare within each population group, interaction terms capture heterogeneous effects of cash removal across welfare groups. Governorate-of-asylum fixed effects are included where indicated. *** p<0.01, ** p<0.05, * p<0.1.

Sensitivity to Weighting Schemes in LPM 3

To assess whether the LPM 3 results are sensitive to the choice of weighting scheme, particularly the Lee weights, we estimate two additional specifications: one using inverse probability weights (IPW) and one without weights. The results, reported in **Table A5**, show that the LPM 3 findings remain robust across alternative weighting schemes.

Table A5: Robustness Check of LPM 3

Dependent variable	Camp		non-Camp	
	(1) Inverse probability weights Coefficients/Marginal Effects	(2) Unweighted Coefficients/Marginal Effects	(3) Inverse probability weights Coefficients/Marginal Effects	(4) Unweighted Coefficients/Marginal Effects
Male	0.011**	0.010**	0.013***	0.014***
	(0.005)	(0.005)	(0.003)	(0.003)
Age (in years)	0.000	-0.000	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Family size	-0.007***	-0.007***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.001)	(0.001)
Child dependency ratio	-0.058***	-0.056***	0.088***	0.087***
	(0.013)	(0.013)	(0.007)	(0.007)
HH has school age child	0.003	0.002	0.008**	0.008**
	(0.008)	(0.008)	(0.004)	(0.004)
Homs	0.036***	0.041***	0.113***	0.115***
	(0.008)	(0.008)	(0.004)	(0.004)
Aleppo	-0.218***	-0.218***	-0.149***	-0.150***
	(0.009)	(0.010)	(0.004)	(0.004)
Damascus	-0.006	-0.007	-0.016***	-0.017***
	(0.017)	(0.017)	(0.005)	(0.005)
Rural Damascus	0.048***	0.050***	0.016***	0.015***
	(0.007)	(0.007)	(0.004)	(0.004)
Other governorates	-0.117***	-0.104***	-0.015***	-0.016***
	(0.009)	(0.009)	(0.004)	(0.004)
PMT lower tercile	0.012*	0.014**	0.034***	0.034***
	(0.007)	(0.007)	(0.003)	(0.003)
PMT higher tercile	-0.019**	-0.015*	0.020***	0.024***
	(0.008)	(0.008)	(0.003)	(0.004)
Cash beneficiary			-0.139***	-0.138***
			(0.004)	(0.004)
Removed from cash assistance			0.024***	0.027***
			(0.005)	(0.005)

Added to cash assistance			-0.028***	-0.031***
			(0.007)	(0.007)
Received temporary cash assistance, end 2024			-0.010**	-0.010***
			(0.004)	(0.004)
Completed secondary Education	-0.002	0.000	-0.016***	-0.016***
	(0.006)	(0.007)	(0.003)	(0.003)
Completed tertiary Education	0.042***	0.041***	-0.008	-0.006
	(0.012)	(0.012)	(0.005)	(0.005)
Educated in Jordan	-0.021***	-0.021***	-0.004	-0.005
	(0.007)	(0.008)	(0.004)	(0.004)
Worked in Syria	0.024***	0.025***	0.008***	0.008***
	(0.006)	(0.006)	(0.003)	(0.003)
Work proxy (2023)	-0.013	-0.014*	-0.012***	-0.012***
	(0.008)	(0.008)	(0.003)	(0.003)
Work proxy × Proxy formal employment (2023)	0.036*	0.040**	-0.044***	-0.043***
	(0.019)	(0.019)	(0.007)	(0.007)
Fixed effects: Governorates of Asylum			YES	YES
Observations	39,604	39,604	165,867	165,867
Log Likelihood	-25,324	-25,351	-103,954	-103,651
Akaike Inf. Crit.	50,689	50,743	207,978	207,371

Notes: The dependent variable is a dummy equal to 1 if the refugee returned to Syria. Estimates are from linear probability models with robust standard errors in parentheses. The sample links UNHCR administrative registry data verified return records, and the 2023 WFP–UNHCR Skills Mapping Survey (SKM) and is restricted to individuals observed in the SKM module. All specifications are weighted using Lee (inverse probability–based) weights to account for non-response and sample selection into the SKM. Cash variables are constructed from monthly assistance records as described in the main text. Governorate-of-asylum fixed effects are included. *** p<0.01, ** p<0.05, * p<0.1.