

The Impact of Socioeconomic Changes on the Educational Outcomes of Refugee Host Populations

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Abstract

The study aims to investigate the impact of household socio-economic conditions on school attendance, enrolment in the university, and years of schooling before and after the influx of refugees in Jordan. The study deploys a quantitative secondary research design and gathers micro-data from the Jordan Labour Market Panel survey of 2010 and 2016. The results of the study show that household socioeconomic conditions particularly household wealth and parents' education impacted the educational outcomes. Between 2010 and 2016, the total enrolment in education declined by 5.4%, school attendance dropped from 92.4% to 88.3% whereas the enrolment rate in university education also decreased by 5% in the same period. Lastly, the study found regional disparities whereas no evidence that Jordanians who were living in the refugee host governorates were disadvantaged in terms of neither enrolment nor years of schooling which shows that there was no direct influence of the influx of refugees on the educational outcomes of the host population. To lessen negative consequences and maintain the host population's support for the presence of refugees, policy mediation may be required. When conditions are ideal, hosting refugees may encourage regional economic growth that will benefit both locals and refugees.

Keywords: Household Socioeconomics; Refugees; Education; Enrolment; Years of schooling; Jordan.

1. Introduction

The number of people displaced globally is recently at a high level since World War 2. More than 65 million people worldwide were forcibly displaced in 2015, out of which approximately 21 million were displaced as refugees.³ The costs of displacement for the ones affected are significant and mostly long-lasting and affect several aspects of human life. One substantial aspect experienced by displacement can impact is access to education. Several studies recommend that forced displacement is of the key ways through which conflict can have a damaging effect on schooling outcomes.^{4,5} Not many studies have focused on the impact of forced displacement on the education of refugees.⁶

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³ Fransen, Sonja, Carlos Vargas-Silva, and Melissa Siegel, "The impact of refugee experiences on education: evidence from Burundi," *IZA Journal of Development and Migration* 8, 2018, 1-20.

⁴ Chamarbagwala, Rubiana, and Hilcías E. Morán, "The human capital consequences of civil war: Evidence from Guatemala," *Journal of development economics* 94, 2011, 41-61.

⁵ Justino, Patricia, Marinella Leone, and Paola Salardi, "Short-and long-term impact of violence on education: The case of Timor Leste," *The World Bank Economic Review* 28, 2014, 320-353.

⁶ Verwimp, Philip, and Jan Van Bavel, "Schooling, violent conflict, and gender in Burundi," *The World Bank Economic Review* 28, 2014, 384-411.

Hosting a large number of refugees is challenging for any country particularly if the financial and administrative capacity of the country is limited like those in the developing parts of the world. They may compete with the residents of that country in terms of jobs, public services and limited resources like housing, which leads to economic hardships for both the refugees and the residents. In some cases, the host country also provides income support and the refugees acquire vocational and language skills which further increases the fiscal burden of the country.⁷ Nevertheless, the presence of a considerable number of refugees also represents an economic shock to the host economy as the refugees start to interact with the residents on a large scale. Some empirical studies found that the relative cost of goods and services may change markedly which leads to potentially large gains and losses on the part of different groups of residents.⁸ For instance, food will become more expensive which benefits the farmers but hurts the local workers that do not own agricultural lands. According to World Bank,⁹ it is understood broadly that the host populations are impacted by a sudden and large influx of refugees. Specifically, how they are affected is still under-researched and is often ill-communicated.¹⁰ Many studies have been conducted about the influence of forced displacement on host populations' mostly in Columbia, the Great Lakes and in the Middle East and Europe.^{11,12,13}

The research contributes to the fact that the international concern related to refugees and the socio-economic and political consequences of hosting them, especially for the hosting communities. To tackle this issue, the socioeconomic effect of the refugee influx on the labour market of Jordan, and the consequences on family dynamics would urge to conduct a comprehensive study on how the refugees can be integrated into Jordanian society in a much better way without influencing the basic unit of the society that is the family. Furthermore, this crisis has cost a lot of the Jordanian families, especially the young Jordanian workforce working in the blue-collar sector as many of them were replaced by the refugee workers who were willing to work at a quarter of the net salary and at any time even on holidays. This led to an increase in the unemployment rate which directly or indirectly impacted the Jordanian families. Also, the youth of Jordan faced challenges in terms of social and economic circumstances which created a huge burden on the families.¹⁴ This condition has received attention from many economists and social scientists. They hold different opinions thus new studies should be conducted which can provide some grounds to help the decision-makers in host countries. They are facing the same problems as in Jordan with best practices and better indicators for establishing effective policies to control the impact of such crises in hosting countries. Most importantly, the affected countries like Jordan, will need to re-establish into coherent societies which offer equal opportunities.¹⁵ This study further expands in the literature review section, methodology, results and the discussion on results.

⁷ Schneiderheinze, Claas, and Matthias Lücke. *Socio-economic impacts of refugees on host communities in developing countries*. PEGNet, Poverty Reduction, Equity and Growth Network, 2020.

⁸ Miller, Sarah Deardorff, "Assessing the impacts of hosting refugees," 2018.

⁹ The World Bank, *Refugee Population by Country or Territory*, 2016. Accessed through: <https://data.worldbank.org/indicator/SM.POP.PREFG>

¹⁰ Watson, Carol, Emmanuel Dnalbaye, and Blandine Nan-guer, "Refugee and Host Communities in Chad: Dynamics of Economic and Social Inclusion," *World Bank* 2018.

¹¹ Ruiz, Isabel, and Carlos Vargas-Silva, "The economics of forced migration," *The Journal of Development Studies* 49, 2013, 772-784.

¹² Zetter R, and Fiddian-Qasmiyeh, "Study on impacts and costs of forced displacement. State of the art literature review," 2011.

¹³ Kreibaum, Merle, "Their suffering, our burden? How Congolese refugees affect the Ugandan population," *World Development* 78, 2016, 262-287.

¹⁴ Boulby, Marion, and Kenneth Christie, eds. *Migration, refugees and human security in the Mediterranean and MENA*, Springer, 2018.

¹⁵ Fallah, Belal, Caroline Krafft, and Jackline Wahba, "The impact of refugees on employment and wages in Jordan," *Journal of Development Economics* 139, 2019, 203-216.

The main two research questions are; the first one in context with the household's socio-economic conditions, what is the enrollment status in education and years of schooling in Jordan? And the second is what difference was observed in the impact of socioeconomic conditions on educational outcomes in 2010 and 2016?

2. Literature review

Jordan experienced an unprecedented influx of refugees after the Arab Spring, launched in 2011, which yields transitions in the household's social and economic conditions and increased the pressure on infrastructure and public services.¹⁶ In particular, health and education experienced increasing challenges, especially coinciding with the financial and economic difficulties Jordan faced recently. Health and education as primary determinants of human capital are fundamental for growth and thus development.¹⁷

Education can impact economic growth by affecting workers and technology as a production input. The labour force with higher educational attainment effectively improves factor productivity and growth.^{18,19} This requires sufficient investments to improve all elements linked to education, such as teachers (instructors), buildings, books, information technology, and supervision. Enrollment and literacy rates are necessary and beneficial. However, qualitative education remains a critical factor for economic growth, and mass education should not be emphasized at the expense of the quality of education.^{20,21}

The level of educational attainment provides more details on the effects of education on economic growth compared to years of education. A treatment that ignores disparities in the level of knowledge and skills acquired over different educational phases and, consequently, channels through which education impacts growth remain unclear. Nevertheless, spending on education and health remains a complementary investment that should be jointly increased to expect positive growth and sustainable development.²²

In Jordan, the large influx of refugees increases challenges for the government and the local community to meet the needs and goals of the local community, with governmental attempts to accommodate Jordan's financial difficulties.²³ In context with this, a study conducted by Asaad et al.²⁴ examined the impact of Syrian refugees on the educational outcomes of Jordanians. The study reported that there was no evidence that the presence of Syrian refugees impacted the attainment of Jordanians. Moreover, their study also observed that the Ministry of Education stated that the Jordanian schools responded to the influx by adding the second shift in schools in high Syrian areas and also the teacher-

¹⁶ Fábos, Anita, "Refugees in the Arab Middle East: academic and policy perspectives," *Digest of Middle East Studies* 24, 2015, 96-110.

¹⁷ Fisseha, Mehari, "The Roles of the Civil Society and International Humanitarian Organisations in Managing Refugees Crisis in the Middle East and North Africa (MENA) Region," *Journal of Mediterranean Knowledge (ISSN 2499-930X)* 3, 2018.

¹⁸ Babatunde, Musibau Adetunji, and Rasak Adetunji Adefabi, "Long run relationship between education and economic growth in Nigeria: Evidence from the Johansen's cointegration approach." In *regional conference on education in West Africa* 1-2, 2005.

¹⁹ Hailat, Mahmoud Ali, and Sohail Magableh, "Foreign Aid and per-capita GDP: An Empirical Study of Jordan," *Journal of Economic & Management Perspectives* 12, 2018, 48-60.

²⁰ Kreishan, Fuad M., and Ibrahim M. Al Hawarin, "Education and economic growth in Jordan: causality test," *Journal of Economic & Management Perspectives* 5, 2011, 45.

²¹ Hailat, Mahmoud Ali, "Outcomes in a Challenging Environment," *The Jordanian Labor Market: Between Fragility and Resilience* 2019, 203.

²² Eggoh, Jude, Hilaire Houeninvo, and Gilles-Armand Sossou, "Education, health and economic growth in African countries," *Journal of Economic Development* 40, 2015, 93.

²³ Al-Hawamdeh, Ahmad, and Hana A. El-Ghali, "THE REGIONAL CONFERENCE ON HIGHER EDUCATION IN CRISIS SITUATIONS," 2017.

²⁴ Assaad, Ragui, Thomas Ginn, and Mohamed Saleh, "Impact of Syrian refugees in Jordan on education outcomes for Jordanian youth," In *Economic Research Forum Working Paper Series* 1214, 2018.

student ratio and the size of the classroom both remained unaffected by the influx. Similarly, another study by Fallah et al.²⁵ also found out about the influence of the Syrian refugee influx on the Jordanian labour market. The study results stated that Jordanians living in areas with a high concentration of refugees have had no negative impact on the outcomes of the labour market than the ones who were less exposed to the refugee influx.

A study published by Fransen et al.²⁶ investigated variations in educational results among returnees, who were defined as those who were displaced to a neighbouring nation before returning to Burundi. According to the study, the likelihood of completing primary education increases by four to six percentage points for every additional year spent as a refugee while of school age.

On the other hand, Kraft et al.²⁷ examined the educational outcomes of Syrian refugees in Jordan and found that the refugees faced disrupted schooling in Syria due to the conflict followed by several multidimensional supply and demand side obstacles to education in Jordan. Furthermore, the study found that enrollment rates have recovered to pre-conflict levels for basic education among the Syrians living in Jordan. The study suggests that the policy response to refugees in host countries plays a vital role in how long the refugee children will resume schooling after the displacement.

According to UNICEF²⁸ the framework of the Global out of School Children Initiative show visible achievements and challenges linked with vulnerable or exposed children who are out of school and at risk of dropping out countrywide. The analysis of the report reflects that the national out-of-school rate for primary children aged between 6-11 years has not increased since 2014 which is indeed a noteworthy achievement by the Ministry of Education and its partners keeping in view that the Jordanian government has welcomed 660,000 Syrian refugees since 2011. But disparities in terms of gender, geography and nationality have shown persistence in terms of access to basic education. For instance, a total of 112,016 Jordanian children are not taking classes (grades 1-10). Also, more than 50,640 Syrian refugees, 39830 Jordanians and 21,530 children having other nationalities are predicted to drop out of school. Based on nationality, the out-of-school rates for boys are high compared to girls except the Jordanians falling in the age bracket of 6-11 years where the dropout ratio for girls is high compared to boys. The report suggests some insights and analytics like enrolment trends, econometric analysis, profiles of out-of-school children, hurdles or obstacles to schooling and contextualized policy recommendations. The quantitative findings of the report are predicted to stimulate dialogues on educational policy among the stakeholders and support evidence-informed as well as equity-focused educational programming and planning.

The influence of the Syrian conflict and the consequences of the crisis on tertiary education in host countries, including Lebanon, Iraq, Jordan, Egypt, and Turkey, was the subject of a study on young Syrian refugees in Iraq as part of a larger regional study commissioned by UNESCO. The study drew attention to several difficulties facing the education sector, including (1) legal problems, such as inadequate accreditation and citizenship along with restrictive host country policies; (2) lack of knowledge about university application procedures; (3) a lack of academic and career guidance that would have provided routes to the job market or further education; and (4) financial issues.²⁹

²⁵ Ibid 13

²⁶ Ibid 1

²⁷ Krafft, Caroline, Maia Sieverding, Colette Salemi, and Caitlyn Keo, "Syrian refugees in Jordan: Demographics, livelihoods, education, and health," In *Economic Research Forum Working Paper Series* 1184. Santa Monica, CA, USA: RAND Corporation, 2018.

²⁸ Unicef, "Jordan country report on out-of-school children," *MENA Regional Office, Jordan: UNICEF* 2014.

²⁹ El-Ghali, Hana A., Aamr Ali, and Nadine Ghalayini, "Higher education and Syrian refugee students: The case of Iraq," 2017.

In addition, the substantial mismatch between higher education outcomes and labour market needs represents one of the main challenges Jordan faces.³⁰ Therefore, expanding expenditures on education is vital for the government to enhance the supply and quality of education and improve the quality of instructors. Such investments remain of particular interest for Jordan to enhance the comparative advantage of human capital given the limited endowment of natural resources. Keeping in view the household's socioeconomic conditions and their impact on the household's investments in education, this paper employs 2010 and 2016 cross-sectional micro-data from the Jordan Labor Market Panel Survey (JLMPS) to investigate the enrollment in education and years of schooling in Jordan. The paper then compares the effects of socioeconomic conditions on educational outcomes in 2010 (before the massive influx of refugees) against 2016 (after the large wave of an influx of refugees).

3. Research methods

The study followed a quantitative aspect. Datasets from the Jordan Labor Market Panel Surveys from 2010 and 2016 were used in this study. With the sampling frame of the recently completed Socioeconomic Surveys (SES) employed for refugees in Jordan, the sampling techniques vary between strata.

The Jordan Labor Market respondents were chosen using a two-step sample process. The initial step entailed choosing 1,000 people from each stratum. The second stage included dividing the chosen respondents into age and gender groups. A tiny population was nevertheless included in the sampling frame. After data collection, a probit model and linear regression are used to analyse the data.

The random-effects probit regression model was employed for data analysis. The socioeconomic status of a household can be connected to school attendance, enrollment in higher education, and years of schooling using the probit model and a standard linear regression model. More specifically, the probit model is used to calculate the effect of socioeconomic factors on Jordanian boys' and girls' probability of attending school from the ages of 6 to 18 and their likelihood of enrolling in university from the ages of 19 to 24. The dependent variable is a binary variable that is denoted as one if a person is currently enrolled in school and 0 otherwise. Hence, the model can be written as:

$$\Pr(Y = 1 \mid X) = \Phi(X^T \beta) \quad (1)$$

Where $P(Y = 1|X)$ denotes the probability of educational enrolment conditional on the set of socioeconomic indicators (X). Φ is the Cumulative Distribution Function (CDF) of the standard normal distribution, and each parameter β interprets the effect of a change in the value of a regressor on the conditional probability of the outcome variable holding all other regressors constant at some values.

4. Results

Population Structure and Refugees

According to World Bank statistics, the Jordanian population grew by 59.3% in the new millennium. The 2015 Population and Housing Census reveals that 9,531,712 live in Jordan, of whom 6,613,587 (69.4%) are Jordanians and 2,918,125 (30.6%) are non-Jordanians. Jordanian population includes some minorities such as Circassia's, Chechens, Kurds, and Armenians and refugees mainly from Palestine, Syria, and Iraq. The female population ranged between 47.3% and 48.8% from 1960 to 2015, whereas the

³⁰ Assaad, Ragui, Djavad Salehi-Isfahani, and Rana Hendy, "Inequality of opportunity in educational attainment in Middle East and North Africa: Evidence from household surveys," In *Economic Research Forum Working Paper Series* 834, 2014.

percentage of the population aged more than 65 years ranged between 3 to 4.3 per cent in the same period. Hundreds of thousands of guest workers, mainly from Egypt, Syria, Indonesia, South Asia, and Africa work as housemaids and construction employees in Jordan. Population density experienced a monotone increase. The average density equals 13.3 people per km square of land area during the 1960s, which increased to 67.9 people per km court in the new millennium. According to the World Bank, the age group 0 – 14 years, which amounts to 43.4% of the population in 1960, increases to reach a maximum of 49% in 1980 and declined after that to get a minimum of 35.5% in 2015. The working-age group (15 – 64 years) forms 52.3% of the population in 1960 and declined during the sixties and seventies to reach a minimum of 47.8% in 1980, while continues to grow since 1981 to get 60.7% in 2015.

The population distribution over governorates and regions is shown in Table 1. About 42% of the total population of Jordan, a little more than 4 million, live in the capital Amman. Sixty-one per cent of the Jordanians live in the middle region, 29.6% in the north, and 9.5% in the southern region. About 4.8 million (72.5% of Jordanians) live in the three central governorates; Amman (38.6%), Irbid (19.9%) and Zarqa (14%), whereas the other 27.5% of Jordanians are divided across the remaining nine governorates. Half of the non-Jordanian population (1,452,603) lives in Amman. The Middle region hosts 69.3% of non-Jordanians, 26.6% live in northern governorates, and only 4.1% live in the south of Jordan. Population distribution patterns can be seen to reflect disparities in development and living standards across Jordanian governorates.

Table 1: Population distribution in Jordan across governorates and regions in 2015.

Governorate	Jordanians		Non-Jordanians		Total	
	Thousand	%	Thousand	%	Thousand	%
Middle Region	4032.3	61.0	2021.0	69.3	6053.3	63.5
Amman	2554.9	38.6	1452.6	49.8	4007.5	42.0
Balqa	396.9	6.0	94.8	3.3	491.7	5.2
Zarqa	923.7	14.0	441.2	15.1	1364.9	14.3
Madaba	156.8	2.4	32.4	1.1	189.2	2.0
North Region	1955.7	29.6	777.6	26.7	2733.2	28.7
Irbid	1316.6	19.9	453.5	15.5	1770.2	18.6
Mafraq	314.2	4.8	235.8	8.1	549.9	5.8
Jarash	167.8	2.5	69.3	2.4	237.1	2.5
Ajloun	157.2	2.4	18.9	0.7	176.1	1.9
South Region	625.6	9.5	119.6	4.1	745.2	7.8
Karak	272.4	4.1	44.2	1.5	316.6	3.3
Tafileh	90.1	1.4	6.2	0.2	96.3	1.0
Ma'an	128.0	1.9	16.1	0.6	144.1	1.5
Aqaba	135.0	2.0	53.1	1.8	188.2	2.0
Total	6613.6	100.0	2918.1	100.0	9531.7	100.0

Source: Population and Housing Census, 2015.

As mentioned earlier, about 9.5 million people live in Jordan according to the 2015 Population and Housing Census, 30.6% of them are non-Jordanians compared to 7.7% in 2004 and 7.6% in the 1994 census. The non-Jordanian population is mainly divided between refugees, workers, patients, tourists, and students. Whereas, 50.6% are males, and 55% are armed-conflict refugees, which explains the jump in the amount and the percentage of the non-Jordanian population.

Four governorates; namely Amman, Irbid, Zarqa, and Mafraq, host 89.3% of refugees (32.6% in Amman, 24.4% in Irbid, 17.1 in Zarqa, and 15.2% in Mafraq), this is due to the closeness of these cities to the Syrian borders and their economic importance compared to other Jordanian cities. In contrast, the remaining 10.7% are spread over the other eight governorates. Almost 73% of refugees are Syrians, 9.5% Palestinians, 3.3% Iraqis, 0.7% other Arabs, and 13.5% are undetermined. The 2015 census reveals that 71.6% of refugees aged 4–29 years are enrolled in public education against 13.4% in the private sector. Figure 1 shows the educational attainment of refugees. While 15.3% are illiterate, only 5.4% attained a bachelor's degree or higher, whereas half of the refugees attained lower secondary education. In sum, 8.9% surpass secondary education. This modest educational attainment profile restricts the utility of refugees but satisfies the demand for unskilled labour in sectors that suffer the reluctance of the Jordanian workforce.

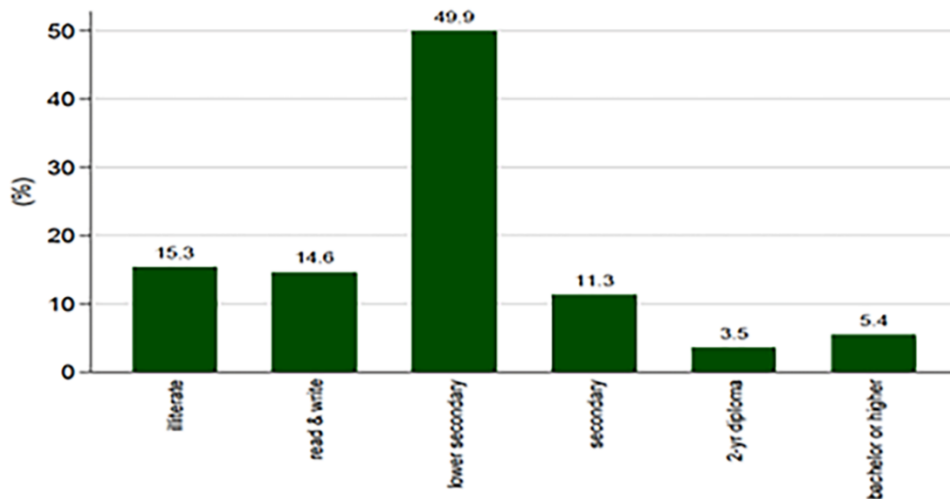


Figure 1: Educational attainment of refugees, Population and Housing Census 2015

As they form three-quarters of refugees in Jordan, the distribution of the (1,265,514) Syrian refugee across Jordanian governorates is shown in Table 2. Amman receives a little more than one-third (34.4%) of those refugees, 27.1% in Irbid, 16.4% in Mafraq, and 13.9% in Zarqa. Tafileh receives fewer refugees than other governorates, with 1933 refugees from 0.2 % only. Southern governorates attracted only 2.8% of the total Syrian refugee population, of which 50.4% are males. Closeness to Syrian borders sounds to play a vital role in refugees choosing their destinations. While Irbid and Mafraq are the closest to Syrian borders, Amman and Zarqa attracted refugees for economic and employment considerations.

Table 2: Distribution of Syrian refugees across governorates by gender in 2015.

Governorate	Female	Male	Total	Total (%)
Amman	215,100	220,478	435,578	34.4
Balqa	13,951	14,031	27,982	2.2
Zarqa	88,555	86,725	175,280	13.9

Madaba	7,258	7,411	14,669	1.2
Irbid	176,911	166,568	343,479	27.1
Ma'raq	105,589	102,314	207,903	16.4
Jarash	5,477	5,391	10,868	0.9
Ajloun	7,312	7,184	14,496	1.1
Karak	8,341	8,736	17,077	1.3
Tafileh	923	1,010	1,933	0.2
Ma'an	4,150	4,300	8,450	0.7
Aqaba	3,721	4,078	7,799	0.6
Total	637,288	628,226	1,265,514	100

Illiteracy, Primary School, and Supply of Education in Jordan

In the new millennium, Jordan witnesses unprecedented economic and social challenges that started with the war on Iraq in 2003 and aggravated after the Arab Spring. Among other sectors, education experiences increasing pressure due to returnees and the influx of refugees. This section sheds light on illiteracy, primary school, attendance and exit, and education supply as critical educational aspects for societies.

Illiteracy can be defined as a lack of any or sufficient education. Education equips individuals with the knowledge, skills, and intelligence to make sound investment decisions. Poverty, household socio-economic conditions, lack of awareness and support, and shortage in education supply can be the many of main reasons that leave an individual illiterate. Consequently, they can face the threat of poor living conditions and a lack of necessities. This may lead to the transmission of illiteracy across generations and poor quality of life inherited within a family. Table 3 shows the percentage of illiterates among Jordanians and non-Jordanians according to Population and Housing Census, 2015, by governorate. In Jordan, 9.2% of people are illiterate, with 6.8% of Jordanians and 14.7% of others classified as substandard. The highest illiteracy rate across the governorate is 17.4% in Ma'raq city, whereas the minimum illiteracy rate is 7.9% in Amman. Among Jordanians, illiteracy records a maximum of 13.8% in Ma'an and a minimum of 5.3% in Amman. Non-Jordanian illiteracy rate shows a maximum in Balqa City at 28.1% and a minimum in Jarash at 10.9%.

Table 3: Illiteracy rates among Jordanians and Non – Jordanians by governorate in 2015 (%)

Region	Governorate	Jordanians	Non-Jordanians	Total
Middle	Amman	5.3	12.7	7.9
	Balqa	8.6	28.1	12.6
	Zarqa	6.1	13.1	8.3
	Madaba	9.1	17.1	10.5
North	Irbid	6.5	14.0	8.3
	Ma'raq	12.5	24.5	17.4
	Jarash	7.2	10.9	8.3
	Ajloun	6.9	18.2	8.0
South	Karak	9.9	22.5	11.8
	Tafileh	8.5	19.9	9.4
	Ma'an	13.8	22.6	14.8
	Aqaba	7.8	20.8	11.8

Jordan	6.8	14.7	9.2
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Source: Population & Housing Census, 2015.

School attendance and enrollment in education differ by household circumstances—the tendency and ability of the individual and the household's socio-economic conditions are crucially related to educational decisions. Given the supply of schools, children born in more affluent households have a better chance to attend school and pursue their higher education than counterparts born in less affluent households.

Of Jordan's population aged four years and more in 2015, 35.9% were currently enrolled in education, 53.7% were previously enrolled, and 10.4% had never been enrolled in any education (Population and Housing Census, 2015). Figure 2 shows the enrollment ratio, regardless of age, to the age group that officially corresponds to each level of education. Gross enrollment ratios in primary education exceed 100% from 1971 till 2008 due to overage enrollment. Students aged more than the official age of primary education who are enrolled in primary education either because they repeat some years of schooling or illiterate students who decide to start their education. In 1976, the enrollment rate reached its maximum of 114.5%. In the new millennium, the enrollment rate continued to exceed the 100% threshold until 2008, after which enrollment in primary education started to decline, reaching a minimum of 88.7% in 2012. Enrollment in secondary education shows increasing monotone over the period 1971 – 1985, while the second half of the 1980s, witnessed declines in secondary education enrollment. In 1991 enrollment in secondary education started to increase, reaching a maximum of 94% in 2008 and declining after that. Tertiary education enrollment shows an increasing trend starting from 3.1% in 1971 to 47.6% in 2012. Education enrollment trends reflect the growing demand for higher education among Jordanians.

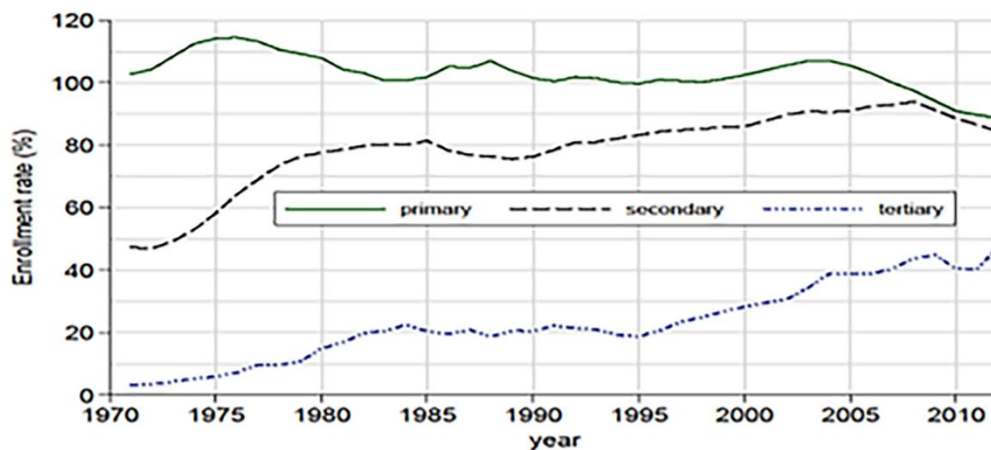


Figure 2: Gross enrollment ratio in primary, secondary and tertiary education (Source: World Bank Database-World Development Indicators)

Table 4 shows the percentage of primary school exit for selected years. The table shows that in the early seventies, girls out of school rate was 15.7% compared to 3.2% of males, suggesting that males were advantaged over girls to attend school at that time. The overall exit percentage was 9.3% in 1972 declined to 4.4% in 1980, and the enrollment gap between boys and girls was partially bridged. In 1985, 6.9% of girls and 11.5% of boys were out of education. The year 2007 witnessed the minimum exit percentage. Only 1.6% of girls were out of school, a percentage lower than the 4.2% of male counterparts. The negative educational records re-increased again in 2008 when the percentage of children out of school was 5.6% and raised to 12.5% in 2012.

Table 4: Children out of primary school by gender (%).

Children out of school (% of school-age)	Year							
	1972	1980	1985	2007	2008	2010	2011	2012
Female	15.7	4.6	6.9	1.6	4.6	10.3	11.5	12.9
Male	3.2	4.2	11.5	4.2	6.6	10.2	11.2	12.0
Total	9.3	4.4	9.3	2.9	5.6	10.3	11.3	12.5

Source: World Development Indicators, World Bank

Jordan began reforms of its educational system in the 1990s to help students develop the knowledge and skills necessary for competitiveness, economic growth, and development. The main objective was to enhance the educational system at the early childhood, primary, and secondary levels and equip graduates with the skills needed to transform the Jordanian economy into a knowledge-based economy. Programs to develop higher education launched to improve higher education's quality, relevance, and efficiency to integrate the system across educational levels (World Bank).

Table 5 shows the number of schools, students, teachers, administrative staff, and Syrian students across the governorates of Jordan in 2017. In total, 7238 schools contained 1, 25,460 teachers and 1,932,209 students. Amman had more schools than other governorates with 2,347 schools, while Aqaba had fewer with 131 schools. The total number of Syrian students was 1, 41,129 students, of whom 90.5% were concentrated in four governorates; Amman, Mafraq, Irbid, and Zarqa.

Table 5: Supply of schooling by governorate in 2017

Region	Governorate	Population	Schools	Students	Teacher	Admin. Staff	Syrian Students
Middle	Amman	4,007,526	2374	698,858	44,209	13,177	36,293
	Balqa	491,709	482	127,727	8,113	1,529	3,770
	Zarqa	1,364,878	812	287,082	14,515	2,770	24,610
	Madaba	189,192	205	48,565	3,579	912	1,792
North	Irbid	1,770,158	1348	351,116	22,109	4,343	31,264
	Mafraq	549,948	613	131,001	9,611	1,955	35,512
	Jarash	237,059	275	54,413	3,907	911	2,040
	Ajloun	176,080	202	43,650	3,168	583	1,768
South	Karak	316,629	404	77,367	6,773	1,603	1,785
	Tafeleh	96,291	149	28,153	2,551	609	280
	Ma'an	144,082	243	38,664	3,823	767	1,355
	Aqaba	188,160	131	45,613	3,102	606	660
Jordan		9,531,712	7,238	1,932,209	125,460	29,765	141,129

Student-teacher ratio (STR) by gender is shown in Table 6 for the same year 2017. The overall total STR was 15.4 students per teacher (17.0 for females and 14.8 for males, and 15.2 for mixed schools). Across governorates, the highest STR for males, females and mixed schools was in Zarqa, whereas the lowest was in Ma'an. The minimum total STR was recorded in Ma'an at 10.1, while the maximum was observed in Zarqa at 19.8. In female schools, Ma'an had a minimum STR of 7.8, and Zarqa had a maximum of 22.1 students per teacher. In male schools, on the other hand, STR was maximum in Zarqa (19.2 students per teacher) and minimum in Ma'an with 8.8. For mixed schools, the maximum and minimum STRs were 19.1 and 11.3 in Zarqa and Ma'an, respectively.

Table 6: Student-Teacher ratio across governorates, 2017

Region	Governorate	Female	Male	Mixed	Total
Middle	Amman	17.5	16.4	15.1	15.8
	Balqa	16.2	13.7	16.6	15.7
	Zarqa	22.1	19.2	19.1	19.8
	Madaba	11.6	12.3	14.9	13.6
North	Irbid	16.6	15.2	16	15.9
	Mafraq	16.6	12.8	13.3	13.6
	Jarash	15	12.5	14.6	13.9
	Ajloun	13.9	13	14.2	13.8
South	Karak	10.9	9.9	12.4	11.4
	Tafeleh	11.7	9.4	11.9	11
	Ma'an	7.8	8.8	11.3	10.1
	Aqaba	14.8	12.9	15.6	14.7
Jordan		17.0	14.8	15.2	15.4

Source: Department of Statistics (DoS).

Jordan had ten public and 20 private universities of which two are regional. In the academic year 2015/2016, the total number of students enrolled in university education at all levels was 300,731 students, of whom 51.4% were females and 277,000 were undergraduate students. The 10,836 academic staff were divided between Professors, Associate Professors, Assistant Professors, Lecturers (full time), Instructors and Assistants, of whom 66.8% were in the ten public universities (Ministry of Higher Education statistics).

Transitions in Educational Enrolment and Attainment using Jordan Labor Market Panel Survey, JLMPS, 2010 & 2016

JLMPS is a national survey conducted by the Department of Statistics cooperating with the Economics Research Forum to track the Jordanian labour market. This survey aims to learn about Jordanian labour market conditions and arrive at recommendations to improve the state of labour and labourers. This section shows enrollment in education and educational attainment using JLMPS data tracking the evolutions of the outcomes between 2010 and 2016, the two survey waves, using weighted values so that results are nationally representative.

Between 2010 and 2016, the percentage of total enrollment in education declined by 5.4 percentage points, from 39.1% in 2010 to 33.7% in 2016. School attendance fell from 92.4% in 2010 to 88.3% in 2016. In 2016, about 91% of Jordanians and 91% of Egyptians attended schools compared to 73% of their Syrian counterparts. For the 19–24 years, the enrollment ratio fell from 31.6% in 2010 to 26.4% in 2016. However, a closer look at the data reveals that while demand for undergraduate education deteriorated in 2016 relative to 2010, demand for post-graduate studies increased in 2016. Moreover, school exits rose from 7.6% to 11.7% for the same period. These declines may be related to the impact of refugees' influx into Jordan

Figure 3 shows school attendance in 2010 and 2016 by gender. School attendance in 2016 deteriorated in comparison to 2010 for boys and girls. Although the percentage was quite close to 100 per cent before the age of 14, it remarkably declined after that age. However, the school exit was more severe among boys than girls, where the attendance rate of boys fell below 80% at the age of 16 and below 60% at the age of 18.



Figure 3: School attendance by age and gender, JLMPS 2010 vs. 2016

JLMPS data shows that school attendance increases with the household’s wealth. In 2016, for instance, school attendance exceeded 90% among children in the upper quantiles of wealth, while 15 to 25 per cent of children in lower-wealth households did not attend school. Enrollment in higher education was also positively related to household wealth. It ranged between 44 to 50 per cent among the richest while less than 10% among the poorest in the northern and southern regions. The gap between the poorest and the richest was lower in the middle region relative to the southern and the northern regions. This can be attributed to less binding financial constraints in the middle region compared to the other areas. Finally, a higher percentage was enrolled in education in northern governorates, when economic conditions did not constrain choices.

Table 7 shows educational attainment transitions for the 25-64 years, age group by gender. Illiteracy increased by 5.5 per cent in 2016 relative to 2010; 7.5 per cent among men and 3.5 per cent among women. The percentage of basic educational level declined by five per cent from 2010 to 2016, from 27.5% to 22.5%. Despite its importance, vocational education did not receive the deserved attention, and less than 1% finished vocational education in 2010 and 2016. It could be one of the significant drawbacks in the Jordanian educational system and economy, and redirecting attention towards vocational education may significantly reduce the economic cost of the shortage in vocational education attainment. This might be one of the most necessary educational reforms in Jordan.

While no dramatic changes in secondary education attainment, the percentage of those who attained post-secondary education declined, especially females. On the other side, there was an enhancement in the percentage of females who achieved university degrees, suggesting that the percentage of females who studied at universities increased over the considered period at the expense of post-secondary education, a remarkable evolution. Finally, the slight decline in postgraduate attainment in 2016 relative to 2010 may reflect individuals' and households' financial difficulties. And, most of the individuals who were willing and able to pursue higher studies were already enrolled in education, and no significant space for improvement was available.

Table 7: Transitions in educational attainment given age, 25-64 years, by gender (percent)

Level	2010			2016		
	Male	Female	Total	Male	Female	Total
Illiterate	4.0	10.1	7.1	11.5	13.6	12.5
Read & Write	17.0	17.2	17.1	18.7	21.2	19.9
Basic Education	29.8	25.1	27.5	24.5	20.3	22.5
Vocational	1.2	0.1	0.7	1.4	0.1	0.8
Secondary Educ	17.8	17.7	17.8	16.9	14.9	16.0
Post-Secondary	10.8	14.8	12.8	8.3	11.0	9.6
University	15.7	13.4	14.5	16.0	17.2	16.6
Post-Graduate	3.6	1.6	2.6	2.6	1.8	2.2

Figure 4 shows years of schooling for men and women by year of birth. In particular, men born before the mid-sixties (aged more than 45 years in 2010) obtained more years of schooling than women. The advantage is inversed for younger generations, and women received more education than men. More specifically, women born in the seventies and eighties obtained more years of schooling than men. Moreover, men and women born after the mid-sixties received fewer years of education in 2016 relative to 2010, suggesting a kind of deterioration in schooling over the considered period. In general, men aged more than 45 years at the survey time obtained more schooling than women. In contrast, younger women received more schooling than men counterparts, and educational attainment declined in 2016 relative to 2010 for both genders.

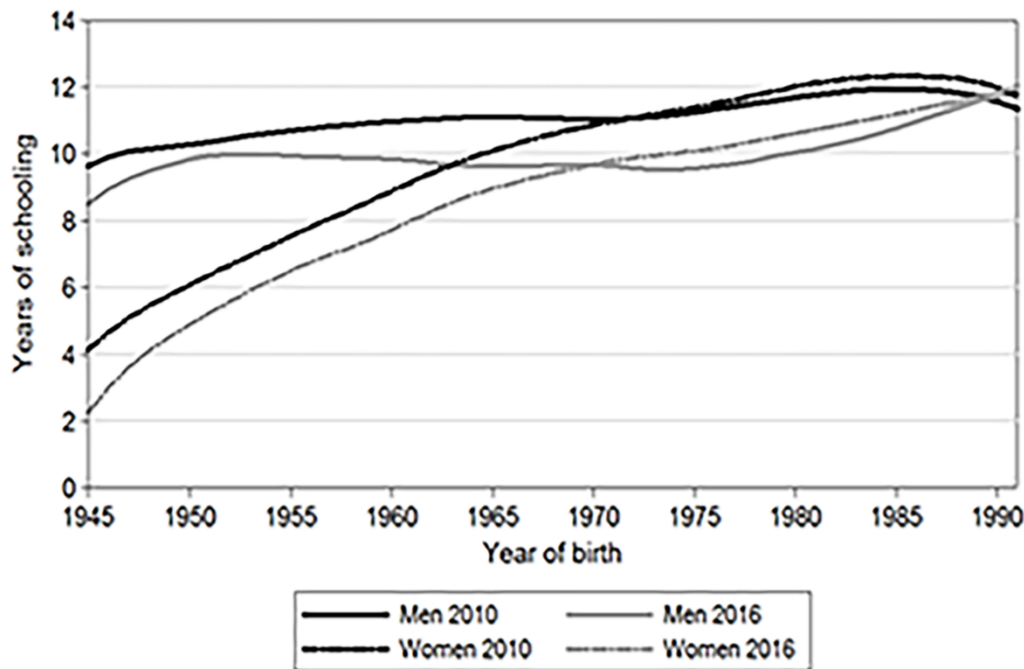


Figure 4: Years of schooling by gender and year of birth, JLMPS 2010 vs. 2016

Statistical Analysis through Probit and Linear Regression Models

The probit model and standard linear regression model can link households' socioeconomic conditions to school attendance, enrollment in university education, and years of schooling. More specifically, the probit model is used to estimate the impact of socioeconomic variables on the probability of school attendance for Jordanian boys and

girls aged 6 – 18 years and the probability of enrolment in university education for the age group 19 – 24 years.

The outcome variable is a binary indicator that takes the value of 1 if an individual is enrolled in education at the survey time and 0 otherwise. Standard linear regression is used to estimate the impact of the same variables on the number of years of schooling for the age group 25–64 years. Socioeconomic conditions are indicated by parents' education (measures father-mother education level jointly), household size, residence, marital status (when applicable), and wealth quantile, a relative indicator built based on household assets.

The probit model is employed to explore the impact of Jordanian household socioeconomic conditions on the probability of school attendance and enrollment in university education.

To derive the effect on the outcome variable of a change in regressors, equation (1) can be re-written as:

$$\Pr(Y_i = 1/X_{1i} \dots, X_{ki}; \beta_0, \dots \beta_k) = \Phi(\beta_0 + \sum_{k=1}^K \beta_k X_{ki}) \quad (1')$$

And, the marginal effect of a 1 unit change in a regressor, k, on the probability of Y = 1 can be expressed as:

$$\frac{\partial P}{\partial X_k} = \beta_k \Phi(X^T \beta) \quad (1'')$$

Marginal effects depend on the values of all regressors and the regression coefficients. Thus they are estimated at specific values of X. They can be reported either at the means of the regressors or as the average of individual marginal effects. Either way, it is possible to say that an increase in the regressor x increases or decreases the probability of (Y = 1) by the marginal effect expressed as a percentage. For instance, let is a dummy for gender that takes 1 for a male and 0 for a female. Then the reported parameter of gender represents the increase/decrease in the probability of enrolment in education for males compared to females.

Effects of socioeconomic variables on years of schooling are estimated according to:

$$Y_{it} = \alpha + \beta'X_{it} + \gamma'D_{it} + \mu_{it} \quad (2)$$

Where is the number of schooling years of an individual i born in the year t X_{it} ; and D_{it} are the same as above, and μ_{it} is a regression error. The assumption of the identically distributed error term is relaxed, heteroscedasticity is allowed, and results are discussed in the next section.

5. Discussion

The study aimed to employ 2010 and 2016 cross-sectional micro-data from Jordan Labor Market Panel Survey (JLMPS) to investigate the enrollment in education years of schooling in Jordan. Furthermore, the study also compares the effects of socioeconomic conditions on educational outcomes in 2010 against 2016 to understand if the continuous influx of refugees influenced the educational outcomes in hosting communities of Jordan. The study showed marginal effects of household socio-economics on the probability of enrolment in education for Jordanians in 2016 relative to 2010.

Malaed and Wahba³¹ study explains the non-national population of refugees had increased in Jordan's population by about 45% by 6.6 million. The study compares the

³¹ Malaeb, Bilal, and Jackline Wahba, "Impact of refugees on immigrants' labor market outcomes," In *Economic Research Forum Working Paper Series*, 2018.

individuals and their characteristics and finds the average years of schooling interconnected between the refugees and Jordanians with the data restricted to 2010, but some differences also appear in 2016. The influx of refugees reported lower levels of education, the household in contrast with the natives of Jordan. The outcomes of the study show insignificant negative impacts of refugees on the local population of Jordan. The outcomes are conditionally based on the parameters such as parents' and guardians' education jointly, household size, residence, marital status (when applicable), and wealth quantile, a relative indicator built based on household assets. Controls for gender, age and year of birth are introduced in the regressions to control for non-observable factors. A dummy variable is created to indicate refugee host governorates that take 1 for Jordanians who live in Amman, Zarqa, Irbid and Mafraq, which host about 92% of refugees according to the 2016 JLMPS survey and 0 otherwise. This indicator compares educational enrolment and years of schooling for Jordanians living in refugee host governorates to counterparts in other governorates.

For continuous independent variables, the marginal effect reflects the impact of a one-unit change in the independent variable on the probability of the outcome variable. In contrast, in the case of dummy variables, the marginal effect reflects the difference in the probability of positive outcomes relative to the base category. In this paper, average individual marginal results are reported.

The study of Assaad et al.³² conducted a projected employment survey and unique data sources in 2016 that recorded the retrospective education outcome from the source Labor Market Panel Survey to represent the sample of Jordan. The study employs the difference in different strategies with exploits the cross-locality variations in exposure to the influx of refugees across the pre and post-cohorts. The outcomes of the study explain no possible pieces of evidence due to the exposure of the refugees in Jordan. The Ministry of Education in Jordan suggests that the pieces of evidence response by the schools due to the influx of the refugees by adding seconds shifts and long hours of schools for the refugee students, both the teacher and students are unaffected by the influx of the refugees in the Jordan.

Furthermore, the results showed that the school attendance probability of girls was higher than boys in 2010 and 2016, respectively. Consistently, the probability of females' enrollment in university education was higher than males in 2010, which raised in 2016. These enrolment results indicated that females were advantaged to follow education over their male counterparts in Jordan in that period. Marital status appeared as an influential factor for enrolment in education. The probability of enrolment in university education ranged between 20 to 32 percentage points less for married and previously married individuals than for singles. The probability of school attendance and university education was positively related to the household's wealth.

In 2010, children in wealthier households had a higher probability of attending school than their counterparts in relatively poorer households. For example, the probability of children in the richest quantile households attending school was higher in 2010, which increased in 2016. All these effects were statistically significant. Since basic education (from grade 1 to grade 10) is compulsory and free in public schools in Jordan, the increased effect of wealth may come from the last two non-compulsory years of secondary education, and the probability of kids in wealthier households pursuing secondary education was higher. Although disparities in the probability of university education continued based on wealth, the gap was mitigated in 2016 relative to 2010 against expectations. This can be attributed to the broad exceptions in university enrolment, where sons of employees and retired persons in military services, the governmental sector, and the public sector (which are the leading employers in Jordan)

³² Assaad, Ragui A., Thomas Ginn, and Mohamed Saleh, "Impact of syrian refugees on education outcomes in Jordan," 2019.

are allowed to study at universities at the expense of their parents' institutions which reduced the gap based on wealth.

Parents' education is a joint indicator that measures parents' educational level; father–mother education level. Results show that parents' education was influential for sons' school attendance and university education in the two periods. For instance, the probability of school attendance was higher in 2010 and in 2016 when father-mother education was high. Similarly, but not equal in magnitude, high parental education increased the probability of enrolment in university education in 2010 and 2016, respectively. Marginal effects of parents' education were more manifest when the father's education was high, suggesting that the father's education was more influential than the mother's education. This may be because the household's income is related to the income or wage of fathers as they take financial responsibility toward their families, and employment and wages are related to their educational level.

The influx of refugees in Jordan is having negative impacts on the labour and education sectors. According to the contrasting study of Al-Dalahmeh and Dajnoki³³ the influx of refugees is surging negative impacts on the labour market and education sectors. Conventionally the locals of Jordan are not viable working on low wages and extra hours of working and working on holidays but on the contrary refugees of Jordan are seeking low-wage employment these conflicts develop a negative approach in the market and frame the increased competition levels. Further in the educational sectors, the refugee students are not accepting the cultural approach of Jordan although the communication is based on the same language they are facing problems in accepting the approach of the educational system as the educational system was different in their native country.

While household size showed no significant effect on school attendance, it was negatively and significantly associated with university enrolment. Geographical disparities were also observed, especially in 2010. Children in north and south regions and rural areas were more likely to attend school, whereas people in the northern region were more likely to pursue a university education. Finally, no statistical evidence that Jordanians living in refugee host governorates were disadvantaged in terms of neither school attendance or university enrollment. The model chi-square probability for all specifications showed strong predictive power of enrolment status with correct classification percentage for school attendance and enrolment in university education. Women were disadvantaged, and marital status was influential, especially in 2016. Previously married obtained less than singles in 2010 and less in 2016. Household wealth was a critical factor, and years of schooling increased with higher levels of wealth indicator. For example, individuals in more wealthy households obtained on average five years of education more than the poorest. Such results may consecrate chronic socioeconomic inequalities in society and contribute to the intergenerational transmission of poverty, inequality, and social stratification.

Following the study Assad et al.³⁴ combine the detailed survey data for the quantitative and qualitative analysis of households with school-level records and the influx of refugees using a differences-in-differences design of education for the hosts across refugee prevalence and birth cohort. The study finds no evidence of greater exposure related to the negative effect of the refugees on the educational outcomes of Jordanians. Later the study attributes the finding to a null number of mechanisms that reduces the potential effects of the refugee influx and protectively shield the Jordanians and local populations.

Parents' education appeared to be crucial for years of schooling, whereas higher levels of father-mother education were associated with more years of schooling. This effect was

³³ Al-Dalahmeh, Main, and Krisztina Dajnoki, "The socio-economic impact of the Syrian refugees influx in Jordan: A systematic review analyses," *Cross Cultural Management Journal* 2, 2021, 145-56.

³⁴ Ibid 31

more influential in 2016 relative to 2010. When parents' education was high, schooling increased in 2016 compared to 2010, indicating that the role of parents' education became increasingly influential in the educational attainment of sons. Household size is negatively related to years of schooling, and more members in the household are associated with fewer years of schooling. Regional differences were observed; individuals in the south and rural areas were disadvantaged. Finally, living in a refugee host governorate was negatively associated with years of schooling in 2010 (before the large influx) that turned out to be statistically insignificant in 2016, supporting the previous finding that there was no evidence that the influx of refugees directly impacted the educational outcomes of the host population.

6. Conclusions

The main aim of this paper was to explore the impact of socioeconomic changes on the educational outcomes of the refugee host population in Jordan during the periods 2010 and 2016. For this purpose, data from Jordan Labor Market Panel Survey-JLMPS 2010 and 2016 is used. Probit Model and Standard Linear Regression are employed in the analysis. Analysis reveals a positive and significant relationship between household wealth and the probability of school attendance and university education between 2010 and 2016.

Findings also show that parents' education was a positive and influential factor for sons' school attendance and university education in the two periods with more influence in 2016. Moreover, the father's education was more influential than the mother's education. Total enrollment rates in university education declined by five per cent between 2010 and 2016 among the 19-24 age population of Jordanians; in addition, school exit increased over the same period, this can be attributed to the non-compulsory secondary education and the continued deterioration of standards of living for Jordanian citizens. Other findings reveal that the years of schooling are increasing with the improvement of education of parents and household wealth, marital status also was influential, especially in 2016 when singles obtained more years of schooling than married ones, and years of schooling were higher with smaller household size. Finally, a significant finding indicates that no statistical evidence that Jordanians who lived in refugees host governorates were disadvantaged in terms of neither school attendance, enrollment in the university, or years of schooling, indicating no direct impact of the influx of refugees on the educational outcomes of the host population. Due to time constraints, the study worked on secondary data to present the empirical findings during the year 2010-2016. Therefore, future studies can conduct primary research to find out the current scenario of socio-economic changes in the educational outcomes of refugee host populations in Jordan.

The study provides a framework for the government to take the initiative for the creation of integrated policy and regulation management, which counters the enrollment of refugee children in schools. Their school enrollment comprehensively sustains the disparities in societal development in terms of firstly increasing enrollment in schools drops down the junction of child labour in the competitive economic market. The analysis of the study provides a compilation of demographics and quantitative outcomes up to the year 2016 related to the influx of refugees in Jordan for future researchers to work further on the current state of the influx of refugees. Secondly, the effect of the refugee influx on learning outcomes as measured by test scores could be examined easily. Thirdly, our study assessments and analysis of the influx of refugees help the government of Jordan to explore and aware of the education authorities for the expansion of schools' capacity to accommodate refugee students and the role of international aid in helping them do that.

The analysis of the study in future can drive the attention of the researchers on the positive effects of refugee influx towards the educational sectors. The results also provide rectification of the financial estimation and planning of international findings intended

only for the area with the higher influx of refugee households to mitigate the potential overcrowding and negative effects of them on the host population.

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Data Availability Statement

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Conflict of interest

The authors declare no conflict of interest.

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