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From Liability to Asset: How Syrian Refugees Can Benefit the Lebanese Economy

Daniel Garrote Sánchez

Executive Summary

It is often remarked, both in the media and public discourse, that the presence of refugees is a burden on their host country's economy. However, studies have shown that refugees in fact bring with them a range of economic benefits: They increase the pool of skills available, channel aid funds to the local economy, and increase local consumption. While there are some estimates of the economic impact refugees have in neighboring countries, a rigorous evaluation is missing for their economic impact on Lebanon. Although Lebanon's economy has slowed down significantly since 2011, this raw, net overview cannot be used to assess the impact of refugees in the economy, which has affected different communities in varying ways. Overall, a UNDP and UNHCR 2015 report finds that every \$1 spent in humanitarian assistance had a positive multiplier effect of \$1.6 in the local economy. In order to study the economic gains and losses in different segments of the Lebanese population, we conducted an extensive survey in three mid-sized cities in Lebanon: Saida, Zahle, and Halba. The survey provides suggestive evidence ruling out major negative consequence to the Lebanese economy due to the arrival of refugees, but it shows that the refugee inflow might have exacerbated inequality in the country with higher income groups benefiting from their arrival while some of the poorer citizens bore a larger burden. These results make a strong case for public interventions targeting support to those more affected by the refugee inflows, in order to mitigate its negative impact. There is also a need to think about redistributive policies among the different groups, so that income inequality does not further increase as a consequence of the refugee crisis.

Introduction

Both the media and the prevailing political discourse in Lebanon portray the presence of refugees as a burden on the economy. Refugees are blamed for generating competition in the labor market, in particular for the informal low-skilled jobs, and for increasing the usage of public services and infrastructure, which were both already underperforming prior to the arrival of refugees compared to other countries with similar levels of economic development.¹ Initial estimates of the costs for the government's finances suggested that public expenditures had risen by \$1.1 billion, while revenues dropped significantly.² For the years 2012-14, the World Bank estimated the refugee crisis to have cost between \$308-\$340 million, primarily through healthcare, education, and social safety nets, and \$589 million on infrastructure, such as roads, electricity, water, and sanitation.

The excessive focus on the cost among politicians and the media has often masked another simultaneous reality: Refugees have also brought with them other opportunities for the country. First, they increased the supply of skills available in Lebanon. Secondly, many Lebanese firms benefit from having access to a pool of workers that have lower earnings, which allowed them to either reduce prices or increase profits. Moreover, the large influx of aid—more than \$1 billion annually since 2013³—provided a large boost to the Lebanese economy. Most of the aid flows came in the form of cash to refugees that, given their limited resources, is mostly spent and not saved. In both cases, this aid increased local consumption, as most goods were bought in Lebanon.⁴ This large increase in consumption provided a boost in the demand for products, which benefited Lebanese firms, especially those in sectors related to food or housing. Foreign aid has also financially supported the government increase in public spending, as it is shown in the World Bank's IDA project to fund the expansion of the school system to facilitate wider access to education.

Assessing the net impact of refugees is complicated and requires taking into consideration both costs and benefits. While there are some estimates of the economic impact refugees have in neighboring countries, a rigorous evaluation on their economic impact in Lebanon is missing, mostly due to data scarcity. In this policy brief we attempt to approximate the impact the presence of refugees on economic activity, using data on the night-time light intensity across the different municipalities in Lebanon that faced different degrees of refugee inflows.

However, it is important to move beyond the debate on the net impact on the total economy, in order to understand the asymmetric economic impact the presence of refugees has on different groups in Lebanon. In order to study the economic gains and losses in different segments of the Lebanese population,

¹ Garrote-Sanchez, D. 2018. 'Combating Corruption, a Necessary Step Toward Improving Infrastructure.' Lebanese Center for Policy Studies.

² World Bank. 'Lebanon - Economic and Social Impact Assessment of the Syrian Conflict.' <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/925271468089385165/lebanon-economic-and-social-impact-assessment-of-the-syrian-conflict>.

³ According to the Lebanese Crisis Response Plan (LCRP) and Financial Tracking Service (FTS), the amount of international aid received by Lebanon rose from \$44 million in 2011 to \$162 million in 2012 and \$1.04 billion in 2013. It then stabilized at about \$1.1-\$1.3 billion every year between 2014 and 2018. The World Bank has also created a specific concessional financing facility for Lebanon and Jordan and granted them access to IDA lending, both providing loans at reduced interest rates. The former facility has facilitated more than \$2.5 billion between 2016 and 2018 for the two countries. See: World Bank. 2019. 'Rewriting the Rules to Support Refugees and Host Communities in the Middle East and North Africa.'

⁴ UNHCR and UNDP. 2015. 'Impact of Humanitarian Aid on the Lebanese Economy - Lebanon.' ReliefWeb. <https://reliefweb.int/report/lebanon/impact-humanitarian-aid-lebanese-economy>.

⁵ We limited the scope to three municipalities in order to be able to cover a representative sample of the population in each municipality and provide meaningful results at the local level, thus prioritizing depth at the expense of breadth. The selection of those municipalities was based on the fact that all three host a large number of refugees, while having different characteristics in terms of location, level of development, religion composition, institutional structure, and stance vis-à-vis refugees.

we use the Living Condition Survey of Refugees and Host Communities in Lebanon (LCSRHCL) conducted by the Lebanese Center for Policy Studies (LCPS) and the Syrian Center for Policy Research (SCPR) in 2018. The LCSRHCL was an extensive survey covering 1,556 households and 7,208 individuals (4,326 Syrians and 2,882 Lebanese) which were representative of the population in three Lebanese municipalities that received a large number of Syrian refugees since 2011: Saida, Zahle, and Halba.⁵

Literature Review

Over the last six years, numerous empirical studies have examined the economic impact refugees have in different host countries. The results from this literature can be divided depending on the timeframe of study: Short-term impacts—two to five years after the arrival of refugees—and longer-term ones—more than 10 years.

In the short term, the findings of the economic impact is mixed. Some studies have found increases in the cost of food and, to a lesser extent, of rent.⁶ Regarding labor market outcomes, the overall results tend to show either neutral or small effects on local communities' employment rates or wages in different contexts such as Syrian refugees in Jordan⁷ or Turkey.⁸ The lack of large negative effects is explained by the rise in refugee-led consumer demand and the increase in capital supply that facilitates firms' production expansion, which absorbs the increase in the labor supply.⁹

However, there seems to be varying effects across different groups among the local population. On the one hand, there is evidence of increasing rates of formal employment that tend to benefit men and more educated locals.¹⁰ On the other hand, studies have found employment losses among low-skilled and less experienced individuals, in particular in the informal sector.¹¹ Therefore, refugees tend to displace low-skilled locals working in the informal sector in the short term—as they have similar skills—while upgrading the labor market status of local high-skilled workers, because of the larger demand and the reduction of labor costs that benefit firms' production. Importantly, restrictions on the right to work result in increased competition between refugees of all skill levels and local low-skilled workers in the informal sector. These restrictions potentially increase negative impacts on already economically vulnerable groups while more lenient employment policies can diffuse the impact across different sectors and skill levels.¹²

The evidence from the literature on long term impacts—decades after the inflow of refugees—points toward more positive effects, especially in different

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Tumen, S. 2016. 'The Economic Impact of Syrian Refugees on Host Countries: Quasi-Experimental Evidence from Turkey.' *American Economic Review*, 106(5): 456-460; Verme, P. and K. Schuettler. 2019. 'The Impact of Forced Displacement on Host Communities: A Review of the Empirical Literature in Economics.' World Bank Policy Research Working Paper; and Akgündüz, Y., M. van den Berg, and W. Hassink. 2015. 'The Impact of Refugee Crises on Host Labor Markets: The Case of the Syrian Refugee Crisis in Turkey.' IZA Discussion Paper Series No. 8841.

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Fallah, B., C. Krafft, and J. Wahba. 2019. 'The Impact of Refugees on Employment and Wages in Jordan.' *Journal of Development Economics*, 139: 203-216.

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Ceritoglu, E. et al. 2017. 'The Impact of Syrian Refugees on Natives' Labor Market Outcomes in Turkey: Evidence from a Quasi-Experimental Design.' *IZA Journal of Labor Policy*, 6(1); and Akgündüz, van den Berg, and Hassink. 'The Impact of Refugee Crises on Host Labor Markets: The Case of the Syrian Refugee Crisis in Turkey.'

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Cengiz, D. and H. Tekguc. 2018. 'Is It Merely A Labor Supply Shock? Impacts of Syrian Migrants on Local Economies in Turkey.' ASSA Annual Meeting, 1-68.

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Del Carpio, X. V., and M. Wagner. 2015. 'The Impact of Syrian Refugees on the Turkish Economy: Regional Labour Market Effects.' World Bank Policy Research Paper No. 7402. Washington, DC; Ceritoglu et al. 'The Impact of Syrian Refugees on Natives' Labor Market Outcomes in Turkey: Evidence from a Quasi-Experimental Design'; and Cengiz and Tekguc, 'Is It Merely A Labor Supply Shock? Impacts of Syrian Migrants on Local Economies in Turkey.'

Restrictions on the right to work result in increased competition between refugees of all skill levels and local low-skilled workers in the informal sector

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Ibid., Tumen. 'The Economic Impact of Syrian Refugees on Host Countries: Quasi-Experimental Evidence from Turkey'; and Bağır, Y. K. 2018. 'Impact of the Syrian Refugee Influx on Turkish Native Workers: An Ethnic Enclave Approach.' *Central Bank Review*, 18(4): 129-147.

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Angrist, J. D. and A. D. Kugler. 2003. 'Protective or Counter-Productive? Labour Market Institutions and the Effect of Immigration On Natives.' *The Economic Journal*, 113(488).

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Maystadt, J-F. and G. Duranton. 2018. 'The Development Push of Refugees: Evidence from Tanzania.' *Journal of Economic Geography*, 19(2): 299-334.

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Alix-Gacia, J. et al. 2018. 'Do Refugee Camps Help or Hurt Hosts? The Case of Kakuma, Kenya.' *Journal of Development Economics*, (130): 66-83.

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Ibid.; and P. Verme and K. Schuettler. 2019. 'The Impact of Forced Displacement on Host Communities: A Review of the Empirical Literature in Economics.' World Bank Policy Research Working Paper.

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Taylor, E. et al. 2016. 'Economic Impact of Refugees.' *Proceedings of the National Academy of Sciences*, 113(27): 7449-7453.

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Ruiz, I. and C. Vargas-Silva. 2013. 'The Economics of Forced Migration.' *The Journal of Development Studies*, 49(6): 772-784.

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Ruiz, I. and C. Vargas-Silva. 2015. 'The Labor Market Impacts of Forced Migration.' *American Economic Review*, 105(5): 581-586.

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This is what has been typically done in the literature. For example, Fallah, Krafft and Wahba (2019) analyze the impact of Syrian refugees in the Jordanian labor market using data for 2010 (pre-shock) and 2016 (post-shock) and combine it with data on the geographical location of refugees across the county.

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The most obvious example is the lack of census data since 1932.

post-conflict countries in Africa. In Tanzania, Maystat and Duranton (2019) found that the effects of the temporary refugee inflows originating from Burundi and Rwanda on the welfare of the local population were persistent and positive even 5-15 years after the refugees returned to their home country.¹³ In Kenya, refugee inflows increased economic activity in areas close to refugee camps and boosted household consumption by 25%.¹⁴ The positive results on the locals' economic well-being were driven by increases in consumer demand—generated by refugees directly or through the influx of humanitarian aid to support them—that turned into increased production, employment, and service provision.¹⁵ In Tanzania, cash aid to refugees created significant multiplier effects with positive income spillovers.¹⁶ The key difference between the short and long term effects that lead to more positive outcomes is the locals' increasing capacity—in particular those that have similar skills than refugees—to adjust to the inflow of refugee by changing the economic activities and type of work that they engage in.¹⁷ Workers in areas with higher prevalence of refugees end up having more opportunities to be in better quality professional occupations.¹⁸

Using Lights to Assess the Impact of Refugees in Lebanon

Since 2011, Lebanon's economy has significantly deteriorated, from annual economic growth of 8-10% in the period between 2007 and 2010 to about 0.5-2.5% from 2011 to 2018—the year the LCSRHCL was implemented. In 2019, the Lebanese economy collapsed, falling by 6.9% as a result of the financial crisis. However, this raw comparison cannot be used to assess the impact of refugees in the economy, as there are many other factors that have impacted the economy, both internally and internationally. Ideally, there is a need to compare 'hard' data on different labor market and income indicators before and after the arrival of refugees and how that change differs in 'treatment' areas—with a high share of refugees—compared to 'control' areas with lower number of refugees.¹⁹

However, there is a scarcity of publicly available data on the labor market and welfare in Lebanon, even when compared to other countries in the region like Jordan or Egypt.²⁰ Given this data restriction, in particular at the subnational level, we can approximate economic activity by the evolution of nighttime lights, which is measured by satellite imagery of the strength of light emitted at night. The images are processed by the National Oceanic and Atmospheric Administration's (NOAA) National Geophysical Data Center (NGDC) as composite annual data. These lights reflect activity in human settlements and is considered as a good proxy measure for economic activity for areas where there is a lack of geographic disaggregation of economic statistics.²¹

We used a multivariate regression analysis to compare luminosity in 2011 and 2017 across more than 900 cadasters in Lebanon, relying on the fact that the presence of refugees varies significantly across the country's geography. As refugees can choose to settle in areas that have better economic prospects, this can create problems of interpreting the correlations as causal. In order to mitigate this problem, we used the distance of cadasters to the border, which lowers the presence of refugees, as a more exogenous variation.²²

The annex shows the results for different specifications, using the impact of the number of refugees on changes in activity between 2011 and 2017 (models 1 and 2), using the mean of 2016-17 and 2011-12 (models 3 and 4), and using the same indicators in per capita terms (models 5 and 6).

While the results change depending on the specification used, the main conclusion is that the trends in the economic activity in cadasters with larger refugee inflows was either stronger or equal to those with lower presence. Therefore, the costs that refugees generate are compensated by other economic benefits, in line with past literature on the topic. While these findings provide initial evidence of the lack of large negative effects of refugee presence in the local economies, there can still be different impacts across groups of Lebanese. Thus, it seems important to move beyond the debate on the overall net effect of refugees to assess who bears the costs and who benefits from the presence of refugees.

Contributions of Refugees to the Local Economies

While the costs of accommodating Syrian refugees have been frequently highlighted, there are few studies on the economic benefits to the local communities associated with the presence of refugees. One of the few exceptions is the study by the UNDP and UNHCR (2015),²³ which estimates the total effect of humanitarian aid on the aggregate demand and the gross domestic product (GDP) of the Lebanese economy. According to their calculations, every \$1 spent in humanitarian assistance had a positive multiplier effect of \$1.6 in the local economy which, given the size of the aid flows, would entail yearly benefits of about \$1.8 billion. The study estimated that 44% of aid took the form of cash transfers to refugees (in particular food cards), 40% were in-kind purchases, and 14% were spent on paying workers in the humanitarian sector in Lebanon.²⁴ The benefits were particularly concentrated in the food industry and real estate, followed by the health and pharmaceutical industry as well as education services.

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Chen, X. and W. D. Nordhaus. 2011. 'Using Luminosity Data as a Proxy for Economic Statistics.' *Proceedings of the National Academy of Sciences of the United States of America*, 108(21): 8589-8594; and Vernon Henderson, J., A. Storeygard, and D. N. Weil. 2012. 'Measuring Economic Growth from Outer Space.' *American Economic Review*, 102(2): 994-1028.

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Annex 1 provides more details about the econometric specification of the analysis.

The trends in the economic activity in cadasters with larger refugee inflows was either stronger or equal to those with lower presence

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UNHCR and UNDP. 2015. 'Impact of Humanitarian Aid on the Lebanese Economy - Lebanon.' ReliefWeb. <https://reliefweb.int/report/lebanon/impact-humanitarian-aid-lebanese-economy>.

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Ibid.

Using the LCSRHCL (2018) survey, we estimate different benefits that refugees have generated in the local economies in the Lebanese municipalities of Saida in the south, Zahle in the Bekaa, and Halba in the north. As the survey is representative of the total Lebanese and Syrian populations in each of the localities, we can calculate the size of the impact of refugee inflows in different aspects. Based on the previous literature, we focus on two main dimensions:

- (a) Syrians as consumers:** Refugees bring additional purchasing power that is enhanced by humanitarian aid. Donor agencies provide cash or in-kind transfers to refugees that increase the demand of products and services in Lebanon. Directly or indirectly through aid agencies, refugees pay rent, utilities, and buy food and other goods and services. Since most refugees buy local products, this higher demand provides a boost in production and sales for the local economy and benefits Lebanese firms and households.
- (b) Syrians and aid agencies as job creators:** Syrian refugees can open businesses that create jobs for locals. Aid agencies also bring large organizational structures to the country; they hire locally, increasing the demand for Lebanese workers, and opening new employment opportunities.

In order to estimate the increase in household consumption, a key part of the GDP of an economy, we calculate the amount of spending per Syrian household in the municipality, multiply it by the number of Syrian house-

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holds, and then divide it by the total consumption of Lebanese families. This simple exercise does not take into account the dynamic effects of the inflows of refugees on the Lebanese household consumption but provides

an approximation of the potential capacity of rising demand as a result of the increase in population. According to our estimates, the ratio of Syrian refugees to Lebanese is 18% in Saida (approximately 14,000 Syrians compared to 77,000 Lebanese), 72% in Zahle (36,000 compared to 51,000), and 139% in Halba (8,000 compared to 6,000). Given the lower income levels of the Syrian refugee population, the increase in the demand is somewhat lower than that of the population, but still significant (8% in Saida, 21% in Zahle, and 47% in Halba).

Moreover, the increase in consumption is far from uniform across sectors. As figure 1.a shows, Syrian households spend a significantly larger share of their disposable income on food and rent compared to Lebanese—50 to 70% compared to 30 to 35%. This results in larger growth rates of consumption in

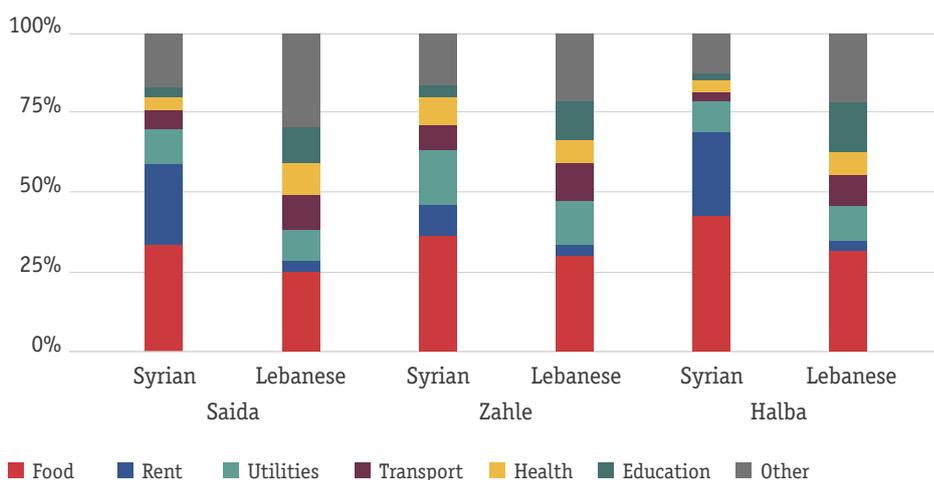
these sectors across all municipalities (figure 1.b). The house renting market saw by far the largest increases, in particular in Halba where there was a fourfold increase, as only 14% of Lebanese households are renters compared to 96% of Syrian households. The demand for food is the second fastest growing sector, in particular in Halba which saw a 47% increase.

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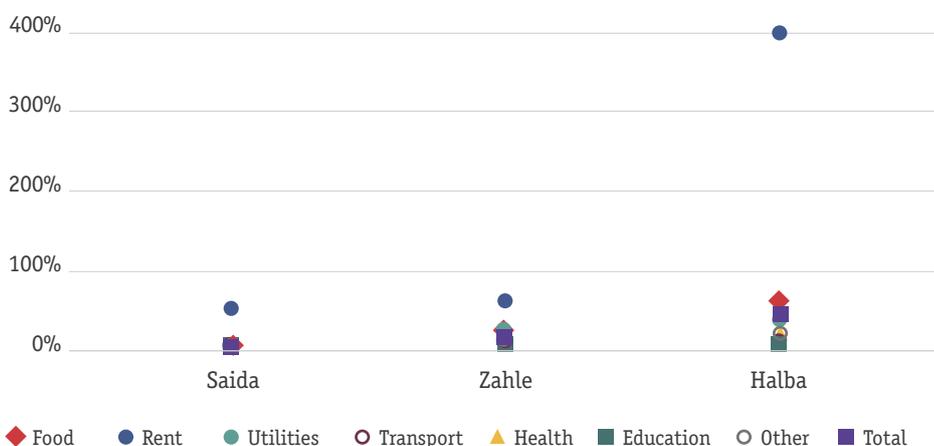
Figure 1

Increase in spending due to refugees in each locality by sector of consumption

a Share of spending among refugees



b Growth in consumption by item



Source Own calculation based on the LCSRHCL (2018).

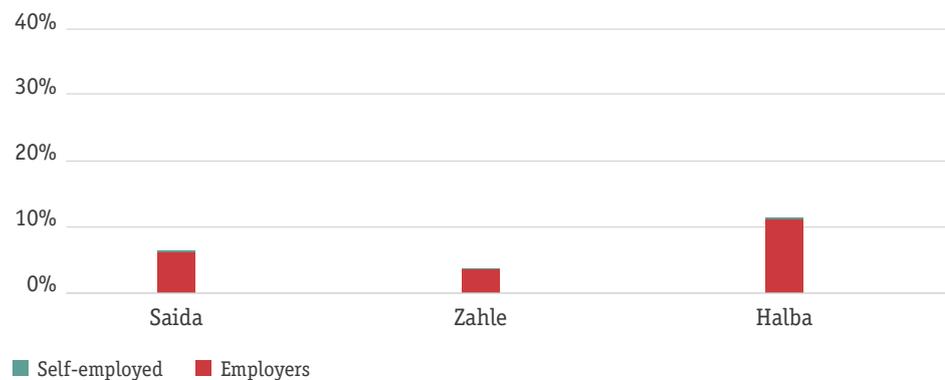
Note Growth rate of consumption = ((mean Syrian household spending*number of Syrian households)/(mean Lebanese household spending*number of Lebanese households))*100.

The arrival of refugees has also brought new employment opportunities for the local economies. There are between 4% and 11% of Syrian workers that are self-employed (figure 2.a), mostly running small businesses in the sales sector. However, given the tight legal restrictions, these businesses tend to be informal—only 17% of self-employed Syrians report having work permits. Under these conditions, it is not surprising that Syrians are unable to create jobs for the Lebanese population. Nevertheless, Syrians have indirectly brought new job openings in the humanitarian sector. Based on the LCSRHCL (2018), we approximate the size of the humanitarian sector by the percentage of Lebanese employees that work in the community and social service sector. In all three municipalities, the share of workers in this sector is quite sizable, ranging from 12% in Saida, to 24% in Halba, and 30% in Zahle. In Zahle in particular, many international organizations have opened branch offices, providing employment to about 6,300 local workers in the area.

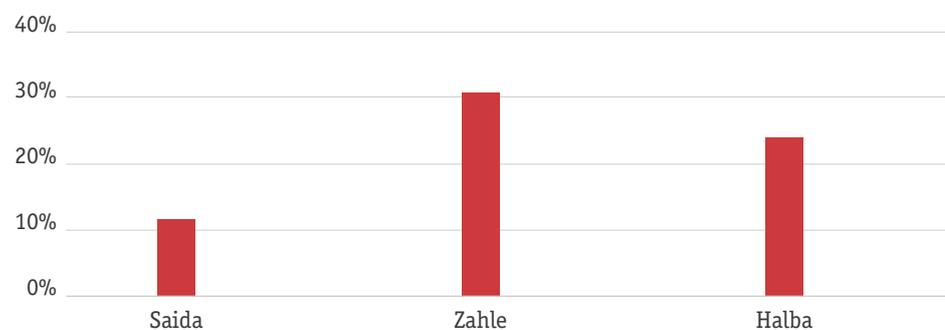
Figure 2

Employment opportunities associated with the arrival of refugees

a Percentage of Syrians that have their own businesses



b Percentage of Lebanese employed in the humanitarian sector



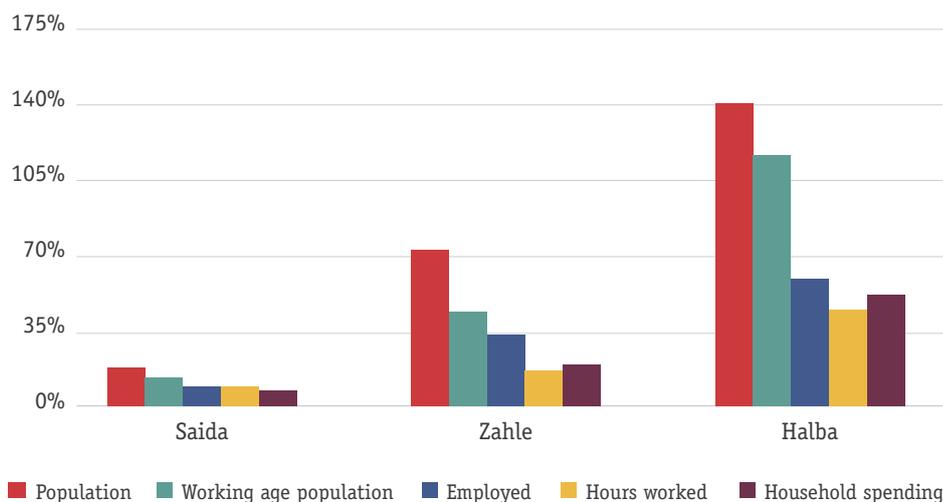
Source Own calculation based on the LCSRHCL (2018).

Note Data on percentage of workers employed in the humanitarian sector are approximated by those working in the community and social service sector. Although the latter comprises other jobs not directly related to the humanitarian aid, this sector has mostly benefited from the influx of foreign aid to provide social services for refugees and host communities.

These results provide evidence of the economic benefits refugees bring to local economies. However, with such large increases in household demands, there might be worries of prices increases as a result of limited adjustments of production or imports. While there is no data on production at the local level, we approximated the local supply by one of its key inputs of production: Employment.

As figure 3 shows, the population growth in each of the three municipalities is significantly larger than the increase in the demand, given the lower income of Syrians mentioned above. However, the expansion in the labor supply has been significantly lower. Firstly, there is a lower share of Syrians within the legal working age—as in, a higher share of minors. Secondly, among Syrian adults of working age, a significantly lower rate is employed compared to their Lebanese counterparts. Furthermore, if refugees of working age are employed, they work fewer hours. Overall, we find similar increases in the labor supply and the demand of the economy in the three municipalities, which would result in minor changes in overall prices. However, in sectors where the demand is higher and the supply is more rigid, like in the housing market, we expect prices to increase more, while in areas where the additional demand is smaller and the supply has benefited from lower costs of inputs like labor, then prices would be expected to drop.

Figure 3
Changes in the labor supply and in household consumption due to refugee inflows



Source Own calculation based on the LCSRHCL (2018).

Note Change in population = $\frac{(\text{Syrian population})}{(\text{Lebanese population})} * 100$. The same equation is used to obtain the change in working age population, population employed, total hours worked, and household spending.

Winners and Losers of Refugee Arrival

As we have seen, the impact of refugees in the local host economies is complex, with different counterbalancing effects. More importantly, these effects have an asymmetric impact across groups in the local host communities. Given the lack of publicly available data, we analyze these differential effects by using the LCSRHCL (2018) for the three studied municipalities. As this survey was only implemented once in 2018, it does not allow us to make comparisons over time. However, the LCSRHCL includes a question on the subjective change in economic conditions of households in 2018 compared to 2011. Questions about the past tend to suffer from recall bias, which is the error in the accuracy or completeness of the recollections of respondents.²⁵ Instead of looking at the overall effects, we analyze the relative perceived change in income and financial conditions of each Lebanese family compared to the average household in the three municipalities. In this case, even if the overall effects are biased, the differential effects can still provide valuable information.²⁶

Overall, we find a clear positive correlation between the current level of income and the perceived changes since the arrival of Syrian refugees (figure 4.a). While families from the bottom 40% of the three municipalities reported a larger deterioration in economic conditions since 2011 compared to the

average, the richest 30% were relatively better off.

In the housing market, the refugees' arrival has created large increases in the demand for rental houses, in particular in Halba. This additional demand benefits landlords that can find new customers

The limited flexibility of the housing market to adjust to the large increase in the demand might have caused scarcity of available rental places or increased their prices, affecting Lebanese tenants—20% in Saida and Zahle, and 14% in Halba

and even increase rents. Estimates at the national level show that the rental market for refugees has generated about \$50 million in revenues every year for Lebanese landlords.²⁷ In the three municipalities we studied, about 7% to 8% of the Lebanese population are landlords. For this group, we find that rents coming from Syrian refugees add up to \$1 million every year,²⁸ which is equivalent to an increase in their total household income of 24% in Saida, 17% in Zahle, and 35% in Halba. Therefore, landlords have significantly improved their financial situation as a result of the increasing demand for rental apartments stemming from refugees' needs. On the other hand, the limited flexibility of the housing market to adjust to the large increase in the demand might have caused scarcity of available rental places or increased their prices, affecting Lebanese tenants—20% in Saida and Zahle, and 14% in Halba. In line with these arguments, we observe that Lebanese tenants

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Beegle, K., C. Carletto, and K. Himelein. 2012. 'Reliability of Recall in Agricultural Data.' *Journal of Development Economics*, 98(1): 34-41.

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This is under the assumption that recall biases are not systematically different across groups.

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Chaaban, J. 2017. 'Should Lebanon Get More Funds for Hosting Refugees?' *Al Jazeera*.

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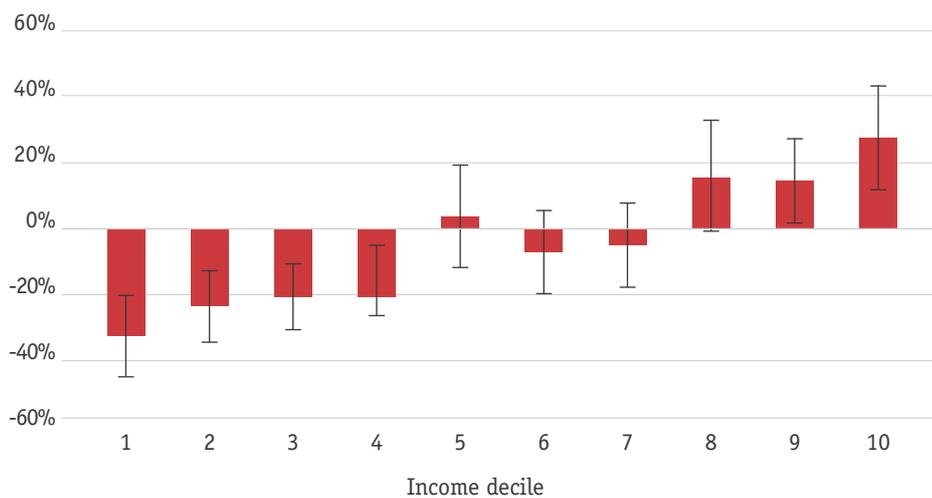
\$0.5 million in Saida, \$0.4 million in Zahle, and \$0.2 million in Halba.

report a relative downturn in their economic conditions, while landlords report more positive changes (figure 4.b). In turn, families that own a house but do not rent to other families—and are thus less affected by the positive and negative impacts of refugees in the rental market—report more average changes in their income status.

Figure 4

Changes in household economic conditions (2011-2018) relative to the average, income levels, and housing arrangements

a Relative changes in household economic conditions by income levels



b Relative changes in household economic conditions by type of housing arrangement



Source Own calculation based on the LCSRHCL (2018).

Note The relative change in income conditions is calculated as the perceived change in income for a household minus the average perceived change in income for all the Lebanese households surveyed. 95% confidence intervals are included for comparison.

In the labor market, refugee inflows have also had distributional effects among different groups of Lebanese. The large increase in consumer spending driven by refugees, who mostly rely on local products, has beneficial effects for business owners. Furthermore, refugees have provided a pool of cheaper labor for employers, allowing them to reduce costs. In construction and agriculture, the two sectors with the largest presence of refugees, an average Syrian day laborer earned \$2 per hour in 2018, compared to \$4.8 per hour for Lebanese.²⁹ This also creates competition for low-skilled Lebanese working in these sectors.

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This represents about LBP 3,000 and LBP 7,275, respectively at the official exchange rate of LBP 1,507 for \$1, used in 2018.

Dividing the adult Lebanese population according to their labor market status provides further evidence of the asymmetric effects of refugee inflows on economic conditions (figure 5.b). In relative terms, we find that employers and the self-employed—the two groups that benefit the most from the higher demand and lower labor costs—report more positive changes in their financial

The level of ‘competition’ of Syrian refugees and Lebanese not only varies across skill levels but also across the sector they work on

situation, while unemployed Lebanese report to be worse off.

To test the different impact refugees have when they are complements or substitutes

of Lebanese workers, we divide the reported changes in economic conditions of the employed Lebanese by skill and sector of employment cells. The sectors of employment are classified according to the International Standard Industrial Classification of All Economic Activities (ISIC)³⁰ while three levels of skills are created based on the educational attainments: (a) Low-skill for those with no education or primary education; (b) mid-skill for those with lower or upper secondary education; and (c) high-skill for those with tertiary education.

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United Nations, Department of Economic and Social Affairs. 2008. ‘International Standard Industrial Classification of All Economic Activities.’ New York, UN Headquarters.

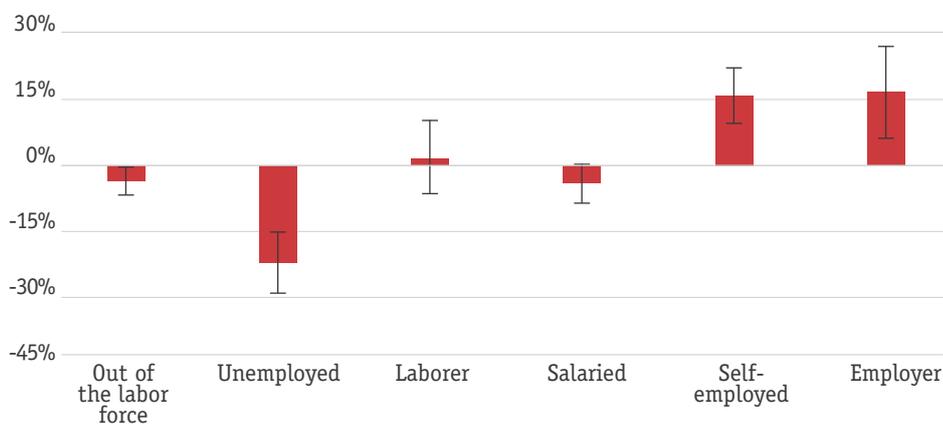
Figure 5.b exhibits the relative presence of Syrian refugees in each sector and skill level (‘cells’) as well as the mean reported change in income for Lebanese workers in those cells. As expected, there are basically no Syrian refugees in the high-skill cells, compared to 7% of total workers in the mid-skill level, and 40% among the low-skill employed population. Within the mid and low-skill levels, we also observe large disparities in the presence of refugees across sectors. For example, Lebanese represent almost all low-skill workers in the electricity sector, compared to only 18% in agriculture and 25% in construction. Therefore, the level of ‘competition’ of Syrian refugees and Lebanese not only varies across skill levels but also across the sector they work in. This is partly due to the legal restrictions that limit refugees to work in three sectors: Agriculture, construction, and cleaning. Although refugees also work informally in other sectors, in particular sales, legal restrictions shape the relative share of Syrians and Lebanese in each sector.

Interestingly, we find a strong positive correlation between the share of refugees employed in a specific cell (sector and skill level) and the change in income that Lebanese workers report since 2011 (figure 5.b). Taking the case of the construction sector, we see a large presence of refugees among low-skilled jobs (mostly day laborers) while almost all high-skilled ones (such as managers and civil engineers) are Lebanese. While Lebanese laborers report more negative changes in their financial conditions, the high-level construction officer have had relative income gains. The same pattern is observed in agriculture, the other main sector that employs Syrian refugees. These results show that the negative economic impact of refugee inflows is mostly borne by low-skilled Lebanese that work in the agriculture and construction sectors—where refugees are mostly allowed to work—while higher and lower-skilled Lebanese in other sectors where refugees are banned are better off. In other words, the more complementary Syrians and Lebanese are and the less competition they face, the more positive trends in their economic conditions.

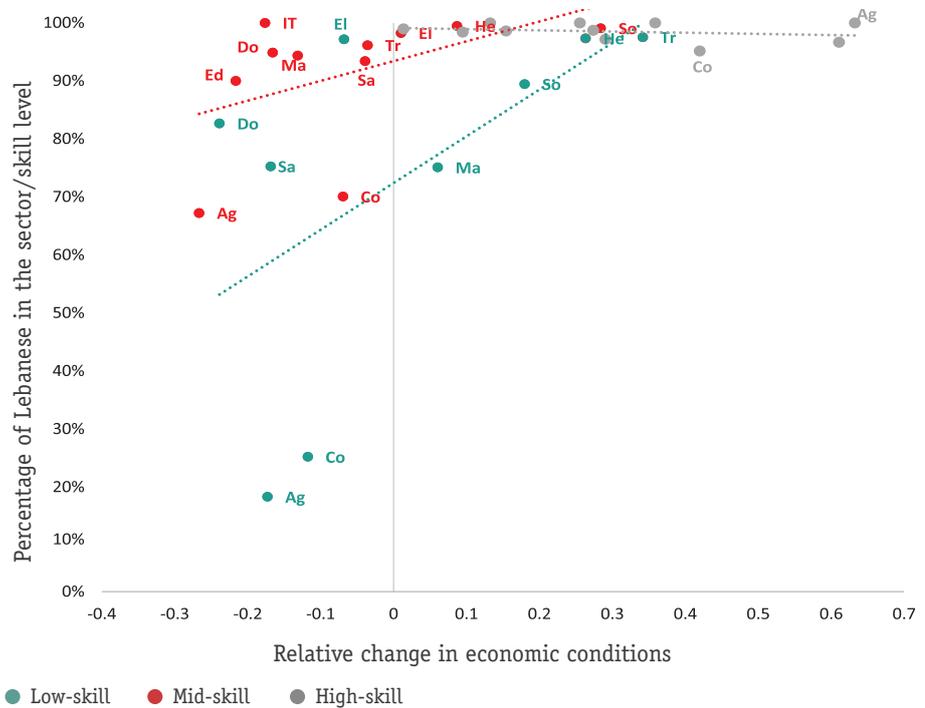
Figure 5

Changes in household economic conditions (2011-2018) relative to the average and labor market situation

a Relative changes in household economic conditions by labor market status



b Relative changes in household economic conditions by sector and skill level



Ag = Agriculture; Co = Construction; Do = Personal and household services; Ed = Education; El = Electricity, gas and water; IT = ICT services; Ma = Manufacturing; Sa = Sales; So = Social services; Tr = Transportation.

Source Own calculation based on the LCSRHCL (2018).

Note The relative change in income conditions is calculated as the perceived change in income for a household minus the average perceived change in income for all the Lebanese households surveyed.

Conclusions

Broad conclusions on the overall impact of refugees in Lebanon might be futile and prone to contention. In spite of the scarcity of available data, we provide suggestive evidence ruling out major negative consequences to the country's economy, with benefits stemming from larger demand and new job creation compensating the costs that they might cause. More importantly, we find that the presence of partial costs and benefits is largely asymmetric in specific sectors and groups of the Lebanese population. On the one hand, groups like landlords, employers, and business owners might have seen net gains derived from the presence of refugees. On the other hand, low-skilled Lebanese workers—in particular in the agriculture and construction sector—face worse labor market outcomes as a result of the increasing competition, and Lebanese tenants might have seen increases in rental prices or scarcity of affordable housing due to the presence of Syrian refugees.

These results make a strong case for public interventions targeting support to those more affected by the refugees' presence, who tend to be the poorer communities, in order to mitigate its negative impact. There is also a need to think about redistributive policies among the different groups, so income inequality does not further increase as a consequence of the refugee crisis.

Annex 1

Assessing the impact of refugees on the Lebanese local economies

We use nighttime light data intensity for two periods: 2011 (pre-refugee crisis) and 2017 (post-arrival). To assess the impact of the refugee influx, we rely on the fact that the regions Syrian refugees settled varied significantly. The refugee influx has thus differentially affected geographic areas within Lebanon. We use data from UNHCR (2017) on the number of Syrian refugees in a particular cadaster as a measure of the refugee presence. The basic estimation strategy uses the following specification:

$$\text{Lights}_{ct} = a + b * \text{Refugees}_{ct} + hc + \mu_t + e_{ct}$$

where Lights_{ct} is the inverse hyperbolic sine of the luminosity index for cadaster c , in year t , and Refugees_{ct} is the inverse hyperbolic sine of the refugee population in the cadaster in year t . We control for time-invariant unobserved heterogeneity at the cadaster level with cadaster fixed effects, h_c . Furthermore, following Henderson et al. (2012) and Alix-Garcia et al. (2018) we control for year fixed effects (μ_t) as the nighttime light data is not intercalibrated across time or satellites. We also cluster standard errors e_{ct} at the cadaster level. However, the decision by refugees on where to settle is not random and can be endogenous to the economic vibrance of a place. To allow for a causal interpretation of the impact of refugee flows, we instrument the size of the refugee population in a given cadaster by its distance to the border with Syria. This strategy is based on the fact that refugees are more likely to settle in Lebanese cadasters closer to Syria on top of any other considerations. Our estimates show that for every kilometer a cadaster is farther from the border, the number of refugees is reduced by 20. These results are strongly statistically significant.

Table 1

Regressions on the impact of refugee inflows to the local economies

Variables	Model 1 OLS: Lights 2011-17 and refugees	Model 2 IV: Lights 2011-17 and refugees	Model 3 OLS: Lights 2011/12- 16/17 and refugees	Model 4 IV: Lights 2011/12- 16/17 and refugees	Model 5 OLS: Lights per capita 2011-17 and refugees pc	Model 6 OLS: Lights per capita 2011-17 and refugees pc
Log(refugees)	0.007* (0.005)	0.029*** (0.010)	0.013*** (0.004)	0.006 (0.009)		
Log(refugees_pc)					0.025 (0.025)	-0.047 (0.096)
2017 vs 2012	0.010 (0.006)	-0.024 (0.015)	0.019*** (0.005)	0.026** (0.013)	0.016*** (0.002)	0.020*** (0.006)
Constant	-17.843* (12.139)	49.859* (30.093)	-35.477*** (9.485)	-49.775* (25.987)	-30.595*** (4.337)	-38.305*** (12.553)
Observations	1,822	1,864	1,828	1,870	1,822	1,819
Cadasters	911	954	914	957	911	911
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Distance to border as instrument	No	Yes	No	Yes	No	Yes
R-squared	0.107	0.112	0.392	0.380	0.100	0.098

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

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About the author

Daniel Garrote Sánchez contributed to this project while being a senior researcher at the Lebanese Center for Policy Studies. He currently works as a labor market consultant at the World Bank. His areas of work include economic migration, labor markets and the task content of jobs, conflict and forced displacement, and development of lagging regions. Prior to joining LCPS, he served as a labor migration consultant for the World Bank and the Ministry of Labor of Saudi Arabia. He also worked for six years as an economic researcher at the Central Bank of Spain covering a range of macro-economic topics such as fiscal policy, labor markets, and deleveraging. Garrote Sánchez holds a master's degree in Public Administration and International Development from the Harvard Kennedy School of Government.

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Contact Information Lebanese Center for Policy Studies

Sadat Tower, Tenth floor
P.O.B 55-215, Leon Street,
Ras Beirut, Lebanon
T: + 961 1 799301
F: + 961 1 799302
info@lcps-lebanon.org
www.lcps-lebanon.org