



ARE REFUGEES LOCATED NEAR URBAN JOB OPPORTUNITIES?

AN ANALYSIS OF OVERLAP BETWEEN REFUGEES AND MAJOR URBAN AREAS IN DEVELOPING COUNTRIES, AND IMPLICATIONS FOR EMPLOYMENT OPPORTUNITIES AND MNC ENGAGEMENT

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ABOUT THIS REPORT

This report has been developed collaboratively, drawing on insights from expert consultations and research by a team at the Center for Global Development (CGD). Cindy Huang supervised the research and is the lead author. Jimmy Graham is a contributing author, conducted the quantitative analysis, and created the interactive map. Emily Schabacker provided editorial support.

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All errors remain our own.

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EXECUTIVE SUMMARY



WITH OVER 22 MILLION REFUGEES AROUND THE WORLD, DISPLACED ON AVERAGE FOR OVER 10 YEARS, POLICYMAKERS ARE LOOKING FOR MORE SUSTAINABLE SOLUTIONS TO REFUGEE CRISES.¹

One promising approach is to expand economic opportunities for refugees in developing countries, which host 85 percent of the world's refugees.² In recent years, governments, donors, and private sector actors have been finding innovative ways to include refugees in labor markets, thus enabling them to become more self-reliant, reducing the cost of hosting refugees and creating economic benefits for hosts.³

Multinational corporations (MNCs) are emerging as important partners in the push to expand refugee employment and entrepreneurship. As market leaders with global reach through hiring and supply chains, policy influencers, and innovators, MNCs have distinctive capacities for engagement that do not exist within the traditional refugee response community. MNCs are also well positioned to participate in broader jobs and livelihoods initiatives that support both refugees and the communities hosting refugees, which often struggle with high unemployment and limited economic opportunities.

To help demonstrate where MNCs, regional and local businesses, and other actors are best positioned to expand economic opportunities for refugees, we created an interactive tool to map the locations of working-age refugees, and analyzed the extent to which refugees overlap with major urban areas in 31 of the 37 developing countries hosting at least 25,000 refugees. When refugees are located in urban areas, where economic activity and MNCs cluster, they have a much greater likelihood of being in close proximity to potential employers.

Using estimates of refugees living in a country's most populous city and those living in cities with over 300,000 people as lower and upper bounds for the number of refugees in or around major urban areas, we find that of the 31 countries:

- 15 to 17 have at least 7,000 working-age refugees in or around major urban areas,
- 9 to 11 have at least 25,000 working-age refugees in or around major urban areas, and
- 5 to 7 have at least 50,000 working-age refugees in or around major urban areas.

In total we estimate that there are between 915,087 and 2,186,829 working-age refugees in or around major urban areas in these countries.⁶

Countries with significant overlaps of refugees and major urban areas are located in a variety of regions, and most of the countries with substantial overlap have a significant MNC presence: the large majority have roughly 1,000 to 10,000 people employed by MNCs with OECD home countries, and about half have more than 10,000.7 And the number of MNCs is just the tip of the iceberg. With their deep supply chains and market leadership, MNCs can shape the local market and policy environment as well. These findings indicate there are opportunities for MNCs and regional and local businesses to engage with refugees. Our interactive map shows approximately where these opportunities are.

While our analysis shows that there is substantial overlap between refugees and urban economic opportunities, it also adds nuance to the headline that 60 percent of refugees with known locations live in urban areas.8 For our sample of 23 countries with the best data, we estimate that 48 percent of the refugees are working age. Among them, about 62 percent are in urban areas—a proportion close to the global 60 percent figure. Among these urban working-age refugees, 62 percent are in *major* urban areas with at least 300,000 people, and about 24 percent of them are in the *largest*

urban area in the host country. This means that, in addition to the fact that the majority of refugees are in urban areas, there are also substantial proportions of refugees in major and largest urban areas. For the refugees outside of these areas, there are additional opportunities for global, regional, and local businesses located in smaller urban areas to engage refugees, and those located in major urban areas can supply from refugee-owned businesses in smaller urban areas.

However, while our analysis shows that proximity is not a major barrier to expanding employment for refugees in many contexts, there are other significant obstacles in almost all these countries. In most developing countries, refugees are not legally allowed to work. Many refugees do in fact work in these countries in the informal economy, but these workers are more vulnerable to exploitation and deportation, and a lack of access to the formal economy restricts their economic opportunities. And even where refugees are allowed to work formally, de facto barriers like discrimination still affect their ability to access the labor market. Other challenges include skill mismatches between refugees and employers' needs and a lack of equal labor protections. 10 Thus, location in urban areas is just one important factor that must be considered for expanding labor market access for refugees.



INTRODUCTION



IN RESPONSE TO THE SYRIAN REFUGEE CRISIS AND UNPRECEDENTED LEVELS OF DISPLACEMENT, THERE IS A NEW WAVE OF INTEREST IN EXPANDING ECONOMIC OPPORTUNITIES FOR REFUGEES.

Providing refugees with access to employment is a promising alternative to the unsustainable model of year-after-year humanitarian support. As a central component of self-reliance, employment gives refugees the ability to support themselves. 11 This is crucial given that refugees have on average been displaced for over 10 years, with the average rising to 21 years for those displaced for five years or more. 12 Employment is also one of the major unmet needs identified by refugees. 13 In recent years there has been an increase in initiatives to expand refugee employment opportunities, including World Bank-financed livelihoods projects for refugees in Uganda; the Jordan Compact, an agreement between the Jordanian government and international partners that extended work permits to refugees; and a similar forthcoming compact in Ethiopia.¹⁴ These initiatives also target host communities so that refugees and citizens alike benefit from new opportunities. Given that refugees are often hosted in countries with high unemployment rates, doing so makes them both politically feasible and more welcome by the host communities.

Interest in supporting refugees has also been growing among multinational corporations (MNCs), including over 80 companies that have joined the Tent Partnership. 15 MNCs are increasingly seeking social impact alongside profit, and are emerging as important partners in the push to expand refugee employment and entrepreneurship. As market leaders, policy influencers, and innovators, MNCs have distinctive capacities for engagement that do not exist within the traditional refugee response community. Recently, we analyzed the most promising contributions that MNCs can make, particularly in developing countries, which host 85 percent of the world's refugees. 16 We highlighted the potential role of MNCs in hiring refugees as employees and sourcing from refugee-owned and refugeeemploying businesses. Incorporating refugees into these core business activities can be more sustainable than traditional corporate social responsibility activities. which are often one-off or periodic for refugees. Some companies—such as IKEA, Starbucks, and Safeway have already stepped up and committed to hiring refugees.¹⁷ MNCs can also work with local businesses and business associations to encourage other firms to engage refugees and build on their experience.

As an initial step toward identifying geographic areas in developing countries where there is significant potential for expanding economic opportunities for refugees and where MNCs are most likely to be able to engage refugees, we mapped the overlap of refugees and major urban areas. Of course, there are economic

opportunities and MNCs located outside of major urban areas, but, as we discuss in greater detail in the "refugee-MNC nexus" section, the largest concentrations of economic opportunities and MNCs are most likely in major urban areas. And for MNCs or other companies to engage refugees, through both direct hiring and sourcing, they must first be reasonably proximate. It would be difficult, for example, for a firm operating in an urban area to employ refugees located in distant camps or rural areas. And while it may be more feasible for a company to source from relatively remote refugee businesses, closer proximity would make partnership more likely.

It is also true that with freedom of movement, refugees could relocate or commute to areas with economic opportunities. However, transportation costs and lack of networks in new areas may deter many refugees from doing so. Distance from areas of economic opportunity also represents an additional barrier to initiatives that seek to employ refugees in special economic zones, such as in Jordan, where the zones are far from most refugees. For example, Syrian refugees in Jordan report being unwilling to travel away from home for work due to safety concerns and fear of being deported. 18 By determining the extent of overlap between refugees and major economic areas, the analysis provides a strong indication of where refugees are geographically best positioned to take advantage of economic opportunities.

This analysis is important on several levels. First, it adds nuance to our general knowledge of where refugees are located. We know that 60 percent of refugees now live in urban areas, but the proportion of refugees in urban areas in developing countries specifically is less well understood, as is the proportion of refugees concentrated in major urban areas rather than scattered across smaller urban areas. 19 Furthermore, given the common misperception that refugees are mostly based in camps or distant rural areas, highlighting the presence of refugees in major urban areas may help encourage the involvement of MNCs and other businesses, as well as nontraditional partners such as urban planners. The analysis could also be used by companies to understand where specifically they can engage refugees. Similarly, it could help policymakers understand whether geographic proximity will serve as an additional barrier to jobs and livelihood programs. It could also be relevant beyond economic opportunities for refugees. For example, it can showcase the degree to which refugee protection services must be geared toward urban environments.

GIVEN THE COMMON MISPERCEPTION THAT REFUGEES ARE MOSTLY BASED IN CAMPS OR DISTANT RURAL AREAS, HIGHLIGHTING THE PRESENCE OF REFUGEES IN MAJOR URBAN AREAS MAY HELP ENCOURAGE THE INVOLVEMENT OF MNCS AND OTHER BUSINESSES.

Analyzing data on the locations of UNHCR-registered refugees and people in refugee-like situations (henceforth "refugees") in developing countries, we find that in many countries, substantial numbers of workingage refugees (defined in our sample as between the ages of 18 and 59) are living in major urban areas. For our low estimate, we consider the most populous (henceforth "largest") city in each country to be a major urban area. For our high estimate, we consider cities with at least 300,000 people to be major urban areas. The methodology, data, and sample for these estimates are described in the "Estimating overlap between refugees and major urban areas" section below.

As figure 1 shows, our high estimate is that, for the 31 countries in our full sample, 17 from a variety of regions around the world have a minimum of 7,000 working-age refugees overlapping with major urban areas. Of these countries, 11 have overlap for at least 25,000 refugees, and 7 have overlap for at least 50,000. Figure 2 shows that using our low estimate, we still predict overlap of at least 7,000 refugees for 15 countries, at least 25,000 for 9 countries, and at least 50,000 for 5 countries. In other words, even when using a conservative measure, our analysis shows that there is overlap between major urban areas and refugees in over half of the countries examined, and there is especially significant overlap in about a third. Altogether, using data for 31 countries with good and moderate data availability, we estimate that there are between 915,087 and 2,186,829 refugees that are in major urban areas and therefore likely in close proximity to economic opportunities and MNCs.²²

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While our analysis shows that there is substantial overlap between refugees and urban economic opportunities, it also adds nuance to the headline that 60 percent of refugees with known locations live in urban areas. For our sample of 23 countries with the best data, we estimate that 48 percent of the refugees are working age. Among them, about 62 percent are in urban areas—a proportion close to the global 60 percent figure. Among these urban working-age refugees, 62 percent are in *major* urban areas with at least 300,000 people, and about 24 percent of them are in the largest urban area in the host country. This means that, in addition to the fact that the majority of refugees are in urban areas, there are also substantial proportions of refugees in major and largest urban areas. Furthermore, refugees located outside of these major urban areas can still be engaged directly by businesses located in smaller urban areas or can be suppliers for businesses in larger urban areas. Moreover, some of the refugees in smaller urban areas and even rural areas are located near major urban areas, such that it may be possible for them to relocate for job opportunities.

Our findings are illustrated in the interactive map at the end of this section, which depicts refugee locations relative to major urban areas in all 31 countries along with additional information. For each refugee location, the map gives the location name, location type (rural/urban), type of accommodation (camp/non-camp), and number of working-age refugees. For each country, it provides the number of MNCs with OECD home countries (hereafter referred to as OECD MNCs), number of people employed by these MNCs, average proportion

of working-age refugees, total number of refugees, and estimates for the total number of refugees in or around major cities. And for each major city, it gives the name and population and indicates whether it is the largest city. Aside from illustrating our results on working-age refugees in major urban areas, we hope the map will be used by anyone with an interest in understanding or analyzing the demographic characteristics or geographic locations of refugee populations.

▲ FIGURE 1 | LOCATIONS OF UNHCR-REGISTERED REFUGEES AND PEOPLE IN REFUGEE-LIKE SITUATIONS IN RELATION TO MAJOR URBAN AREAS, FOR 31 COUNTRIES

<7,000 REFUGEES 14 COUNTRIES</p>
AFGHANISTAN BANGLADESH BURKINA FASO CHAD DRC MAURITANIA NEPAL NIGER SERBIA SOUTH SUDAN YEMEN TANZANIA THAILAND ZAMBIA

| >7,000 REFUGEES 17 COUNTRIES | |
|----------------------------------|---|
| >25,000 REFUGEES 11 COUNTRIES | KENYA UGANDA EGYPT SUDAN |
| >50,000 REFUGEES 7 COUNTRIES | MALAYSIA IRAN IRAQ LEBANON JORDAN PAKISTAN TURKEY |

See the "Estimating overlap between refugees and major urban areas" section for a description of how estimates were calculated.

▲ FIGURE 2 | LOW ESTIMATE FOR NUMBER OF WORKING-AGE REFUGEES IN MAJOR URBAN AREAS, FOR 31 COUNTRIES

AFGHANISTAN BANGLADESH BURKINA FASO CAMEROON >25,000 REFUGEES CHAD 9 COUNTRIES DRC **IRAQ** MAURITANIA NEPAL >50.000 REFUGEES **NIGER 5 COUNTRIES SERBIA SOUTH SUDAN** YEMEN **TANZANIA THAILAND** ZAMBIA

See the "Estimating overlap between refugees and major urban areas" section for a description of how estimates were calculated.

The analysis can be used as one screen to identify potential opportunities for MNC engagement with refugees and expanding other economic opportunities for refugees in developing countries—but it is only a first step: *geographic overlap is a necessary but insufficient condition*. Refugees face serious policy and practical barriers to engaging formally with businesses (whether local, regional, or global), including legal frameworks that prohibit refugees from working formally, lack of documents to access financial services, skill sets that do not match the needs of companies, and lack of childcare.²³ Legal protections should also be in place before companies engage refugees. They should

be implemented not only to protect refugees from exploitation, but also to prevent refugees from earning below minimum wage and thus undermining local labor organizations and creating resentment within host communities.²⁴

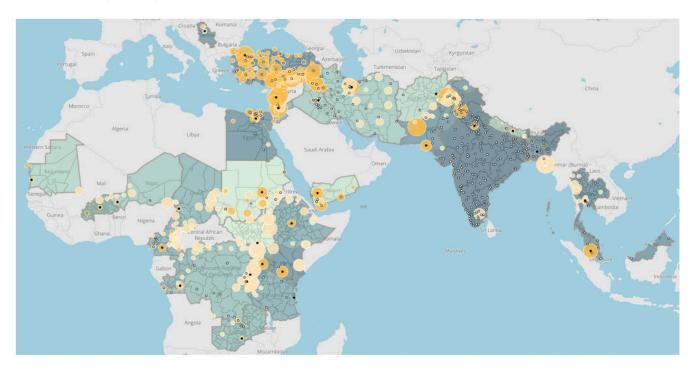
However, where legal barriers exist and protections are lacking, MNCs and other businesses and actors can still engage by participating in broader dialogues with host governments and other partners on creating a supportive policy environment. They can also participate in programs that expand protections for refugee workers or lower de facto barriers. For example, Istanbul Apparel

Exporters' Association, a consortium of apparel firms in Turkey, has recently partnered with the International Labour Organization (ILO) in committing to bring refugee employees into the formal sector, which would provide

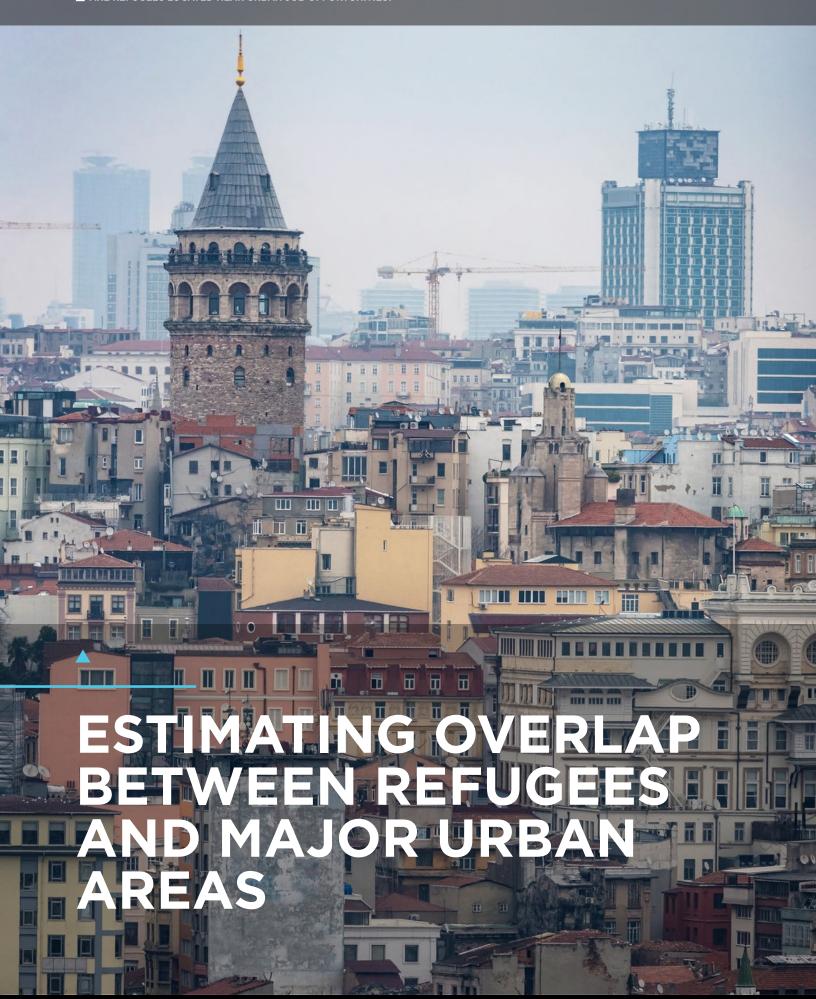
the refugees legal protections.²⁵ In order to help address financial access barriers, Mastercard is partnering with USAID to roll out digital financial tools for refugee communities in Uganda and Kenya.²⁶

▲ LOCATIONS OF UNHCR-RECOGNIZED REFUGEES IN RELATION TO MAJOR URBAN AREAS IN 31 DEVELOPING COUNTRIES

Go to http://bit.ly/2sPrugS to access the interactive map



The boundaries and names used on this map do not imply the expression of any opinion or acceptance by the authors.



ESTIMATING OVERLAP BETWEEN REFUGEES AND MAJOR URBAN AREAS



TO DETERMINE THE EXTENT TO WHICH REFUGEES ARE LOCATED IN MAJOR URBAN AREAS IN DEVELOPING COUNTRIES, WE ANALYZED THE GEOGRAPHIC OVERLAP IN 31 COUNTRIES.

These countries were selected based on two criteria. First, based on data from the UNHCR 2016 Statistical Yearbook, we included all developing countries that were hosting at least 25,000 refugees at the end of 2016—a total of 37 countries.²⁷ Second, using the same dataset, we excluded countries that were missing location data for over 56 percent of the refugees in the country, and that did not have additional location information available through the UNHCR map portal, Refworld, or the Humanitarian Data Exchange. 28 This left us with 31 countries that we deemed to have sufficient location data. These 31 countries and the proportion of data available for each are depicted in the interactive map and listed in the appendix. The appendix also includes limited information for the other six developing countries hosting at least 25,000 refugees.

We then divided the 31 countries into two groups: those that had at least 90 percent location data available, and those that did not.²⁹ The rationale for this division was to have one analysis that was more accurate in estimating overlap (albeit for a smaller sample) and one analysis that included both groups and thus covered a

larger sample (albeit providing underestimates for some countries because of the missing data). In addition, for the remaining six countries with at least 25,000 refugees that had scant data on the locations of refugees, we conducted qualitative research to provide a general idea of the likelihood of overlap between refugees and major urban areas.

We utilized two data sources to create a high and low estimate for most countries. For 29 of the 31 countries with data, we used the UNHCR Statistical Yearbook to determine where refugees were located in each country, and how many were located in urban areas. For the remaining two countries, Bangladesh and Iran, we used a variety of other sources. For all 31 countries we used the UNHCR Statistical Yearbook to determine the proportion of working-age refugees (18 to 59 years old). The proportions of working-age refugees and locations of urban and rural refugees are also depicted in the interactive map.)

UNHCR's data collection process is decentralized to the country level.³² The method varies slightly by country, but "UNHCR ensures that the choice of a particular method is appropriate for the country concerned."³³ In developing countries, the vast majority of data on refugees is collected by UNHCR via the registration process. This means that most location data for registered refugees should be accurate to the extent that refugees accurately reported their location during registration and have remained in the same location since registration or verification—a thorough process carried out by

UNHCR to attempt to maintain up-to-date records. 34 For unregistered refugees regarded as "people in refugeelike situations," UNHCR either uses an estimation strategy to define their location or regards their locations as unknown.³⁵ Although this is a less accurate approach, people in refugee-like situations make up a small minority of the total refugee population.³⁶ In certain contexts, particularly urban areas, surveys are used to determine demographic and location information. In other cases, as clearly indicated in the interactive map, UNHCR is only able to provide location data specific at a higher-level geographic unit (district, region, etc.), rather than a city or town.³⁷ UNHCR's refugee data is therefore not perfect. But it is the best source of information available on refugee location and demographics, and UNHCR claims that "the various sources of all data collected were critically verified, and the various data collection methods were carefully evaluated."38 The available data should provide a strong approximation of the locations and demographics of refugees.³⁹

For all 31 countries, we used data from the UN's 2014 World Urbanization Prospects report to identify major urban areas.⁴⁰ The report provided us with a list of all urban areas in these 31 countries containing at least 300,000 people. We considered all of these areas to be major urban areas for our high estimate and the most populous city in each country to be the major urban area for our low estimate. 41 We chose the 300,000 cutoff because the World Urbanization Prospects report (developed by UNDESA, an authority in tracking urban development worldwide) considers cities with a population of less than 300,000 to be small and less noteworthy as urban agglomerations (cities of 300,000 to 500,000 people are considered medium-sized). Therefore, we considered that 300,000 would be an appropriate cutoff for a more liberal measure of "major" urban areas. However, this cutoff is still somewhat arbitrary, so we also used a second, more conservative

measure of the most populous city. All the major urban areas and their populations are depicted in the interactive map.

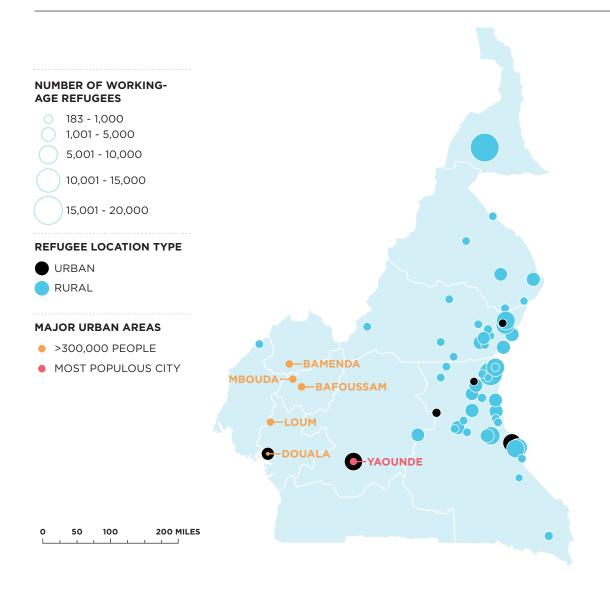
It is important to note that not all the UNHCR refugee location information is specific to a given city. That is to say, in a minority of instances, the data describes whether the refugees are rural or urban, and in which administrative division (e.g. district, region, etc.) they are located, but it does not identify the exact city. We therefore have assumed that, among a population of urban refugees in an administrative area with a major urban area, a large proportion will be located in the major urban area. Based on this assumption, we consider urban refugees in an administrative area with major urban areas to be located "in or around a major urban area." In the interactive map, refugee locations described as "dispersed" are not precise, but rather indicate the administrative area in which the bubble is located. All other locations (the majority) are precise.

Working on these assumptions, our high estimate of geographic overlap between refugees and major urban areas is the number of working-age refugees located in or around urban areas with a population of at least 300,000 people. Our low estimate is the number of working-age refugees in or around the largest urban area in the country. For several reasons, these estimates are not perfect indications of the number of refugees located in major urban areas in these countries. For one, they are biased downwards by the facts that some data for refugee locations is missing, and our definition of "working-age" (ages 18 to 59) is narrower than the more common definition of 15 to 64 (the data do not allow us to use the definition of 15 to 64). (These factors also exert downward bias on the overall estimated number of urban, working-age refugees, presented in the tables and appendix.) Our estimates of overlap may also be biased slightly upwards because some of the

"dispersed" urban refugees may be located in smaller cities that we do not consider major urban areas. Another small source of bias, in an unknown direction, is the application of weighted averages for refugee locations with unknown working-age proportions. Nonetheless, the estimates are still useful in highlighting the general degree to which refugees overlap with major urban areas.

The map of Cameroon in figure 3 provides an example of how the analysis was conducted. Out of a total of 375,415 refugees in the country, there are **9,290** working-age refugees located in major urban areas—this is the high estimate of overlap. Of the six major cities in the country, refugees are located in two: Douala and Yaoundé. There are **5,506** located in Yaoundé, the largest city—this is the low estimate.

▲ FIGURE 3 | LOCATIONS OF REFUGEES IN CAMEROON, RELATIVE TO MAJOR URBAN AREAS

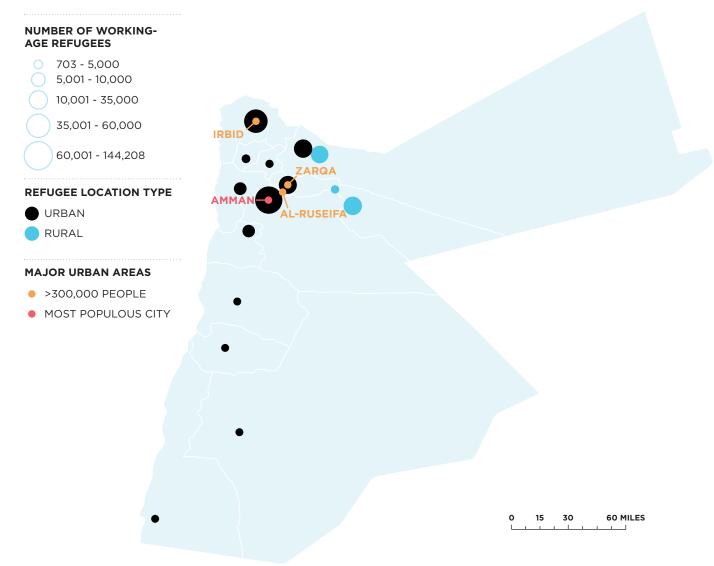


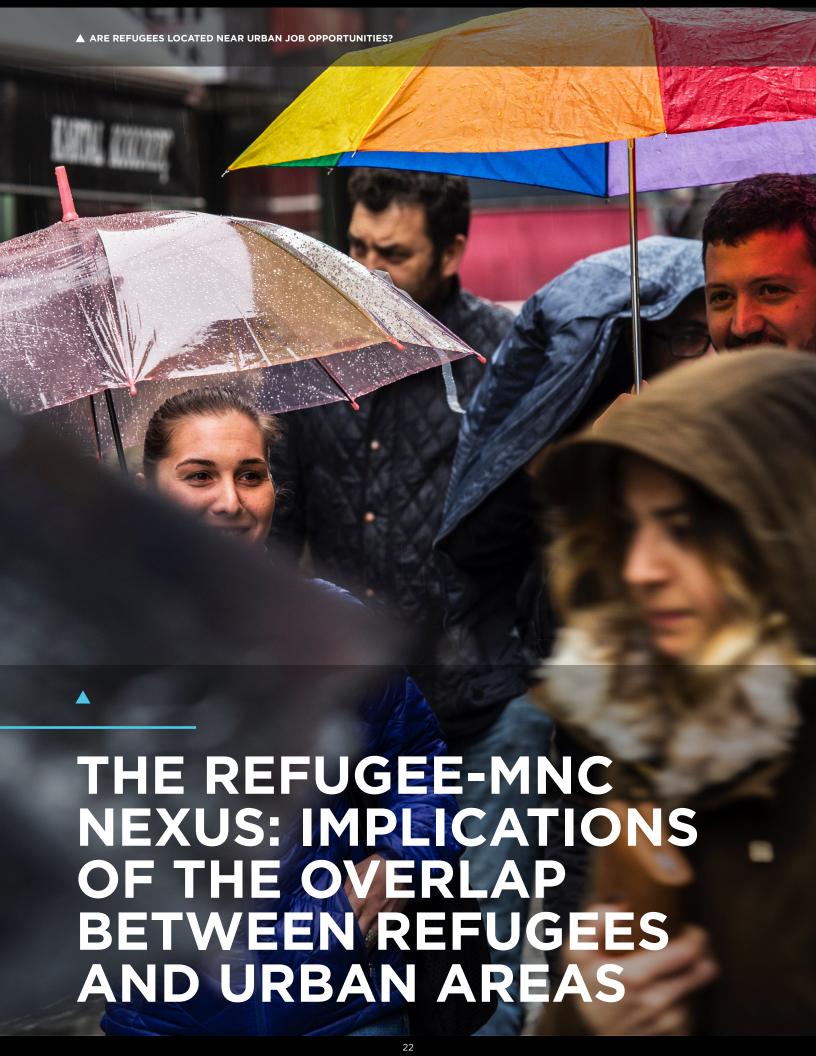
The map of Jordan in figure 4 provides another example. For Jordan, locations for urban refugees are only precise to the governorate. For example, we know that there are 9,275 urban, working-age refugees in the Balqa governorate, but we do not know in which cities within the governorate they are located. There are four major cities in the country: Irbid (in the Irbid governorate), Zarqa and Al-Ruseifa (in the Zarqa governorate), and Amman (in the Amman governorate), with Amman being the largest. Thus, working on the assumption that the 59,830 urban refugees in the Irbid governorate are

located in or around Irbid, the 22,833 urban refugees in the Zarqa governorate are located in or around Zarqa or Al-Ruseifa, and the 110,013 urban refugees in the Amman governorate are located in or around Amman, our high estimate of overlap is **192,676** and our low estimate is **110,013**.

The maps in figures 3 and 4 provide just two examples; additional information on these two countries and refugee locations for the other 29 countries can be explored in the interactive map.

▲ FIGURE 4 | LOCATIONS OF REFUGEES IN JORDAN, RELATIVE TO MAJOR URBAN AREAS





THE REFUGEE-MNC NEXUS: IMPLICATIONS OF THE OVERLAP BETWEEN REFUGEES AND URBAN AREAS



THE LINK BETWEEN ECONOMIC OPPORTUNITIES AND URBAN AREAS IS WELL DOCUMENTED: FROM ADAM SMITH TO CONTEMPORARY RESEARCHERS, FOR CENTURIES ECONOMISTS HAVE FOUND POSITIVE ASSOCIATIONS BETWEEN URBAN SCALE AND PRODUCTIVITY, ECONOMIC ACTIVITY, AND EMPLOYMENT.⁴³

As an illustration, 681 of the world largest urban areas in developed and developing countries account for 24 percent of the global population and 60 percent of global output.⁴⁴ Likewise, there is a high correlation between population and employment.⁴⁵ And although new opportunities for employment are not guaranteed by large amounts of employment (in some cities unemployment is as high as 25 percent), 46 large cities still provide the most promising opportunities. This is especially true in developing countries, which are home to the large urban areas with the fastest-growing economies and where urban productivity relative to national productivity is especially high.⁴⁷ Thus, while being in a large urban area in a developing country is not a guarantee of economic opportunity (and there are of course economic opportunities in smaller urban areas and rural zones), it does entail larger employment opportunities.

According to theoretical and empirical evidence from a large literature on the determinants of foreign direct investment (FDI), MNCs cluster in and around major urban areas, and larger urban areas attract more MNCs. In theory, urban areas attract the most FDI (which includes the activity of MNCs) because they provide a range of benefits to new businesses and investors, including more developed infrastructure, access to transportation hubs and support services, and proximity to government agencies. They also provide access to larger markets—both in terms of demand and supply of skilled labor—and facilitate knowledge spillover and linkages.

In India, a study found that population size was a strong determinant of where companies decided to invest; a 1 percent increase in population "improved the odds of attracting an investor by 16 percent."50 Another study found that in China, for both manufacturing and service FDI, the proportion of a population that was urban in a given province was strongly correlated with the amount of FDI to that province. 51 A US-based analysis also found that agglomeration, the "geographic clustering of economic activity" (a characteristic of cities), attracted FDI.⁵² A study looking specifically at MNC location decisions in 100 countries found that "multinationals' location choices are significantly affected by agglomeration economies" and access to major markets.⁵³ Another analysis, examining 72 cities in developed and developing countries around the world, revealed that population size was strongly correlated with the likelihood that an MNC would establish its regional offshore headquarters in a given city.⁵⁴

Based on the evidence that a large portion of MNCs operate in urban areas, and larger urban areas are likely to have a stronger MNC presence, we consider major urban areas to be likely areas for MNC presence, and the largest urban area in each country to be the most likely location for MNCs. Of course, some MNCs operate in rural areas (such as those involved in extractives or agriculture), and many refugees have agricultural experience and skills that may be valued by these MNCs. However, their locations are more difficult to estimate, and are in many cases probably not clustered in a single area.

Another important factor to consider is how MNC concentration varies across countries. It may be the case that MNCs generally congregate in cities, but if there are few or no MNCs in a given country, that fact is irrelevant for the country. And while we do not have data for within-country locations of MNCs, we do have data on their locations by country. Specifically, we have data on the number of OECD MNCs, and the number of people employed directly by these MNCs in each country. Thus, when analyzing the implications of refugee-major urban area overlap for engagement with MNCs in each country, we are careful to take note of the number of OECD MNCs in the country.

Among developing countries hosting at least 25,000 refugees, the mean and median numbers of people employed directly by OECD MNCs in 2014 were 250,665 and 16,205, respectively. Meanwhile, the mean and median numbers of refugees in those countries in 2016 were 407,117 and 228,990, respectively.

Among MNCs present in a given a country where refugees are able to work legally, it is likely that only a fraction will proactively engage refugees and that refugees would account for only a fraction their total

workforce. If MNCs were to hire refugees at the same rate as natives (relative to their respective shares of the entire population), the total number of refugee hires would be especially small, not accounting for the additional barriers refugees face. Thus, MNCs would have to prioritize refugee hires to create a direct impact. Such prioritization will be politically more feasible in a context of increased MNC investments and a growing overall workforce. To mitigate the risk of social tensions, it is important for MNCs to take an area-based approach in which new investments benefit both refugees and host communities, which are often experiencing high unemployment and limited economic opportunities. Still, regardless of how much MNCs prioritize refugee hiring, the overall proportion that they hire may be substantial but minor.

However, MNCs can create impact through more than just direct hires. They can include refugees in their supply chains. ⁵⁶ By sourcing supplies, inputs, and services from refugee-owned or -employing businesses, they can indirectly support refugee employment.

This can range from supplying office equipment and services (e.g., catering, maintenance, and landscaping) to manufacturing inputs. As market leaders, MNCs are also trendsetters. By demonstrating business models that create profit as well as social impact for refugee populations, they can influence other local, regional, and global businesses to do the same. ⁵⁷

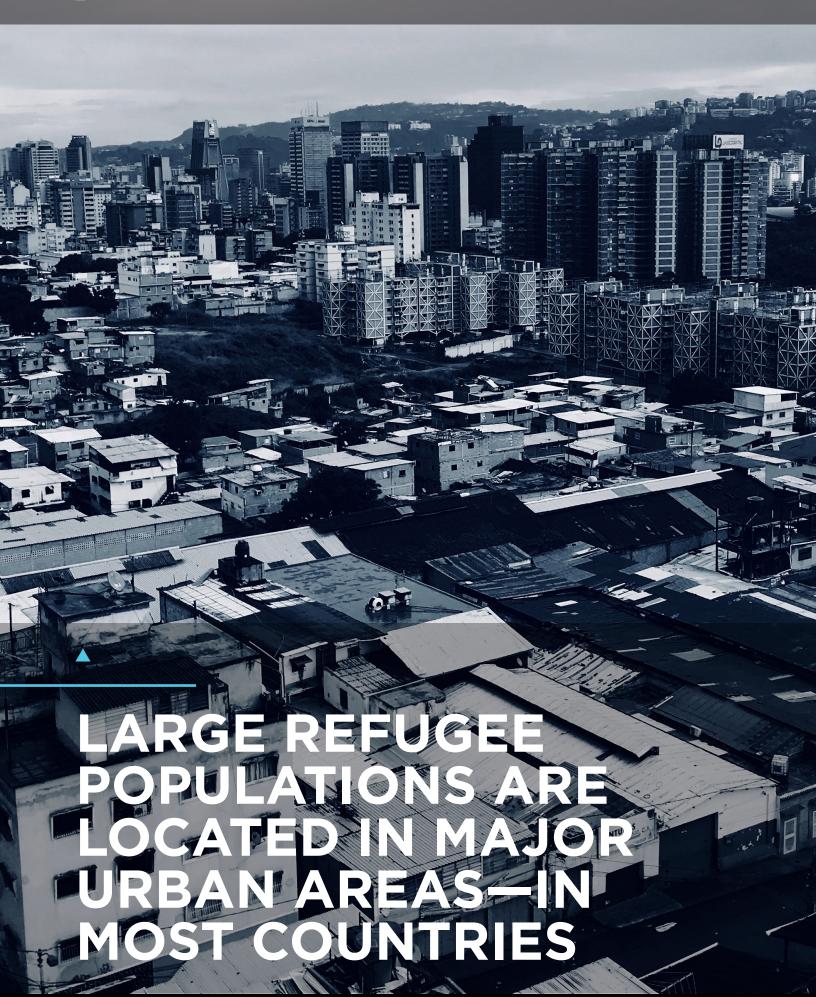
MNCS CAN CREATE IMPACT THROUGH MORE THAN JUST DIRECT HIRES. THEY CAN INCLUDE REFUGEES IN THEIR SUPPLY CHAINS. BY SOURCING SUPPLIES, INPUTS, AND SERVICES FROM REFUGEE-OWNED OR -EMPLOYING BUSINESSES, THEY CAN INDIRECTLY SUPPORT REFUGEE EMPLOYMENT.

Furthermore, in partnership with donors and NGOs, MNCs can organize efforts to increase awareness among local businesses about refugee skills and potential and the business case for hiring them.

Leveraging their extensive supply chains as influence in local markets, they can also incentivize and encourage other businesses to engage refugees. Therefore, although the greatest potential for employing large numbers of refugees comes from local and regional businesses rather than global ones, MNC engagement can facilitate refugee employment and entrepreneurship more broadly.

Finally, their unique position as leaders and innovators gives MNCs distinctive capacities for engaging on policy reforms that do not exist within the traditional refugee response community. Leveraging their position as major investors and job creators, they may be able to shape meaningful dialogue with policymakers even in challenging political economy environments.

For all these reasons, we are interested in the implications of refugee-major urban area overlap for MNC engagement in addition to economic opportunities more broadly.



LARGE REFUGEE POPULATIONS ARE LOCATED IN MAJOR URBAN AREAS—IN MOST COUNTRIES



ANALYSIS 1: 23 COUNTRIES WITH AT LEAST 90 PERCENT DATA AVAILABILITY

Table 1 presents the high and low estimates for each of the 23 countries with at least 90 percent data availability for refugee locations. This information is also illustrated in the interactive map. On average, somewhere between 34,252 and 88,646 working-age refugees are in major urban areas. This is a relatively small portion of the total number of refugees, but even the average low estimate of 34,252 is a substantial population of refugees that have access to urban economic opportunities and potential engagement with MNCs.

▲ TABLE 1 | REFUGEE, URBAN LOCATION, AND MNC DATA AND OVERLAP ESTIMATES FOR THE 23 COUNTRIES WITH AT LEAST 90 PERCENT DATA, RANKED BY THE HIGH ESTIMATE AND GROUPED BY HIGH ESTIMATE QUARTILES

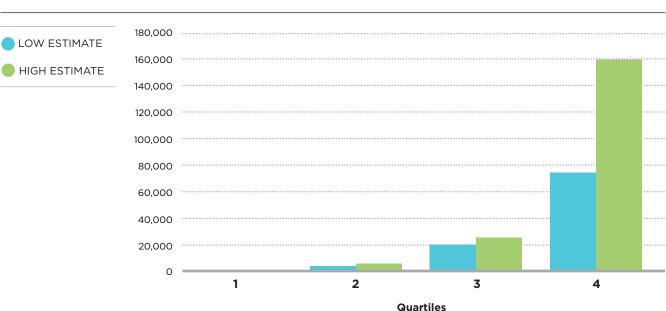
| | TOTAL NUMBER OF REFUGEES | NUMBER OF URBAN, WORKING- AGE REFUGEES | HIGH ESTIMATE OF OVERLAP: NUMBER IN OR AROUND URBAN AREAS WITH >300K PEOPLE* | LOW ESTIMATE OF OVERLAP: NUMBER IN OR AROUND LARGEST URBAN AREA | NUMBER OF OECD MNCS ** | NUMBER OF PEOPLE EMPLOYED BY OECD MNCS | NUMBER OF WORKING-AGE REFUGEES*** |
|----------------|-----------------------------|--|--|---|---------------------------|---|---|
| AFGHANISTAN | 59,771 | 2,052 | 0 | 0 | 3 | 671 | 16,138 |
| TANZANIA | 281,498 | 0 | 0 | 0 | 128 | 17,794 | 110,645 |
| YEMEN | 269,783 | 76,385 | 0 | 0 | 16 | 300 | 199,005 |
| NEPAL | 25,249 | 321 | 321 | 321 | 20 | 582 | 20,032 |
| BURKINA FASO | 32,552 | 1,037 | 1,036 | 648 | 51 | 3,377 | 13,337 |
| NIGER | 166,093 | 1,256 | 1,066 | 1,066 | 34 | 3,148 | 58,164 |
| CHAD | 391,251 | 1,853 | 1,853 | 1,853 | 27 | 9,045 | 146,554 |
| SOUTH SUDAN | 262,560 | 6,174 | 2,246 | 2,246 | • | | 92,933 |
| THAILAND | 106,447 | 2,381 | 2,381 | 2,381 | 2,466 | 491,313 | 51,755 |
| CONGO, REP. OF | 46,457 | 8,132 | 8,132 | 7,075 | 83 | 11,091 | 23,377 |
| CAMEROON | 375,415 | 11,623 | 9,290 | 3,784 | 106 | 17,724 | 149,355 |
| BURUNDI | 57,469 | 10,897 | 10,897 | 10,897 | 6 | 100 | 23,832 |
| ETHIOPIA | 791,631 | 40,131 | 11,973 | 11,973 | 31 | 16,205 | 271,670 |
| RWANDA | 156,065 | 18,620 | 17,011 | 17,011 | 7 | | 74,486 |
| KENYA | 451,099 | 26,311 | 26,311 | 26,311 | 221 | 65,250 | 175,005 |
| UGANDA | 940,835 | 34,023 | 34,023 | 34,023 | 60 | 7,390 | 352,022 |
| SUDAN | 421,466 | 65,922 | 36,691 | 31,327 | 8 | 100 | 177,717 |
| MALAYSIA | 92,263 | 72,888 | 72,888 | 72,888 | 2,091 | 363,249 | 72,888 |
| IRAQ | 261,888 | 142,916 | 98,777 | 3,875 | 76 | 2,661 | 143,650 |
| LEBANON | 1,012,969 | 427,582 | 118,196 | 118,196 | 123 | 6,246 | 427,645 |
| JORDAN | 685,197 | 259,470 | 192,676 | 110,013 | 84 | 10,377 | 314,944 |
| PAKISTAN | 1,352,560 | 426,257 | 314,307 | 29,786 | 159 | 47,296 | 618,333 |
| TURKEY | 2,869,421 | 1,678,813 | 1,078,782 | 302,124 | 1,858 | 358,473 | 1,828,854 |
| TOTAL | 11,109,939 | 3,315,044 | 2,038,857 | 787,798 | 7,658 | 1,432,392 | 5,362,342 |
| AVERAGE | 483,041 | 144,132 | 88,646 | 34,252 | 348 | 68,209 | 233,145 |

Quartile averages are depicted in Figure 5. Turkey was excluded from the quartiles as an outlier. See notes for the table on page 37.

However, these averages mask a good deal of variation across countries. Figure 5 presents the average high and low estimates for four groups of countries, with groups created by separating countries into quartiles based on the estimates. It shows that, even excluding Turkey as an outlier, there are on average at least 70,000 working-age refugees in or around major urban areas for the highest quartile. For the next group, there still tends to be tens of thousands of refugees living in these areas. Populations are thinner for the second quartile, with about 3,500 to 6,000 working-age refugees in major urban areas on average. While this is not a huge quantity, it is still a reasonably large population with opportunities to connect with urban economic opportunities. However, populations are much smaller for the group with the least overlap. where average estimates range from 339 to 404.

This first analysis makes it clear that while refugees do not have a strong presence in major urban areas in all countries in the sample, they do in a wide range of countries. From our sample, according to the high estimate, there are 14 countries with at least 7,000 refugees in or around major urban areas; according to the low estimate, there are 12. These countries represent a range of regions—including the Middle East, South Asia, Southeast Asia, East Africa, and West Africa—such that there are likely opportunities for MNCs and organizations seeking to expand employment for refugees to engage in a variety of regions. In terms of even more promising opportunities, there are 8 to 9 countries (according to the low and high estimates, respectively) with at least 25,000 refugees overlapping, and 4 to 6 with at least 50,000. Furthermore, it is important to keep in mind that overlap may be considerably larger in some countries than these estimates suggest, as they do not capture the possibility of refugees being located near MNCs that operate in, or supply from, rural areas.

▲ FIGURE 5 | AVERAGE ESTIMATES OF GEOGRAPHIC OVERLAP BETWEEN WORKING-AGE REFUGEES AND MAJOR URBAN AREAS, BY COUNTRY QUARTILE



Quartiles were created based on low and high estimates of overlap, respectively. Turkey is excluded as an outlier; all other reported estimates are included.

These analyses highlight two other facts that add nuance to our understanding of the refugee crisis. First, in these 23 countries, there are 787,798 and 2,038,857 workingage refugees in the largest cities and major urban areas with over 300,000 people, respectively, which amounts to about 15 percent and 38 percent of the total workingage refugee population for this subset of countries. This means that, for this sample, about 62 percent of urban working-age refugees are in *major urban areas* and about 24 percent of *urban* working-age refugees are in *largest urban areas*. These may seem like low percentages, but they amount to large absolute numbers. It is well known that 60 percent of refugees with known locations live in urban areas, but it is less well known that many of these urban refugees (over 60 percent) are also in major urban areas and about a quarter of them are in largest urban areas. Furthermore, these percentages are likely underestimates because, as discussed above in "estimating overlap between refugees and major urban areas" section, some data are missing.

Another interesting nuance is that nearly half—about 48 percent—of all refugees in the sample are working-age. This figure is close to the proportion of working-age refugees among the global population of refugees with demographic information (45 percent). Our analysis shows that the proportion in developing countries is similar, but slightly larger. And, if the more common working-age definition of ages 15 to 64 could be used, these proportions would be even larger.

Table 1 also shows that, for 16 of the 23 countries, the low estimate for refugees in major urban areas is equal to at least 20 percent of the total number of people employed by OECD MNCs. For 11 countries, it is equal to at least half of the total employment numbers. This suggests that there is a large pool of potential refugee applicants in these countries relative to the number of total people that the companies hire.

IT IS WELL KNOWN THAT 60 PERCENT OF REFUGEES WITH KNOWN LOCATIONS LIVE IN URBAN AREAS, BUT IT IS LESS WELL KNOWN THAT MANY OF THESE URBAN REFUGEES (OVER 60 PERCENT) ARE ALSO IN MAJOR URBAN AREAS AND ABOUT A QUARTER OF THEM ARE IN LARGEST URBAN AREAS.

Furthermore, there are a large number of MNCs that can engage refugees. In countries with at least 7,000 refugees overlapping (according to the low estimate), the average number of OECD MNCs is 394; excluding Turkey and Malaysia as outliers, it is 78. And in reality, because data is missing for some OECD countries and there is no data for non-OECD countries, these averages are likely substantially higher. The number of OECD MNCs and the number of people employed by them can also be explored in the interactive map.



ANALYSIS 2: 31 COUNTRIES WITH SUFFICIENT LOCATION DATA

Our second analysis builds on the first by adding the seven countries with less than 90 percent location data available but sufficient information to provide a general picture of overlap. Table 2 shows the results of the analysis. This information is also illustrated in the interactive map. Because of the missing data (the amount of which for each country is listed in the last column), both

the high and low estimates are very likely underestimates of the actual amount of overlap. Nevertheless, the table shows that these new estimates pull the average estimates down only slightly. Like the first sample, the new sample has significant variation, with little-to-no overlap in some countries and a very large degree of overlap in others.

▲ TABLE 2 | REFUGEE, URBAN LOCATION, AND MNC DATA AND OVERLAP ESTIMATES FOR COUNTRIES WITH SUFFICIENT DATA, RANKED BY THE HIGH ESTIMATE

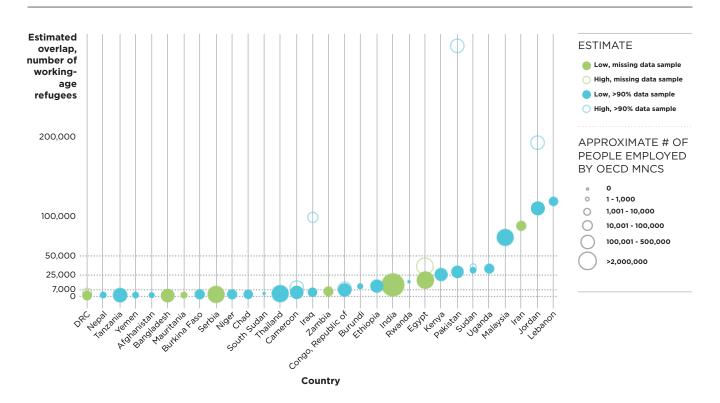
| | TOTAL NUMBER OF REFUGEES | NUMBER OF URBAN, WORKING- AGE REFUGEES | HIGH ESTIMATE OF OVERLAP: NUMBER IN OR AROUND URBAN AREAS WITH >300K PEOPLE* | LOW ESTIMATE OF OVERLAP: NUMBER IN OR AROUND LARGEST URBAN AREA | NUMBER OF OECD MNCS ** | NUMBER OF PEOPLE EMPLOYED BY OECD MNCS | NUMBER OF WORKING- AGE REFUGEES | % DATA AVAILABLE |
|------------------------------------|-----------------------------------|--|--|---|------------------------------|--|--|---------------------|
| BANGLADESH | 964,207 | 3,397 | 0 | 0 | 108 | 39,041 | 418,631 | 52 |
| MAURITANIA | 74,148 | 829 | 414 | 414 | 23 | 902 | 30,726 | 65 |
| SERBIA | 36,522 | 9,444 | 1,041 | 1,041 | 996 | 112,080 | 21,147 | 65 |
| DRC | 451,956 | 3,249 | 3,249 | 0 | 66 | 6,412 | 150,164 | 48 |
| ZAMBIA | 29,350 | 4,718 | 4,718 | 4,718 | 73 | 7,082 | 15,356 | 81 |
| INDIA | 197,851 | 14,019 | 14,019 | 14,019 | 3,298 | 2,225,638 | 112,775 | 45 |
| EGYPT | 213,530 | 101,464 | 36,533 | 19,099 | 534 | 141,948 | 102,844 | 66 |
| IRAN | 979,435 | 87,998 | 87,998 | 87,998 | 69 | 3,242 | 430,942 | 20 |
| AVERAGE | 368,375 | 28,140 | 18,497 | 15,911 | 646 | 317,043 | 160,323 | |
| TOTAL | 2,946,999 | 225,118 | 147,972 | 127,289 | 5,167 | 2,536,345 | 1,282,584 | |
| AVERAGE FOR ALL 31 COUNTRIES | 453,450 | 114,199 | 70,543 | 29,519 | 428 | 136,853 | 214,352 | |
| TOTAL FOR ALL 31 COUNTRIES | 14,056,938 | 3,540,162 | 2,186,829 | 915,087 | 12,825 | 3,968,737 | 6,644,926 | |

See notes for the table on page 37.

It should be reiterated that a lack of overlap does not preclude the ability to connect refugees with economic opportunities or for MNCs to engage refugees in hiring and supply chains. As noted above, proximity is certainly a helpful factor, but if there were strong will among the international community and the private sector to bring refugees into the labor market, then barriers of proximity could be overcome. For example, in Bangladesh, many refugees are located around the city of Cox's Bazaar. This city is not considered "major," but it has a population of about 250,000, so it is near the cutoff and presents some possibilities for interaction.⁶⁰ Even more promisingly, as depicted in the interactive map, Chittagong, a city of over 4 million, is only about 100 kilometers north of the refugee populations. There are also many MNCs in the country. If the proper incentives and support programs were created, it would certainly be feasible to connect MNCs and other businesses in Chittagong with refugees. Thus, while the estimates provided here are an indication of the ease of connecting with refugees, they are by no means a final determinant of the ability to do so.

A LACK OF OVERLAP DOES NOT PRECLUDE THE ABILITY TO CONNECT REFUGEES WITH ECONOMIC OPPORTUNITIES OR FOR MNCS TO ENGAGE REFUGEES IN HIRING AND SUPPLY CHAINS. Figure 6 illustrates the estimates for the low-data countries alongside the countries with at least 90 percent data availability and attempts to connect the findings from this analysis with the implications for MNC engagement. It shows that about half of all countries have at least 7,000 refugees overlapping with major urban areas, where MNCs are most likely to be operating. More specifically, based on the low and high estimates, 15 to 17 out of the 31 countries have at least 7,000 overlapping, 9 to 11 have at least 25,000, and 5 to 7 have at least 50,000. Furthermore, the graph shows that most of the countries with substantial overlap also have significant MNC presence; the large majority have roughly 1,000 to 10,000 people employed by OECD MNCs, and about half have more than 10,000. Thus, assuming that many of these MNCs are operating in major urban areas, there are opportunities for MNCs to connect with refugees in a wide range of countries.

▲ FIGURE 6 | ESTIMATES OF GEOGRAPHIC OVERLAP BETWEEN WORKING-AGE REFUGEES AND MAJOR URBAN AREAS



QUALITATIVE RESEARCH FOR THE REMAINING SIX

To round off the analyses of the 37 developing countries hosting at least 25,000 refugees, this section provides an overview of the general locations of refugees in the remaining six countries that do not have sufficient data for quantitative analysis: Ecuador, South Africa, Algeria, China, Russia, and Venezuela. This information is also summarized in the appendix. In three of these countries—Ecuador, Russia, and South Africa—it can be confirmed that refugees are located in or around major urban areas. In Ecuador, about 60 percent of the 102,848 refugees in the country are located in urban areas. ⁶¹ The largest concentration of urban refugees is in Quito, a major urban area. ⁶² The second largest concentration is in Guayaquil, the largest urban area. ⁶³ Other urban

refugees are located in Cuenca and Santo Domingo, the other major urban areas. ⁶⁴ The non-urban refugees are largely located in the border provinces of Sucumbios and Esmeraldas. ⁶⁵ In South Africa, UNHCR considers all of the 91,043 refugees to be urban. Their specific locations are not as clear, but at least some are located in the largest city, Johannesburg, and other major cities, such as Cape Town, Port Elizabeth, East London, Durban, and Pretoria. ⁶⁶ The number of urban refugees in Russia is unknown, but some are located in the largest city, Moscow, and other major cities including St. Petersburg, Ivanovo, Kaluga, and many others. ⁶⁷ This information, along with the findings from the analyses, is summarized in the appendix.

In the other three countries, the presence of refugees in major urban areas is more difficult to confirm. In Algeria, in fact, most refugees (about 90,000) are in camps in the isolated areas along the border with Western Sahara. There are only about 7,000 urban refugees, which are in the largest city, Algiers. In China and Venezuela, locations are difficult to ascertain; refugees appear to be scattered throughout the countries. Regardless, the situations in these two countries may not warrant (or allow) concerted

efforts to expand economic opportunities for refugees: in China, refugees are already mostly integrated, ⁶⁹ and in Venezuela the burgeoning economic crisis has resulted in the outflow of many Colombian as well as Venezuelan refugees and a prohibitive climate for investment. ⁷⁰ Overall, this information is in sync with the trends from the analyses above: refugees are not in favorable locations for engagement urban economic activities in all countries, but in many countries they are.

PROXIMITY TO MAJOR URBAN AREAS IS JUST THE FIRST STEP



AS MENTIONED PREVIOUSLY,
GEOGRAPHIC PROXIMITY TO
MAJOR URBAN AREAS IS ONLY
ONE POTENTIAL BARRIER—AND
GENERALLY NOT THE MOST
SIGNIFICANT—TO EXPANDING
ECONOMIC OPPORTUNITIES
FOR REFUGEES.

Other factors may constitute much more substantial barriers, such as the inability for refugees to access the formal labor market in many countries. Refugees do work in the informal economy in many countries, and this work is an important source of self-sufficiency given the lack of formal opportunities. Put there are costs to working informally: informal workers do not have the same rights and labor protections that formal workers enjoy; they are prone to greater exposure to health and safety risks; and they face the possibility of harassment, arrest, or deportation if caught working. They also necessarily have fewer economic opportunities as both employees and business owners. Female refugees are especially vulnerable to the risks of informal employment.

There are a wide range of factors limiting formal labor market access, including refugees' lack of legal recognition; their inability to be legally employed, own a business, or leave camps; and discrimination. If refugees are not allowed to move freely and are not able to access formal employment, MNCs and other businesses may not

be able to work with refugees, regardless of proximity.⁷⁵ Similarly, if refugees are restricted from opening a business or accessing financial services like loans, businesses may not be able to include refugee-owned businesses in their supply chains. And, as we show in a forthcoming paper, providing refugees with greater labor market access can be beneficial not only to refugees and their employers, but also to their host countries in terms of labor market outcomes, fiscal effects, and economic growth.

Legal protections should also be in place before employment opportunities are expanded for refugees. They should be implemented not only to protect refugees from exploitation, but also to prevent refugees from building local resentment. For example, if there is no equal pay legislation regarding refugees, they may earn below minimum wage and thus undermine local labor organizations or displace native workers. Before extending the right to work, governments should consider what measures should be enacted to ensure fair outcomes.⁷⁶

Another major barrier may be skills match. For example, in countries such as Turkey, most refugees do not speak the same language as the host community. Furthermore, higher-skilled refugees may find ways to migrate to countries with more opportunities, leaving MNCs and other businesses with a more restricted pool of applicants from which to hire. 77 And even when skilled refugees are present and are permitted to work, it may be difficult for businesses to confirm their

abilities, as the process of obtaining recognition for professional credentials can be exceedingly difficult or even impossible. Policymakers and businesses should work together to overcome these barriers. Working in partnership with others, MNCs can leverage their stature and role in developing economies to engage in policy dialogue and promote greater rights for refugees. They can also work with local businesses and business associations to combat discrimination and prejudice toward refugees by disseminating information about refugees and their skills.

In terms of skills barriers, businesses, donors, and NGOs can work together to provide language and skills training to refugees and job matching services. For example, an NGO in Jordan, ReBootKamp, helps refugees develop IT skills desired by businesses and helps connect them

with hiring companies, including MNCs.⁷⁸ Another project in Jordan led by the International Rescue Committee and Western Union helped connect refugees to businesses' outsourcing tasks.⁷⁹ While such progress is promising, more energy, investment, and innovation is required. Building on initial successes, development actors with new investments in addressing protracted displacement, such as the World Bank, can leverage their policy voice and funding to facilitate opportunities at scale.⁸⁰ But regardless of future investments, there are refugees that can be engaged now. Although some groups and populations of refugees may not possess the skill sets needed for certain employment opportunities, many others are capable of meeting the needs of MNCs and other businesses.⁸¹



Our analysis has shown that there is substantial overlap between refugees and major urban areas, suggesting that there is ample opportunity for businesses to hire and source from refugees. The analysis and interactive map can serve as a basic tool for MNCs and their partners, giving a first indication of which countries and cities might provide opportunities for engagement. They can also serve as a tool for other organizations seeking to better understand refugee locations and demographics. Although we recognize that where, how, and if a given company ultimately decides to engage with refugees depends on several factors—including the company's own needs and priorities—research and tools such as these can help guide and encourage businesses in the early stages of planning.

Future research could include an expansion of the current map to other countries, the development of more detailed maps pinpointing the specific intracountry locations of refugees (in the countries we have analyzed as well as others), or a database that collects information on each country related to its enabling environment for businesses to engage refugees, including de facto and de jure measures. Analyses could also be conducted to more rigorously determine within-country MNC locations in relation to refugees, potentially by scanning countries' news reports for mentions of MNC locations; the level and types of related donor and NGO activities; or the demographic and skills profiles of refugees. We hope our analysis is just a first step in developing research and tools that facilitate sustainable private sector engagement in promoting refugee livelihoods.

TABLE NOTES

* High Estimate = number of working-age refugees located in urban areas with at least 300,000 people

Low Estimate = number of working-age refugees located in the most populous urban area

** For the "number of MNCs/MNC employment data," data are from OECD.stat, for 2014. MNC definitions for this dataset vary by country; they are typically defined as all foreign affiliates for which the combined direct and indirect ownership interest of all parents from the declaring country exceeds, depending on the country, either 10 percent or 50 percent (usually the latter). The OECD countries included are Austria, Belgium, the Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Rep., Slovenia, Spain, Sweden, the US, and the UK. The OECD countries excluded are Australia, Canada, Japan, Korea, Switzerland, and Turkey.

For some partner-declaring country combinations, data is confidential—particularly when there are very few MNCs. In some cases, data is missing without explanation. We count confidential and missing data as zero. Thus, the data for total numbers of MNCs and employment are underestimates. Where all data for a given country is missing or confidential (i.e. for South Sudan and Rwanda on one variable), we display it as missing in the tables and as zero in the interactive map.

*** The number of working-age refugees in each country was calculated by first determining the population-weighted average working age proportion among all refugee locations in each the country, and then multiplying these average proportions by the total number of refugees in each country. So, it was not calculated by simply adding together the number of working-age refugees in each within-country location. This was done so that the missing data would not cause underestimation.

APPENDIX

| | TOTAL NUMBER OF REFUGEES | NUMBER OF URBAN, WORKING- AGE REFUGEES | HIGH ESTIMATE OF OVERLAP: NUMBER IN OR AROUND URBAN AREAS WITH >300K PEOPLE* | LOW ESTIMATE OF OVERLAP: NUMBER IN OR AROUND LARGEST URBAN AREA | NUMBER OF OECD MNCS | NUMBER OF PEOPLE EMPLOYED BY OECD MNCS | % OF REFUGEES WITH PRECISE LOCATION INFO (I.E. % COUNTED IN ESTIMATES) | NUMBER OF WORKING-AGE REFUGEES |
|----------------|-----------------------------|--|--|--|------------------------|---|--|--------------------------------------|
| AFGHANISTAN | 59,771 | 2,052 | 0 | 0 | 3 | 671 | 99.7 | 16,138 |
| YEMEN | 269,783 | 76,385 | 0 | 0 | 16 | 300 | 99.4 | 199,005 |
| TANZANIA | 281,498 | 0 | 0 | 0 | 128 | 17,794 | 100.0 | 110,645 |
| BANGLADESH | 964,207 | 3,397 | 0 | 0 | 108 | 39,041 | 52.0 | 418,631 |
| NEPAL | 25,249 | 321 | 321 | 321 | 20 | 582 | 100.0 | 20,032 |
| MAURITANIA | 74,148 | 829 | 414 | 414 | 23 | 902 | 64.9 | 30,726 |
| BURKINA FASO | 32,552 | 1,037 | 1,036 | 648 | 51 | 3,377 | 100.0 | 13,337 |
| SERBIA | 36,522 | 9,444 | 1,041 | 1,041 | 996 | 112,080 | 65.0 | 21,147 |
| NIGER | 166,093 | 1,256 | 1,066 | 1,066 | 34 | 3,148 | 99.9 | 58,164 |
| CHAD | 391,251 | 1,853 | 1,853 | 1,853 | 27 | 9,045 | 99.7 | 146,554 |
| SOUTH SUDAN | 262,560 | 6,174 | 2,246 | 2,246 | | | 99.5 | 92,933 |
| THAILAND | 106,447 | 2,381 | 2,381 | 2,381 | 2,466 | 491,313 | 99.9 | 51,755 |
| DRC | 451,956 | 3,249 | 3,249 | 0 | 66 | 6,412 | 48.0 | 150,164 |
| ZAMBIA | 29,350 | 4,718 | 4,718 | 4,718 | 73 | 7,082 | 80.9 | 15,356 |
| CONGO, REP. OF | 46,457 | 8,132 | 8,132 | 7,075 | 83 | 11,091 | 98.3 | 23,377 |
| CAMEROON | 375,415 | 11,623 | 9,290 | 3,784 | 106 | 17,724 | 95.9 | 149,355 |
| BURUNDI | 57,469 | 10,897 | 10,897 | 10,897 | 6 | 100 | 100.0 | 23,832 |
| ETHIOPIA | 791,631 | 40,131 | 11,973 | 11,973 | 31 | 16,205 | 89.7 | 271,670 |
| INDIA | 197,851 | 14,019 | 14,019 | 14,019 | 3,298 | 2,225,638 | 44.4 | 112,775 |
| RWANDA | 156,065 | 18,620 | 17,011 | 17,011 | 7 | | 99.6 | 74,486 |
| KENYA | 451,099 | 26,311 | 26,311 | 26,311 | 221 | 65,250 | 100.0 | 175,005 |
| UGANDA | 940,835 | 34,023 | 34,023 | 34,023 | 60 | 7,390 | 99.9 | 352,022 |
| EGYPT | 213,530 | 101,464 | 36,533 | 19,099 | 534 | 141,948 | 66.2 | 102,844 |
| SUDAN | 421,466 | 65,922 | 36,691 | 31,327 | 8 | 100 | 99.2 | 177,717 |
| MALAYSIA | 92,263 | 72,888 | 72,888 | 72,888 | 2,091 | 363,249 | 100.0 | 72,888 |
| IRAN | 979,435 | 87,998 | 87,998 | 87,998 | 69 | 3,242 | 20.0 | 430,942 |
| IRAQ | 261,888 | 142,916 | 98,777 | 3,875 | 76 | 2,661 | 99.5 | 143,650 |
| LEBANON | 1,012,969 | 427,582 | 118,196 | 118,196 | 123 | 6,246 | 100.0 | 427,645 |
| JORDAN | 685,197 | 259,470 | 192,676 | 110,013 | 84 | 10,377 | 99.7 | 314,944 |
| PAKISTAN | 1,352,560 | 426,257 | 314,307 | 29,786 | 159 | 47,296 | 99.9 | 618,333 |
| TURKEY | 2,869,421 | 1,678,813 | 1,078,782 | 302,124 | 1,858 | 358,473 | 99.9 | 1,828,854 |
| ALGERIA | 94,232 | ? | ? | ? | 387 | 52,370 | 0.0 | ? |
| CHINA | 317,225 | ? | ? | ? | 14,646 | 3,387,069 | 0.0 | ? |
| ECUADOR | 102,848 | ? | ? | ? | 258 | 43,515 | 0.0 | ? |
| RUSSIA | 228,990 | ? | ? | ? | 3,264 | 749,827 | 0.0 | ? |
| SOUTH AFRICA | 91,043 | ? | ? | ? | 1,988 | 477,685 | 0.0 | ? |
| VENEZUELA | 172,053 | ? | ? | ? | 486 | 94,063 | 4.8 | ? |

QUALITATIVE COMMENTS

| COUNTRY | QUALITATIVE COMMENT |
|--------------|--|
| ALGERIA | Most are in camps in the isolated areas along the border with Western Sahara. There only about 7,000 urban refugees, which are in the largest city, Algiers. |
| CHINA | Locations are difficult to ascertain; refugees appear to be scattered throughout the country. |
| ECUADOR | About 60% are located in urban areas. The largest concentration of urban refugees is in Quito, a major city. The second largest concentration is in Guayaquil, the largest city. |
| RUSSIA | The number or urban refugees in Russia is unknown, but some are located in the largest city, Moscow, and other major cities including St. Petersburg and many others. |
| SOUTH AFRICA | UNHCR considers all of the 91,043 refugees to be urban. Their specific locations are not as clear, but at least some are located in the largest city, Johannesburg, and other major cities such as Cape Town, Port Elizabeth, East London, Durban, and Pretoria. |
| VENEZUELA | Locations are difficult to ascertain; refugees appear to be scattered throughout the country. |

ENDNOTES

- Figures at a Glance (2017). UNHCR. http://www.unhcr.org/figures-at-a-glance.html.; Devictor, X. & Do, Q. (2016).
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- 5. The interactive map can be viewed here: http://bit.ly/2sPrugS.
- 6. Numbers of refugees are based on the 2016 UNHCR Statistical Yearbook and include all registered refugees and people in refugee-like situations. We consider working-age refugees to be between the ages of 18 and 59. Different definitions are sometimes used (such as 15 to 64), but 18 to 59 is the closest approximation to working-age that the available data allow. UNHCR Statistical Yearbook 2016 (2017). UNHCR.
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- 22. The 31 countries were selected because they have at least 25,000 registered refugees and people in refugee-like situations and they have location data for at least 44 percent of the refugees in the country. The 23 countries had at least 90 percent location data available. For a detailed description of the selection methodology, see the "Estimating overlap between refugees and major urban areas" section.
- 23. This 48 percent figure was calculated by first determining the population-weighted average working age proportion among all refugee locations in each the country, and then multiplying these average proportions by the total number of refugees in each country. This gave us the estimated number of working-age refugees in each country. We added these numbers together to find the total number of working-age refugees for all 23 countries, and divided it by the total number of refugees in all 23 countries.

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- 28. The 37 countries are Afghanistan, Algeria, Bangladesh, Burkina Faso, Burundi, Cameroon, Chad, China, the Republic of Congo, the DRC, Ecuador, Egypt, Ethiopia, India, Iran, Iraq, Jordan, Kenya, Lebanon, Malaysia, Mauritania, Nepal, Niger, Pakistan, Russia, Rwanda, Serbia, South Africa, South Sudan, Sudan, Thailand, Turkey, Uganda, Tanzania, Venezuela, Yemen, and Zambia. UNHCR (2017). UNHCR Statistical Yearbook 2016.
- 29. 56 percent was a natural cutoff: the next largest amount of missing data was 88 percent, for Bangladesh. South Africa, Russia, Ecuador, China, and Algeria were excluded, all of which were missing at least 95 percent of the data. Iran and Bangladesh would have also been excluded by this criterion, but they had additional data available through the UNHCR map portal and the Humanitarian Data Exchange, respectively. Map Portal (2018). UNHCR. http://maps.unhcr.org/en/search.; The Humanitarian Data Exchange (2018). https://data.humdata.org/.; Refworld (2018). UNHCR. http://www.refworld.org/type,MAP,,,,,O.html.
- 30. The requirement of having at least 90 percent of data available was a natural cutoff: the next largest amount of data available was 81 percent (for Zambia). The rest of the countries included had between 44 percent and 66 percent. The list of countries for the former group can be seen in table 1. This list for the latter group can be seen in table 2.
- 31. For Bangladesh, because there has been such a large recent influx of refugees, we use data from 2018 rather than 2016. At the end of 2016 there were 276,207 registered refugees in the country. Since then there has been an influx of at least 688,000 refugees (as of February 2018), putting the total at about 964,207. Prior to the influx, there were only 68 registered urban refugees. The vast majority of the newly arrived refugees are around Cox's Bazaar. Thus, the urban refugees in the area should account for virtually all of the registered urban refugees in

the country. Counting refugees residing within the actual city of Cox's Bazaar as urban, we estimate that there are 7,823 urban refugees in the country, of which (if we use the weighted average working-age percentage for the country) 0.434 are of working-age, resulting in a total of 3,397 urban working-age refugees. By this method we were able to account for the precise locations of 52 percent of the refugees in the country. To calculate estimates for Iran we used a UNHCR map from 2014 of the Afghan refugee situation. The graphical representation allowed us to make rough, conservative estimates using the lower end of the range for each province. The number of refugees in the country remained more or less constant from 2014 to 2016, declining from 982,027 in 2014 to 979,435 in 2016. There was no precise urban/rural data for Iran, so, to maintain a highly conservative estimate, we made the assumption that only refugees in Tehran, which amounted to 20 percent of the total refugee population, were urban. We applied the weighted average working-age percentage for the refugees in the country for which we have data. UNHCR Population Statistics (2017). UNHCR. http://popstats.unhcr.org/en/overview.; Rohingya Displacement (2018). Humanitarian Data Exchange. https://data.humdata.org/event/rohingya-displacement.; Bangladesh Fact Sheet: March 2017 (2017). UNHCR. http://www.unhcr.org/50001ae09.pdf.; Regional Overview: Afghan Returnees and Refugees - January 2014 (2015). UNHCR. http://maps.unhcr.org/en/view?id=3014.; UNHCR Population Statistics (2017). UNHCR.

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- 37. The number of registered refugees compared to people in refugee-like situations in each country is listed in the UNHCR 2016 Statistical Yearbook. For the 23-country sample, there are only 79,148 people in refugee-like situations, 0.7 percent of the total number of refugees and people in refugee-like situations. For the 31-country sample, there are 355,148, amounting to 2.9 percent. UNHCR Statistical Yearbook 2016 (2017). UNHCR.
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