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"The Refugees are Better Off Than We Are": Evaluating the Impact of Syrian Refugees on Jordanian Labor Markets

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"The Refugees are Better Off Than We Are":
Evaluating the Impact of Syrian Refugees on Jordanian Labor
Markets

by
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ABSTRACT

This thesis analyses the labor market impacts associated with hosting Syrian refugees in Jordan through the Syrian conflict. We provide a critical analysis of the sentiment that 'the refugees are better off than we are.' This sentiment derives from the perception that the poor economic conditions are the fault of refugees, because they take jobs from native citizens, or because of the international humanitarian aid that refugees receive. We suggest that this perception is a 'false narrative' which does not accurately describe the many causes of economic hardships in Jordan, thereby misplacing blame on refugees. The article analyzes the structural barriers to work faced by refugees, deriving from the Jordanian government's evolving refugee policy as informed by a history of hosting waves of refugees. These barriers, as well as demographic characteristics, statistical discrimination, and a rigid and inflexible nationality-based sorting of groups into specific sectors of the economy all establish Syrian refugees as imperfect substitutes to Jordanian and existing migrant labor. These context-based market rigidities undermine the extent to which refugees can 'take' the jobs of preexisting workers. Using a difference in differences (DID) approach to analyze data from the 2010 and 2016 Jordan Labor Market Panel Survey (JLMPS), we demonstrate the complexities of the labor market effects of hosting refugees.

Key words: refugees, employment, migration, Jordan, Syrian refugees, discrimination, difference in differences

ملخص

تحلل هذه أطروحة آثار سوق العمل المرتبطة باستضافة اللاجئين السوريين في الأردن خلال الصراع السوري. نقدم تحليلاً نقديًا للشعور بأن "اللاجئين في وضع أفضل من." ينبع هذا الشعور من الإعتقادة أن الظروف الاقتصادية السيئة هي لوم اللاجئين، لأنهم يأخذون وظائف المواطنين الأصليين، أو لأن اللاجئين يتلقون مساعدات إنسانية. نقترح أن هذا التصور ما هو سوى "رواية خاطئة" لا تصف بدقة الأسباب العديدة للصعوبات الاقتصادية في الأردن، وبالتالي إلقاء اللوم على اللاجئين في ليس بمحله. تحلل هذه المقالة العوائق الهيكلية التي تعترض تعترض قدرة اللاجئين عن العمل التي يواجهها اللاجئون، والمستمدة من سياسة الحكومة الأردنية في استقبال اللاجئين، و التي تتطور تبعا لتاريخ استضافة موجات من اللاجئين. هذه العوائق، فضلاً عن الخصائص الديموغرافية، والتمييز الإحصائي، والفرز الصارم للجماعات على أساس الجنسية في قطاعات معينة من الاقتصاد، تجعل اللاجئين السوريين بدائل غير مناسبة للعمال الأردنيين والمهاجرين السابقين. هذه الصعوبات الظرفية التي تميز سوق العمل الأردني تقوض من قدرة اللاجئين عن سلب وظائف العمال المحليين السابقين. باستخدام نهج الاختلاف في الاختلافات لتحليل البيانات من مسح سوق العمل الأردني، نوضح تعقيدات آثار سوق العمل لاستضافة اللاجئين.

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Timeline of Relevant Events

1867   Ottoman control begins over region of Transjordan

1914-8   World War I; last of Ottoman Empire falls; 1916 Sykes-Picot signed

1921   British Mandate over Transjordan & Palestine established

1939-45   World War II

1946   Hashemite Kingdom of Jordan declared as independent from British rule

1947   UN Partition Plan for Palestine passed by UN General Assembly

1948   Israel declares independence and statehood; 1948 War begins

1950   Jordan annexes the West Bank (including East Jerusalem)

1951   King Abdullah assassinated at Al-Aqsa Mosque; succeeded by son Talal
                1951 Geneva Convention on Refugees – Jordan not a signatory

1952-3   King Talal deemed mentally unfit to rule; succeeded by son Hussein

1967   1967 Six-Day War; Israel occupies West Bank (including East Jerusalem)

1968-71   Palestinian Liberation Organization (PLO) wages war against Israel (and Jordan)
                in West Bank

1970   Black September: plane hijackings; assassination attempts on King Hussein
                PLO & Government of Jordan (GoJ) sign peace agreement; fighting continues
                until July of 1971

1991-2009   Iraqi refugees come to Jordan after displacement from 1991 Gulf War and Iraq
                War; classified as "guests"

1998   UNHCR Memorandum of Understanding with Amman

1999   King Hussein dies; succeeded by son, King Abdullah II

2005   Hotel bombings in Amman, carried out by Iraqis; shifts GoJ refugee perception

2011   Arab Spring inspires pro-democracy advocates in Syria; conflict begins

2012-4   Zaatari and al-Azraq camps opened for Syrian refugees

2016   London Conference and signing of The Jordan Compact

Introduction

Following the onset of the Syrian refugee crisis in 2011, millions of Syrians were displaced from their homes and from the borders of the country they called home. The vast majority of them moved, as most refugees do, to the only place they were able: into the neighboring countries that share a border with their home country. In the Syrian case, most refugees moved into the countries of Jordan, Lebanon, and Turkey. Jordan and Lebanon are both small countries with small populations, meaning that the population shock resulted in a major demographic shift. In fact, Syrian refugees now make up an estimated ten percent of the Jordanian population, with estimates of the number of refugees housed ranging between 600,000 and 1.26 million (Errighi & Griesse 2016, p. 5).

Unfortunately, the same conflict that drove the refugees from their homes also created economic shocks in the region. The violence and instability in Syria drove down regional tourism — normally a major source of income — as well as investor confidence (Errighi & Griesse 2016, p. 8). The loss of Syria as a major trade partner coupled with these other lost sources of revenues was damaging to the economy of Syria's neighbors. Additionally, a number of exogenous conditions were at play, such as the lingering effects of the 2008 global economic crisis and the loss of cheap Egyptian gas normally supplied to the region. Thus, the movement of Syrian refugees was correlated with a rise of poor economic conditions in Jordan. However, of course, outside of an economics classroom, people often have a hard time differentiating between correlation and causation, and narratives blaming the refugees for the poor economic conditions became prevalent (Carrion 2015, p. 4). Namely, it is expected that refugees will take the jobs of those already living in the destination country, as they will be so desperate that they will accept lower wages and compete natives out of the market. Additionally, resentment stems

from the perception that refugees might be better off that low income, rural native populations because of receiving international humanitarian aid.

There are numerous problematic assumptions behind those narratives. The first relates to the ability of Syrian refugees to act as substitutes for incumbent labor sources. In traditional migration, new migrants are moving into a new country in search of work or better opportunities. Their motivations are described as being dominated by "pull factors," that is, they are being pulled towards a new location because of the positive attributes of that place (Malaeb & Wahba, 2018). Refugees cannot be described this way. Refugees are motivated by what are called "push factors," or circumstances which forcibly push them out from their homes, such as violence and war. While refugees might search for work in their destination country, they did not come there *in search of work* (Fakih & Ibrahim 2016, pp. 7-8). It is an important distinction to make: refugees do not have time to plan ahead and look for jobs; they often have to leave in a hurry without bringing along valuables; while they may have some choice in the direction they head, they often have little autonomy over their movement; they commonly come with physical and/or psychological injuries that affect their ability to work. That is not to say that economic migrants do not also often face difficulties finding employment as well, but they generally come with much more autonomy over their own choices and with a greater resource base to draw upon relative to refugees.

Moreover, the demographic composition of Syrian refugees is dissimilar from economic migrants. While oftentimes economic migrants are men traveling alone to send remittances home, the majority of Syrian refugees are women and children. Because of the low labor force participation rate for women in Jordan and Syria (Stave & Hillesund 2015, p. 5), as well as the ineligibility for those under the age of 18 to receive work permits, the population of Syrians who

will participate in the workforce is fall smaller than the total population hosted within the country. This is likely to cause overestimations of the labor market impacts, as the visible population will be much larger than the proportion who might compete for jobs in the labor market.

For those Syrians who are physically able and looking for work, they also face a number of other very steep barriers. Firstly, if they hope to work legally, they need to obtain a work permit — a very expensive and logistically challenging hurdle (Lenner & Turner, 2018, p. 70). If they choose to work without a valid work permit, they can be relocated by the government into the camps, where they will be both geographically and logistically confined outside of Jordanian labor markets. Secondly, for those who work either legally or otherwise, they will have to contend with well-documented discrimination. Jordan's labor markets are rigidly segmented by nationality and many employers are unwilling to replace their existing labor sources with Syrian labor, especially because of widespread perceptions that Syrians are lazier or less productive than their counterparts.

Because Syrians are considered to be imperfect substitutes for Jordanian and other non-native economic migrants in the country, both because of the demographic composition of the Syrian population and because of labor market discrimination against them, this paper sets out to evaluate the labor market outcomes associated with hosting a large quantity of Syrian refugees, measured as a proportion of the population. After outlining the evolution of refugee policy in Jordan across historical waves of refugee influxes, we outline the theory of imperfect substitution of labor and discrimination to explain why we expect that refugees will not have a major impact on native labor market outcomes. We then move to test these hypotheses in our empirical section. This paper utilizes a difference in differences methodology, as used previously in much

of the literature on this topic, including Akgündüz et al. (2015); Al-Hawarin (2018); Tumen (2016); and Fallah, Krafft and Wahba (2019). We employ a treatment variable at four different threshold levels of Syrian population hosted in a district to understand how different intensities of the treatment will affect labor market outcomes, including unemployment, wages, and hours worked per week. We also provide a number of data visualizations and descriptive statistics to augment our understanding of how discrimination and nationality-based segmentation of the labor market plays a role in determining labor market outcomes.

Our findings are congruent with that of earlier studies in that we find minimal negative effects on unemployment in a few cases, and no significant impact on unemployment in the rest. However, the different levels of our treatment variable allow us to capture some minor adjustments in wages, primarily for the most dramatically treated district groups. For the regions with the lowest threshold treatments, we do not observe wage or unemployment effects, but instead see some minor adjustments in the number of hours worked per week.

The State of Jordan: Refugee Policy Environment
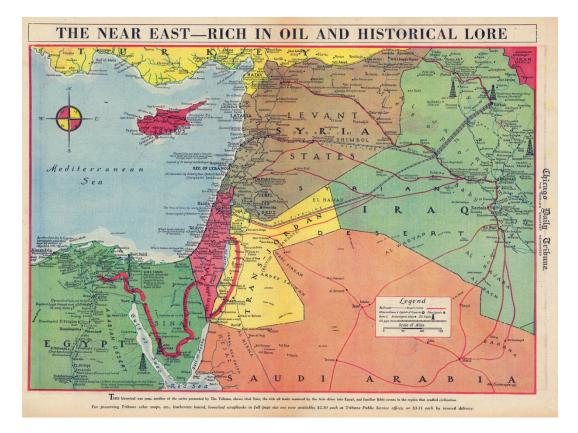
Nation-building and early conflicts

In order to understand the policies and labor market structures that impact the ability of Syrian refugees to work in Jordan, we must explore the history of the state of Jordan and how it has dealt with various waves of refugee migration. Over time, conflict in the region surrounding Jordan has resulted in waves of refugees entering the country — namely from Palestine, Iraq, and most recently, Syria. As they have hosted refugees at these different points in time, they have adopted a number of policies to adjust to these major demographic shocks. The policy evolution outlined in this section demonstrates how the current work environment for refugees has come to culminate in the bailout system, which concentrates refugees both geographically and legally outside of formal markets, and the 2016 signing of the Jordan Contract, which in theory is meant to guarantee work permits for Syrian refugees, but in reality does little to provide work opportunities for Syrians and much more to secure international aid and Jordanian access to European markets.

Before the state of Jordan as it is known today came into existence, the first interactions that the people of Transjordan experienced with a central, administrative power were with the Ottoman Empire (Ryan 2018, p. 707). However, by the start of the First World War, the empire was already beginning to lose strength, and the British were able to take advantage of growing sentiments for an independent Arab state to further undermine the Ottoman Turks. This is documented in the Hussain-McMahon correspondence — letters exchanged between the Hashemite dynasty and a British official between 1915-16 — in which the Hashemites traded support for the British war effort in exchange for claims to post-war territory for an autonomous state (Robins 2019, p. 13).
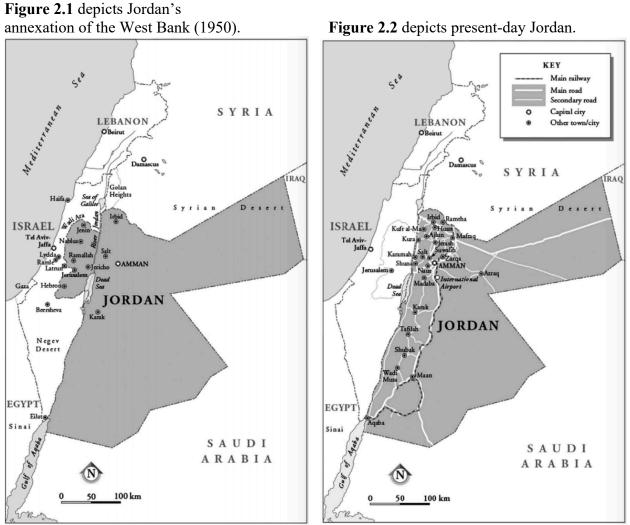
At nearly the same time, though, the British and French governments signed the Sykes-Picot Agreement in 1916 to draw a new map over the territory in the Ottoman sphere of influence (Luscombe 2012). The agreement established that, should they win the war, the British would gain control over Transjordan, Palestine, and Iraq and that the French would receive authority over the territories of Syria and Lebanon (Robins 2019, p. 14). The British Mandate over Transjordan, reflecting the borders artificially drawn up in the Sykes-Picot agreement, went into effect in 1921 (Ryan 2018, p. 707). The borders established by the Mandate are reflected below, in **Figure 1.** Not long after, the end of World War II brought about a wave of global decolonization and newly independent states, including — in 1946 — the Hashemite Kingdom of Jordan. The borders remained largely as they had been under the mandate, but they would change soon after due to the intensifying Arab-Israeli tensions next door.

Figure 1: 1942 Map, retrieved from Luscombe (2012)

In November of the year following Jordan's official independence, the UN General Assembly voted in favor of the UN partition plan, which would have divided the British Mandate over Palestine into two independent states — one Arab and one Jewish — with Jerusalem as a separate entity under international jurisdiction. The plan was accepted by the Israelis, but wholly rejected by the Arab coalition. When Israel declared independence and statehood less than a year later in May of 1948 (Robins 2019, p. xvii & 63), fighting immediately broke out, thus beginning the 1948 Arab-Israeli War (Ryan 2018, p. 707). The war and resulting displacement of 85 percent of Palestinians from their homes (Al-Hawarin et al. 2018, p. 5), remembered in the Palestinian consciousness as *al-nakhba* (the Catastrophe), prompted an influx of refugees across the border into Jordan (Kelberer 2017, p. 150). Despite the Israeli victory, Jordan maintained control over the West Bank, and formally annexed the territory in 1950 (shown below in **Figure 1.2**). Between the forced displacement of refugees into Jordan and the West Bank annexation, the population of Jordan tripled, making "native" Transjordanians the minority (Kelberer 2017, p. 150).

Many of these refugees were housed in camps, which began to be considered hotspots for Palestinian nationalism and militias under the Palestinian Liberation Organization (PLO), acting as "mini-states" outside of the government's purview (Kelberer 2017, p. 151). Tensions were already high by the time of the 1967 6-Day War, with the PLO conducting attacks on Israeli targets from the camps. With Israel's decisive win, Jordan not only lost the entirety of the West Bank, but also saw another major influx of Palestinian refugees across the border. The impact of the refugees on national demographics is hard to overstate — especially in a conversation about nativity and foreignness — on the current makeup of Jordan. Although estimates range widely, it is estimated that natives of Palestinian origin now make up anywhere between 43 to 65 percent

Figure 2.1 depicts Jordan's annexation of the West Bank (1950).

Figure 2.2 depicts present-day Jordan.

Figures 2.1 and **2.1** from Robins' (2019) *A History of Jordan*.

of the total Jordanian population (Kelberer 2017, p. 150). Despite the high proportion of refugees housed in the country, Jordan has never been a signatory to the 1951 Geneva Convention on Refugees. Instead, the Government of Jordan (GoJ) has continued to classify refugees in the country as "guests," emphasizing their temporary status as well as evoking a sentiment of Islamic/Arab solidarity (Kelberer 2017, p. 150). Despite its lack of any national law on refugees and choice not to sign the Geneva Convention, the GoJ did extend citizenship to Palestinians residing in the country in 1954, signed a memorandum of understanding with the UNHCR in

1998, and has generally allowed access to access public infrastructure of the country, including

public schools and healthcare services (Kelberer 2017, p. 150-2).

It is important to note that the PLO militias in the West Bank clashed not only with the

Israeli military, but also with the GoJ's forces. Between 1968-71, the fighting in the West Bank

escalated to war in 1970, with its most bloody point known as "Black September," during which

the PLO carried out a number of high-profile hijackings of airplanes, as well as (unsuccessful)

assassination attempts on King Hussein. Although a peace agreement between the PLO and the

GoJ was signed in late 1970, it was not until July of 1971 that the violence finally ceased

(Kelberer 2017, p. 151). Jordan's experience with the concentration of the first wave of

Palestinian refugees in camps and the resulting nationalism and militarism is one example of

security-related fears that refugee-hosting countries often take into account.

The Jordanian experience with Iraqi refugees differed dramatically from that with the

Palestinians, further informing Jordan's refugee policies; however, the classification of refugees

as "guests" remained unaltered. Although camps were established in Jordan following the U.S.

invasion of Iraq in 2003, they were deconstructed soon after due to the arrival of an

underwhelming number of refugees in comparison to the number that was expected (Turner

2015, p. 14). When they began to arrive *en masse* later in 2005, the demographic characteristics

of the Iraqis played a major role in shaping the GoJ response. Importantly, the Iraqi refugees

were, on average, much wealthier and more educated than the earlier Palestinian refugees, and

were primarily coming from urban and middle- to upper-class backgrounds. Turner argues that

this population simply "refused any suggestion that they should go to camps and instead headed

largely for Jordanian cities" (2015, p. 14). However, this could not have happened without the

approval of the GoJ, implicitly if not explicitly. Because Iraqis were primarily upper- and

middle-class, they were seen as less likely to create downward pressure on wages for low-income, rural Jordanians, and considered more likely to contribute positively to the economy (Turner 2015, p. 17). Turner even suggests that the GoJ worried that framing the presence of Iraqi refugees as a crisis would "offend" the Iraqis, which they wanted to avoid because of the perception that they would boost the economy (2015, p. 14).

However, the policy of non-encampment of Iraqis also had drawbacks in terms of Jordan's ability to derive economic benefits from them. Most importantly, the fact that Iraqis were not contained within the geographical zone of a camp made them far less observable, or "visible" to the international community (Turner 2015, p. 15). This created major challenges for counting the numbers of refugees for the purpose of allocating aid relief, and the GoJ faced controversy over accusations of dramatic overcounting to try to increase international aid (ibid). Moreover, the UNHCR's 1997 agency-wide (and highly controversial) *Policy on Refugees in Urban Areas* demonstrated a clear preference for encampment of refugees, stated that urban refugees would only receive aid with the agreement of host countries and with proof of a "compelling reason" (Turner 2015, p. 7; Kelberer 2017, p. 156).

Thus, while camps created major security concerns in the Palestinian case, the lack of camps in the Iraqi case undermined the government's ability to make appeals for funding. While these two considerations, security and finances, dominate much of the discourse around refugee camps, the strong monitoring presence of the GoJ has diminished concerns over the former in what we see today in the Syrian case (Turner 2015, p. 14). Additionally, even before the Syrian crisis, Jordan was suffering a "chronic shortage of low-income housing" (Francis 2015, p. 10). Therefore, within the context of Jordan's other financial woes (Kelberer 2017, p. 149), concerns over the economic impact of Syrians has dominated the discourse around refugee policies.

Emergence of the Syrian Conflict

The Syrian conflict, although officially starting in 2011 following the outbreak of Arab Spring protests across the region, had earlier roots. Between 2007-2010, a number of global-warming induced droughts caused a mass migration of approximately 1.5 million Syrians from rural farming areas towards Syrian cities (Kelley et al. 2015, p. 2). In this context of this major displacement and economic reorganization, resentment directed towards the government created space for the 2011 Arab Spring protests to spread to Syria. As pro-democracy activists in Syria organized peaceful (and largely non-sectarian) protests, the Assad-led government responded violently, killing and imprisoning hundreds of protestors (Al Jazeera 2018). With the government crackdown on protests having inflamed public sentiments, a group of military defectors announced in July of 2011 the formation of the Free Syrian Army, a rebel group with the goal to overthrow the Assad regime.

Although the protests had been primarily a-sectarian, as the fighting began and international actors began to get involved, sectarian divisions emerged that would characterize much of the later fighting. Syria's President, Bashar al-Assad, a member of the Alawi sect of Shia Islam was supported by the majority Shia states of Iran and Iraq, as well as by Hezbollah in Lebanon; the Assad government has received backing from Russia as well. Although there is much heterogeneity and in-fighting amongst the different rebel groups within Syria, the fight to overturn Assad's rule has been supported by the Sunni-majority countries Turkey, Qatar, and Saudi Arabia. The United States has armed anti-Assad rebel groups since 2014, and both the U.S. and Turkey have led operations against the Islamic State of Iraq and the Levant (ISIL, or ISIS) after they spread from Iraq into northern and eastern Syria in 2013 (Al Jazeera, 2018).

As a result of the high degree of international involvement, the conflict has been sustained and resulted in the displacement — both internally and regionally — of millions of Syrians. According to the United Nations High Commissioner for Refugees (UNHCR), 6.6 million Syrians have been displaced within the country, with another 5.6 million refugees displaced outside of Syria's borders (UNHCR 2018). Almost 90 percent of Syrian refugees registered by the UNHCR have been absorbed into neighboring countries, namely Jordan, Turkey, and Lebanon. Because of their small populations, the demographics of Jordan and Lebanon have been most dramatically affected, with Syrians now making up an estimated 10 percent and 25 percent of their respective populations (Errighi & Griesse 2016, p. 5).

Of course, like with the Iraqis before them, the estimates of Syrians in the country range widely; the 2015 Census reported approximately 1.26 million Syrians residing in Jordan, while the UNHCR has around 660,000 Syrians registered as living in Jordan (Kelberer 2017, p. 148 and UNHCR 2020). Of these, it is estimated that 79 percent of those registered live outside of the two camps established for refugees in Jordan, Zaatari and al-Azraq (Kelberer 2017, p. 148), with over 80,000 of those residing in camps living in Zaatari (Turner 2015, p. 3). Before the opening of al-Azraq in April of 2014, the population of Zaatari peaked at around 130,000 residents (Kelberer 2017, p. 153).

Encampment and the bailout system

As is argued most decisively by Kelberer (2017) and also by Turner (2015), it seems that the GoJ learned lessons from its mistakes with the two earlier prominent refugee conflicts: firstly, in the Palestinian case, that major camps with minimal oversight can act as "mini-states" might become hotspots for radicalization or militarization; and on the flipside, in the Iraqi case, that a lack of

camps translates to a lack of visibility and therefore results in diminished bargaining power to demand international aid.

The specifics of Jordan's policies for Syrian refugees have been greatly influenced by the demographic characteristics of the refugees, as well as the concerns of domestic audiences living in the regions into which the refugees were settled. Because of the widespread perception that Syrian refugees are "less productive, skilled and trained" than other groups of workers in Jordan (Lenner & Turner 2019, p. 82), and "that Syrians working informally [would] take Jordanian jobs" (Kelberer 2017, p. 150), the GoJ had to weigh concerns that rural areas would be most negatively affected by allowing Syrian refugees to enter the labor market — formally or otherwise. This is an especially politically sensitive issue because of the history of settlement in Jordan; upon their displacement from Palestine in 1948 and 1967, Jordanians of Palestinian descent settled largely in large cities, whereas Transjordanians are concentrated in rural towns (Turner 2015, p. 20). This has meant that Transjordanian tribal and Bedouin communities — communities which are traditional bases of power in Jordan — would have been at the highest risk of economic strain barring encampment. However, even before the arrival of Syrians in these areas, Transjordanian nationalist protests motivated by economic grievances over low wages and rising prices had been ongoing throughout the 2000s, jumping to an average of 870 protests per year between 2011-2013 (Turner 2015, p. 21).

While the GoJ had originally opposed an encampment policy for Syrians, as numbers of Syrians entering the countries grew, negotiations with the tribal leaders of northern Jordan soon saw the opening of Zaatari in July of 2012 (Turner 2015, p. 12). In coordination with the creation of camps, a crucial piece of Jordan's Syrian refugee policy has been the "bailout system." Under the bailout system, a Syrian who wishes to leave the camps legally is required to

find a Jordanian citizen, or sponsor, who will "act as a guarantor of their whereabouts" (Turner 2015, p 13). This policy has been criticized as inherently classist, as the cost of obtaining the bailout papers ($500) is beyond the means of the majority of refugees, meaning that only the wealthiest and most connected refugees will be able to access this system as a means of escape from the camps (Turner 2015, p. 18).

Of course, this itself is likely the intended result — the policy limits the mobility and labor market access of the poorest refugees, those expected to create the most dramatic downward pressure on wages of low-income and rural Jordanians, by concentrating them into the camps. As Turner explains, this serves to "spatially segregate refugees of certain socio-economic classes, those deemed surplus to labor market requirements" (2015, p. 6). In fact, Syrians found working without permits are often relocated to Zaatari camp by the GoJ to remove them from the Jordanian labor market (Turner 2015, p. 19). Thus, the influence of domestic political considerations — to appease the rural, low-income but politically powerful tribal Transjordanian leaders in the north — can be seen in the Jordanian policy of creating camps to contain the poorest Syrians and establishing the bailout system to allow entry to Jordanian markets for the wealthiest refugees who might be seen as most likely to contribute positively to the economy. Moreover, unlike the Iraqis, the presence of Zaatari and al-Azraq create a highly visible refugee space, which the GoJ can leverage for international aid.

"Refugee Rentierism" and the Jordan Compact

While domestic considerations explain encampment policies in rural areas, the presence of high numbers of urban refugees can be explained by a strategy of rent-seeking, as well as by changes to international policies and attitude towards refugees and aid. Although the end of the Cold War

in the 1990s had shifted the attitudes of donor states in favor of policies focused on returning

refugees to their country of origin, by the early 2000s the growing number of refugees made it

clear that this was not a viable solution (Kelberer 2017, p. 155). Instead, the strategy has become

centered around policies that will allow for long-term settlement of refugees in host countries;

policies for this include allocation of development aid to host countries and attempts to create

formal rights protections for refugees. Kelberer (2017) argues that Jordan has adapted to this new

environment more adeptly than other host countries and has been able to use that to its advantage

in funding negotiations.

The period between 2005 to 2009 saw the formation and first implementation of Jordan's

strategy of using refugee rights as a bartering tool to raise international aid allocation. Although

Iraqi refugees had been allowed access to Jordanian public schools and freedoms to work

informally or operate businesses, attitudes changed after a major terrorist event — the 2005

bombings of three Amman hotels, carried out by Iraqis (Kelberer 2017, p. 152). After this, the

GoJ began to view Iraqi refugees as a potential security threat and began to restrict their access

to Jordanian public services and labor markets. They only reduced these restrictions in 2007,

when 60 percent of the UNHCR's budget was transferred to the government. Kelberer argues

that this "was one of the first and most important signals that international aid could be

transferred directly to the state in return for refugee protections and access to services" (2017, p.

152). This is the strategy that has now been seen widely in use by the Jordanian government.

Another important element of international refugee policy was reflected in the UNHCR's

2009 policy revision on their original 1997 policy on urban refugees. The 2009 policy was seen

as a major reversal from its 1997 predecessor, stating that refugees had the right to live and settle

outside of camps and still receive aid (Kelberer 2017, p. 156). This was followed by a new policy

in 2014, which not only recognized the limitations of camps, but also explicitly framed refugee rights and integration as a way that host countries could "[leverage] the resources of urban refugees to realize economic benefits from hosting" (Kelberer 2017, pp. 155-6). This signaled that, unlike the situation for Iraqi urban refugees, that the government might now be able to encourage the international community to provide aid for urban refugees.

Moreover, the fact that urban refugees share infrastructure and public services with the general Jordanian population impacts *how* aid is allocated. Instead of focusing on the traditional humanitarian approach of channeling aid directly to relief organizations and camp management, the lack of concentration of refugees into any specific area has allowed the government to push for direct transfers to the state for the purpose of infrastructure investment (Kelberer 2017, p. 153). Thus, the focus shifted away from traditional humanitarian approaches for refugees and towards a development approach aimed at strengthening resilience and local capacity of the host country (ibid).

This strategy has come together most clearly in the creation of the Jordan Compact during the February 2016 London Conference, which the GoJ explicitly framed as a new opportunity for development; an example of this narrative can be seen in a country statement that highlighted "attracting business and stimulating economic growth [through] improved access to the EU market" (Kelberer 2017, p. 159). Compared to the earlier 2016 Regional Refugee & Resilience Plan (3RP) where Jordan and Lebanon received approximately the same levels of aid per capita, the London Conference might be seen as a more successful implementation of Jordan's rent-seeking strategy in its ability to draw far more aid per capita than either Turkey or Lebanon; Jordan received more than $3,000 more per refugee than Turkey and approximately $1,600 more per refugee than Lebanon (Kelberer 2017, p. 160). In exchange for this high level of

aid, Jordan promised to allow up to 200,000 work permits for Syrian refugees, something that had formerly been a political non-starter (Kelberer 2017, p. 159). In addition, Jordan and the EU brokered a trade deal following the conference that would give Jordanian manufacturers access to EU markets for 52 product groups for 10 years in exchange for hiring a minimum quota of Syrian refugees.

While this strategy has increased international development funding into Jordan in exchange for the creation of rights protections for the Syrians living there, some scholars have raised concerns that the approach fails to truly improve the livelihoods of Syrians or to establish long-term rights security (Kelberer 2017 and Lenner & Turner 2019). As Kelberer writes, "it is troubling that these approaches are implicitly and explicitly framed as avenues to decrease demand for resettlement and informal migration to donor states" (2017, p. 161). Moreover, as will be discussed in later chapters, the realities of the Jordanian labor markets and of the demographics of Syrian refugees have severely limited the success of the policies implemented in the Jordan Compact, specifically with far fewer Syrians receiving work permits than the goal. Finally, Kelberer warns that this strategy could result in the withdrawal of the rights of Syrians if it eventually loses its efficacy as tool for the GoJ to leverage to lobby for more international investment in infrastructure development (2017, p. 161).

Between the bailout system and the strategy of offering work permits in exchange for trade deals and international aid — especially without a corresponding attempt to make those job permits more accessible and easier for refugees to actualize — the current Jordanian labor policies do little to support Syrians working in the country. These structural barriers, in conjunction with factors such as demographics and discrimination, reduce the employment of Syrians as substitutes for existing labor sources, as outlined further in the theory section.

Theory

In this Chapter, I will show that the displacement of Syrian refugees across the border into the neighboring country of Jordan should have minimal negative consequences — if any at all — for labor market outcomes of native Jordanian workers.[1] Since the inception of fighting in 2011, the Syrian conflict has resulted in the displacement — both internal and international — of millions of civilians. In recent publications, the UNHCR reports that there are currently 6.6 million internally displaced persons within the borders of Syria and another 5.6 million Syrians registered as refugees in neighboring countries (UNHCR, 2018). The highest numbers of refugees have ended up in Turkey, Jordan, and Lebanon; because Jordan and Lebanon are such small countries, their population demographics have been most substantially impacted by this, with Syrian refugees now making up 10 percent of the Jordanian population and as much as 25 percent of the Lebanese population (Errighi & Griesse, 2016, p. 5). Nevertheless, because of a number of factors — ranging from demographic characteristics and rigid labor market restrictions to pure nationality-based discrimination by employers — Syrians are not considered substitutes for much of the existing labor force, meaning that they are unlikely to "take jobs" from Jordanians or other economic migrants residing in the country.

Modeling the "False" Narrative

As in many cases where one country suddenly finds itself hosting large numbers of foreign nationals, this major demographic shift has prompted sharp, negative reactions from native citizens and workers of host countries, blaming refugees for being a "burden" on the economy.

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[1] Data measuring Syrian refugee presence (in thousands of refugees) can be obtained both from internal reporting of host country governments and by the United Nations High Commissioner on Refugees (UNHCR). Employment outcomes may be described by national employment and unemployment levels of native workers, as recorded by the country's government.

Many voiced concerns that the refugees were taking the jobs of natives, and especially in rural locations which already faced high poverty, it is common to hear people express that "the refugees are better off than we are" because of the international humanitarian aid that they receive and because they blame refugees for the poor economic conditions of the country (Carrion 2015, p. 4). This narrative must be evaluated empirically by looking closely at the labor market outcomes for native workers in host countries.

It is estimated that unemployment for the Jordanian population increased from 14.5 to 22.1 percent between 2011 and early 2014 (Staves and Hillesund 2015, p. 42). If one was to simply look at the influx of Syrian refugees and the corresponding rise in unemployment, it is too easy to see how some might blame the refugee presence for the negative workforce outcomes of native host-country citizens. This baseline narrative can be modeled using a traditional model for a perfectly competitive labor market, under the assumption that refugee workers are perfectly substitutable for the existing labor supply. The increase in the number of potential workers modeled as a supply shock, resulting in a higher degree of competition in the local labor market (Akgündüz et al., 2015, p. 1), shown below in Figure 3.
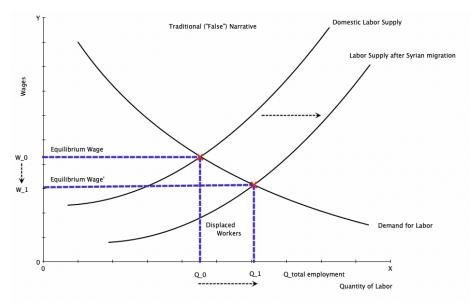
Figure 3: Modeling the "False" Narrative

As can be seen in the model, a major increase in the supply of labor — as theoretically happens when Syrian refugees enter the market — is expected to reduce market wages and thus result in native workers exiting the labor market. This is compounded by the vulnerability of refugees and immigrant populations generally, which makes them more likely to accept lower wages out of desperation (Stave & Hillesund, 2015, p. 7), or (theoretically) to have lower reservation wages than native workers who expect to receive a higher standard of living.

Addressing the Narrative: Exogenous Factors

There are some major concerns in trying to apply this simple model to the situation Jordan currently faces. Firstly, in this case especially, there are other exogenous factors that are likely to impact the dependent variable(s). Notably, the Syrian conflict itself has resulted in decreased levels of tourism, reduced investor confidence, and the loss of a major trade partner for Jordan (Errighi & Griesse, 2016, p. 8). Additionally, Fakih and Ibrahim point out that the 2008-9 global economic crisis, the disturbances of the Arab Spring uprisings in 2011, and a sudden drop in the availability of cheap Egyptian gas — responsible for powering 80% of the region's electricity — all compounded to leave Jordan in a poor economic situation, even before they began hosting refugees (*ibid*, p. 2). To attribute the entirety of the economic woes of the host countries to the presence of Syrian refugees residing there would be missing the whole truth.

Structural Barriers to Work

Secondly, a major limitation of the argument made in Figure 3 is that many refugees face barriers to work in their host countries. For example, as discussed in Chapter 1, Syrian refugees in Jordan have two choices 1) encampment or 2) arranging a "bailout" sponsor to leave the camps. Those who cannot afford to escape encampment are both geographically concentrated

away from and legally barred from entering formal labor markets. Even for those who have the

resources to leave the camps, acquiring a legal work permit is still a major challenge, even after

the 2016 Jordan Compact when the GoJ pledged to make 200,000 work permits available to

Syrians residing in the country. However, of the 200,000 eligible permits, only around 51,000

had been issued by May of 2017, and of those fewer than 40,000 were still eligible by the end of

the period (Lenner & Turner 2019, p. 68). While this may be partially explained by demographic

characteristics and other limitations to substitution of labor that make refugees less likely to

pursue work permits in the first place, the process itself of obtaining work permits in Jordan has

been deemed "the work permit maze" (*ibid*, p. 70). Barriers in this process range from

confiscation of official documents, requirements that refugees possess a service card, security

check, rental contract, or address statement from the UNHCR, payment of administrative fees,

health certificate fees, and paperwork showing that they had not left the camps earlier than

allowed (*ibid*). Thus, refugees are systemically excluded from the Jordanian labor markets by a

number of high barriers that are not in place for Jordanian citizens.

Imperfect Substitution

In addition to their inability to access formal markets, Syrian refuges also suffer from remarkably

low education levels due to the disruption caused by war and forced displacement. According to

Stave and Hillesund, 60 percent of the Syrian refugee population over the age of 15 in Jordan

had never completed basic schooling, and only 15 percent of all refugees had completed

secondary education (2015, p. 5). This means that these refugees will be concentrated primarily

in so-called "low-skill" sectors of the informal cash-economy, such as construction, agriculture,

and retail. Even prior to the arrival of Syrian refugees, much of the Jordanian economy would be

classified as informal cash-economy; it was estimated that 44 percent of all private sector labor in Jordan operated on an informal basis in 2013.

This might lead us to believe that we can simply apply the above model to the informal markets of host countries to see wage and employment competition between Syrians and native Jordanian workers, but this requires that there is perfect labor substitution of Syrian refugees for other segments of the workforce. Imperfect substitution of labor is more visible when refugees migrate outside of their region, to a country with a different language and/or set of cultural norms. For example, Akgündüz et al. study labor market outcomes of the refugee crisis in Turkey, where Syrian refugees do not speak the language (2015, p. 3). However, despite speaking the same language and sharing similar customs, Syrian refugees do not act as perfect substitutes for native labor even in Jordan. For example, one implicit assumption of this substitution effect requires that a large proportion of the migrants are willing and able to work. While this may be true of other economic migrants, refugees are characterized as being motivated to leave their home country by a "push" factor rather than a "pull" factor; that is, they are leaving in order to get away from some danger or threat, rather than leaving in search of employment. As Fakih and Ibrahim put it, "refugees forced to move due to wars and conflict do not migrate in search of work opportunities… Thus, there is less correlation between the influx of refugees and labor market outcomes in the host country" (2016, pp. 7-8).

Demographic Characteristics

This is even more relevant in the Syrian case when considering the demographics of the Syrian refugee population in Jordan, which is predominately made up of women and children. All refugees under the age of 18 — which makes up slightly over half of the total Syrian refugee

population — are ineligible for work permits in Jordan, excluding them from becoming legally employed (Lenner & Turner, 2018, p. 70). Moreover, the labor market participation rate for Syrian women in Jordan is only 7 percent, and for those who do participate, unemployment for those living outside of campus is as high as 88 percent (Stave & Hillesund, 2015, p. 5). Finally, Syrian refugees cannot be treated in the same way as other economic migrants for another reason: they are coming from a literal war zone. An unmeasurable number suffer debilitating injuries, both physical and psychological, and are coming to the country at their most vulnerable state with almost no resources of which to speak; to expect that this population will behave and perform similarly to traditional native citizens is misguided and problematic. For all of these reasons, it would not make sense to model a shift in labor supply, as refugees are unlikely to compete greatly with the native labor force (as in Figure 4 below).

Disaggregating Employment Outcomes by Nativity

Instead of expecting that refugees will crowd out native workers, a significant body of literature looks at the impact of migrants or refugees on the labor market outcomes of *other non-natives* residing in the host country. For example, Fakih and Ibrahim cite a study conducted in Germany during the 1990s that found new migrants to have no impact on the employment of native Germans. They found instead that the new immigrants did have a negative impact on the employment of old immigrants, concluding "that there is close competition among immigrants, but not between immigrants and natives," (Fakih & Ibrahim, 2016, p. 7). Thus, we would not expect to see dramatic impacts to the labor market outcomes of native workers, but rather to see competition between non-native groups living in the host countries. This can be seen in Models 2 and 3, below. In Figure 4, the theory discussed above would expect that the majority of Syrian workers who are eligible to work and have access to labor markets would compete with other

migrants in sectors such as agriculture, manufacturing, retail, and construction that require less formal education, meaning that we would see a major supply shift to the right in the sectors dominated by non-native workers. However, we would also expect to see some increase in demand for these sectors, as such a major influx of refugees with needs for housing, food, and other basic necessity goods is expected to produce an increased demand for labor. Therefore, as shown below, we might expect to see a large number of non-native workers displaced from the market or reduced wages for those who remain. This is one of three potential outcomes, all
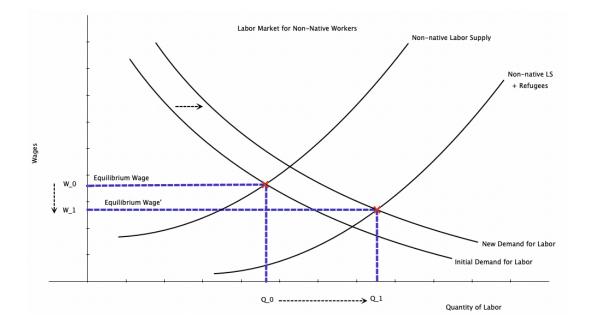
Figure 4: Labor Market for Non-Native Workers

dependent on the magnitude of the demand shift for native and non-native labor, as well as the degree of market flexibility in substituting between refugees, Jordanians, and other migrants. For example, if the demand shift is equivalent to the supply shift, wages will be unaffected. Alternatively, if the demand shift is greater than the supply shift, wages may rise.

In Figure 5, the market for native laborers, native labor supply does not increase as a result of the refugee crisis because, as discussed above, Syrians are not considered to be

substitutable for Jordanian labor for a number of demographic reasons. The model does include a slight increase in demand for native labor, however, as the presence of refugees in the country generates new demand for goods and services — especially in essential and public sectors such as education and health[2]. This increased demand for native labor could theoretically result in a higher market wage for native Jordanian citizens. However, it is also important to consider
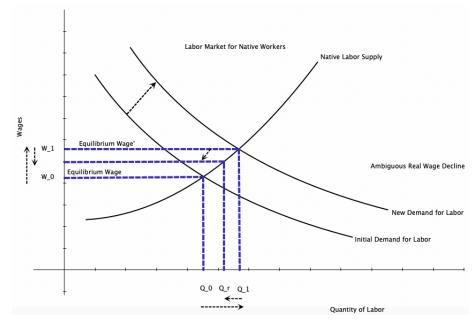
Figure 5: Labor Market for Native Workers

wages in real terms, as done by Akgündüz et al. in their analysis of Turkey. In their study, they find that the presence of refugees increases the demand for essential goods such as food and housing, thus driving up the price of those goods. Therefore, if nominal wages rise to W_1 while cost of living simultaneously rises, real wages W/P will fall. Therefore, between the downward pressure on real wages and the increased demand for labor, the direction of wages in this model is somewhat ambiguous.

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[2] Public sector jobs in Jordan are reserved only for Jordanian citizens (Malaeb & Wahba, 2018; Fallah, Krafft, & Wahba, 2019), meaning that a higher demand for public goods and services will be associated with an increased demand for Jordanian labor.

Jordanian Market Realities: Discrimination

In addition to the real and manifest barriers faced by Syrian refugees, they also suffer from

discrimination deriving from the common belief that they are less skilled and less productive

than other migrants in the country. Jordanian labor markets are highly segmented by nationality,

with a remarkably low degree of substitution between job types (Lenner & Turner, 2018, p. 82).

One clear example of this comes from the garment sector which, in Jordan, relies heavily on

South Asian migrant labor.[3] The factories can fill up to 75 percent of their positions with migrant

labor, and are required to save at least 25 percent of their jobs for Jordanians (*ibid*). Because

migrants generally work longer hours (between 10-11/day) compared to Jordanians who only

work 8 hours per day, factories already prefer to hire migrant labor over Jordanian labor for these

positions, considering Jordanians to be "a drain on the factories' productivity because they are

only willing to do the easiest jobs and are more expensive to employ" (*ibid*). In the same way

that this generalization is applied to all Jordanians, stereotypes about Syrians also bar them from

entering the garment industry. Overall, Syrians "are perceived [by employers] as less productive,

skilled and trained than the (potential) pool of South Asian labor normally recruited to work in

the sector" (*ibid*).

      In fact, a communication from the Jordan Garments, Accessories, and Textiles Exports

Association (JGATE) offering feedback on the EU-Jordan trade deal said explicitly, "migrant

employees are CORE to this sector due to their higher efficiency and productivity, skill levels,

willingness to work overtime, lower turnover rate. The migrant employees… cannot be

REPLACED by Jordanians nor Syrians." Instead, they argued that hiring Syrians should be

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[3] See Lenner and Turner (2018) for more examples of this. Anecdotally from the author's conversations in Jordan, an example would be the expectation that Egyptians will work as security guards, as doormen, or in gas stations.

considered a "humanitarian measure" outside of the normal migrant labor quotas — i.e., "employers wanted to replace their Jordanian labor with Syrians" (*ibid*). Therefore we can see not only that migrant labor is preferred, but that there is a hierarchy of who employers are willing to hire: if they cannot hire South Asian migrants at the same level, then they will turn to Syrian refugees, and only after that option is exhausted will they consider hiring the "more expensive" Jordanian labor. As Lenner and Turner summarize, "The substitution of Syrians for South Asian migrant workers would require a concurrent belief among employers that the two nationalities are straightforwardly substitutable, *a belief that is clearly not currently prevalent in the garment sector"* (*ibid*; emphasis added). Of course, the substitution of Syrians in jobs previously held by Jordanians is a politically unsustainable policy option for the GoJ to pursue (*ibid*, p. 83), which means that government interests and the interests of factory owners are at odds.

Theories of Discrimination

Economists have taken a number of approaches to explain the impact of discrimination on labor markets, but perhaps the most well-known theory is Gary Becker's "tastes and preferences" model (Becker 1957; 1971). In Becker's conceptualization, a discriminatory firm will consider working with a member of Group *B* — the discriminated group — to be a non-pecuniary, "psychological" cost. Thus, in this case the employer is making decisions based on utility maximization rather than on a narrow profit maximization decision. So, although employers in Becker's "taste for discrimination" framework do not actually suffer a cost because of hiring Group *B* employees, they make decisions as if they do. This "rationality" is modelled in the following way:

Assume a non-discriminatory firm hires workers based on profit maximizing behavior, which can be modeled using:

$$\max_{L_a, L_b, K} pf(L, K) - W_a L_a - W_b L_b - rK$$

where W are the wages of a type "A" worker or a type "B" worker, L is quantity of labor, r is the rental price of capital, and K is the quantity of capital. A discriminatory firm, on the other hand, would maximize utility using:

$$\max_{L_a, L_b, K} pf(L, K) - W_a L_a - W_b L_b - rK - dL_b$$

where the earlier coefficients remain the same, but the employer now calculates the added "psychological cost" of hiring Group B workers, where d is the discriminatory coefficient. In the absence of discrimination, $d = 0$, and thus there is no additional "cost" included in the employer's calculation (Becker 1971). In this situation, the firm will only hire Group B workers at a salary low enough to offset the non-pecuniary, "psychological" costs of hiring members of that group, leading to a wage gap between groups or underemployment of Group B.

In Becker's framework, discriminatory firms operate at a disadvantage because they make decisions at a higher marginal cost. Thus, as shown below, there will be an incentive for other non-discriminatory firms to enter the market and hire those workers at their actual market wage, meaning that they will not overestimate the marginal cost of each worker in the way that discriminatory firms do. The non-discriminatory firm will produce a higher quantity of goods and/or services and generate profits equal to the shaded region. Assuming a perfectly competitive environment, other firms will enter the market to get a share of profits, in turn driving down the price to the point where the discriminatory firm can no longer compete. In sum, Becker's "taste for discrimination" theory would predict that discriminatory firms would go out of business because it considers discrimination to be a costly and irrational decision.
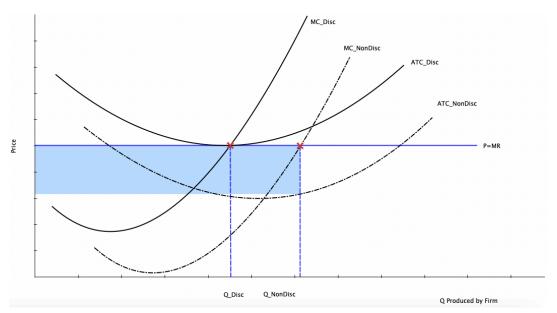
Figure 6: Becker's "Taste for Discrimination"

There are two main issues with using Becker's taste-based theory of discrimination: firstly, as described above, Becker's model would predict that discriminatory employers will go out of business because of the artificial costs imposed, thus resulting in a labor market free of discrimination. Of course, in the real world, that has not been the case, with clear pay gaps resulting based on characteristics such as gender and race. In other words, as the scholar Kenneth Arrow once pointed out, Becker's model "predicts the absence of the phenomenon it was designed to explain" (Autor, 2009, p. 5). This brings up the second issue with applying Becker's theory of taste-based discrimination to our current case: Becker's framework relies heavily on the idea that discrimination is the result of individual preferences, rather than society-level discrimination by the majority of employers.

Under Becker's assumptions, an employee facing discrimination would simply move to a non-discriminatory employer. In the case that there are no non-discriminatory employers, or not enough to offset those which are discriminatory by hiring all of the employees they refuse to — or in the case that employees do not have the needed market mobility or market information to

move from discriminatory to non-discriminatory employers — then discriminatory behavior will not be driven out of the market by competition. Instead, the theory predicts that a wage differential of $W_b < W_a$ will only occur when the fraction of discriminatory employers is sufficiently large enough that some of the group B workers will have to work for discriminatory employers (for whom the discriminatory coefficient $d > 0$) where they will be paid a wage less than W_a.

In this scenario, where we have such a large group of discriminatory employers, it is more relevant to consider systematic forms of discrimination that arise from wide-spread beliefs and stereotypes about certain groups or populations. To model this, it may be more useful to think in terms of statistical discrimination, rather than the individual tastes and preferences framework established in Becker's writing. Statistical discrimination, rather than considering discrimination to be the result of individual, idiomatic dislikes of a certain group, instead describes the employer's expectation of a group member's *future* productivity based on generalized stereotypes about the group in question. To apply this to the scenario of Syrian refugees in Jordan, we can see in the comments above that many employers — and especially those in the garments industry — have perceptions that Syrian workers will be less productive than the other migrant labor for whom they might otherwise act as a substitute.

In this case, we can think of employers as using the production function $f(N_m + N_s)$ where N_m is the number of hours for which the existing migrant labor is employed and N_s is the number of hours for which Syrian labor is employed, and where we assume that the function is additively separable so that $f(N_m + N_s) = f(N_m) + f(N_s)$. When an employer believes the Syrian workers' productivity to be some proportion less than the other migrant labor, then they describe the production function for Syrians as $\gamma f(N_s)$, where γ is a continuous random variable

between 0 and 1, so that the expected productivity is distributed with an average expected value of $\bar{\gamma} \in [0,1]$ with some standard deviation σ. Thus, the employer's lower expectations of Syrian workers' productivity would result in them predicting the average Syrian productivity as: $E(\gamma)f'(N_s) = \bar{\gamma}f'(N_s) < f'(N_m)$. We can then model the firm's profit maximation decision as: $\max_{N_m, N_s} f(N_m) + \bar{\gamma}f(N_s) - w_m N_m - w_s N_s$, where w_m and w_s are the wages paid to current migrant workers and to Syrian workers, respectively. As shown in the Appendix, this will lead firms to hire Syrian workers only if their wages $w_s = \bar{\gamma}w_m$, where the wages of the Syrian workers are some fraction of the wages of the other migrant workers, where that fraction $\frac{w_s}{w_m} = \bar{\gamma}$. The widespread occurrence of discrimination on the basis of low employer expectations for Syrian workers' future productivity gives statistical discrimination a stronger explanatory power than that of Becker's highly individualized tastes and preferences model, though a common basis for economic thought on discrimination.

    Statistical discrimination also has incredibly important implications for the future; because employers begin with low expectations of a worker based on their group membership, they are likely to invest less in training and educating them. In other words, statistical discrimination often becomes a self-fulfilling prophecy: employers think a group is relatively less-skilled, so they are unable to become employed and obtain work experience and in turn become relatively less skilled than other groups in the labor market, thereby fulfilling the employer's (discriminatory) expectations. Because the realities of Jordanian labor markets include discrimination and high levels of nationality-based sorting, we would expect even the relatively "low-skilled" or non-traditionally educated migrant workers to feel limited labor market effects resulting from the presence of Syrians in the country, as shown in Figure 7. Instead, it seems

evident that Syrians are systemically excluded from labor markets and face high levels of

discrimination upon entrance.

Another way to model these effects is to consider the relative wages of "Group A" and

"Group B" workers, in a framework designed by Charles and Guryan, shown below in Figure 7

(2008, p. 779). In their framework, the relative wage ratio remains equal to one so long as the

ratio of non-discriminatory firms to the relative supply (S_1) of Group A and Group B workers is
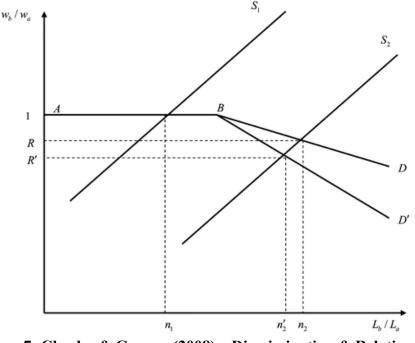
Figure 7: Charles & Guryan (2008) – Discrimination & Relative Wages

low enough that a wage gap does not occur between the two groups. Then, assuming that the

distribution of discriminatory and non-discriminatory employers remains the same (i.e.,

assuming that there is no major shock to social norms that would change levels of prejudice),

they model a major increase in the supply of labor from Group B, the group facing prejudice.

This shock will result in a wage gap that will occur, as in Becker's original framework, when the

ratio of prejudice within employers makes it such that some of the Group *B* employees will have to accept a lower wage in order to work for a discriminatory employer.

Charles and Guyan (2008) then model what will happen if there is an increase in prejudicial attitudes within employers while the relative supply of workers is held constant — for example, if the narrative that Syrian refugees are lazy or less-skilled or otherwise inferior labor to the potential alternatives were to become prevalent amongst employers as the presence and visibility of refugees grows. In this case, the demand for labor will rotate down from the original *ABD* curve to ABD', as shown in Figure 7 above, causing wages of the Group *B* workers to fall relative to Group *A* workers. Thus, while common narratives might expect that a major influx of refugees into the country will yield worse labor market outcomes for those working in the country prior to the shock, high levels of discrimination amounting to statistical discrimination amongst employers is likely instead to lead primarily to worse relative wages for the refugees. As discussed above, common stereotypes of Syrian refugees paint them as relatively less productive than their substitutes, and they face high barriers to entering Jordanian labor markets. The combination of these effects makes it more likely that refugees, rather than pre-existing sources of labor, will face poor labor market outcomes.

Concluding Thoughts

In modeling the impact of the Syrian refugee crisis on Jordanian labor markets, we can see that there are a number of different possible outcomes depending on the magnitude of the shifts in supply and demand for labor. We would expect much greater impacts to be felt in low-education, non-native segments of the labor market, while native workers are predicted to remain relatively unaffected. Therefore, we would expect any negative impacts to be felt most acutely in

informal private-sector jobs with low levels of education and training required. Even for migrant workers, however, the high level of nationality-based labor market segmentation means that the effects of refugees will *also* be muted, and only take place in markets where employers as a whole view Syrian refugees as equivalent and substitutable labor to the existing migrant workforce. Thus, we have two primary hypotheses to test in our empirical section: (1) firstly, we will test the hypothesis that, because of the barriers to employment faced by Syrian refugees, they will face higher levels of unemployment relative to Jordanian citizens and other nationalities working in the country. Secondly, (2) we will test the hypothesis that, because Syrian refugees do not act as a viable substitute to existing labor sources, the movement of refugees into the country will not have significant negative effects on employment outcomes such as unemployment, wages, and hours worked.

Literature Review

Akgündüz, et al. (2015)

Introduction

In the literature of forced migration and labor market implications for host countries, there are

often two focuses of research: the impact of migration to high-income countries and regions like

the United States and Europe, and the impact of migration on neighboring, often similar

countries to the one from which refugees are fleeing (pp. 2-3). In the context of the Syrian

refugee crisis, for example, much of the literature turns to Jordan, Lebanon, and Turkey — the

three countries hosting the bulk of the Syrian refugee population — as the subjects of interest.

For example, this Discussion Paper by Akgündüz, van den Berg, and Hassink investigates the

impact of Syrian refugees on food and housing prices, native employment rates, and internal

Turkish migration patterns. Using a difference-in-difference approach, the authors are able to

utilize the concentration of Syrian refugee camps in 6 regions of south eastern Turkey as a

treatment group, comparing the impacts of migration during the early years of the crisis to other

regions of Turkey, which serve as a control.

Review

In their introduction of the literature, Akgündüz, van den Berg, and Hassink begin with an

overview of the standard theory that governs this topic, explaining that the usual expectation is

for migration to increase supply of labor, thus driving up competition in the labor markets of

neighboring countries, creating a situation of lower employment and wages for native workers.

However, like others, they note that there has been little empirical evidence that actually supports

this hypothesis in local labor markets. They raise an explanation offered by Borjas (2006), who

argues that the labor competition effects are not felt because increased migration is offset by lower levels of internal immigration of native workers into the impacted regions (p.1). Additionally, the authors suggest that the impact on wages is not felt in the literature because most research does not consider price inflation in their analyses. They argue that this is a mistake because an increase in these necessary cost of living expenses would result in lower real wages, even if nominal wages are not affected (p. 1). These two considerations are taken into account in their own research, as they analyze the impact of Syrian migration not only on employment levels, but also on internal Turkish migration and inflation of food and housing prices.

Akgündüz et al. also discuss the nature of the majority of approaches used in the field to study this topic. They argue that there is a relative lack of quasi-experimental studies that analyze the impact of major exogenous shocks, such as a major migration movement (p. 2). Moreover, they argue that those which do employ quasi-experimental methods to labor questions are mostly confined to looking at the impact of returning citizens, or those with similar language and cultural backgrounds rather than the migration of poor immigrants with low levels of education and low familiarity with host country language and culture. Thus, they hope to fill a gap in this literature by studying the impact of Syrian refugees on Turkish labor markets, where Syrians are unfamiliar with the Turkish language, and may be imperfect substitutes to the Turkish natives.

The authors additionally point out the difficulty with designing studies of migration that is usually discussed within the literature. They explain that because, especially with forced migration, it is often not possible to restrict the locations of migrants to certain regions of a host country, and therefore impossible to create controls (p. 3). However, they explain that the concentration of refugee camps in limited regions of Turkey allows them to create clear treatment and control categories. This gives them the ability to employ a difference-in-difference

approach, by which they are able to mimic the framework of experimental research using panel data for different regions of Turkey before and after the treatment period.

Finally, the authors provide an overview of the situation of Syrian refugees in Turkey and the implications this might have on local labor markets. The major issue they point to is the lack of official refugee status for Syrians, who are rather classified as "guests" in the country (p. 4). The authors note two major implications of this for Syrians in the Turkey: firstly, a lack of official status means the refugees are unable to apply for asylum in a third country. Secondly, because they are not protected by the same rights as refugees, the Turkish government has the right to relocate Syrians without any legal checks. Moreover, this has implications for the study because Syrians' guest status means that they are not included in official reports of employment rates, which only take into account native workers and other registered migrants. This allows the authors to measure the impact of the refugee presence on native workers specifically, rather than having to worry that refugees will be counted in the native labor market effects.

Finally, Akgündüz et al. describe the concentration of Syrians in camps in Turkey's southeastern regions along the Syrian border. They explain that the incumbent native population in this area is relatively small, totaling only around 10 million people in 2013; this relatively small population, they argue, is thus likely to feel major impacts from the arrival of 500,000 Syrians. Moreover, because of the language barrier and low-educational attainment level of many Syrians, they predict that employment in "high-skilled" sectors will be limited.

Theoretical Framework

In discussing the theoretical impacts of hosting Syrian refugees, the authors reiterate that much of the literature on migration and host employment has failed to show negative effects of

migration (p. 6). However, they also theorize that the informal status of refugees might make them attractive substitutes to native workers. This may be true for employers who wish to avoid paying taxes, or who hope to take advantage of dispossessed peoples who will accept lower wages and are less likely to turn to the government for legal recourse in response to abuses (p. 7). At the same time, they emphasize that the language barrier and low education level of many refugees will restrict their ability to obtain "high-skill" jobs. Therefore, they expect that refugees may have negative impacts on the employment levels of natives in "low-skill" sectors, but do not predict major impacts for high- or medium-skill sectors.

As discussed above, the authors also hypothesize that negative wage effects are not well recorded in the literature because other researchers have not considered the effects of price inflation on real wages. In their discussion of inflation, the authors explain that, because refugees do not have the income to spend on non-necessity comfort goods and services, they expect to see the prices of necessity goods (i.e., food and housing) increase, while the prices of luxury goods should remain unaffected.

Finally, the authors consider the implications of refugees on internal migration. Using Borjas' theory of internal migration, they expect that there will be a decrease of migration into the regions which are most effected by the refugee influx, as well as an increase in migration out of the effected regions. Thus, when combining their theories on employment, real wages, and internal movement, Akgündüz, van den Berg, and Hassink predict that hosting refugees in Turkey may be correlated with: (1) negative employment outcomes for less-educated workers in "low-skill" sectors, (2) decreased real wages for all workers as a result of high food and housing price inflation, and (3) lower levels of internal migration by Turkish natives into regions hosting refugees.

In their theoretical modeling, the authors focus on key outcome variables: employment

rates for the 81 provinces (E_{jt}) and employment rates by educational attainment at the regional

level (S_{it}), housing and food price inflation (π_{it}), and internal migration patterns ($\frac{M_{jt}}{P_{jt-1}}$). The

treatment variable I denotes either the binary presence or absence of refugees or the number in

the area, depending on the specification. The authors construct four levels of education: (1)

poorly educated, which includes those who have less than a high school education; (2)

intermediately educated, which includes those with a high school education; (3) highly

education, which includes those with vocational training or higher; and (4) those who are unable

to read or write, which was a group too small to be considered in the analysis. Similarly,

migration is disaggregated into three categories: entry rate, exit rate, and net migration rate. In

the first two models, the authors use fixed effects at the regional level (R_i) for the 26 regions,

whereas in the second two they instead use fixed effects at the province level (C_j) for the 81

provinces of Turkey. Time fixed effects are denoted by T_t in all cases, and error terms are

denoted using e_{it} and e_{jt} based on whether location fixed effects are regional or provincial.

With the variables defined, they use the following difference in difference specifications

to model the impact of treatment variable I on the independent variables of interest:

$$\pi_{it} = \alpha + \rho I_{it} + T_t + R_i + e_{it} \qquad i = 1 \ldots 26, \quad t = 1 \ldots 10 \quad (1)$$

$$S_{it} = \alpha + \rho I_{it} + T_t + R_i + e_{it} \qquad i = 1 \ldots 26, \quad t = 1 \ldots 10 \quad (2)$$

$$E_{jt} = \alpha + \rho I_{jt} + T_t + C_j + e_{jt} \qquad j = 1 \ldots 81 \quad t = 1, 2, 3, 4, 5 \quad (3)$$

$$\frac{M_{jt}}{P_{jt-1}} = \alpha + \rho I_{jt} + T_t + C_j + e_{jt} \qquad j = 1 \ldots 81 \quad t = 1, 2, 3, 4, 5 \quad (4)$$

Data and Methodology

Akgündüz et al. employ data from the United Nations High Commissioner on Refugees (UNHCR) from 2012 and 2013 to approximate the count of refugees in the country for variable *I*, and data from the Turkish Statistical Institute (TÜiK) on inflation rates, internal migration, and employment. They use a difference in differences approach to compare each of the outcome variables within a treatment group, which they define as the 6 regions in Turkey that hosted refugee camps in 2012-2013, and the remaining 20 regions of Turkey, which are used as a control group. They use the years 2012-2013 as the treatment period, in order to compare the difference between the control group and the treatment group both pre-2012 and post-2012. In their study design, the authors then take the difference between the pre- and post- 2012 differences to obtain a measure of difference in difference. To test their predictions for inflation, they choose to use the hospitality sector as a test of internal consistency to compare against the movement of food and housing prices. To measure inflation, the authors take an average of the monthly inflation rates of each year, as well as using monthly inflation rates as a robustness test. Finally, to measure the changes in internal migration, the authors convert the changes into rates by dividing the quantity of migration by the previous year's total population.

Within each model, the authors use two types of standard errors; the first is a clustered standard error that is clustered at the regional level, and the second is a bootstrapped standard error using 1000 replications. The standard clustered errors allow them to control for area-specific shocks, but the low number of regions could be a cause for concern, as it may result in the underestimation of standard errors. The bootstrapped standard errors account for this because they are specifically designed for models with a low number of clusters to ensure that underestimated standard errors do not result in false positive results (or Type I errors).

Results

Using the above methodology to test the impact of Syrian refugee migration on each of the dependent variables — inflation levels, employment, and internal migration — Akgündüz et al. run regressions to test their theories (Table 7 summarizing their results can be found at the end of this section). They find that inflation for necessity goods — especially food — do increase in the difference-in-difference analysis. For example, in their both of the two models, refugee presence was positively associated with inflation of food prices at the 1% significance level for all standard errors (both clustered and bootstrapped) except for the second model, where it was statistically significant at only the 5% level for the bootstrapped standard error of Model 2. The impact on housing prices was more muted, especially for the first model, where only the clustered standard error was significant at the 10% level with the treatment on number of refugees in the area, but not for the dummy treatment on presence. The second model had somewhat more robust results, with both standard errors statistically significant at the 5% level for the dummy treatment, and at the 1% level for the treatment on number of refugees. As expected, hospitality sector prices do not significantly increase, which is a good robustness check for internal consistency, and allows us to conclude that the impacts from refugees on necessity goods such as food and housing do make theoretical sense.

At the same time, employment levels for native workers were not found to be significantly correlated with the presence of refugees, but the magnitude of the coefficients for employment of those with lower education was more negative than for high and medium education levels, as was expected. For example, in Model 2, which excluded large cities from the control group, the coefficient on education was -1.71 for those with low education, -0.782 for those with medium education, and 0.115 for those with high education. The authors suggest that

this shows that the expectations from theory match the impacts that are shown in the data with

refugees seeming to act as greater competition for low-education jobs, but not for sectors

requiring high levels of education.

Nevertheless, the authors do find that internal migration was significantly correlated with

the refugee presence. While native migration *out from* affected regions did not increase

significantly, migration *into* the regions did decrease at a significance level of 1%. Although the

magnitude of the coefficients on migration were small — only -0.0039 in Model 2 and -0.0043 in

Table 7: Placebo tests and alternative control groups

	incl. western Turkey		excl. western Turkey	
	(1) placebo in '11/'12	(2) excl. large cities treatment	(3) placebo in '11/'12	(4) excl. west treatment
inflation				
food	0.654	0.910***	0.552	0.814**
	(0.576)	(0.274)	(0.583)	(0.307)
housing	1.349	0.605	0.251	0.594
	(0.819)	(0.432)	(0.753)	(0.436)
hospitality	0.502	-1.321	-0.346	-0.798
	(1.037)	(0.973)	(0.913)	(1.056)
employment (NUTS-2)				
high education	0.464	0.115	1.331	0.867
	(1.381)	(1.714)	(1.495)	(1.855)
medium education	1.534	-0.782	2.653	-0.154
	(1.939)	(2.064)	(1.665)	(1.861)
low education	-1.249	-1.71	-1.114	-0.729
	(1.947)	(2.230)	(1.895)	(2.060)
migration (NUTS-3)				
net migration rate	0.0031	-0.0045***	0.0036	-0.0050***
	(0.002)	(0.001)	(0.003)	(0.002)
entry rate	0.002	-0.0039***	0.002	-0.0043***
	(0.002)	(0.001)	(0.002)	(0.002)
exit rate	-0.0011	0.0006	-0.0016	0.0007
	(0.001)	(0.001)	(0.001)	(0.001)

Note: All models include year and region/province fixed effects. Model 1 presents placebo tests of all regions of Turkey. Model 2 excludes regions of western Turkey.

Model 4 — the authors theorize that this effect might be due to the perception by Turkish citizens from other regions that there are fewer employment opportunities in the regions hosting camps, or that the higher cost of living expenses from food and housing inflation has dissuaded more people from moving into those regions. So, while it does not seem that the refugee presence has significantly displaced native residents from the affected regions, Syrian migration may have resulted in fewer citizens from other regions from moving into the south eastern parts of the country which border Syria. In sum, while the authors saw net population growth without a corresponding effect on employment rates, the impact of refugees was felt in internal migration rates and price inflation, which may be felt in real wages of natives.

Critical Analysis

Akgündüz et al.'s study provides two main benefits to my own research into this topic: firstly, their methodology provides an approach to study my own question of interest and, secondly, their article supports the dominant theory within the literature with robust results. Like others before them, the authors fail to find major effects of a refugee movement on the labor markets of host countries, but still suggest that any negative impacts are most likely to be concentrated within sectors that require low-education levels. However, they also complicate the analysis seen in other literature by considering other ways that labor variables might be impacted which are not captured in traditional measures. For example, their consideration of inflation of necessity goods such as food and housing demonstrates how, even if nominal wages remain unaffected, workers might see a decrease in their real wages. Moreover, the authors also suggest that the lack of significant impact seen on the employment variables might be explained by the impact of

refugees on internal migration, by which the refugee migration into impacted areas is offset by a decrease in native migration into those areas.

In terms of methodology, Akgündüz et al. disaggregate the employment data based on education level, rather than by sectors as some other scholars do. This provides an alternative level of analysis that I consider for my own research in order to capture the same information. This will be especially useful if the sector-specific data I had hoped to find is not as accessible as data by education level. The authors also employ a difference-by-difference approach that seems to be an appropriate method to incorporate into my own future research.

However, Akgündüz et al. also note that a difference-in-difference approach might be limited in some ways for other studies. They explain that, in areas where migration is spread fairly evenly throughout the country, it will be impossible to create controls to compare against the "treatment" of the natural migration "experiment." For this reason, the authors caution against even using this approach now to measure impacts of the current situation within Turkey, as migration has been too widespread to other regions to create an appropriate control group. Finally, one other limitation of this study might be a concern over its applicability to my own research, as their focus is on migration into a new cultural and linguistic setting, while Syrian refugees in Jordan and Lebanon are not as affected by those specific constraints. Nevertheless, Akgündüz, van den Berg, and Hassink provide a compelling addition to the literature on forced migration's implications for the labor markets of host countries and will be instrumental in shaping my own research on the same topic.

Fakih & Ibrahim (2016)

Introduction

Between the disciplines of economics and migration, there has been much literature completed

regarding the impacts of migration on labor markets of destination countries. However, less

literature has been conducted observing how the specific phenomenon of forced migration

impacts labor markets, and little of this research deals with ongoing and still evolving conflicts.

One recent piece of literature that seeks to fill this gap is Ali Fakih and May Ibrahim's "The

Impact of Syrian Refugees on the Labor Market in Neighboring Countries: Empirical Evidence

from Jordan." In this study, Fakih and Ibrahim utilize time-specific data from multiple different

sources to analyze how the influx of Syrians into Jordan following the outbreak of the conflict

has impacted economic activity as well as a number of variables related to native labor markets.

Specifically, Fakih and Ibrahim consider these factors for the three governates in Jordan which

host the greatest refugee populations: Amman, Irbid, and Zarqa.

Context and Challenges

Fakih and Ibrahim begin by placing this topic in the context of the Syrian conflict since

its inception in 2011, and how refugees — approximately three million at the time of publication

in 2016 — spilled into Syria's neighboring countries of Jordan, Lebanon, Turkey, and Iraq in the

years since. Jordan and Lebanon, especially, have absorbed a large part of the influx proportional

to their populations, with Syrian refugees making up 10% of the Jordanian population in 2014.

Of the 604,868 refugees that were either registered or awaiting registration in 2014, many are

concentrated in the northern region of the country, where it borders Syria. As discussed above,

Amman, Irbid, and Zarqa host the greatest proportions of refugees. Irbid — the most northern

governate of the three — hosts 29% of urban Syrian refugees, the capital city of Amman hosts 32%, and nearby Zarqa hosts another 10% of them. It is because of this proportionally heavy concentration of refugees in these three areas that the authors choose to focus on them for the analysis.

To emphasize the magnitude of the issue, Fakih and Ibrahim discuss the many challenges that Syrian refugees present to the infrastructure of Jordan. For example, in addition to the increased demands on the supply of water, electricity, and municipal services, they note that the additional cost to enroll Syrian children in primary and secondary education was approximately $81.4 million in 2013, while healthcare for Syrians accounted for an additional $167.8 million. However, Fakih and Ibrahim also provide other exogenous explanations for the country's economic strain, including the global financial crisis of 2008, the political instability following the Arab spring uprisings, and the decreased supply of cheap gas from Egypt, which had formerly been responsible for around 80% of Jordanian electricity supply.

Finally, Ibrahim and Fakih conclude their contextual overview with a discussion of the legal framework under which Syrian refugees in Jordan are governed. They explain that, while Jordan has no official laws in relation to refugee conduct, Syrians are treated as foreign nationals under Jordan's Alien Law, making them subject to the laws of the country. Syrians can enter Jordan without visas and, once in the country, have access to a number of public services, namely health care, education, food vouchers, and cash assistance programs. At the same time, work permits are not readily accessible to refugees, meaning that a great many end up working entirely within Jordan's informal cash economy.

Literature Review

In section two, the authors expand the context of this research by engaging in a review of other literature that studies migration issues. Having cited earlier research finding that violence stemming from war or other high levels of conflict results in the highest levels of forced migration, Fakih and Ibrahim move on to discuss a range of other case studies of the impacts of forced migration on both the individuals who migrate and the countries who host them. Their literature review is drawn from diverse sources, including both from low-income and more conflict-prone countries as well as high income Western countries. In their review of literature on the impact on individuals who are forced to leave their homes, Fakih and Ibrahim cite a paper that shows some long-term positive benefits for some displaced groups, which they conclude is due to effective policies with regards to resettlement and integration. However, as they point out, this paper is severely limited in its narrow focus, only surveying the impact within European countries following World War II. The same study also looked at less-developed countries and found much more negative impacts, including lower income levels for the displaced in their destination country.

When looking at host countries, Fakih and Ibrahim cite sources that show more nuanced effects on host countries, often concluding that the effect is neither entirely positive nor entirely negative but rather dependent on sector. While they note that mass inflows resulting from forced migration can in theory have major negative impacts on host countries by increasing resource and employment competition with locals, they also emphasize that forced migrants are motivated by a "push" factor rather than a "pull," meaning that they are not moving to the country for the specific purpose of finding employment, as economic migrants might be. Additionally, Fakih and Ibrahim cite examples from three separate studies on German, U.K., and U.S. labor markets.

In each of these, the authors find that while there were negative impacts on the wages of other immigrants, the impact on native wages was weakly negative, if not slightly positive. Thus, the authors each conclude that immigrants are an imperfect substitute for native labor forces and cause little competition to occur between immigrant-native labor forces, but rather among immigrants themselves. Like the above example, these studies have the drawback of being limited to Western, high income countries in which the native population might be more outwardly different from their immigrants, as compared to the higher level of heterogeneity between populations within the same region. Because Syrians and Jordanians are both part of the levant region and share many demographic and cultural characteristics, we might expect to see that Syrians are in fact a substitute for Jordanian labor to a greater degree than immigrants to the U.S., U.K., and Germany.

When looking at other globally southern countries, Fakih and Ibrahim find more mixed results. For example, in a study of forced migration's impact on five African host countries (Djibouti, Zambia, Guinea, Ghana, and Tanzania) found some general trends suggesting that urban labor markets to not widely absorb the influx of refugees, leading to a ballooning of informal markets in the countries. In some cases, they find increased competition with locals, but also note that the increased labor supply and mobility are helpful for small and medium firms' ability to find employees. In examining a study on the influx of Iraqi refugees to Jordan following the 2003 Iraq war, the authors note that inflation in Jordan rose dramatically. However, when inflation is disaggregated by governate, they actually found that governates with higher proportions of refugees did not suffer significantly more from inflationary prices. They also found more specific results by sector, showing that rural agricultural sectors were more

negatively impacted by inflation, whereas those working in service industries such as restaurants and hotels actually benefited from the increased spending levels of the refugees.

With all of these findings in mind, Fakih and Ibrahim demonstrate two major themes. The first is that, while infrastructure and public service costs on host countries are undeniably high, they are often overestimated and exaggerated, whereas the benefits that migrants bring is routinely understated. Secondly, the trends of their literature review show that migration does not universally hurt labor markets in host countries, but rather that the pain is usually concentrated in informal, low-wage labor markets, thus disproportionately affecting low income, rural natives.

Empirical Methodology

To test their hypotheses, Fakih and Ibrahim draw on three data sources. First, they utilize data collected by the United Nations High Commissioner for Refugees (UNHCR) as a count of the number of Syrian refugees in the country, which they label as their variable SYR. Secondly, they use data on the monthly percent change in the number of construction permits (obtained from the Central Bank of Jordan) as an indicator of economic activity, which they label ECON. Finally, they use three different variables from Jordan's Department of Statistics to measure labor markets, which they call L. The three variables they use as a measure of L are employment rates (EMP), unemployment rates (UNEMP), and labor force participation rates of those over the age of 15 active in the work force (LFORCE). The EMP, UNEMP, and LFORCE variables are all restricted to the native population, excluding refugees from their calculations. Moreover, because these three statistics are available quarterly rather than monthly, Fakih and Ibrahim use a geometric interpolation equation to obtain monthly estimates from the data in order to match the time formatting of the ECON and SYR variables.

In their methodology, the authors begin by explaining that they have chosen to use the Vector Autoregressive (VAR) model because it is especially effective at addressing endogeneity concerns. Additionally, they explain that another benefit of this model is the ability to employ a representation of a moving average, which allows for the use of impulse response functions to analyze how any variable shocks will impact the other variables in the model. This allows them to test for relationships going both from the SYR variable to the ECON and L variables (which they expect to have the greatest impact), but also allows them to measure if ECON or L shocks filter back to impact the SYR variable in any ways that might not be expected.

Using the causality tests set up in the paper, Fakih and Ibrahim fail to find that a major change in the SYR variable creates a significant impact on the ECON or L variables, thus concluding that Syrian refugees do not appear to have a major relationship with native Jordanian labor markets. They suggest that the reasoning behind this might be due to the fact that refugees are majorly confined to informal sectors or, alternatively, that their concentration in camps makes it nearly impossible for them to compete with Jordanian citizens for work. While they do not find significant causality flowing from the direction of the SYR variable to the ECON and L variables, they do find some evidence to suggest that the EMP and LFORCE variables might have negative effects on the SYR variable. They hypothesize that this effect might stem from the lack of an effort of Jordan to create employment opportunities for refugees. In concluding, Fakih and Ibrahim stress that, while they did not find significant impacts on Jordanian labor markets as a result of Syrian forced migration, the scope of this humanitarian crisis is still far-reaching and must be met with a strong response from the international community.

Critical Analysis

Fakih and Ibrahim's research into the impacts of forced migration on the labor markets of

neighboring countries is a major update of the literature. As discussed in the overview of Article

Importance at the top of this paper, the research on this phenomenon was relatively scarce prior

to their contribution, particularly when looking at the Middle East. While this article has some

limitations in terms of its scope, it nevertheless provides a helpful starting place for my own

research on how the Syrian refugee crisis has impacted the labor markets of neighboring

countries.

One shortcoming of Fakih and Ibrahim's work is its nearsighted view, looking at

immediate effects but failing to consider longer trends. In fact, the authors themselves emphasize

the need for further research on the long-term impacts of the crisis; as this crisis is still evolving,

it may be of great use to reconsider this study in light of new data to determine if any new trends

or results have emerged. Another, more major limitation of their study is its general nature. For

example, there is need for more research into specific sector impacts as their holistic overview is

likely to miss significant results that would come from a disaggregated approach. Because

national origin plays a major role in Jordanian labor markets, it is reasonable to expect that a

sector-by-sector approach would provide a much clearer story of the impact of absorbing such a

large number of forced migrants. Nevertheless, Fakih and Ibrahim's contribution to the literature

on forced migration is substantial in its region-specific approach and provides a strong

methodological approach for understanding this issue.

In addition to updating the literature on forced migration, their article also has significant

political implications. By concluding that Syrian refugees in Jordan do not have any impact on

Jordanian labor markets, Fakih and Ibrahim contradict the common narrative which blames

refugees for the economic problems of the Jordanian people. If their conclusions are correct, it would follow that the governments of Jordan and Lebanon might be inclined to change their immigration policies to be less restrictive. Unfortunately, because the authors also hypothesize that the lack of impact might be because Syrians are greatly excluded from the formal labor markets of Jordan — either by policy or by confinement in camps — the governments might also be incentivized to continue these practices which undermine human rights of Syrians residing in the country. So, while their study finds that neighboring countries (or at least Jordan) need not fear that refugees will take their jobs, it also brings up another question: is there a way for the governments of neighboring countries to accommodate mass migration in a way that both protects the economic wellbeing of native citizens without pushing refugees to the margins of the productive economy? This topic warrants further investigation in the literature to reconcile the findings of Fakih and Ibrahim with the need to respect human rights of all peoples.

In terms of their methodology, the data employed by the authors may be useful for my research. By using three variables to measure labor effects, they get a clearer picture of how the native workforce will be impacted. The authors employ an Vector Autoregressive (VAR) Model, which helps them to address concerns about endogeneity. Similarly, the authors discuss the relevance of impulse response functions to their model to measure how shocks to one variable will filter through the rest of the model to the other variables in both directions (either from the SYR variable towards ECON and L, or from ECON and L towards SYR). Thus, they are able to conclude a lack of impact from SYR on the other two variables, but to find that EMP and LFORCE (two of the variables representing L) will have an impact on the number of refugees (SYR). Although this is not a model that I employ in my own methodology, their results still

yield similar results to my own conclusions that the presence of Syrians in most cases does not create significant negative effects for the existing Jordanian workforce.

Despite any limitations of Fakih and Ibrahim's approach, this article is incredibly helpful in focusing my own research and directing me towards potential methods and data sources. Their work has also helped me to identify a potential gap in the literature which could be filled by a sector-specific approach to testing the impact of refugees on neighboring countries' labor markets. Moreover, Fakih and Ibrahim's conclusions have politically interesting implications that bring up questions for further investigation as I continue this research project.

Fallah, Krafft, & Wahba (2019)

Introduction

Empirical research measuring the results of the Syrian refugee conflict on the labor markets of neighboring countries is still in a developmental stage due to the recent nature of the crisis. While long-term effects are still yet to be seen, Fallah, Krafft, and Wahba (2019) contribute significantly to the literature through their analysis of disaggregated labor market effects on Jordanians as a result of the Syrian refugee population residing in the country. The authors make use of the Jordan Labor Market Panel Survey (JLMPS), a collection of nationally representative panel data from the Jordanian labor force over the period from 2010-2016 (as well as retrospective data going back to 2004) in order to examine the effects of the refugee presence on a number of labor market indications including employment, unemployment, hours worked, occupation, sector, locality of residence, and level of formality. Using this dataset, they apply a difference-in-differences approach to estimate the effect of Syrians as a percentage of locality population on Jordanian employment indicators, which are then disaggregated by sector, formality, and education level. They find that Jordanians living in localities with a high proportion of Syrian refugees did not face any worse labor market outcomes than their counterparts in areas with a lower share of Syrians. However, they do find that Jordanians residing in areas with higher proportions of Syrians were more likely to see a movement from the private to the public sector (especially in the fields of health and human services) and to see an increased level of job formality. Their results suggest that, in the short term, the Syrian presence does not represent a major competitive threat to the Jordanian labor force, but rather that the hosting of refugees has resulted in a slight shift in Jordanians moving to more formal work in the public sector.

Literature Review

To begin their article, Fallah, Krafft, and Wahba provide an overview of the literature relating to the labor markets of countries hosting refugees, before narrowing in on the still limited but quickly growing body of literature specifically relating to the Syrian refugee crisis. The authors distinguish between voluntary economic migration and refugee displacement — commonly referred to by other scholars as "pull" versus "push" factors — and embed the Syrian refugee crisis solidly in the latter body of research rather than considering immigration research generally. They begin by examining the topic generally and cite a study by Card (1990) which is considered to be a seminal article in this body of literature. The authors explain that Card found no employment or wage effects on native workers in Miami following an influx of refugees from Cuba, and then cite subsequent studies that have built off of Card's work.

Fallah, Krafft, and Wahba then shift to discuss the literature in the more specific context of low-income, "developing" countries, citing studies by Maystadt and Verwimp (2014) and Ruiz and Vargas-Silva (2016) that evaluate the impact of Rwandan and Burundian refugees on Tanzanian workers' labor market outcomes, as well as a study conducted in Kenya by Alix-Garcia et al. (2018) which found that new employment opportunities benefitted local workers who reside in close proximity to refugee camps. Focusing in more specifically on the context of the Syrian refugee crisis, the authors cite a number of different studies which analyze labor market outcomes with Turkey as the host country of interest, many of which particularly examine the impacts on informal sectors and less-educated workers. Of particular interest are studies by Cengiz and Tekguc (2017) and Akgündüz et al. (2015) that employ difference-in-difference approaches to evaluate the effects of Syrian refugees' consumption on labor demand in Turkey.

Although the authors begin their discussion of Jordan with a note that there has been little research conducted to study the effect of Syrian refugees on the Jordanian labor force, they provide a review of the country context. Specifically, they describe how Syrians were not legally allowed to work prior the passage of the Jordan Compact in 2016, meaning that any employment before that point had to be done informally. The Compact, signed jointly by the government of Jordan and the European Union (EU), provided Jordan aid — both humanitarian and more generalized economic assistance — as well as trade concessions in exchange for Jordan agreeing to make 200,000 formal work permits available to Syrians in sectors such as construction and agriculture. However, as Fallah, Krafft, and Wahba point out, by the end of the following year, only 87,141 of those 200,000 had actually been applied for and granted.

Theoretical Framework

Within this context, the authors explain the traditional economic theory that is used to explain immigration effects on native employment outcomes. They state that the refugees would act as a supply shock, displacing Jordanian workers. This, the authors explain, is expected to negatively impact native workers by leading to higher unemployment and lower wages, especially for less-educated workers in informal sectors. However, they predict that these negative effects will be offset by the economic benefits of the Jordan Compact, which they expect to provide new work opportunities for Jordanians in order to meet the health and education needs of the refugee population. Thus, they theorize that the Syrian refugee crisis will create a shift of Jordanians from the private to the public sector, as well as a movement to more formalized labor as informal jobs become more competitive.

Data and Methodology

For their empirical analysis, Fallah, Krafft, and Wahba use difference in differences methodology with data from Jordan Labor Market Panel Survey (JLMPS). The JLMPS records household data over the years 2010 to 2016, in addition to retrospective data spanning from 2004 to 2016. The authors limit their analysis of the dependent variables measuring labor market outcomes to only Jordanians and Syrians of working age (15-64). Because occupations in the Jordanian labor market are segmented rigidly along gender lines, and because both Jordanian and Syrian women have low labor force participation rates, the authors further disaggregate their results by gender, and present only the results for Jordanian and Syrian men aged 15-64 in the paper. As the primary independent variable, Fallah, Krafft, and Wahba use the percentage of Syrian households in the local population at the locality level. Thus, they are able to estimate the impact of variations in Syrian population density on labor market outcomes for working age Jordanian and Syrian men. Additionally, they add control variables for age and education level of respondents, as well the highest level of parental education and/or father's employment status as proxy controls for family socioeconomic status.

For their regressions, Fallah, Krafft, and Wahba employ different specifications of linear difference in differences models using 2010 as the reference year, to which all the employment effects of the crisis since its initiation in 2011 are compared. The authors use an interaction term on time and the share of Syrians in the population as the covariate measuring the impact of the influx. This same term is used in the retrospective models to evaluate the trends of the data prior to the influx in order to ensure that the assumption of parallel trends is met. Each of the four retrospective models include the difference in differences estimates, with each adding different controls for population share of refugees, time, individual observed characteristics and fixed

effects, and locality fixed effects. The population share of refugees in the sample range from 0.5-82 percent, with the highest percentage shares concentrated near the northern border with Syria. As the population share variable is a percentage, their models estimate the labor market impacts for a one percentage point change in the share of Syrian households in a given locality. Because the retrospective models are more limited in terms of the variables included, the authors also implement a panel model using the data from the 2010 and 2016 years of the JLMPS. This specification uses individual fixed effects and year fixed effects, for which 2010 is the reference year and 2016 is the only year dummy used.

Results

Across the retrospective models, the effects of refugee presence on employment and unemployment are insignificant for all years following the beginning of the Syrian conflict, and do not show any consistency in their signs. This was true for all specifications, regardless of the various controls. Similarly, the retrospective model used to test the effects on formality of employment were not significant. In order to estimate the impact of the refugee shock on different sectors, Fallah, Krafft, and Wahba focus on (1) the open sector in which refugees are legally allowed to work, (2) the health and human services sector, and (3) the private sector. While they do not find significant effects for the first two, they do observe positive employment effects for Jordanians in the private sector during the years 2012 and 2013, immediately following the refugee influx. They suggest that this result could be explained by recognizing that the initial crisis created many needs, which may have created private sector jobs for Jordanians in the short run before the public sector adjusted to meet the demand.

Although the use of only 2010 and 2016 in the panel model means that we are unable to

observe the changes over time within that period, this specification does produce statistically

significant results for the formality variable and for the natural log of hourly wages. The

coefficient on the interaction variable between time and Syrian share of locality is 0.003 for

formality and 0.009 for the natural log of hourly wages, meaning that a one percentage point

increase in the share of Syrians for a given locality is associated with a 0.3 percentage point

increase in the probability of formal employment and a 0.9 percent in wages for 2016 compared

to 2010, as shown in the table below. While this indicates a positive change for hourly wages, the

results for monthly wages were smaller and less robust. However, the change in formality

evident in their results is in line with the theory that the greater availability of public sector jobs,

paired with higher levels of competition for informal positions, will result in a movement of the

Jordanian labor force from informal to formal work.

Table 4
Labor market outcomes (fixed effects linear probability and OLS models), men, panel data.

	Unemployed	Employed	Formal	Ln (hourly wage)	Hours per week	Ln (monthly wage)	Managerial/ Professional Occupation	Open sector	Health and Human Serv.	Private sector
Year (2010 omit.)										
2016	0.033	−0.083	0.153***	0.337***	−2.592	0.131	0.024	−0.011	−0.004	−0.006
	(0.038)	(0.049)	(0.036)	(0.098)	(1.783)	(0.126)	(0.023)	(0.032)	(0.018)	(0.033)
Int. year and % HH Syrian										
Int. 2016 and % HH Syr.	0.001	0.001	0.003*	0.009*	−0.135	0.003	0.001	0.002	−0.001	−0.002*
	(0.001)	(0.002)	(0.001)	(0.004)	(0.121)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)
N	7363	7394	4786	3863	4677	3924	4788	4789	4789	4808

Notes: *p < 0.05; **p < 0.01; ***p < 0.001.
Controlling for age and age squared in year.
Standard errors (in parentheses) clustered at the locality level.
Source: Authors' calculations based on JLMPS 2010 - JLMPS 2016 panel.

Finally, Fallah, Krafft, and Wahba run a number of sensitivity tests to determine if any

sections of the Jordanian labor force were disproportionately impacted by the refugee influx.

They find no significant negative effects for any of the groups tested, namely youth populations,

those with low levels of education, and those in the capital, Amman. Additionally, they add a

specification using district-level fixed effects to test whether high refugee density due to

proximity to a camp was a significant factor. However, as with the other sensitivity tests, they find no significant effects of refugee density on labor market outcomes. Thus, they conclude that no segments of the Jordanian population were disproportionately impacted by negative labor market outcomes as a result of hosting Syrian refugees.

Conclusion

In their comprehensive examination of the impacts of the Syrian refugee crisis on labor market outcomes for Jordanian workers, Fallah, Krafft, and Wahba provide a significant contribution to the literature. By relying on a combination of difference-in-difference and panel models, the authors conclude that hosting refugees has not resulted in lower levels of employment or lower wages for Jordanians, but instead suggests that the crisis has created a slight shift in Jordanians from informal to formal labor in the public sector. They explain these results by noting a number of factors, including the very young demographic composition of the Syrian refugee population; the late and slow uptake of the Jordan Compact; the likelihood of Syrians to compete with other, earlier immigrants rather than with Jordanian workers; and the inflow of foreign aid paired with increased labor demand in the public sector to address health and humanitarian needs of the refugees. This conclusion supports their theory that Syrian refugees will not act as a major source of competition to the Jordanian labor force but, rather, might generate new consumption needs that will create employment opportunities for Jordanians in the public sector.

Critical Analysis

This study by Fallah, Krafft, and Wahba is a significant contribution to the literature, especially in their ability to demonstrate how the Jordanian labor force has shifted sectors to adjust to the

massive influx of refugees. While earlier literature that I have read has provided similar results on employment and wages disaggregated by employment or sector, much of the focus of other articles has been on the displacement of less-educated Jordanian laborers from informal sectors without a clear suggestion of *to where* they are displaced. By clearly showing the shift towards formal, public sector work in the fields of health, education, and humanitarian assistance in order to meet the needs of the refugee population, the authors provide a compelling explanation of effects on Jordanian workers' labor market outcomes, thus filling a gap in the literature.

Of course, their analysis is also limited in a few ways. Firstly, the scope of this paper is definitively short term. Although one of their proclaimed contributions to the literature is to provide understanding of how allowing refugees to work legally will impact native work outcomes, their range of data only spans until the end of 2016 — the same year that Syrian refugees were first granted the legal opportunity to work. Even if this change had been immediately and flawlessly taken up — which we know is not the case because of the very low number of work permits granted in comparison to the maximum allowed — the time measured in which Syrians could legally work in Jordan would span only from February to the end of 2016. Thus, while they provide significant results for the impact of the Syrian refugee population's presence on labor market outcomes over the period, their ability to show impacts from legal work is particularly limited. Another limitation of the study is the focus on only Syrians and Jordanians without accounting for non-native immigrants or refugees of other nationalities. Because much theory suggests that refugees are most likely to compete for work with other immigrants, rather than host-country natives, it would undoubtably be incredibly useful to understand how other non-native populations in Jordan were affected by the influx of Syrian refugees.

Fallah, Krafft, and Wahba's study has major implications for my own research. Firstly, they provide a very clear and comprehensive literature review full of articles which I have not come across before that seem incredibly relevant to the question I hope to explore. Specifically, they cite studies related to Jordan-specific labor market rigidities (Amer, 2018; Assaad & Krafft, 2016; Yassine, 2013) and the impact of Syrian refugees on other non-native workers in the country (Malaeb and Wahba, 2018).

In addition to the new directions of research that can be explored by reading their literature review, I was able to identify that the data source Fallah, Krafft, and Wahba utilize — the 2010 and 2016 JLMPS data — is publicly available online and can be found on the Economic Research Forum. Finally, I build off of the empirical framework established by the authors in this paper. Their focus on public and private sector work provides and interesting and explanatory piece of the story that has been missing in some other literature that I have read and is an important contributor to my theory that the refugee influx will increase the demand for Jordanian labor through the increased demand for public sector goods and services. Lastly, because the scope of their study is so short-term, future studies might replicate their methodology when more data becomes available in order to analyze if the short-term effects reported by the authors hold up or change in the long run.

Malaeb & Wahba (2018)

Introduction

Following the beginning of the Syrian refugee crisis in 2011, there has been a major concern on how refugees might act as a supply shock to the labor markets of host countries. While a small body of research has sought to investigate the impacts of hosting refugees on the labor market outcomes of native workers in host countries, far less has been conducted to answer the same question for other immigrants residing in the host countries. Because theory suggests that refugees are much more likely to compete with immigrants than with native workers for jobs, especially in highly rigid labor markets, understanding only the impacts on native workers does not show the full labor market effects of hosting refugees. This article by Malaeb and Wahba (April 2018) fills this gap by measuring the impact of Syrian refugees on labor market outcomes for non-Syrian immigrants in Jordan.

Review

While the literature specifically studying the impacts of Syrian refugees on other immigrants in Jordan is very minimal, Malaeb and Wahba begin their paper by reviewing the larger body of scholarship on impacts of refugees on host community labor markets. As Fallah, Krafft, and Wahba (2019), the authors here note Card's seminal study of Cuban refugees in Miami in the year 1980 as a starting point for much of the research on this topic. They list other studies of refugee flows into several European countries as well as Israel, before focusing more narrowly on the labor markets of developing countries. They provide several examples of studies from Africa, as well as those which have examined the effect of Syrian refugees on Turkish labor markets.

However, they emphasize that much of this research has considered only the impact on native work force labor market outcomes, neglecting the impact on other immigrants residing in the country. While they cite one UK-based study on the implications of new immigration for earlier immigrants, there is little research available in the context of the Syrian crisis. Because Jordan hosts an estimated 1.6 million other migrants in addition to the 1.3 million Syrian refugees, the authors argue that it is crucial to understand how this large segment of the population might be affected. Thus, the goal of their research is to fill the major gap in the literature to answer this crucial question.

Theoretical Framework

Malaeb and Wahba establish their theory primarily on the concept of labor substitution. They classify three separate categories of labor: native workers, immigrants, and refugees, and argue that the closer two of the categories are in terms of demographic and educational characteristics, the more competition will exist between them. As research on the substitutability of labor has generally accepted that new waves of immigration are more likely to compete with earlier immigrants than native workers, they suggest that previous immigrants would be more likely than Jordanians to face negative labor market outcomes. Moreover, economic immigrants and Syrian refugees are on average less educated than Jordanian natives, and more likely to work in informal sectors such as construction, agriculture, and manufacturing, whereas many formal, public sector jobs are reserved solely for Jordanians. Although they distinguish between the pull factors that attract economic migrants and the push factors that force refugees to relocate, they suggest that a high level of homogeneity in work qualifications between refugees and economic immigrants could potentially result negative labor market outcomes for immigrants.

Alternatively, they also posit that if the three groups are imperfect substitutes and act instead as complements, that the refugee influx could actually benefit native and non-Syrian immigrant workers.

Data and Methodology

For their empirical testing, Malaeb and Wahba rely on the Jordanian Labor Market Panel Survey (JLMPS) from 2010 and 2016/2017, as well as the Jordanian Census for the years 2004 and 2015. As their principle groups of interest, the authors identify two groups: natives and non-refugee immigrants. For both of these groups, they analyze results only for males between the ages of 15 and 59, as the labor force participation rate for Jordanian women is regularly very low. The census data is used to track the change in the Syrian population by subdistrict as a measurement of refugee density.

In order to evaluate the effect of hosting Syrian refugees on other immigrants residing in Jordan, the authors employ a two-stage least squares (2SLS) approach to estimate a continuous treatment effect. Their model estimates effects for an individual within a given sub-district at a given time. They implement controls on individual observed effects such as age, education years, size of household, district, and proportion of refugees in the population, as well as dummy variables for the year 2016 and for an urban setting. They also employ a number of location controls — including shortest distance from the Syrian border and to refugee camps — in order to account for the potential self-sorting of refugees and immigrants into areas with favorable economic conditions. Even though refugees do not initially come to Jordan because of some pull towards economic opportunity, the authors note that with 70 percent of refugees residing outside of camps, there is often a second migration to other areas in Jordan. As this decision would likely

be influenced by work or housing availability, the authors emphasize the importance of controlling for these location effects.

Their model tests three binary employment outcomes for both the Jordanian and immigrant groups: (1) that an individual participates in the labor force, (2) that the individual is employed, and, conditional on labor force participation, (3) whether the individual is employed formally or informally. They additionally test for the impacts on weekly hours worked, as well as weekly and hourly real wages and the total real wage over the 3-month period examined.

Results

In their initial ordinary least squares (OLS) estimations, Malaeb and Wahba find that neither group — Jordanian or immigrant workers — faced worse employment outcomes as a result of working in an area with a higher concentration of Syrian refugees. Additionally, they find that immigrants were significantly more likely to be employed informally than native Jordanians. While the OLS results do not include the controls for the potential self-selection effects of refugees and immigrants, the 2SLS results confirm that a higher proportion of Syrian refugees in a sub-district was associated with a greater likelihood that immigrants would be employed in the informal sector relative to native workers, as shown in their 2SLS results below. Although

Table 4
Labor market outcomes (fixed effects linear probability and OLS models), men, panel data.

	Unemployed	Employed	Formal	Ln (hourly wage)	Hours per week	Ln (monthly wage)	Managerial/ Professional Occupation	Open sector	Health and Human Serv.	Private sector
Year (2010 omit.)										
2016	0.033	−0.083	0.153***	0.337***	−2.592	0.131	0.024	−0.011	−0.004	−0.006
	(0.038)	(0.049)	(0.036)	(0.098)	(1.783)	(0.126)	(0.023)	(0.032)	(0.018)	(0.033)
Int. year and % HH Syrian										
Int. 2016	0.001	0.001	0.003*	0.009*	−0.135	0.003	0.001	0.002	−0.001	−0.002*
and % HH Syr.	(0.001)	(0.002)	(0.001)	(0.004)	(0.121)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)
N	7363	7394	4786	3863	4677	3924	4788	4789	4789	4808

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
Controlling for age and age squared in year.
Standard errors (in parentheses) clustered at the locality level.
Source: Authors' calculations based on JLMPS 2010 - JLMPS 2016 panel.

likelihood of working in the informal sector decreased for both Jordanians and immigrants with the growing Syrian presence, immigrants were still far more likely to work informally and face negative outcomes. Specifically, the authors report that even though immigrants' hourly wages were not significantly impacted, their total wages saw a significant negative effect as they worked for fewer hours compared to before. As an additional robustness check, the authors include another specification in which they exclude all immigrants who come from conflict-affected areas to ensure that they have not included refugees incorrectly classified as economic immigrants. Still, they find that their results remain robust even using this specification. Thus, Malaeb and Wahba conclude that immigrants working in regions with a higher share of Syrians were more likely to work in informal sectors, work fewer hours, and therefore receive lower total wages.

Conclusion

In conducting this study, Malaeb and Wahba are able to fill a major gap in the literature. Whereas other authors have often examined the effects of hosting refugees on native workers, Malaeb and Wahba are the first to analyze how other immigrants will be impacted by an inflow of refugees. In accordance with the theory that earlier migrants will face more competition than native workers as the result of hosting refugees, the authors find significant negative effects on the number of hours worked by immigrants, which results in a decrease in total monthly wages. This allows them to confirm that, as theory would suggest, refugees do not act as a perfect substitute for native labor, but rather that refugees are more likely to compete with other immigrants for work.

Critical Analysis

I found Malaeb and Wahba's work to be useful both theoretically and in what I can learn from their methodology. Because of common concerns over protecting the employment outcomes of native workers in the face of a major wave of immigration, the majority of the research that I have found on this topic — both generally and in the specific context of the Syrian refugee crisis — have focused on the impacts on native workers. In order to holistically understand the effects of the Syrian refugee crisis on the labor markets of host countries (i.e., Lebanon and Jordan), it is important to account for all three populations: refugees, native citizens, and other immigrant groups.

Like Fallah, Krafft, and Wahba (2019), Malaeb and Wahba also make use of the JLMPS for the years 2010 and 2016 and the Jordanian Census, which indicates further that these could be two good potential sources of data for my own empirical research. However — unlike Fallah, Krafft, and Wahba — Malaeb and Wahba do not use a difference in differences approach. Instead, they use OLS and 2SLS models to calculate their estimates. This approach seems particularly useful as a way to implement controls on self-selection of location in order to ensure that all assumptions of quasi-experimental design are met. Additionally, like other recent research on the Syrian refugee crisis, this paper looks at very short-term effects. While this might be a limitation for their study, it also means that I could revisit their results when more data becomes available in order to build off of their analysis and compare the later results to theirs to determine was has changed over time.

Altogether, Malaeb and Wahba's research benefited my understanding of the question I am seeking to investigate. By combining their work with the research of others who have investigated impacts for Syrian refugee and native Jordanian populations, I have a much clearer

idea of the whole story. In order to understand the impact of the Syrian refugee crisis on Jordanian and Lebanese labor markets as a whole, we need to know not only who faces competition in which sectors when a country hosts refugees, but also what their labor market outcomes are as a result.

Al-Hawarin, Assaad, & Elsayed (2018)

Introduction

Following the beginning of the Syrian refugee crisis in 2011, much attention has been directed to Syria's neighbors — Turkey, Jordan, and Lebanon — that have absorbed a huge number of refugees in proportion to their respective populations. Significant research on the labor market implications of hosting Syrian refugees has been conducted in Jordan and Turkey especially, much of which utilizes a difference in differences (DID) approach. Al-Hawarin et al. employ the same methodology using the Jordan Labor Market Panel Survey (JLPMS) for household demographics, the 2015 Jordan Population Census for share of Syrians as a percentage of population, and the Jordan Household Expenditure and Income Survey (HEIS) for housing conditions and rental prices. They give the share of Syrians in a given locality an identification of either "relatively higher" or "relatively lower," and those localities which host a relatively higher proportion of refugees are considered to be the treatment on three outcomes: 1) housing quality, 2) dwelling area of a household, and 3) rent.[4] By examining how these three outcomes are affected by the migration shock, Al-Hawarin et al. contribute significantly to the literature on refugee-hosting countries, and specifically contribute to the understanding of how hosting refugees may impact real wages through price inflation of housing and other crucial goods.

Review

In their introduction and review of the literature, Al-Hawarin et al. first provide a number of facts to establish the setting and situation in Jordan before the refugee crisis even began. They note that, in addition to both being situated in a region of political vulnerability and being a country

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[4] Although these factors do not directly measure labor market impacts, they have important implications for real wages, as in the framework described by Akgündüz et al. (2015) and Tumen (2016) for Turkey.

with limited natural or economic resources to speak of, Jordan also faces a chronic shortage of low-income housing. The strain on public services and housing, even before the refugee influx, was a challenge for the country, especially with a population growth rate of 3.2 percent per year, and with more than four fifths of the country concentrated in urban spaces. At the time of publication, the authors noted that there was not a significant body of evidence evaluating the impact of the Syrian crisis on housing outcomes in host countries. They note two significant studies of this type for Turkey — Tumen (2016) and Balkan and Tumen (2016), which found negative impact of refugees for rental prices in Turkey — but no such work had been conducted for Jordan at the time.

They also cite in their review a study by the United Nations Development Programme (UNDP) that used both the HEIS data and a supplemental survey from the northern governorates of Jordan in 2010 and 2013 to find a more negative quality of life and employment outcomes in 2013 compared to 2010, especially noting higher inflation, rent, unemployment rates, and pollution levels. However, Al-Hawarin et al. note that the UNDP study used only descriptive analysis between the two years and did not control against other areas in the country that were less affected by hosting refugees. Thus, this article aims to fill the gap in the literature by using similar methodology to the two studies conducted in Turkey and apply it to the Jordanian context.

Theoretical Framework

In their theory, Al-Hawarin et al. posit that the presence of a greater share of Syrian refugees residing in a locality will create more competition for housing and associated public services, such as public water availability, public sewage, trash collection, etc. They divide housing

effects into three categories: 1) housing quality, as measured by a housing quality index made up

of factors including housing type, floor type, source of drinking water, heating methods, garbage

disposal, sewage, and area per household member, as well as by predicted rent; 2) household

dwelling area as measured by the number of rooms; and 3) actual rent. They construct the

following theoretical model to measure refugee impacts on the three housing variables, O_{it}:

$$O_{it} = \beta_0 + \beta_1 R_i + \beta_1 T_t + \beta_3 [R_i * T_t] + \beta_4 D_{it} + U_i + \varepsilon_{it}$$

Where the share of Syrian refugees in the population is denoted by R_i, where the dummy

variable on time before or after the crisis is denoted by T_t, where D_{it} represents the regional

dummy controls, U_i is a fixed effect on individual households, and ε_{it} denotes the error term. In

this construction, β_3 is the coefficient of interest, measuring the impact of the interaction term on

refugee share and time.

Data and Methodology

As described above, Al-Hawarin et al. utilize three data sources for this project. Firstly, to

measure the treatment variable R_i for the share of Syrians in a given locality, they use the 2015

Jordan Population Census. To capture the three housing outcome variables denoted by O_{it}, the

authors use the Jordan Labor Market Panel Survey (JLPMS) for its detailed household

demographics information, which includes presence of public goods and dwelling area. Finally,

the authors use data from the Jordan Household Expenditure and Income Survey (HEIS) for

housing and rent prices. Using these three data sources, the authors construct a difference in

differences analysis between the 2010 and 2013 data; they confirm that the parallel trends

condition is met by comparing housing outcomes from the HEIS over 2002, 2006, 2010, and

2013 between "treated" and "untreated" regions, and conclude that the findings can in fact be

attributed to the Syrian refugee crisis rather than to other exogenous factors. They also conduct a heterogeneity analysis to control for household effects such as educational attainment, wealth, and household size, as well as a control for proximity to the border. The importance of this control is underscored in their descriptive analysis of the JLMPS 2010 data, which finds most aspects of housing quality to be better in the areas which host an above average share of refugees. They attribute this initial difference to a greater degree of development in the Northern parts of Jordan which were subsequently the most exposed to the influx of refugees and explain that this creates a need to correct for initial conditions.

Results

The results of their overall regression suggest that Syrian refugees have a negative effect on housing outcomes of natives, but most of the variables are statistically and economically insignificant. The only exception is the effect on the housing quality index, which finds that an additional one percent in share of Syrians in the population is associated with a 0.013 standard deviation reduction in the index. When conducting their heterogeneity analysis, the authors find, as might be expected, that lower income households with less formal education face more negative effects, and that wealthier households actually see a small improvement in their housing outcomes. For households classified as low-wealth (in the 5th decile or below), a one percent increase in the share of Syrians is expected to be associated with a -0.0017 standard deviation change in the housing quality index, although the results for high-wealth households are statistically insignificant. Households with a head who is classified as "unskilled" are expected to see a -0.0016 standard deviation change associated with every additional percentage of Syrian

share in the population, while those with a "skilled" head of household are only expected to see a -0.0011 standard deviation change for the same increase in Syrian population.

Additionally, they find that governorates closest to the border — Irbid, Ajloun, Jerash, Mafraq, and Zarqa — see rental prices increase and housing quality go down, although not dramatically; a one percent increase in the Syrian share of the population is associated with a 0.012 standard deviation reduction in the housing quality index. Somewhat counterintuitively, however, they also find that the areas furthest from the border are actually the most sensitive to changes in the proportion of Syrian refugees in the population. For these governorates,[5] the authors find that a one percentage increase in Syrian share is associated with a 0.020 standard deviation reduction in the housing quality index. In addition to this more dramatic result, the distant regions also see statistically significant negative results for predicted rent and log house area, whereas the border regions did not. Al-Hawarin et al. offer two explanations for these potentially unexpected results: 1) the low initial populations of many localities in Southern Jordan have a lower capacity to adjust to the increased pressure on public services, as compared to the relatively wealthier and more developed North; and 2) the concentration of non-governmental organizations and international donors in the North are more likely to help enhance the public services available and offset some of the negative effects. Rent is the only variable for which the border governorates see a more dramatic impact from hosting refugees, where a one percent increase in Syrian share of the population is associated with a 0.011 percentage point increase in log of actual rents. Thus, Al-Hawarin et al. conclude that while the Northern governorates which border Syria might be most likely to see increased rents, that

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[5] The governorates classified as distant regions include Balqa, Amman, Madaba, Karak, Tafilah, Ma'an, and Aqaba. Because Amman includes such a high proportion of Syrian refugees, the authors also include a separate analysis in which Amman is excluded from the distant regions as a robustness check to ensure that it is not skewing the results for the distant regions category. However, they find similar results in Amman as in the other distant regions.

housing quality in distant governorates is actually more sensitive to an increased share of Syrians in the population.

Conclusion

In their analysis of the effects of hosting Syrian refugees on housing outcomes in Jordan, Al-Hawarin et al. contribute significantly to our understanding of how a refugee-hosting country might be affected following a migration shock. They confirm some intuitive results, such as the fact that houses with lower income and lower levels of education and formal training are likely to face the most negative effects of competing with refugees for housing and public resources, while wealthier households might expect to see a small improvement in housing outcomes as a result of the refugee crisis. Looking at location, they find that the Northern regions which host the most refugees are expected to see some minor increases in rent, but that the more distant Southern regions will actually be more sensitive to an increase in refugees as a share of the population — possibly due to the relatively higher absorptive capacity of the more developed and donor-dense North. The author's work fills an important gap in the literature as the first study to consider the specific effects of the Syrian refugee crisis on Jordanian housing, rent, and public service outcomes, all of which have major implications for real wages and standard of living.

Critical Analysis

This article by Al-Hawarin et al. has one major limitation for my own research purposes — it does not respond directly to my question of how Syrian refugees impact the labor markets of Jordan. Nevertheless, I found it to be incredibly useful in augmenting my understanding of that

question in several ways. Firstly, the authors employ a difference in differences (DID) approach, similar to Akgündüz et al. (2015), Tumen (2016), and Fallah et al. (2019). I adopt the same methodology of these authors, and even though the DID approach of Al-Hawarin et al. is not explicitly used for labor market outcomes, it still provides a useful example of the methodology that I believe will be useful when I construct my own empirical modeling.

Secondly, the authors identify the Jordan Household Expenditure and Income survey, which I had not come across before reading their work. If I hope to approximate the effects on real wages in the style of Akgündüz et al., then that dataset would be particularly useful. Finally, because the JLMPS also describes public services that are associated with housing — such as water, heat, and trash services — this may be useful in approximating an increase in public sector jobs, as the presence of Syrians will mean that there is higher demand for public goods and services. Because public sector jobs are reserved for Jordanian citizens, this has major implications for labor market outcomes as well. For all of these reasons, this article by Al-Hawarin et al. significantly contributes both to my understanding of the question I am trying to answer, and to my ability to conduct my own research to answer it.

Literature Synthesis

By utilizing these five articles, we are able to tell a more comprehensive story of this issue than any of them can illustrate on their own. With their mix of different methodologies and focus on different aspects of the same topic (i.e., unemployment, wages, housing and food prices, internal migration, et.c), we are able to better see which segments of host country labor markets are affected by the Syrian refugee crisis, and in what ways. Across the literature, the scholars find minimal or no negative effects on labor market outcomes for native workers, with the exception

of Akgündüz et al. (2015) and Al-Hawarin et al. (2018) finding that real wages may decline as a result of price inflation on necessity goods and housing. Although labor market outcomes do not change in a way that negatively effects wages or hours worked, Fallah et al. (2019) and Malaeb and Wahba (2018) both find that native workers are less likely to be working in informal sectors following the Syrian refugee influx. Fallah et al. explain this as a positive shift in demand for native labor, with the refugee presence necessitating the provision of many public sector services including education and healthcare. As Malaeb and Wahba as well as earlier scholars have found, the competitive effects of the refugee presence are more likely to be felt on immigrants and those with low education working in the informal sectors of the economy. Malaeb and Wahba's results show, in fact, that other immigrants in Jordan are more concentrated in the informal sector than native workers, and that they did see a loss of hours worked after Jordan began hosting refugees. This suggests that — contrary to the common narrative of fear and protectionism on behalf native workers — immigrant workers in a country hosting refugees are more likely to face negative workforce outcomes than natives.

Finally, some of the authors propose policy options to better integrate refugees into the workforce of host countries. It is of course possible that the very lack of labor market integration —both via policy and physical concentration in refugee camps, as outlined by Fakih and Ibrahim (2016) — is responsible for the lack of impact on native workers. If country of Jordan wishes to create policy that both protects their native and immigrant workers and empowers and protects the human dignity of Syrian refugees, it will be essential for them to understand whether the lack of job competition between native workers and refugees is due primarily to the structural barriers to formal work faced by refugees, or the other characteristics which make them less likely to be considered perfect substitutes for labor.

Literature Synthesis

Article:	Akgündüz et al. (2015)	Tumen (2016)*	Fakih & Ibrahim (2016)	Fallah, Krafft & Wahba (2019)	Malaeb & Wahba (2018)	Al- Hawarin et al. (2018)
Methodology	Difference-in-differences (DID)	Difference-in-differences (DID)	Vector Autoregressive (VAR) Model	Difference-in-differences (DID)	Two-Stage Least Squares (2SLS)	Difference-in-differences (DID)
Country of Interest	Turkey	Turkey	Jordan	Jordan	Jordan	Jordan
Population of Interest	Native workers	Native workers	Native workers	Native workers	Other/earlier immigrants	Native workers
Dependent Variables of Interest	-Emp/ Unemp -Internal Migration -Inflation -Real Wages	-Emp/Unemp -LFP + formality -Wages -Housing rents -Consumer prices	-Emp/ Unemp -LFP -Economic Activity (new permits)	-Emp/Unemp -Sector Worked -Formality	-Emp/ Unemp -Sector Worked -Formality -Wages	-Housing quality -HH dwelling area -Rent
Dataset(s) used if Jordan	-N/A	-N/A	-UNHCR counts for # of Syrians -Central BoJ permits data -JDoS labor data	-JLMPS 2010 & 2016 + retrospective JLMPS data	-JLMPS 2010 & 2016 -Jordan Census	-JLMPS 2010 & 2016 -HEIS 2006 & 2013 -Jordan Census
Unique Contribution	Focus on migration, inflation as influencing real wages	Provides example of DID methods with additional discussion of market formality	Suggests need for sector-by-sector approach; discussion of concentration	Describes shift to public/ formal sectors	Focus on immigrant labor competition & substitution of labor	Applies the DID methods used by Akgündüz in Turkey to real wages in Jordan

*Tumen (2016) not included as a full article review because of its similarity to Akgündüz et al. (2015), but included for reference as an influential article in the literature.

Data & Methodology

The models employed by this paper are linear difference in differences (DID) estimations. DID models in their most basic form necessitate a time variable, a treatment variable, and an interaction term between the two. The primary assumption behind using a DID approach is that the treated and untreated regions are on parallel trends prior to the intervention, or treatment, as the DID methodology measures the difference between the differences of each group in their pre- and post-treatment periods. In other words, the untreated group is meant to be considered a convincing counterfactual to the treated group to show the expected outcome holding all conditions equal except the treatment. In each specification, 2010 is the reference year.
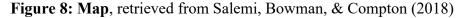
The methodology of difference in differences is used extensively in the literature on forced migration, especially in regard to the Syrian refugee crisis. Akgündüz et al. (2015) use this approach to analyze both employment and real wage effects in Turkey via inflation of housing and food prices. Fallah, Krafft, and Wahba (2019) as well as Al-Hawarin et al. (2018) also both employ a difference in differences approach to measure economic impacts of the Syrian refugee crisis on Jordan. Al-Hawarin et al. primarily examine factors such as rental prices and housing quality rather than labor market effects. Because Fallah, Krafft, and Wahba focus their efforts on labor market variables such as employment and sectors worked, their analysis is the most directly helpful in designing my methodology.
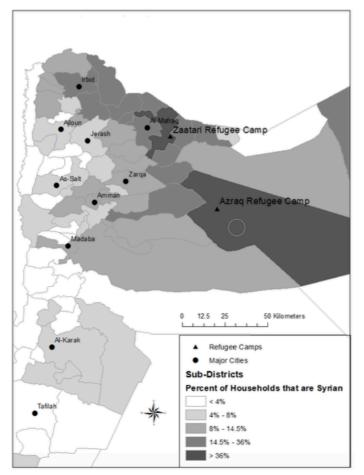
To examine the impacts of Syrian refugees on Jordanian labor markets, this paper relies on data from the Jordan Labor Market Panel Survey (JLMPS), a collection of nationally representative panel data from the Jordanian labor force in the years 2010 and 2016. Because 2010 was before the start of the refugee crisis, we can take this data as our pre-treatment year, and 2016 as our treated year. In addition to those individuals surveyed in both 2010 and 2016,

the JLMPS 2016 dataset also includes observations from 2010 that were not re-surveyed in 2016, as well as a 2016 refresher sample of 3,000 households that oversamples Jordanian neighborhoods with high proportions of non-Jordanians and refugees and refugee camps that were not included in the initial sample. For the purpose of the difference in differences regressions — which necessitate observations over time of the same individuals — all individuals that were only sampled in one of the two years are dropped from the dataset for the purpose of the DID models. Data on the proportion of Syrian refugees in a given district during the treatment period come from the 2015 Jordan Census, with population percentages calculated by Krafft et al., 2019 (see Appendix C for full list of district-level population percentages). Using the location codes available for download from the JLMPS, the percent of the population made up by Syrians for any given district was coded into the JLMPS dataset to match the district-level codes therein. Thus, for every individual observed in the dataset, there are two sets of observations, one from the pre-treatment year 2010 and one from the post-treatment year 2016; additionally, each observation includes the percent of the population that is Syrian in the district of residence for the individual observed.

Because the JLMPS only has data from 2010 and 2016, it is impossible to generate trends to test this assumption. This inability to evaluate the parallel trends assumption is an important limitation to keep in mind when evaluating the results of this study. Nevertheless, Fallah, Krafft, & Wahba (2019) and Al-Hawarin (2018) both also employ the JLMPS data from 2010 and 2016 for their DID analyses. Additionally, Malaeb and Wahba (2018) also utilize this dataset for their Two-Stage Least Squares analysis.

In this case, the treatment variable of interest is of course the proportion of Syrian refugees in a given district. However, because a district with four percent of the population made

up of Syrians is likely to have radically different outcome than one with over 20 percent of the

population Syrian, four separate binary treatment variables were generated. The first, and

broadest, is considered treated for any district with a population proportion of Syrian that is

greater than four percent. The next treatment variable is coded as treated if the district has a

population proportion Syrian greater than eight percent; the next if it is greater than 14.5 percent;

and the final and highest threshold treatment variable is coded as treated only for districts with a

population proportion of Syrians greater than 36 percent. Thus, for each outcome variable of

interest, there are four treatment scenarios. The density of Syrians as a proportion of the

population can be viewed visually on the map below, created by Salemi, Bowman, & Compton

(2018).

Figure 8: Map, retrieved from Salemi, Bowman, & Compton (2018)

Four outcome variables are used to capture labor market outcomes: monthly wages, hours worked, a standard unemployment definition (for which job search is required), and a broad unemployment definition (for which job search is not required). Wages are tested in Tumen (2016) and Malaeb and Wahba (2018); unemployment outcomes are tested in Akgündüz et al. (2015), Tumen (2016), Fakih and Ibrahim (2016), Fallah, Krafft, and Wahba (2019), and Malaeb and Wahba (2018). Because we have unemployment as only a binary variable, we also add hours worked per week as another measure of labor market outcomes to capture other adjustments for those employed. Additionally, because unemployment is a dummy dependent variable, we interpret the coefficients on our independent variables as a percentage point change in the probability of that a person will be unemployed, as explained in Long (April, 2020).

Each regression includes controls on education level, biological sex, urban/rural location, nationality, wealth, age, and governorate-level fixed effects. Additionally, all specifications employ cluster-robust standard errors, as in Akgündüz et al. (2015) and Fallah, Krafft, and Wahba (2019). Here, we cluster at the level of the unit of observation (individual) as to account for potential multicollinearity, as discussed in Bellemare (2015). Early estimations also included a binary independent variable on the skill level of sector worked, however it was found to be insignificant in all cases and did not meaningfully impact the other coefficients, so it is excluded in the final results. Finally, the specification on wages also includes age squared to account for the expected change in earnings throughout one's lifetime. For each specification, we estimate:

$$Y_{it} = \beta_0 + a_j X_{itj} + \gamma S_d + \delta_t t + \theta_t t * S_d + \epsilon_{itd} \tag{1}$$

Where Y_{it} denotes each of the outcome variables with i and t as identifiers of an individual and time, respectively. X_{itj} represents j number of controls, specifically on education level, sex, urban or rural location, nationality, age, age squared, and wealth level, as well as governorate-level fixed effects. The nationality control is a binary variable indicating if an individual is of Jordanian nationality or not. S_d indicates the binary *treated* district variable of Syrian presence at the four population threshold levels, and the variable t indicates whether the year is pre- or post-treatment. The interaction term between the treated and time variables is understood by $t * S_d$ and thus θ_t measures the impact of the Syrian refugee presence.

There are a number of important limitations to address. Firstly, as mentioned earlier, we are unable to test the parallel trends assumption due to the limited time scope of this dataset. However, using retrospective data from the JLMPS between 2004-2009, Fallah, Krafft, and Wabha (2019) found that the parallel trends assumption holds in all but one case. While the use of the retrospective dataset is beyond the scope of this paper, we can be somewhat more comfortable with assuming parallel trends for our own use based on their estimations. Additionally, it is possible that we might have omitted variable bias in our estimations, especially with regard to formality and sector. Although initial specifications included an binary independent variable on the skill level of sector worked, denoted as either "high skill" or "low skill," it was excluded from final results as it did not meaningfully impact the estimations. It is likely that a binary variable for skilled or unskilled is not specific enough to capture the way that different sectors and skill levels would be affected. It is also likely that much of the same information about skill level is captured by the education variable; in fact, Akgünduz et al. (2015) use education as a control in place of sector, as they state that it captures the same information in their estimations. The most likely reason that we might see omitted variable bias,

then, comes from the omission of the formality indicator to label an individual as working in the private or public sector. Unfortunately, the time constraints of the thesis process limited our ability to include this information in the estimations. Thus, the sector formality information is an avenue that should be explored more in future research.

Finally, in addition to the DID models, a number of data visualizations and descriptive statistics are generated in the results section to. These graphs do not indicate causation, but rather are intended to demonstrate the demographic distribution within employment outcomes as a result of discrimination and the nationality-based labor market rigidities of Jordan's labor markets. Sex, nationality, and skill level of sector are the primary variables of interest in these visualizations. When nationality is used, it is limited to Jordanians, Syrians, and Egyptians, the three primary groups in the categorization of the data.

Results

Monthly Wages

In the analysis of monthly wages, the difference in differences interaction terms between time and presence of Syrians is not statistically significant for the first three treatment groups (four, eight, and 14.5 percent). Only in the most extreme treatment threshold, in districts where Syrians make up over 36 percent of the population, does the interaction treatment term have statistical significance. In this case, the coefficient on the interaction term is negative (-402.1), suggesting that those residing in only the most dramatically affected districts (i.e., those in Mafraq and Zarqa that house Zaatari and al-Azraq refugee camps, respectively) might expect to see approximately 402 Jordanian Dinar (JD) less in monthly wages between the pre- and post-treatment periods than someone in the unaffected districts. That such a major demographic shock, with refugees very suddenly making up over a third of the population in these regions, might negatively impact wages is not altogether surprising. However, what is perhaps more interesting is the lack of significance for any of the other treatment categories. That would indicate that, for the vast majority of the Jordanian workforce, monthly wages are not significantly affected by the presence of Syrian refugees in the country.

Of the controls (full results listed in the Appendix) for monthly wages, the only one with significance is the sex variable, which is strongly negative with coefficients ranging between -164.6 to -175.2 in the four different population threshold levels. The negative coefficients indicate that women in the Jordanian workforce will make anywhere between 164 to 175 JD less per month than their male counterparts, regardless of the treatment. To contextualize this difference, summary statistics for monthly wages are shown below:

Table 1: Summary Statistics, Monthly Wages

Variable	Obs.	Mean	Std. Dev	Median	Max
Monthly Wages (primary job)	5,362	516.0005	4,623.425	350.000	299,364

Table 2: Monthly Wages

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Time	33.78	236.4	157.3	117.5
	(54.01)	(186.1)	(133.5)	(101.8)
Treated (4%)	-123.8			
	(103.9)			
DID Interaction (4%)	99.06			
	(166.2)			
Treated (8%)		-492.4		
		(513.6)		
DID Interaction (8%)		-254.3		
		(206.3)		
Treated (14.5%)			49.80	
			(56.37)	
DID Interaction (14.5%)			-204.5	
			(166.9)	
Treated (36%)				402.1**
				(177.5)
DID Interaction (36%)				-402.1*
				(208.2)
Constant	1,330	1,793	1,185	1,190
	(853.2)	(1,143)	(777.5)	(779.3)
Observations	5,534	5,534	5,534	5,534
Number of Findid	3,893	3,893	3,893	3,893

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Unemployment

Two measures of unemployment were utilized for the regressions: a standard market definition that includes a job search requirement and a broader market definition that does not. Although both of these specifications were utilized in case the broader definition captured different effects, their results are overwhelmingly consistent. Thus, we will primarily focus discussion on results

generated using the standard unemployment definition. The results of the unemployment

regressions closely mirror those described above for wages, in which the results for the districts

Table 3: Unemployment (Standard Market Definition, Search Required)

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Time	0.0312***	0.0293***	0.0215***	0.0237***
	(0.00858)	(0.00563)	(0.00417)	(0.00364)
Treated (4%)	-0.00435			
	(0.0103)			
DID Interaction (4%)	-0.00823			
	(0.00937)			
Treated (8%)		0.00295		
		(0.00736)		
DID Interaction (8%)		-0.00825		
		(0.00720)		
Treated (14.5%)			-0.00690	
			(0.00680)	
DID Interaction (14.5%)			0.0145*	
			(0.00803)	
Treated (36%)				-0.0188
				(0.0147)
DID Interaction (36%)				0.0490**
				(0.0219)
Constant	-0.00165	-0.00837	-0.00633	-0.00630
	(0.0185)	(0.0164)	(0.0156)	(0.0156)
Observations	18,409	18,409	18,409	18,409
Number of Findid	10,834	10,834	10,834	10,834

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

treated more broadly with four and eight percent of the population composed of Syrians are not

statistically significant, and only those with the more extreme treatments show significance. In

the models using the standard market definition of unemployment, the coefficient is 0.0145 when

the population is greater than 14.5 percent Syrian and 0.0490 when the population percent Syrian

is greater than 36 percent. This indicates that the probability of facing unemployment for those

living in the two most dramatically treated district groups increases by approximately 1.45 and 4.90 percentage points more between the pre- and post-treatment periods than for those in the untreated regions. Again, this indicates that, while workers may be at a higher likelihood of facing unemployment in these districts, those effects are primarily constrained only to the regions facing the most extreme demographic shifts.

The specifications also yield significant coefficients for a number of the control variables in the unemployment models. Firstly, a higher level of education is correlated with a slightly higher rate of unemployment, with coefficients ranging between 0.00177 and 0.00180. This would indicate, somewhat counter intuitively, that a one-degree higher education level is actually correlated with a higher likelihood of being unemployed. However, the results are not particularly economically significant, indicating only a 0.18 percentage point change in the probability of unemployment with every increased education level. Similarly, the biological sex variable is -0.0232, indicating that status as a woman is correlated with a 2.32 percentage point reduction in the probability of unemployment relative to their male counterparts. It might be such that, because of the rigidity of Jordanian labor markets and the low labor force participation rates of women in the Jordanian workforce, those women who do enter the workforce face lower levels of unemployment than men who face a much higher level of competition.

The area variable on urban/rural locality is also significant for the unemployment models, with coefficients ranging between -0.00815 to -0.00864, indicating that residing in a rural district is correlated with approximately a 0.8 percentage point reduction in likelihood of unemployment. Finally, household wealth level is negatively correlated with unemployment, with coefficients ranging between -0.0183 and -0.0205. This is not unexpected, with a unit increase in household

wealth level correlating with approximately a 2.0 percentage point reduction in the probability of unemployment.

Hours Worked

In contrast to monthly wages, the coefficients on the interaction terms for hours worked are statistically significant for the first two specifications, in which Syrians make up greater than

Table 4: Hours Worked/Week

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Time	1.661*	-0.219	-2.175***	-2.319***
	(0.882)	(0.639)	(0.507)	(0.454)
Treated (4%)	0.538			
	(0.987)			
DID Interaction (4%)	-5.222***			
	(0.994)			
Treated (8%)		0.608		
		(0.848)		
DID Interaction (8%)		-3.921***		
		(0.844)		
Treated (14.5%)			-0.922	
			(0.709)	
DID Interaction (14.5%)			-0.498	
			(0.967)	
Treated (36%)				0.683
				(1.424)
DID Interaction (36%)				0.848
				(2.310)
Constant	33.88***	33.05***	33.40***	33.43***
	(2.620)	(2.398)	(2.184)	(2.185)
Observations	6,491	6,491	6,491	6,491
Number of Findid	4,422	4,422	4,422	4,422

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

four and eight percent of the populations, but not significant for the two more extreme conditions. In both of the significant cases, the coefficient on hours worked is negative (for the
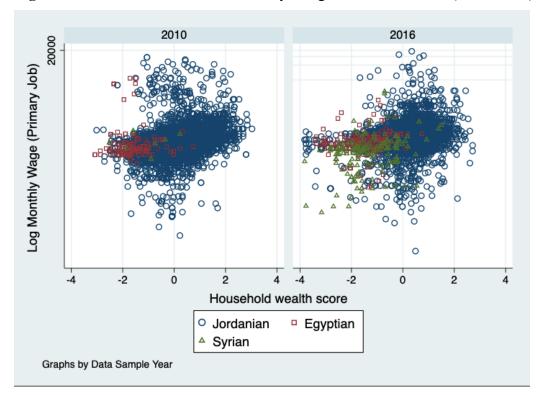
first specification -5.31 and for the second -3.95). This means that a person living in one of the lower threshold treatment groups might expect to see approximately four to five fewer hours worked per week between the pre- and post-treatment period than someone in an untreated district. Thus, while there are no significant wage or employment effects for the two lower-threshold categories, we do capture minor adjustments in the number of hours worked for those employed. It is also possible that the negative effects of the treatment variable on the quantity of hours worked were more muted in the regions with the greatest influx of refugees because, as is suggested in the literature, there is greater demand for public sector jobs to fill the public health and education needs of the refugee population.

In terms of the coefficients on the controls, education has a statistically significant negative correlation with hours worked per week, ranging between -0.0806 to -0.0847, demonstrating that a higher level of education is associated with a slightly reduction in the number of weekly hours worked. The sex and nationality controls are also statistically significant — both at a higher level of economic significance than the education variable — with coefficients ranging between -6.537 to -6.649 and -3.432 to -3.660, respectively. This indicates that being a woman is associated with a fairly dramatic decrease in the number of hours worked, and that to a lesser degree, so is Jordanian citizenship. Finally, as in the unemployment estimations, wealth has a positive impact on employment outcomes with coefficients ranging between 1.645 to 1.686, indicating that an increase in household wealth level is associated with a slightly increased number of hours worked per week.

The full tables of regression results including control variables, as well as those for the specification using a broad market definition, can be found in Appendix D.

Descriptive Analysis: Visualizing Discrimination

Because our specifications are limited in their ability to demonstrate between-nationality differences, we also utilize descriptive statistics and visualizations of our data to better understand the effects of discrimination and imperfect substitution within Jordan's rigid labor markets, as outlined in our theory. The first of the visualizations shows the distribution of Jordanians, Egyptians, and Syrians working in both 2010 and 2016, mapped over their household wealth score and a log of monthly wages. What is most interesting about this visualization is that Egyptians and Syrians, as indicated by the red squares and green triangles, respectively, are almost entirely clustered below the median household wealth score. At the same time, Jordanians

Figure 9: Data Visualization, Nationality, Wages, and HH Wealth (2010, 2016)
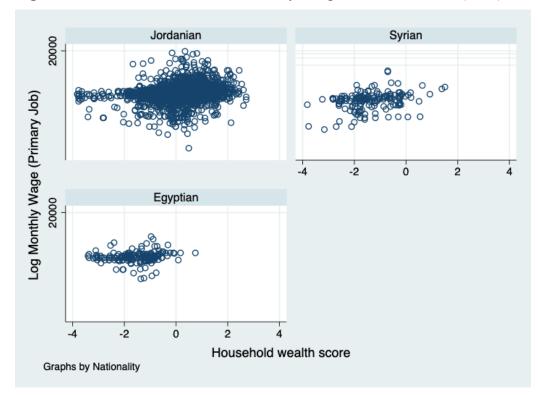
are spread much more evenly throughout the wealth distribution, with many in 2016 especially clustered above the median level. The highest wage rates are also primarily Jordanian, with a few

exceptions. Figure 9 shows the same information for 2016 alone to more clearly show the distributions by nationality.

These conclusions, that non-native workers and refugees receive lower wages than Jordanians, are in line with other literature on the demographic breakdown of wages in Jordanian labor markets. For example, in their Nov. 2020 study, Jemmali and Morrar use Oaxaca-Blinder and quantile decomposition methods to examine the wage breakdown of natives and non-natives in Jordan. Not only do they find a major wage gap in favor of native residents, but further find that the gap increases between 2010 and 2016. They disaggregate the effects into compositional effects — or productivity characteristics such as education and skill level — and discrimination effects. They find that the wage differentials are the most pronounced for those at the middle and high ends of the distribution for both years, but that discrimination effects contribute more to the wage gap in 2016 than in 2010.

Figure 10: Data Visualization, Nationality, Wages, and HH Wealth (2016)

Jammali (Dec. 2020) similarly looks at these wage differentials, but further specifies between Syrian refugees and the more general category of non-natives implemented in the earlier study. In doing so, they find that Syrian refugees earn significantly less than both Jordanian natives and other non-natives. In both cases, the author finds that the compositional differences in education between groups can explain much of the wage group at the lower end of the wage distribution, but that discrimination plays a much larger part in the wage differentials at the higher end of the wage distribution. For the second study, they find that this is true not only between natives and non-natives, but also between Syrian refugees and other non-natives.

Table 5: Unemployment by Nationality in 2016, Standard Unemployment Definition (Job Search Required)
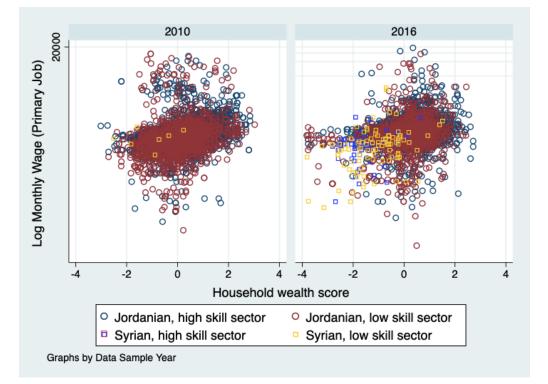
Unemployed (Std. Def)	Jordanian	Syrian	Egyptian	Other Arab	Other	Total
No	15,571 (92.34%)	1,254 (91.13%)	246 (98.01%)	896 (94.42%)	58 (100%)	18,025 (92.45%)
Yes	1,291 **(7.66%)**	122 **(8.87%)**	5 (1.99%)	53 (5.58%)	0 (0.00%)	1,471 (7.55%)
Total	16,862 (100.00)	1,376 (100.00)	251 (100.00)	949 (100.00)	58 (100.00)	19,496 (100.00)

Although not decomposed by education and skill level as in Jemmali and Morrar (Nov. 2020) and Jemmali (Dec. 2020), Table 5 shows unemployment for Jordanians, Syrians, and other non-natives in our sample. As is clear, Syrians have a higher rate of unemployment than Jordanians in the sample. Of course, unemployment does not include those who have given up looking for a job or who are ineligible, as would be the case for a great number of Syrian refugees. Thus, we would expect that the true number of refugees in need of work to be much higher than described here.

Figure 11 provides the same information as Figure 9, but includes the variable of sector skill level. In this figure, Jordanians from high-skill sectors are indicated by the dark blue circles,
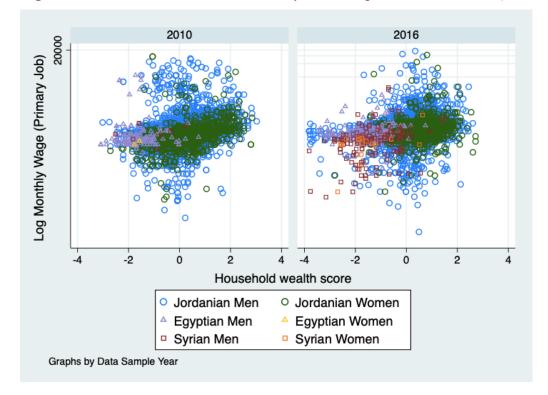
Jordanians from low-skill sectors by maroon circles, Syrians from high-skill sectors by blue squares, and Syrians from low-skill sectors by yellow squares. What is evident here is that the classification of working in a low or high skill sector seems to have a much less relevant correlation with wealth and monthly wages than nationality, with Syrians of both high and low skill sectors concentrated primarily in the bottom left quadrant of the distribution. This is consistent with the lack of significant findings on the sector skill variable in the DID models, but possibly indicates that a binary differentiation of skilled and unskilled sectors is not specific enough to generate meaningful implications. This is likely explained by the conclusions in

Figure 11: Data Visualization, Nationality, Sector Skill, Wages, and HH Wealth (2010, 2016)

Jemmali and Morrar (Nov. 2020) and Jemmali (Dec. 2020) that discrimination is a greater factor for those in high skill categories. Because of the higher degree of discrimination faced by Syrian refugees and non-natives more generally in higher skill and wage sectors, the non-natives are

forced to deskill and take jobs below their qualifications. This would explain why we see minimal differences for different skill levels.

Finally, Figure 12 also provides the same information as the first visualization but adds to it the variable of biological sex. In this figure, Jordanian men are indicated by the blue circles, Jordanian women by green circles, Egyptian men by lavender triangles, Egyptian women by yellow triangles, Syrian men by maroon squares, and Syrian women by orange squares. One of the clearest conclusions from this visualization is the paucity of Syrian and Egyptian women active in the workforce. This observation is in line with many other studies documenting the low labor force participation rate for women in the Jordanian workforce. In fact, Kasoolu et al. state, "From every perspective, labor market inclusion for Jordanian women is amongst the lowest in the world," with the female labor force participation rate in Jordan estimated at 15 percent, the fourth lowest in the world (2019, p. 4). The authors determine that the low rates of participation

Figure 12: Data Visualization, Nationality, Sex, Wages, and HH Wealth (2010, 2016)

are caused by different factors depending on education level. For women with low levels of education, such as for those who have a high school degree or less, they attribute the low participation to barriers that keep women from seeking work at all, particularly including traditional social norms and poor public transportation infrastructure. On the other hand, for women with high levels of educational attainment, the issue is less that women do not seek work, but that they face high levels of unemployment relative to their equally educated male counterparts. The authors attribute this unemployment to "a small and undiversified private sector that is unable to accommodate women's need for work and family balance" (Kasoolu et al. 2019, p. 7). Because such a large proportion of the population of adult Syrian refugees in Jordan are women, this has major implications for the employment barriers they face.

Conclusions

The conclusions from our empirical results are in line with other literature on the labor market effects of hosting Syrian refugees in Jordan, as well as in other neighboring countries. Firstly, as hypothesized, our descriptive statistics show that Syrians in Jordan face a higher level of unemployment than Jordanian natives. Our second hypothesis, that Syrian refugees will not act as viable substitutes to Jordanian labor — either because of discrimination or demographic and compositional factor — and thus will not significantly impact labor market outcomes has mixed results. As expected, we find minimal effects for unemployment, with significant results only in the districts with the highest level of Syrian refugees. However, we do observe some minor adjustments in the number of hours worked per week and some pronounced reductions in monthly wages for those in the areas hosting the greatest proportions of refugees relative to the population. Finally, we see in our descriptive statistics a number of trends indicating that Syrian

refugees generally have worse labor market outcomes than native Jordanians. Moreover, it seems that skill level plays little role in the wages that Syrians receive, as those with higher educational attainment also face higher levels of discrimination and are forced to deskill or accept lower wages than their Jordanian counterparts. We also see that women of all nationality make significantly less than their male counterparts, both in our regressions and in our descriptive analysis. Because women make up such a major proportion of the adult Syrian refugee population, this has important implications for their ability to act as substitutes for preexisting, often male, labor.

Conclusion

Although the existing literature on labor market impacts of hosting Syrian refugees in Jordan — or in neighboring countries more generally — is fairly limited, the results from studies like Akgündüz et al. (2015); Al-Hawarin (2018); Tumen (2016); Fallah, Krafft and Wahba (2019); and Malaeb and Wahba (2018) all find very minimal evidence to suggest that hosting Syrian refugees yields negative labor market impacts for host country citizens. The results of this paper, using a difference in differences methodology, point to congruent findings. Moreover, this paper also finds that only the districts with the most extreme demographic shifts after the refugee displacement saw significant impacts on wages and unemployment. The results from specifications on the number of hours worked, on the other hand, yields small significant negative results for the districts with the lowest proportion of refugees housed, implying that there were some small adjustments in hours worked, even when employment and wage outcomes were not significantly affected for these regions. The absence of significant results for hours worked in the districts with the highest refugee population percentages might point to an increase in demand for labor generated by hosting refugees, as suggested in the literature.

There are a multitude of reasons why Syrian refugees are not considered to be substitutable labor for Jordanian citizens, or in many cases for other migrant labor residing in the country. These include education and skill level, trauma from the war, structural and logistical barriers from markets, and demographics — as well as structural discrimination that bars Syrians from supplying their labor in a vast number of roles. The combination of these factors undermines the narrative that refugees are "taking" the jobs of native Jordanians, and especially the narrative that refugees are "better off" than other elements of the population residing in the country. In fact, instead of refugees taking the jobs of Jordanians or other non-natives residing in

Jordan, Syrian refugees themselves face high unemployment, low wages, and poor economic outcomes all around.

There are a number of avenues for future empirical research to explore that were outside the scope of this thesis. Firstly, future research should put a greater emphasis on disaggregating results by sector and formality. There is much theoretical backing for this approach, as the demographic composition of Syrian refugees is likely to concentrate many of them into "low-skill" sectors, or those with low requirements on formal education. Specifically, the question of whether sectors are private or public should be explored in greater depth. Because public sector jobs in Jordan are reserved for Jordanian natives, any increase in demand for publicly provided goods and services such as education or healthcare would likely increase the demand for Jordanian native workers and improve their labor market outcomes. However, tracing the movements of employees between private and public sector jobs was beyond the time constraints of this project. Finally, another direction for future research is to consider the gendered elements of the Syrian refugee crisis, and the ways which women survive, especially when taking care of young children.

Nevertheless, the findings in this paper have important implications for how we talk about the effects of hosting Syrian refugees in Jordan. If one thing is clear, it is that the refugees are not "better off" than anyone else, but rather that they face the highest levels of discrimination and barriers to employment. Scare resources limit the ability of the Government of Jordan to support both refugees and their domestic population, but it is of the utmost importance that economic policies center the refugees as victims of this humanitarian crisis, rather than punishing them or using them as leverage for trade deals without substantially improving their situation.

Appendices

Appendix A: <u>Profit Maximization in Statistical Discrimination</u>

In the case of statistical discrimination, a firm believes one group — in this case, Syrian workers — to be γ less productive than the alternative potential workforce, where γ is a continuous random variable between 0 and 1 that is identically and independently distributed with the expected value $\gamma \in [0,1]$ and a standard deviation σ.[6] The expected profit maximization equation for a discriminatory firm from the production function $f(N_m + N_s)$ can be written as:

$$\max_{N_m, N_s} f(N_m) + \bar{\gamma} f(N_s) - w_m N_m - w_s N_s$$

The first order conditions produce the optimality condition:

$$\frac{f'(N_m)}{\bar{\gamma} f'(N_s)} = \frac{w_m}{w_s}$$

And under the assumption that $f'(N_a) = f'(N_b)$, the expression can be simplified as:

$$\frac{1}{\bar{\gamma}} = \frac{w_m}{w_s}$$

And from that, simplified to:

$$w_s = \bar{\gamma} w_m$$

Thus, the firm will choose to maintain their current force of other migrant employees unless they can pay them such low wages that wage w_s is a fraction $\bar{\gamma}$ of w_m.

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[6] Explanation thanks to Dr. Long.

Appendix B: List of District Names

Number	Governorate	District
1	Amman	Qasabet Amman
2	Amman	Marka
3	Amman	Jami'ah
4	Amman	Quaismeh
5	Amman	Wadi Essier
6	Amman	Na'oor
7	Amman	Sahab
8	Amman	Jizeh
9	Amman	Mowaqqar
10	Ajloun	Qasabet Ajloun
11	Ajloun	Kofranjah
12	Zarqa	Qasabet Ezzarqa
13	Zarqa	Russeifa
14	Zarqa	Hashemiyyeh
15	Balqa	Ain El-Basha
16	Balqa	Qasabet Essalt
17	Balqa	Dair Alla
18	Balqa	Shooneh Janoobiyyeh
19	Balqa	Mahes and Fohais
20	Madaba	Qasabet Madaba
21	Madaba	Bieban
22	Mafraq	Qasabet El-Mafraq
23	Mafraq	Badiah Shamaliyyeh Gharbiyyeh
24	Mafraq	Badiah Shamaliyyeh, Erwaished
25	Jarash	Qasabet Jarash
26	Ma'an	Qasabet Ma'an, Shoabak, Husseiniyyeh
27	Ma'an	Petra
34	Aqaba	Qasabet El-Aqaba, Quaira
35	Irbid	Qasabet Irbid
36	Irbid	Ramtha
37	Irbid	Bani Ebaid
38	Irbid	Kora
39	Irbid	Aghwar Shamaliyyeh
40	Irbid	Bani Kenanah
41	Irbid	Mazar Shamali
42	Irbid	Tayybeh
43	Irbid	Wasatiyyah
44	Karak	Karak
45	Tafileh	Tafilah

Note: Table compiled by Krafft et al. (2019, p. 26), with several districts combined based on size.

Appendix C: District-Level Syrian Population Data

Governorates	Districts	Number of Syrians	Percentage of the population that is Syrian	Percentage of Syrians
Amman	Qasabet Amman	98,343	12	8
Amman	Marka	101,156	11	8
Amman	Jami'ah	46,017	8	4
Amman	Quaismeh	93,695	13	7
Amman	Wadi Essier	41,466	11	3
Amman	Na'oor	28,292	17	2
Amman	Sahab	8,973	8	1
Amman	Jizeh	9,726	12	1
Amman	Mowaqqar	7,910	6	1
Ajloun	Qasabet Ajloun	12,169	9	1
Ajloun	Kofranjah	2,327	6	0
Zarqa	Qasabet Ezzarqa	139,686	17	11
Zarqa	Russeifa	26,255	5	2
Zarqa	Hashemiyyeh	9,339	12	1
Balqa	Ain El-Basha	8,210	5	1
Balqa	Qasabet Essalt	2,528	5	0
Balqa	Dair Alla	1,976	3	0
Balqa	Shooneh Janoobiyyeh	12,860	7	1
Balqa	Mahes and Fohais	2,408	7	0
Madaba	Qasabet Madaba	13,433	9	1
Madaba	Bieban	1,236	3	0
Mafraq	Qasabet El-Mafraq	48,751	25	4
Mafraq	Badiah Shamaliyyeh Gharbiyyeh	14,082	14	1
Mafraq	Badiah Shamaliyyeh, Erwaished	145,070	57	11
Jarash	Qasabet Jarash	10,868	5	1
Ma'an	Qasabet Ma'an, Shoabak, Husseiniyyeh	5,909	7	0
Ma'an	Petra	2,541	5	0
Aqaba	Qasabet El-Aqaba, Quaira	7,799	4	1
Irbid	Qasabet Irbid	165,843	22	13
Irbid	Ramtha	68,306	29	5
Irbid	Bani Ebaid	19,322	12	2
Irbid	Kora	16,324	12	1
Irbid	Aghwar Shamaliyyeh	3,110	3	0
Irbid	Bani Kenanah	48,574	24	4
Irbid	Mazar Shamali	7,258	9	1
Irbid	Tayybeh	7,560	15	1
Irbid	Wasatiyyah	7,182	17	1
Karak	Karak	17,077	5	1
Tafileh	Tafilah	1,933	2	0
Total		1,265,514	13	100

Note: Calculations and table compiled by Krafft et al. (2019, p. 28), based on the 2015 Jordan Census.

Appendix D: Full Regression Results

Table 1: Monthly Wages

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Education level	0.341	0.917	0.356	0.315
	(4.951)	(4.367)	(4.872)	(4.888)
Female	-166.6*	-175.2*	-164.6*	-166.1*
	(85.56)	(94.83)	(85.56)	(85.69)
Rural	-21.60	1.014	-20.54	-31.27
	(32.63)	(40.50)	(33.43)	(32.43)
Jordanian	-447.3	-376.8	-442.5	-449.7
	(634.0)	(654.4)	(634.5)	(635.6)
HH Wealth level	141.4	142.8	138.2	140.1
	(94.31)	(96.31)	(92.48)	(92.41)
Age	1.978	-3.458	1.581	2.306
	(2.989)	(7.665)	(3.074)	(2.643)
Time	33.78	236.4	157.3	117.5
	(54.01)	(186.1)	(133.5)	(101.8)
Treated (4%)	-123.8			
	(103.9)			
DID Interaction (4%)	99.06			
	(166.2)			
Treated (8%)		-492.4		
		(513.6)		
DID Interaction (8%)		-254.3		
		(206.3)		
Treated (14.5%)			49.80	
			(56.37)	
DID Interaction (14.5%)			-204.5	
			(166.9)	
Treated (36%)				402.1**
				(177.5)
DID Interaction (36%)				-402.1*
				(208.2)
Constant	1,330	1,793	1,185	1,190
	(853.2)	(1,143)	(777.5)	(779.3)
Observations	5,534	5,534	5,534	5,534
Number of Findid	3,893	3,893	3,893	3,893

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 2: Unemployment (Standard Market Definition, Search Required)

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Education level	0.00180***	0.00180***	0.00179***	0.00179***
	(0.000167)	(0.000167)	(0.000167)	(0.000167)
Female	-0.0232***	-0.0232***	-0.0232***	-0.0232***
	(0.00382)	(0.00382)	(0.00382)	(0.00382)
Rural	-0.00864*	-0.00852*	-0.00818*	-0.00856*
	(0.00463)	(0.00465)	(0.00474)	(0.00467)
Jordanian	0.00510	0.00522	0.00536	0.00506
	(0.0114)	(0.0114)	(0.0114)	(0.0114)
HH Wealth level	-0.0183***	-0.0186***	-0.0186***	-0.0185***
	(0.00251)	(0.00247)	(0.00246)	(0.00247)
Age	-0.000504***	-0.000492***	-0.000477***	-0.000490***
	(0.000114)	(0.000113)	(0.000112)	(0.000112)
Time	0.0312***	0.0293***	0.0215***	0.0237***
	(0.00858)	(0.00563)	(0.00417)	(0.00364)
Treated (4%)	-0.00435			
	(0.0103)			
DID Interaction (4%)	-0.00823			
	(0.00937)			
Treated (8%)		0.00295		
		(0.00736)		
DID Interaction (8%)		-0.00825		
		(0.00720)		
Treated (14.5%)			-0.00690	
			(0.00680)	
DID Interaction (14.5%)			0.0145*	
			(0.00803)	
Treated (36%)				-0.0188
				(0.0147)
DID Interaction (36%)				0.0490**
				(0.0219)
Constant	-0.00165	-0.00837	-0.00633	-0.00630
	(0.0185)	(0.0164)	(0.0156)	(0.0156)
Observations	18,409	18,409	18,409	18,409
Number of Findid	10,834	10,834	10,834	10,834

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 3: Unemployment (Broad Market Definition, No Search Required)

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Education level	0.00178***	0.00178***	0.00177***	0.00179***
	(0.000174)	(0.000174)	(0.000174)	(0.000167)
Female	-0.0193***	-0.0193***	-0.0193***	-0.0232***
	(0.00401)	(0.00401)	(0.00401)	(0.00382)
Rural	-0.00841*	-0.00815*	-0.00843*	-0.00856*
	(0.00486)	(0.00487)	(0.00495)	(0.00467)
Jordanian	0.00539	0.00558	0.00525	0.00506
	(0.0123)	(0.0123)	(0.0123)	(0.0114)
HH Wealth level	-0.0205***	-0.0205***	-0.0205***	-0.0185***
	(0.00263)	(0.00259)	(0.00258)	(0.00247)
Age	-0.000100	-9.14e-05	-7.08e-05	-0.000490***
	(0.000298)	(0.000297)	(0.000298)	(0.000112)
Time	0.0425***	0.0374***	0.0283***	0.0237***
	(0.00892)	(0.00587)	(0.00434)	(0.00364)
Treated (4%)	0.00353			
	(0.0108)			
DID Interaction (4%)	-0.0145			
	(0.00976)			
Treated (8%)		0.00251		
		(0.00770)		
DID Interaction (8%)		-0.0111		
		(0.00752)		
Treated (14.5%)			-0.00193	
			(0.00714)	
DID Interaction (14.5%)			0.0130	
			(0.00847)	
Treated (36%)				-0.0188
				(0.0147)
DID Interaction (36%)				0.0490**
				(0.0219)
Constant	-0.0274	-0.0263	-0.0248	-0.00630
	(0.0201)	(0.0179)	(0.0171)	(0.0156)
Observations	18,409	18,409	18,409	18,409
Number of Findid	10,834	10,834	10,834	10,834

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4: Hours Worked/Week

VARIABLES	(1) Pop 4% Syr	(2) Pop 8% Syr	(3) Pop 14.5% Syr	(4) Pop 36% Syr
Education level	-0.0806***	-0.0821***	-0.0845***	-0.0847***
	(0.0177)	(0.0176)	(0.0177)	(0.0177)
Female	-6.649***	-6.591***	-6.537***	-6.547***
	(0.549)	(0.544)	(0.545)	(0.546)
Rural	-0.627	-0.549	-0.435	-0.596
	(0.561)	(0.562)	(0.568)	(0.563)
Jordanian	-3.585**	-3.432**	-3.545**	-3.660**
	(1.580)	(1.584)	(1.579)	(1.577)
HH Wealth level	1.677***	1.645***	1.686***	1.680***
	(0.319)	(0.314)	(0.315)	(0.315)
Age	-0.122***	-0.0967***	-0.0857***	-0.0741***
	(0.0237)	(0.0219)	(0.0188)	(0.0180)
Time	1.661*	-0.219	-2.175***	-2.319***
	(0.882)	(0.639)	(0.507)	(0.454)
Treated (4%)	0.538			
	(0.987)			
DID Interaction (4%)	-5.222***			
	(0.994)			
Treated (8%)		0.608		
		(0.848)		
DID Interaction (8%)		-3.921***		
		(0.844)		
Treated (14.5%)			-0.922	
			(0.709)	
DID Interaction (14.5%)			-0.498	
			(0.967)	
Treated (36%)				0.683
				(1.424)
DID Interaction (36%)				0.848
				(2.310)
Constant	33.88***	33.05***	33.40***	33.43***
	(2.620)	(2.398)	(2.184)	(2.185)
Observations	6,491	6,491	6,491	6,491
Number of Findid	4,422	4,422	4,422	4,422

All specifications employ governorate-level fixed effects. Cluster-robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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