

Abstract

Despite the budding controversy over refugees in the United States, current literature has only examined how labor market pull factors affect refugee movement within European countries. Using data from the State Department's Refugee Processing Center and the Current Population Survey, I find that refugees are more sensitive to regional differences in unemployment rates than immigrants and natural-born Americans. A state's unemployment rate has a statistically significant impact on the number of refugees that eventually settle in the state. Over time, refugees move to states where they are more likely to be employed, whereas immigrants and natives are less responsive to changes in regional unemployment rates. Additionally, I find that refugees do not settle in the same patterns as non-refugee immigrants or natural-born Americans. Based on these findings, prior research has failed to recognize refugees' potential to smooth out regional labor market differences in the United States.

I. Introduction

In current times, immigrants, specifically refugees, have become a hot button issue. Countries have strict processes for letting in refugees and some countries have debated banning refugees from specific regions. In September 2017, the Supreme Court upheld the Trump Administration's decision to lock out aspiring refugees from coming to the United States (Fullerton). Within the literature, controversy has sparked over the effect of Cuban refugees that entered the United States via the Mariel Boatlift to Miami. Borjas (2017) asserts that the influx of refugees decreased wages of domestic low-skill workers. On the other hand, Peri and Yasenov (2015) and Clemens and Hunt (2017) both found that the difference in wages was caused by variances in the racial composition of subsamples in the Current Population Survey and could not conclude that Cubans entering the United States caused a statistically significant decrease in wages for low-skill laborers. With such a high number of refugees globally, countries need to understand how refugees behave in order to assess their own refugee situation.

War and conflict are issues that pervade politics and global economies. Along with the destruction of infrastructure and the depletion of resources, war also leads to the displacement of people. In 2015, the United Nations reported that 65.3 million people were displaced globally, 21.3 million of which were refugees. These refugees can no longer live in their home countries, but political factors limit the possible destinations for refugees as many countries limit the number of refugees that are accepted and restrict the entry of refugees from specific nations. In 2015, the United States took in 70,000 refugees. This number grew to 85,000 in 2016. As the United States accepts more refugees, it subtly adjusts the composition of its internal labor market. Because incoming refugees are without a home and can theoretically choose to live in a location that maximizes their individual productivity, refugees could help smooth out regional

labor market inefficiencies once they have adapted to the United States.¹ This study finds that incoming refugees are initially placed in areas where they can work and grow, but over time, gradually relocate to areas with better labor market opportunities.

One of the key components of an efficient labor market is peoples' ability to move to locations where labor is needed. In reality, people tend to be relatively insensitive to changes in the labor market and unemployed people often choose not to move, even if it means they are passing up an opportunity to find a job. Yet, not all people face the same incentives and constraints; people native to a country tend to have ties to their "hometown," while incoming immigrants and refugees are not as constrained by intrinsic geographical ties. Since immigrants and refugees are inherently searching for a new home, they should have added mobility and be able to move to where they are needed within the labor market. Before entering the country, a resettlement agency, which acts as the liaison for the incoming refugees, decides where the refugee will live. These agencies seek to find employment for the refugees before they enter the United States, which means placing refugees in areas where their skillset can be guaranteed to be adequate. For example, an Iraqi Professor may be an expert in Computer Science, but without the ability to speak the English language, the professor may only be able to hold minimum wage jobs. The results of this study support the idea that resettlement agencies try to find the best new home for the refugees by looking for areas with refugees of the same nationality as well as cultural openness and a local infrastructure to support refugees. Doing so allows the incoming refugees to become part of a larger refugee community as they assimilate into the United States culture.

The United States has nine main resettlement agencies that handle almost all of the refugee placements. As described by the U.S. Committee for Refugees and Immigrants, these

¹ In practice, refugees are initially placed by a resettlement agency.

agencies do not have connections in every state. Rather, each agency has connections in 20-30 states and uses its network to place refugee families in the best possible area within its network. Since the resettlement agencies have limited networks, it makes sense for these agencies to prioritize areas where refugees have previously settled as well as areas with a large labor force. By focusing on regions with more jobs that cater to new refugees, the resettlement agencies are able to confidently place refugees in areas where they can comfortably begin their lives in the United States.

The two questions that this paper examines are “do refugees coming into the USA resettle in states with favorable economic opportunities?” and “are refugees more sensitive to regional labor market differences than labor immigrants and the general population?” Although refugees’ movements have been studied in European labor markets, refugees coming into the USA come from a different subset of nations. Additionally, the USA also has proportionately fewer refugees than many European countries, which could change refugees’ mobility. This study aims to help understand how a given state’s unemployment rate, wages, and cost of living impact where refugees settle.

Based on the literature, refugees should initially be placed in areas with other refugees, not solely based on general labor opportunities. Eventually, I predict that refugees will migrate towards labor opportunities more efficiently due to a lower intrinsic cost of moving. Because refugees do not have a multigenerational home in the United States, they lack a true “hometown” and should have a higher propensity to move towards labor opportunities. Using data from the State Department’s Refugee Processing Center and the Current Population Survey (CPS), this study examines if labor market pull factors influence where refugees initially settle and studies how refugees move within the USA after their initial resettlement. Assuming refugees become

more apt to move towards areas with a higher probability of employment and higher wages, it may take less money to incentivize a refugee to move because their intrinsic cost of moving is less than that of a native-born American. The results of this study suggest that refugees do grow more sensitive to labor market conditions over the course of their stay in the United States and eventually become more sensitive to regional labor market differences than immigrants and the general population in the United States.

Section II examines the existing economic literature and discusses how refugees differ from other immigrants as well as how refugees reacted to labor markets in European countries. Section III describes the data from the State Department's Refugee Processing Center and the Current Population Survey, the sample used with summary statistics, and other key variables used in the analysis that follows. Section IV discusses the model used. Section V contains the main results of the study. Section VI concludes.

II. Literature Review

Currently, there is ample literature on the economic differences between refugees and immigrants. The literature has also studied how immigrants can smooth out regional labor market differences. This paper seeks to build on the literature by examining if refugees are sensitive to state labor market differences.

Schündeln (2007) concluded that immigrants in Germany are significantly more responsive to labor market conditions than native Germans. His model also estimates that immigrants' moving costs are only 37% of the moving costs for natives. Additionally, Borjas (2001) modeled where immigrants chose to live upon entrance in the United States. His model predicted that immigrants would be both more mobile and more sensitive to regional labor market differences. He tested his model with data from the 1960-1980 United States Censuses

and found that immigrants coming into the United States are, in fact, more sensitive to job opportunities than native workers, as immigrants are more likely to reside in areas that pay the most for their particular set of skills. Thus, immigrants act as a counterbalance for natives who are unwilling to move. Keenan and Walker (2011) further showed that immigrants are driven mainly by labor prospects. Their paper found that interstate migration is driven by regional wage differences. Therefore, immigrants in general should be an effective labor market catalyst.

Yet, refugees are a specific subset of immigrants. Whereas labor immigrants leave their homes to find work, refugees leave their homes under duress and are seeking asylum; labor may not be the most important factor when deciding where to live. Cortes (2004) found that refugees initially worked fewer hours and made less money than labor immigrants in the United States. Her study also showed that 10-15 years after their initial arrival, refugees earned 20% more and worked 4% more hours than their labor immigrant counterparts. Cortes's (2004) study shows that refugees are a more diverse group of people than labor immigrants, and the variance in human capital among refugees allows them to earn higher pay after they overcome the language barrier. Whereas immigrants tend to be categorized as either unskilled or highly educated workers, refugees have a more varied range of education levels and end up working in a broader range of positions that encompasses the entire spectrum of employment opportunities. Refugees clearly differ from typical labor immigrants and have shown a greater propensity to adjust and flourish in the labor market.

Although refugees can benefit a country's labor market, refugee groups are not without their inefficiencies. Røed and Schøne (2012) found that refugees in Norway tend to move to areas with high concentrations of refugees from the same home country. Other countries in the European Union have noticed similar trends and have tried to combat refugee clusters by

scattering refugees throughout the country. Edin, Fredriksson and Aslund (2001) found that Sweden's immigrant dispersion policy ended up harming immigrant productivity in the long run. Likewise, Beaman (2012) showed that although social networks assist refugees in finding jobs, the predetermined distribution of refugees is not effective in inducing prosperous labor outcomes for refugees; the prearranged placement of refugees within a country can limit refugee effectiveness in terms of stimulating the labor market. According to Røed and Schøne (2012), refugees in Norway eventually move to labor opportunities on their own, whereas natives tend to remain geographically stagnant.

The literature also supports this study using the United States as the region to test refugee resettlement pattern. According to Hirobe (2014), the United States still has stark, regional labor gaps that differ by state, meaning that prospective workers in the United States have unexploited opportunities to move to areas with better labor prospects. This makes the United States a viable region to examine refugee resettlement. Additionally, Arestis, Charles, and Fontana (2014) found that the United States still has large gaps in pay that are attributed to race. These factors, along with turmoil within the United States political system over the acceptance of refugees, can act to deter refugees from entering the country. Countries could try and combat these deterrents if they want to attract refugees.

Given the differences between refugees and labor immigrants, this study adapts Borjas (2001) and Røed and Schøne (2012) papers to account for modern refugees in the United States. Borjas (2001) created a model that showed that migration costs limit native workers from moving towards areas with the best economic opportunities. This paper will extend Borjas's report by looking at refugees specifically as opposed to immigrants as a whole. Furthermore, this paper uses recent Current Population Survey data along with data from the Department of State's

Refugee Processing Center to find that refugees can grease the wheels of the labor markets as immigrants have in the past. This paper also looks to further analyze Borjas, Freeman, and Katz (1996) inconclusive study which aimed to see if an influx of immigration sparked the mobility of natives. By comparing refugees with natives, this study finds that refugees and natives behave differently in the current labor market.

Because Røed and Schøne (2012) showed that refugees tend to go through an adjustment period; that is, refugees move towards areas with other refugees before moving to areas with the best labor opportunities, this study will examine the same group of refugees over a period of time in order to analyze the full effect of the labor market on refugees. Given the proposed framework, this paper hopes to provide a targeted analysis by expanding upon immigration literature and applying it to refugees more specifically.

III. Data

Data on the number of refugees coming into a state, where the refugees come from and the year the refugees entered has been collected by the State Department's Refugee Processing Center and The Office of Refugee Resettlement Services since 2002. The data for each state's population, unemployment rate (UR), the national unemployment rate, labor force size, the cost of housing, and state minimum wages were collected from the St. Louis Federal Reserve's CPS data archives. States without a designated minimum wage were assigned the value of the Federal minimum wage, which was also collected from the St. Louis Federal Reserve. Although some workers do not qualify for the Federal minimum wage, workers like waiters can still expect to make around the minimum wage with tips. Therefore, the minimum wage is an effective way to control for potential earnings because incoming refugees often lack the language skills necessary to hold a high paying job in the United States.

The percentage of the total number of refugees that enter a given state in a particular year will be calculated as follows:

$$\frac{\# \text{ of Refugees that Enter a State in Year } X}{\# \text{ of Refugees that Enter the US in Year } X}$$

Additionally, the difference from the national unemployment rate (“UR Differential”) will be calculated as follows:

$$UR \text{ Differential} = State \text{ UR} - National \text{ UR}$$

A negative value for UR Differential means that a state has a lower unemployment rate than the national average, while a positive UR Differential means that a state’s unemployment rate is higher than the national average. The UR Differential is being used in order to control for changes in the national unemployment rate. Given the economic recession that began in 2008, this study aims to focus solely on regional unemployment differences between states rather than changes in national unemployment trends. Therefore, a difference is used rather than the raw value of a state’s unemployment rate.

Lastly, the study’s dataset includes data from the Current Population Survey which asks respondents for their nationality, the time period of their entry, current location within the United States, as well as the year they were contacted by the CPS. This dataset uses monthly CPS data from 2011-2016. This study only keeps respondents during the first month they were contacted in order to prevent duplicates². The nationality data of each respondent will be used to determine if a person will be considered a refugee for the study. Since the status of a person as a refugee is not noted on the CPS, this study will assume that people immigrating from the following

² All respondents from the January 2011 CPS were kept regardless of which month they were sampled because the dataset does not include any data before 2011, so people surveyed in January of 2011 cannot be counted multiple times.

countries that entered the United States during the following years will be considered refugees³: Bhutan (08-11), Burma (04-11), Cuba (00-11), Ethiopia (00-07), Iran (00-11), Iraq (04-11), Liberia (03-07), Russia (00-07), Somalia (00-11), Sudan (00-11), Ukraine (00-11), and Vietnam (00-11).⁴ These countries were selected because the United States took in over a thousand refugees from these countries throughout the time period of the study and refugees from these countries are more likely to appear in the CPS survey sample. Although this assumption is imperfect, it is based on the countries with the highest concentrations of refugees coming into the USA⁵. The dummy variable that is used to denote a refugee is then multiplied by each person's weight in order to determine the number of refugees that are in a given state in a given year⁶. The CPS data is used to capture the same subset of refugees that the State Department initially tracked in order to test for changes in preferences over time.

Likewise, analysis of the non-refugee immigrant subset of the population uses the number of people that entered the country from 2000-2011 in order to see if refugees act differently than immigrants given the same amount of time in the country. The sample of immigrants was found by removing all of the potential refugees from the total population of immigrants that entered the country from 2000-2011. The size of each state's population was taken from the St. Louis Federal Reserve. Since refugees and immigrants are a small subset of the population, the total state population was used in determining the percentage of the national population each state contains.

³ Thousands of refugees entered the United States from Burundi, but the CPS does not list Burundi as a country it checks for during its monthly surveys. Additionally, refugees entered the United States from many other countries, but due to lacking numbers, searching for potential refugees from these countries who were surveyed by the CPS did not yield a significant number of refugees

⁴ The CPS only did not track the exact year of entry for immigrants, so general entrance brackets were used (00-03), (04-07), and (08-11)

⁵ The data to determine which countries were selected also came from the Refugee Processing Center and The Office of Refugee Resettlement Services

⁶ Due to CPS weights, the number of Cuban refugees in Florida that are said to have entered between 2000 - 2011 far exceeded the number of actual Cuban refugees that entered the US during those years.

Table 1 shows summary statistics for the different data sets, which illustrates the fundamental differences between the State Department and the CPS datasets. Since the State Department keeps track of every refugee who enters the country, it has exact data for each year and country of origin. On the other hand, the CPS takes random samples of the population which leads to variance within the sample⁷. Furthermore, values from the CPS are shown with and without sampling weights in order to show the subtle differences caused by the weight, as well as the raw number of refugees sampled. Note that all of the regressions were run on both the weighted and unweighted CPS data and yielded similar results.

One of the key takeaways from the CPS dataset is the number of potential refugees that were surveyed. With 4,161 individuals interviewed over the course of the six year period, the CPS has an adequate sample of potential refugees to run regressions. Similarly, the distribution of refugees by country of origin seems to reasonably reflect the initial distribution of refugees that entered the United States from 2002-2010, as shown by the State Department data.⁸ One area of concern could be the extremely high number of potential refugees in the weighted CPS dataset. This number could be high due to the consistent overrepresentation of Cuban and Vietnamese refugees. Additionally, the total number of refugees reflects all of the potential refugees in the 72 month sample, where the weights for each month's sample are assigned in order to estimate labor statistics for the entire United States population. This led to overinflated values when the entire dataset was aggregated.

Lastly, the refugees by country of origin show that the assumptions for refugees' country of origin led to an overrepresentation of Cuban and Vietnamese refugees. According to the State Department data, Cuban refugees are heavily concentrated in Florida and, therefore, the inflated

⁷ The small sample of refugees perpetuates the potential for an error in sampling

⁸ Many of the CPS percentages are slightly inflated due to the lack of refugees from other countries in the sample.

number of Cuban refugees must be controlled for in the regressions. On the other hand, Vietnamese refugees are more widely spread out within the United States and their overrepresentation did not lead to significant differences in the regressions.

Table 1: Summary of Data Sets

Variable	State Department	CPS (No Weights)	CPS (w/ Weights)
Total Number of Refugees	495,316	4,161	11,751,442
Percentage of Refugees from:			
Bhutan	6.93%	2.84%	2.37%
Burma	15.21%	5.38%	5.18%
Cuba	6.53%	22.71%	28.97%
Ethiopia	1.77%	6.37%	5.46%
Iran	5.87%	8.36%	8.47%
Iraq	11.43%	5.24%	5.28%
Liberia	3.90%	3.17%	2.60%
Russia	3.79%	7.23%	6.75%
Somalia	11.21%	6.49%	4.51%
Sudan	2.62%	3.10%	2.16%
Ukraine	4.62%	7.21%	6.97%
Vietnam	3.26%	21.89%	21.27%
Total Number of Immigrants from 2000-2011		36,887	106,506,619

Notes: The State Department data contains the exact number of refugees that entered a state in a given year from 2002-2010. The CPS data contains the total number of potential refugees who were interviewed from 2011-2016 that entered the United States from 2000-2011 based on the assumptions made for which immigrants classify as refugees. The number of immigrants is the total number of immigrants that were interviewed from 2011-2016 who entered the United States from 2011-2016.

* The State Department data shows the number of refugees that entered a given state in a given year

Table 2 shows the weighted averages of the state-level control values from the CPS dataset with weights.⁹ The data suggests that immigrants tend to live in states with higher unemployment rates when compared to refugees and natives, which is counter to the hypothesis. Additionally, natives appear to live in areas with smaller labor forces than immigrants and refugees, suggesting that immigrants and refugees may migrate to larger states. Lastly, the data suggests that refugees and immigrants settle in states with slightly higher minimum wages and housing costs than natives.

Table 2: Weighted Summary of Controls

Variable	Refugees	Immigrants	Natives
Average Unemployment Differential	0.052	0.151	-0.056
Average Labor Force	8,598,844	8,801,860	6,888,488
Average Minimum Wage	7.79	7.81	7.70
Average Cost of Housing Index	362	384	356

Unemployment Rate, Labor Force, Minimum Wage and Cost of Housing data that matches with the State Department are taken yearly for each state from 2011-2016. A weighted average of these numbers was taken for each subset of the population.

IV. Model and Method

To examine the question of whether refugees are sensitive to differences in states' unemployment rates, this study will use the following OLS regression model:

$$Y_t = \beta_0 + \beta_1 * (Local\ U - National\ U)_t + \beta_2 * MinimumWage_t + \beta_3 * LaborForce_t + \beta_4 * Cost_{housing} + controls + error$$

In the first regression, Y represents the percentage of the total refugees immigrating to the United States that settle in a given state in a given year. The state will be used as the divider between

⁹ The control variables are weighted based on the number of people in each category for each state in a given year.

labor market regions as each state has different regulations. The main dependent variables in the regression are the difference between the state's unemployment rate and the national unemployment rate. This model will use the minimum wage for a given state because refugees are often initially employed to minimum wage jobs due to an inherent language barrier. In order to control for the size of each state's economy, the size of the labor force will be used as a variable in the regression. Labor force size is being used, instead of state population, because resettlement agencies place families based on the family's ability to find work. For example, children are placed based on their parent's ability to find a suitable job and are not autonomously deciding where they live. Likewise, resettlement agencies take into account other economic factors such as each state's predicted cost of living and each state's cost of housing. In order to control for the cost of living, this regression uses each state's cost of housing index. This regression also uses state dummy variables that will be used to account for state differences. These dummy variables can be used to capture the population of other refugees of the same nationality in the state, as well as the refugee infrastructure of each state. Since refugees come from a wide array of geopolitical and religious backgrounds and resettlement agencies seek to place refugees in places where they have the ability to worship as they wish, the state dummy variables help to control for each state's differences. Additionally, refugees typically settle in urban areas, so each state's metropolitan structure should be controlled and state dummy variables can capture each state's relative urbanness.

The second question will use the same OLS regression model to examine where likely refugees are located 1-14 years after entering the country in addition to the locations of immigrants and natives. By comparing this analysis with the results of the first regression, this study will show that refugees become more sensitive to regional differences in unemployment

rates. In the second regression, Y represents the percentage of the national total population of refugees, immigrants or natives in a given state for a given year. For this regression, refugees will be separated from other immigrants in order to test for differences in refugee's preferences when compared to immigrants and natives. Separating refugees from immigrants and natives allows this study to not only find changes to refugees' sensitivity to the labor market, but also uncover differences between types of people. Since refugees should be less averse to moving than immigrants and natives, they should be more sensitive to changes in the labor market. Therefore, it is paramount that refugees be separated from natives and other immigrants.

Given that the Current Population Survey data does not indicate whether a person is a refugee, this study will make assumptions to determine which people should be included as refugees. People from the aforementioned specified countries that entered during the specified periods will be considered refugees. Furthermore, using a consistent population of potential refugees allows the regression to model the labor market factors that may influence refugee movement within the United States. Additionally, this model will also control for the size of a state's labor force, a state's minimum wage, and each state's cost of housing index for a given year. This model will also use state dummy variables in order to control for each state's intangible features. This model uses data that begins 1-14 years after the initial refugee settlement data in order to accurately compare the two regressions, while allowing time for refugees to assimilate and migrate within the United States.

V. Results and Discussion

In order to compare refugee locations over time, this study will first look at how the labor market relates to refugees' initial settlement. By regressing initial settlement, this study aims to

determine the aspects that the labor market refugee placement agencies use to determine where to locate refugees.

Table 3: Refugee Inflow into the United States (2002 - 2010)

Dependent Variable: Percentage of New Refugee Inflow that Settled in a State for a Given Year

Labor Market Factors	1	t	2	t	3	t	4	t
State UR - National UR	-0.053 (0.049)	-1.09	-0.020 (0.058)	0.34	-0.042 (0.053)	-0.79	-0.022 (0.063)	0.34
State Labor Force (In Millions)	0.687*** (0.021)	32.84	2.034*** (0.413)	4.93	0.681*** (0.022)	30.52	2.035*** (0.438)	4.65
State Minimum Wage	0.165*** (0.067)	2.48	-0.012 (0.067)	-0.18	0.179*** (0.072)	2.50	-0.012 (0.073)	-0.17
State Housing Price Index (Base Year Index = 100)	0.0004 (0.0006)	0.66	0.0002 (0.0010)	0.23	0.0001 (0.0007)	0.19	0.0003 (0.0011)	0.26
State Controls			X				X	
Sample	2002 - 2010		2002 - 2010		2002 - 2010 Omitted States with Few Refugees (AR, MS, MT, WV, WY)		2002 - 2010	
R ²	0.7324		0.8782		0.7199		0.871	
Number of Observations	459		459		414		414	
F-Value	310.59		53.92		262.74		50.17	

Notes: * indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level. Arkansas, Mississippi, Montana, West Virginia and Wyoming were the states that consistently received the fewest numbers of refugees. Many years, these states received zero

Table 3 models the percentage of refugees that entered the United States in a given year that settle in a given state. The first regression does not include any state control variables. In doing so, the labor force variable is intended to proxy for a state's population for a given year. Therefore, the magnitude and direction of the labor force coefficient are within reason, as previous studies show that larger states generally receive more refugees as they are seen to have the infrastructure to support a diverse group of peoples. Although the difference between the state unemployment rate and the national unemployment rate is in the expected direction, it is not statistically significant. Also of note, the state minimum wage coefficient is statistically significant, as states with higher minimum wages tend to draw refugees. Refugees in these states

will theoretically earn more money, but states with higher minimum wages also tend to have more state spending, which leads to greater social benefits¹⁰.

In efforts to control for each state's social benefits, religious diversity, urbanness, and inclusivity of foreigners, which vary by state and are relatively consistent over time, regression 2 adds state control variables. Since refugees entering the United States can have a difficult time adapting to the cultural differences, the above intangibles can be even more important for refugees than for natural-born Americans. The addition of state controls changes the meaning of the labor market condition variables. Thus for a given state, an increase of a million in the size of the labor force will lead to a 2% increase in a given state's share of the incoming refugees in a given year. None of the other variables in regression 2 are statistically significant, which may be a result of the state control variables accounting for the labor market differences between states and the lack of variation within a state's labor market and social policies year over year.

Since some states often do not receive any refugees in a calendar year, regressions 3 and 4 remove Arkansas, Mississippi, Montana, West Virginia, and Wyoming in order to control for outliers. Since refugee resettlement agencies typically place refugees within their network, states that lie outside of resettlement agencies network could influence the regression results. The effect of removing outlier states in regression 3 was minimal; the coefficients for the labor force and the state minimum wage both remained significant. Additionally, the magnitude of these coefficients did not change dramatically after removing the outlier states. Finally, the fourth regression yielded similar results to the second regression. Both have similar R^2 values showing that the dependent labor market variables, along with state controls, accounted for roughly the same amount of the variance in the percentage of refugees each state received in a given year.

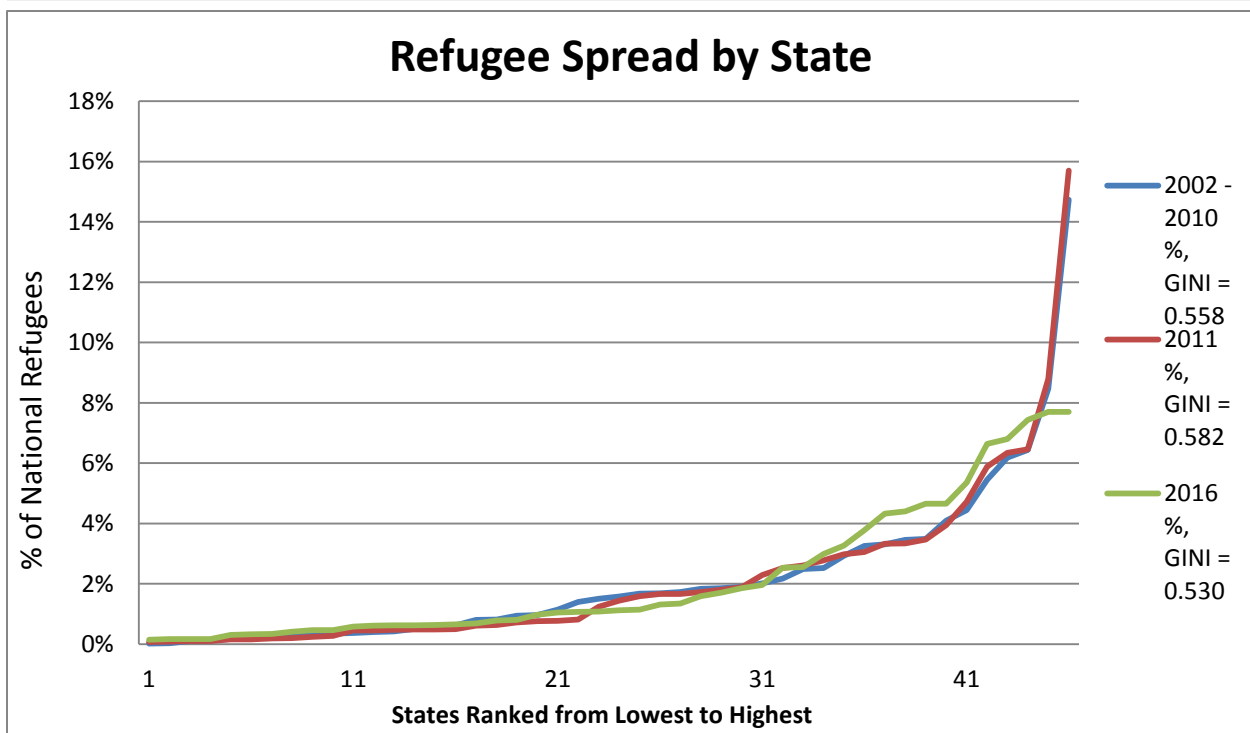
¹⁰ Spending include government programs and social welfare programs that are beneficial to people who live in those states.

The labor force remained the only significant variable of interest. Therefore, the outlier states did not have an impact on the results of the regression.

The first regression shows that refugees are placed in areas where there are more workers. This corroborates the literature as refugee resettlement agencies have more connections in states with a larger labor force and general population. The 2nd and 4th regressions also show that refugees are placed in growing states. Given the same intrinsic benefits for a state, more refugees settled as states' labor forces grew. Furthermore, the fact that the coefficient for a state's minimum wage is significant illustrates the importance of both wages and state social benefits. Since states with higher minimum wages tend to have more social benefits, the statistically significant positive coefficient shows that refugees tend to resettle in states that have the infrastructure to support new refugees. The higher minimum wage also gives refugees more income to support a family, which is advantageous because refugees are typically placed as a family unit. The negative coefficient for the difference in a state's unemployment also aligns with the literature as refugees should be placed in areas where workers are needed. Yet, the fact that the difference in the state's unemployment rate is not statistically significant shows that there is not a conclusive correlation between the regional differences in unemployment rates and refugees' initial settlement. This suggests that placement agencies prioritize the personal needs of refugees as opposed to future employment opportunities for refugees after they have adapted to life in the United States.

Figure 1: Refugee Settlement within the United States

Distribution of Refugees Across States



Notes: 2002 - 2010 aggregates refugee inflow data from the US State Department. 2011 & 2016 use CPS data to calculate the estimated number of refugees in each state for a given year that came to the United States between 2002 - 2011; Both data sets are looking at refugees that entered the United States in the same time period. For the GINI calculation, Cuban refugees were removed due to their strong ties to Florida as well as their overrepresentation in the CPS data. Additionally, the 5 states with the fewest number of refugees were removed for each year in order to control for states that receive few to no refugees. These states were Arkansas, Mississippi, Montana, West Virginia, Wyoming

In order to test whether refugees become more sensitive to the labor market factors as they spend more time in the United States, this study will first show that refugees spread out over time. Figure 1 shows the concentration of the total number of refugees each state has in a given year ordered from least to greatest¹¹. The blue line models the aggregate spread of refugee inflows by state from 2002-2010. The red and green lines use the CPS data to determine where the same cohort of refugees lived in 2011 and 2016 respectively. Since the CPS does not note the exact year a foreign-born resident entered the United States, the data used for the 2011 and 2016

¹¹ The data for the initial settlement from 2002-2010 uses the aggregate number of refugees that initially settled in a state divided by the total number of refugees who came to the United States from 2002-2010.

distributions use refugees that entered from 2000-2011. Additionally, due to the small sample size of potential refugees in the CPS data, the five states with the least number of refugees were again removed from each of the three lines in order to control for imperfect sampling in the CPS.

Figure 1 models the change in the distribution of refugees over time. This data was then used to calculate a GINI coefficient for the relative spread of refugees among the United States. Although GINI coefficients are typically used for calculating the distribution of wealth among a nation, this study adapts the GINI formula to calculate the general spread of refugees among states; a GINI coefficient close to 0.00 means there is a perfectly even distribution while a GINI coefficient close to 1.00 implies an extremely uneven distribution. The distribution of refugees' initial settlements from 2002-2010 had a GINI of 0.558. By comparison, the distribution of the same set of refugees had a GINI of 0.582 in 2011 and 0.530 in 2016, based on the CPS data. The decrease in the GINI from the initial settlement from 2002-2010 to refugees' current location in 2016 shows that, visually, refugees are spreading out across the United States as they spend more time in the country. Likewise, the decrease in the GINI from the 2011 to 2016 shows that the same cohort of refugees become more evenly distributed across the United States as they spent more time in the country¹². This can be noted by the flatter curve for the 2016 CPS data. The area in between the 2016 curve and the 2002-2010 and 2011 curves shows that refugees were not as heavily concentrated in the states with the most refugees as they were initially. The key question is "what is causing this spreading?"

The regressions in Table 4 use CPS data from 2011-2016 in order to determine where refugees who entered the United States from 2000-2011 are distributed. Since the chart on Figure 1 shows that refugees have spread out as they spend more time in the United States, it makes

¹² In 2011, some of the refugees that entered earlier in the sample may have had time to assimilate, but refugees that entered later would not have had time to spread out from their initial settlement. Therefore, the 2002-2010 sample and the 2011 sample have relatively similar GINI coefficients.

sense to see if the labor market conditions that were examined in initial placement influenced refugee movements.

Table 4: Refugee Location within the United States (2011 - 2016)

Dependent Variable: Percentage of the Total National Refugees residing in a State for a Given Year

Labor Market Factors	1	t	2	t
State UR - National UR	-0.107 ** (0.054)	-2.00	0.082 (0.078)	1.04
State Labor Force (in Millions)	0.742*** (0.023)	32.19	-1.277 (0.928)	-1.38
State Minimum Wage	0.173* (0.104)	1.66	-0.233* (0.139)	-1.68
State Housing Price Index (Base Year Index = 100)	0.0016** (0.0008)	2.05	0.0041 (0.0027)	1.55
State Controls	Florida		X	
Sample	2011 - 2016		2011 - 2016	
R ²	0.9224		0.9717	
Number of Observations	278		278	
F-Value	645.87		141.81	

Notes: * indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level. The CPS data used yielded an extraordinary number of Cuban Refugees living in Florida. Due to the personal weights given to those individuals, Florida as a state needed to be controlled as the data inaccurately represented approximately 500,000 Cuban refugees entering between 2000 - 2011, which is around 10 times the actual value. Also note that state that had fewer than 1000 refugees in a given year were omitted for that year. Based on CPS Weights, these deletions included only states without any refugees interviewed or where only 1 refugee was interviewed.

The first regression in Table 4 models each state's proportion of the total refugee population that entered from 2000-2011 against the same labor market factors used in Table 1. The first regression in Table 4 controls for the state of Florida due to an overrepresentation of

Cuban Refugees in the CPS data¹³. This regression shows that the differential between a state's unemployment rates and the national unemployment rate is both negative and statistically significant. This shows that states with unemployment rates that are better than the national average tend to have more refugees. Additionally, positive labor force and minimum wage coefficients show that more refugees tend to live in areas with more people and higher potential wages, which is not surprising. Since states with higher minimum wages typically have increased social benefits, the positive minimum wage coefficient can be interpreted as refugees living in areas that are more accommodating. Lastly, the positive housing price index coefficient shows that refugees may move to where job prospects are better, despite the heightened cost. Since people tend to live in areas with more jobs, housing is more expensive in states with better labor prospects.

Regression 2 on Table 4 has state controls. Therefore, the labor market variables in this regression test for differences in the labor market variables within a state. The minimum wage was the only significant variable, which may suggest that refugees are sensitive to increasing living costs within a state. Since higher minimum wages signal higher prices for consumers, the negative coefficient for the minimum wage suggests refugees move to a given state when the cost of living is less expensive.

Knowing that refugees become sensitive to the labor market as they spend more time in the United States is interesting, but it does not mean that refugees are different from other immigrants. Tables 5 and 6 provide regressions to compare refugees to the immigrant population, as well as the general population respectively.

¹³ The CPS data consistently showed that about half a million Cuban refugees entered Florida from between 2000-2011 when, in reality, fewer than 50,000 Cubans entered the United States during that time period. Since a large proportion of Cuban refugees reside in Florida, the number of refugees in Florida was heavily skewed.

Table 5: Non-Refugee Immigrant Location within the United States (2011 - 2016)

Dependent Variable: Percentage of the Total National Immigrants residing in a State for a Given Year

Labor Market Factors	1	t	2	t
State UR - National UR	-0.040 (0.043)	-0.92	0.015 (0.028)	0.53
State Labor Force (in Millions)	0.970*** (0.019)	51.57	1.341*** (0.348)	3.86
State Minimum Wage	-0.021 (0.079)	-0.27	-0.049 (0.051)	-0.98
State Housing Price Index (Base Year Index = 100)	0.0040*** (0.0006)	6.28	-0.0007 (0.0010)	-0.74
State Controls	Florida		X	
Sample	2011 - 2016		2011 - 2016	
R ²	0.9151		0.9936	
Number of Observations	306		306	
F-Value	646.91		718.35	

Notes: * indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level. This sample uses immigrants who entered the United States during the same time period as the refugees in the previous sample (2000-2011).

The first regression in Table 5 models the effect of the labor market on immigrant settlement in the United States. Note that a Florida state dummy variable was used in order to mirror the first regression on Table 4 and allow for a consistent comparison between regressions. However, the Florida dummy variable was not significant in the first regression in Table 5 and did not significantly influence the coefficients for the variables of interest.

Unlike the regression on refugees in Table 4, the coefficients for the unemployment rate differential and the state's minimum wage were not significant. The size of the labor force and the housing price index were the only variables that were significant. This finding suggests

immigrant residence is heavily impacted by the number of workers. Immigrants also appear to be willing to relocate to areas with better labor prospects, despite higher costs of housing. Since an increase in housing demand causes housing prices to rise, immigrants living in areas with higher housing costs could be a result of immigrants moving to the same areas as the general population. It could also mean that immigrants tend to live in urban environments, which have higher housing costs. In general, the results from the first regression on Table 5 support the idea that immigrants and refugees are two different subsets of the population and that refugees are more sensitive to differences in state unemployment rates.

The second regression uses state dummy variables to control for differences in each state. The size of the labor force is the only variable to have a significant coefficient. As expected, states with fluctuations in the labor force draw more of the immigrant population. This supports the same conclusion from the first regression that immigrants move to the same areas as the general population. Further, year-to-year fluctuations in housing price within a state do not significantly impact a state's population of immigrants.

In order to determine if refugees are more sensitive to regional differences in the unemployment rate than immigrants, a t-test must be performed for two independent samples. Using the coefficient values for the unemployment differential from the first regression on Table 4 and the first regression on Table 5, we can calculate a $t = -16.66$, which is statistically significant at the 1% level and negative. This means that refugees are more sensitive to regional unemployment differences than non-refugee immigrants. Moreover, the t-statistic between the labor force coefficients from the first regression on Table 4 and the first regression on Table 5 is $t = -134.02$, which is also statistically significant at the 1% level and suggests that refugees are less likely to live in areas that have large labor forces, i.e. urban states. If refugees are less likely

to live in urban states, then refugees could act as an effective labor force for companies that need rural workers. Moreover, the t-statistic between the labor force coefficients from the second regression on Table 4 and the second regression on Table 5 is $t = -45.93$, which is statistically significant at the 1% level and suggests that immigrants are more likely to go to growing states than refugees. Further, the coefficient for the labor force in the second regression on Table 4 is not significant, which implies that refugees are indifferent between states with growing and shrinking labor forces and suggests refugees may be able to move towards areas that need workers, regardless of a state's growth. Also, the t-statistic between the minimum wage coefficients from the first regression on Table 4 and the first regression on Table 5 is $t = 25.92$, which is statistically significant at the 1% level and suggests that refugees are drawn to areas with more social benefits more so than immigrants. Lastly, the t-statistic between the housing price index coefficients from the first regression on Table 4 and the first regression on Table 5 is $t = -41.24$, which is statistically significant at the 1% level and suggests that refugees reside in states with lower housing prices than immigrants.

Table 6: General Population Location within the United States (2011 - 2016)

Dependent Variable: Percentage of the Total National Population residing in a State for a Given Year

Labor Market Factors	1	t	2	t
State UR - National UR	0.019*** (0.0030)	5.75	-0.0010 (0.0019)	-0.49
State Labor Force (in Millions)	0.647*** (0.001)	464.79	0.353*** (0.025)	14.30
State Minimum Wage	-0.018*** (0.006)	-2.96	-0.011*** (0.004)	-3.11
State Housing Price Index (Base Year Index = 100)	-0.0003** (0.0001)	2.17	-0.00011 (0.00007)	-1.63
State Controls			X	
Sample	2011 - 2016		2011 - 2016	
R ²	0.9987		0.9999	
Number of Observations	306		306	
F-Value	59668.05		57252.43	

Notes: * indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level. Since a state's labor force is almost directly correlated to the state's population, multicollinearity issues arise when regressing a state's share of the national population against the state's labor force. When the labor force variable is removed, state control variables act as population controls because state populations have little year over year variance.

Lastly, Table 6 models the distribution of the population among the states against labor market variables. The first regression, which models the population without state controls, yielded significant coefficients for the difference in the unemployment rate, labor force, minimum wage and housing price index. The magnitude of the size of the labor force is likely due to the strong correlation between a states' population and the size of its labor force. Generally speaking, larger states have more workers. The direction of the unemployment

differential coefficient seems odd. The regression models that the general population tends to reside in areas with unemployment rates that are higher than the national average. This does, however, confirm an initial assumption from the literature that the general population does not move to different states based on regional differences in the unemployment rate. Additionally, the general population is willing to pay a premium for housing in order to continue to live in the same location or move to a more attractive location. Lastly, the negative minimum wage coefficient could be a result of the general population moving to areas that are growing. Since the minimum wages are lower in growing states (which tend to be in the south and west), the negative coefficient for the minimum wage could be a result of people moving into the south and southwest (where states tend to have lower minimum wages).

Regression 2 has control variables for each state. Since state populations do not fluctuate dramatically year-over-year, the state controls are essentially capturing each state's population. The labor force variable is also likely catching the year-to-year changes in state population. This combination leads to a near perfect linear regression and the R^2 for the regression is .9999.

In order to determine if refugees are more sensitive to regional differences in the unemployment rate than the general population, a t-test was performed for the two independent samples. Using the coefficient values for the unemployment differential from the first regression on Table 4 and the first regression on Table 6, we can calculate a $t = -34.34$, which is statistically significant at the 1% level. This suggests that refugees respond differently to regional unemployment differences than the general population. Refugees' sensitivity to regional unemployment differences could make refugees a target for companies that require a temporal labor force. Since refugees place a greater emphasis on employment when choosing a place to live, companies that employ temporary laborers or mobile salespeople could target refugees

when searching for new employees. For example, an oil rig operator that suddenly finds oil in South Dakota could bring refugees to work at the drill site to fill the operator's newfound labor needs. Using the coefficient values for the unemployment differential from the second regression on Table 4 and the second regression on Table 6, we can calculate a $t = -30.72$, which is statistically significant at the 1% level and suggests refugees do not move in the same patterns as American natives. This analysis further shows that refugees behave differently from other groups of people when deciding where to live.

VI. Conclusion

In summation, refugees are initially placed in the United States based on the connections between refugee settlement agencies and communities in the states. After being given time to assimilate into the culture of the United States, the analysis finds that refugees are more sensitive to regional differences in the unemployment rate than immigrants or the general population. Similar to the findings of Røed and Schøne (2012), this study shows that refugees are more apt to move to areas that have low unemployment rates and “grease the wheels” of the labor market, despite increases in the cost of housing. In application, refugees could be used as a buffer for unemployment differences across states in a recession or boom. Since the results show that refugees are less sensitive to whether a state is growing, unlike immigrants and American natives, refugees could be more willing to relocate in order to find employment. Theoretically, refugees could move from areas where their work is no longer needed to areas that need laborers and reduce the regional severity of the recession. A country that has more refugees could be less prone to state recessions as refugees would move out of states where they are unlikely to be employed. In practice, there are few refugees in the United States and the time needed for refugees to assimilate could act as a barrier. Since, according to Cortes (2004), refugees need 10-

15 years to adapt to life in the United States, countries would have to wait about a decade before refugees could be able to move away from their initial settlement locale. In this time, refugees could move back to their home country, if given the opportunity, or could find a new home outside of the United States, which would reduce the number of refugees who could move and smooth out regional differences in unemployment rates. In order to combat the loss of refugee laborers, the United States could theoretically take in more refugees and thus ensure that an adequate number of refugees are in the country to reduce gaps in employment and minimize the impact of recessions. In closing, refugees are a unique subset of the labor force and further research should be conducted to determine potential benefits of taking in a larger share of the world's growing refugee population.

Bibliography

- "Admissions & Arrivals." Refugee Processing Center. Accessed November 29, 2017.
<http://www.wrapsnet.org/admissions-and-arrivals/>.
- Arestis, Philip, Aurelie Charles, and Giuseppe Fontana. 2014. "Identity Economics Meets Financialisation: Gender, Race and Occupational Stratification in the US Labour Market." *Cambridge Journal Of Economics* 38, no. 6: 1471-1491. EconLit, EBSCOhost (accessed March 1, 2017).
- Beaman, L. A. "Social Networks and the Dynamics of Labour Market Outcomes: Evidence from Refugees Resettled in the U.S." *The Review of Economic Studies* 79, no. 1 (2011): 128-61.
- Borjas, George J. 2017. "Still More On Mariel: The Role of Race." *EconLit*, EBSCOhost (accessed November 30, 2017).
- Borjas, George J. "Does Immigration Grease the Wheels of the Labor Market?" *Brookings Papers on Economic Activity* 2001, no. 1 (2001): 69-133. Accessed February 28, 2017. JSTOR.
- Borjas, George, Richard Freeman, and Lawrence Katz. "Searching for the Effect of Immigration on the Labor Market." American Economic Association, 1996. JSTOR.
- Clemens, Michael A., and Jennifer Hunt. 2017. "The Labor Market Effects of Refugee Waves: Reconciling Conflicting Results." *EconLit*, EBSCOhost (accessed November 30, 2017).
- Cortes, Kalena E. 2004. "Are Refugees Different from Economic Immigrants? Some Empirical Evidence on the Heterogeneity of Immigrant Groups in the United States." *Review Of Economics And Statistics* 86, no. 2: 465-480. EconLit, EBSCOhost (accessed March 1, 2017).
- "Current Population Survey (CPS) Basic Monthly Data at the NBER." National Bureau of Economic Research. Accessed November 29, 2017.
http://www.nber.org/data/cps_basic.html.
- Edin, Per-Anders, Peter Fredriksson, and Olof Aslund. "Settlement policies and the economic success of immigrants." *Journal of Population Economics* 17, no. 1 (2004): 133-55.
- Fullerton, Maryellen. "Trump, Turmoil, and Terrorism: The US Immigration and Refugee Ban." *International Journal of Refugee Law* 29, no. 2 (2017): 327-38.

- Hirobe, Tsunetada. 2014. "Distribution about Regional Disparities of the US Labor Market: Statistical Analysis of Geographic Agglomeration by Employment Status." *Regional Science Inquiry* 6, no. 2: 11-21. EconLit, EBSCOhost (accessed February 28, 2017).
- Keenan, J., and J.R. Walker. "The Effect of Expected Income on Individual Migration Decisions." *Econometrica* 79, no. 1 (2011): 211-51.
- "Population, Employment, & Labor Markets." FRED. Accessed November 29, 2017. <https://fred.stlouisfed.org/categories/10>.
- Peri, Giovanni, and Vasil Yassenov. 2015. "The Labor Market Effects of a Refugee Wave: Applying the Synthetic Control Method to the Mariel Boatlift." *EconLit*, EBSCOhost (accessed November 30, 2017).
- Røed, Marianne, and Pål Schøne. "Does immigration increase labour market flexibility?" *Labour Economics* 19, no. 4 (2012): 527-40. EconLit.
- Schündeln, Matthias. "Are Immigrants More Mobile Than Natives? Evidence From Germany." *Journal of Regional Science* 54, no. 1 (2013): 70-95. EconLit.