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Exploring the Contributing Factors to Labor Market Assimilation Outcomes across Refugee
Groups in the United States

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Honors Research Project

Abstract

Upon arrival in the United States, refugees suffer from a substantial disadvantage in the US labor market when compared to non-refugee immigrants and natives. However, over time, labor market assimilation occurs for refugees as their employment outcomes improve, but the degrees and rates of assimilation vary greatly among refugee groups. This paper aims to analyze why some refugee groups perform worse than others in the US labor market do when human capital differences have been accounted for. This paper has two foci; firstly, it looks at how source country-specific characteristics as measured by the source country's GDP per capita impact the labor market performance among refugee groups. The second focus broadens the scope to identify non-human capital factors that affect wage gaps between refugees and non-refugee immigrants with similar backgrounds. Using the 2011-2015 American Community Survey data, I conducted both descriptive statistics and Ordinary Least Squares regression analyses to compare labor market outcomes of refugees from Vietnam, Cambodia, Afghanistan, Romania, Russia and other USSR states, Laos, Iraq, and Somalia.

I. Introduction

Economic and political turmoil around the globe has forced millions of individuals to be displaced worldwide (UNHCR, 2018), and as one of the top refugee receiving countries, the United States has put increasing focus on immigration policies and humanitarian resettlement programs. In 2016 alone, just under 85,000 individuals were admitted into the US for humanitarian purposes (Refugee Processing Center, 2018). Unlike economic immigrants whose primary goal for immigration is to search for better employment opportunities, refugees flee to the US in order to escape persecution and war in their home country (Cortes, 2004; Aiyar et al., 2016). In other words, economic immigrants focus on maximizing economic gains and can choose their destination country under their free will, whereas refugees, facing danger at home, do not have much liberty to choose when and where they would be resettled for humanitarian purposes. Hence, refugees, in general, may have less time and fewer resources in their home country to prepare themselves for settlement in the United States, such as acquiring English skills to increase the likelihood of employment, than economic immigrants do. Since refugees are less likely to attain such US-specific labor skills prior to immigration, they are more likely to be disadvantaged in the US labor market when compared to economic immigrants and natives (Poutvaara & Wech, 2016).

Previous research has found that upon arrival in the host country, refugees suffer from a substantial disadvantage in the labor market when compared to economic immigrants and natives (Bevelander, 2016; Godøy, 2017). However, over time, labor market assimilation occurs for refugees as they acquire more host country-specific human capital, but the degrees and rates of assimilation vary greatly among refugee groups (Aiyar et al., 2016; Cortes, 2004; Kerr & Kerr, 2011; Poutvaara & Wech, 2016). These discrepancies in the assimilation outcomes are attributable to differences in standards of living between source and host countries (Friedberg, 2000; Bratsberg, Raaum, & Røed, 2014). This paper aims to explore more in depth why some

refugee groups perform worse than others in the US labor market do when human capital differences have been accounted for.

I refer to both refugees and asylees in the US when I use the term “refugees” in this paper. This is because although both groups seek humanitarian aid, they are given different definitions in the US. Refugee status is granted to someone who is outside of the US when applying for humanitarian protection, whereas asylum is granted, either affirmatively or defensively, to someone who is already present in the US or at a US port of entry (Department of Homeland Security, 2015). Despite the minor differences in the definition of these two groups, I assume that they are fundamentally the same when it comes to the level of US-specific human capital they possess upon arrival in the US. Refugees from the following eight countries are selected for my labor market assimilation analysis: Vietnam, Cambodia, Afghanistan, Romania, Russia and other USSR states, Laos, Iraq, and Somalia. Labor market outcomes, such as the employment rate, usual hours worked per week, and real wages, of these refugee groups are compared to those with each other and those of non-refugee immigrants. Using the pooled five-year American Community Survey data from 2011 to 2015, I conducted both descriptive statistics and Ordinary Least Squares regression analyses to test my hypotheses. It is important to note that due to limitation of the ACS data, I cannot identify specific types of immigration, and therefore I assumed that all non-refugee immigrants are economic immigrants as they have chosen to immigrate to the US for economic reasons.

The contribution of this paper is twofold; firstly, it looks at how source country-specific characteristics as measured by the source country’s GDP per capita impact the labor market performance among refugee groups. The labor market outcomes of Vietnamese refugees are compared to those of the other seven refugee groups while human capital and socio-demographic variables are controlled for. The second focus broadens the scope to identify non-human capital factors that affect wage gaps between refugees and non-refugee immigrants with similar

backgrounds. I compared the labor market outcomes of refugees and non-refugee immigrants from similar countries of origin to estimate the effect of refugee status on an individual's labor market performance when national origin is controlled for. The paper is organized in the following order: literature review, theoretical model, data and methodology, descriptive statistics, empirical model and results, and conclusion.

II. Literature Review

Although there exists a vast amount of literature on the economic integration of immigrants, the specific topic of refugee labor market assimilation is seldom studied by researchers. As Aiyar et al. (2016) pointed out in their study on the recent waves of refugees in the European Union, existing literature on immigration often fails to distinguish between economic immigrants and refugees when analyzing the assimilation process of immigrants. Aiyar et al. asserted that refugees may experience more restrictions than economic immigrants in the host country labor markets as there are many legal constraints on asylum applications and employment. Economic immigrants also have the advantage over refugees in labor market assimilation that they could choose their destination country to maximize future employment outcomes, while the latter's primary goal is to seek asylum to maximize personal safety (Aiyar).

Bevelander (2016) arrived at similar conclusions as Aiyar et al. (2016) when he compared the employment levels and earnings of refugees to those of family reunion migrants and labor migrants in Sweden, Canada, the US, and the Netherlands. Bevelander found that refugees integrate more slowly into host countries' labor market than labor migrants do and are less likely to secure employment in the host country when compared to labor immigrants. He argued that this is because of several factors; for example, loss and depreciation of human capital and credentials during the asylum procedure negatively affect refugees' labor market integration. In addition, host countries hold screening processes or other policies to admit economic immigrants with skill sets that match the demand for certain jobs in the host country and to

ensure smoother labor market integration for economic immigrants (Bevelander). Refugees did not enter the country to seek employment primarily, so information on the host country's labor market situation is of less importance.

Bevelander's (2016) findings are paralleled in Poutvaara and Wech's (2016) paper on the labor market performance of refugees in the United States and in EU countries (Germany, Sweden, Denmark, and the UK). Poutvaara and Wech explained the lower employment rate among refugees by stating that psychological traumas due to war from their home countries discourage both genders to participate in the labor force. War also restricts access to educational institutions, so refugees from countries that have been long affected by war tend to have low levels of educational attainment (Poutvaara & Wech). Female refugees are significantly less likely to be employed than male refugees, which Poutvaara and Wech attributed to both the higher number of children refugees have and cultural barriers that discourage females from participating in the labor market. When looking at the employment rate of different refugee groups, it is found that refugees of both genders from Latin America as the highest employment rate, and those from the Middle East have the lowest rates. Poutvaara and Wech asserted that the difference in the employment rates between these two groups could not be explained by pure human capital reasons since both groups have similar education levels, and suggested that there are either omitted factors or discrimination involved.

Cortes (2004) emphasized the distinction between the purposes of immigration for refugees and economic immigrants. Cortes provided a clear definition of economic immigrants and refugees to distinguish between the two groups; refugees are those who flee persecution in their home country, and economic immigrants are those who search for better jobs and economic security. They are different in the nature of whether they are allowed to return to their home country under their free will. She found that upon arrival, refugees on average have lower annual earnings and work fewer hours than economic immigrants do. However, their annual earnings

grow faster over time than those of economic immigrants. In fact, after spending 10 to 15 years in the US, the labor market outcomes of refugee immigrants surpassed those of economic immigrants. Refugees over time tend to have higher Country-Specific Human Capital investment than economic immigrants, which most likely contribute to these findings. Cortes argued that this is because refugees are forced to assimilate faster than economic immigrants do since they are not allowed to return to their home country unlike the latter.

Similar to the arguments made by Bevelander (2016) and Cortes (2014), Kerr and Kerr (2011) claimed that the labor assimilation process of immigrants is largely determined by the purpose of the migration, since the education levels, ages, and tenures of immigrants are dependent on it. Kerr and Kerr found that recent immigrants, especially refugees and asylees, have lower labor market participation and work less hours than natives do, and they attributed the findings to the lower average levels of educational attainment when compared to natives. Although the lower levels of human capital possessed by immigrants can explain the majority of the wage gaps between them and natives, labor market mismatch occurs and highly educated immigrants end up in low-wage occupations. Kerr and Kerr established that assimilation happens when immigrants acquire greater human capital, especially if the human capital is specific to the host country, such as language skills. Despite the decrease in its magnitude, it is nevertheless found that the permanent wage gap between immigrants and natives persists, so total assimilation does not exist in the US or European countries.

When looking at the relationship between immigrants' human capital and their performance in the Israeli labor market, Friedberg (2000) asserted that the national origin of an individual's human capital matters. Friedberg found that labor market experience and education attained in the immigrant source countries are valued significantly less than those acquired in the host countries, and argued that the earnings disadvantage of immigrants can be fully explained by the differences between the value of human capital acquired abroad and domestically.

Moreover, return to foreign schooling varies depending on the origin country. This finding reflects the differences in quality of source country human capital and its compatibility with the skill requirements of the host country labor market. The more similar the origin and destination countries are in terms of their levels of economic development, industrial and occupational structures, institutional settings, the more likely it is that education and work experience received in the origin country will be highly valued in the destination labor market (Friedberg). For example, immigrants from the West have the highest return to schooling obtained abroad whereas those from Asia and Africa have the lowest. While this may support the argument that Western schooling has higher quality and is better matched with the skills required in the Israeli labor market, it might also reflect a lesser extent of discrimination between Western and non-Western immigrants at lower levels of education than at higher levels. Friedberg's findings also suggest that additional education following immigration to host country to acquire host country-specific human capital has the most beneficial effect on labor market performance.

The results of Bratsberg, Raaum, and Røed's (2014) investigation of immigration to Norway support Friedberg's (2000) conclusion that the source country of immigrants matters. Bratsberg, Raaum, and Røed found that differences in standards of living between the source and destination countries is a particularly important predictor for immigrants' labor market performance. Immigrants from countries with similar income levels as Norway tend to perform well in the Norwegian labor market at similar levels as natives. On the other hand, immigrants from low-income developing countries tend to stay in Norway for longer and have higher risks of non-employment and social insurance dependency.

In contrary to the popular belief that human capital is the predominant factor in determining immigrant assimilation in host country labor market, Nee and Sanders (2001) demonstrated that financial and social capital of immigrants should also be included when considering the economic integration of immigrants. In their field study of Asian immigrants in

the greater Los Angeles area, Nee and Sanders asserted that the orthodox immigration models that rely on human capital analysis do not capture the assimilation experience for contemporary non-European immigrants in Western societies as these models focus mostly on the early immigration flows from European countries. They found that immigrants arriving with low stocks of financial and human capital are most likely to find employment in the ethnic economy through their social ethnic network, whereas immigrants with human capital that is compatible in the host society tend to gain employment in the broader mainstream economy.

Lancee (2010) focused on how social capital impacted the likelihood of employment and adjusted household income for first- and second-generation Moroccan, Moroccans, Turks, Surinamese and Antilleans in the Netherlands. He identified two forms of social capital: bonding and bridging. Bonding refers to the within-group, dense network with thick trust, whereas bridging is the between-group, crosscutting network with thin trust. The results of Lancee's study suggest that bridging networks affect both employment rate and household income for immigrants. Bridging social ties are good for upward mobility in the labor market; interethnic ties are especially important for immigrants because they create wider social network with more resources and job opportunities. The longer the duration of stay of immigrants in the host country, the higher the likelihood of building bridging social capital with thin trust they have. On the other hand, bonding networks do not affect economic outcomes of the immigrants and only help male immigrants build bridging networks. Lancee further indicated that although level of trust is not an economic performance indicator for immigrants, it can help build bridging and bonding networks.

Tegegne (2015) studied the effect of relying on social ties to find a job on the hourly earnings and occupational prestige of new legal immigrants in the United States. The results indicate that after human capital and sociodemographic variables have been controlled for, immigrants' reliance on close social ties to seek employment leads to lower prestige and lower

paying jobs, and some of this effect of social capital on earnings appears to come through occupational prestige. This is presumably because jobs found through immigrants' close social ties are more likely to be within the ethnic economy, where there is a higher concentration of co-ethnic employers and employee concentration in certain occupations.

III. Theoretical Model

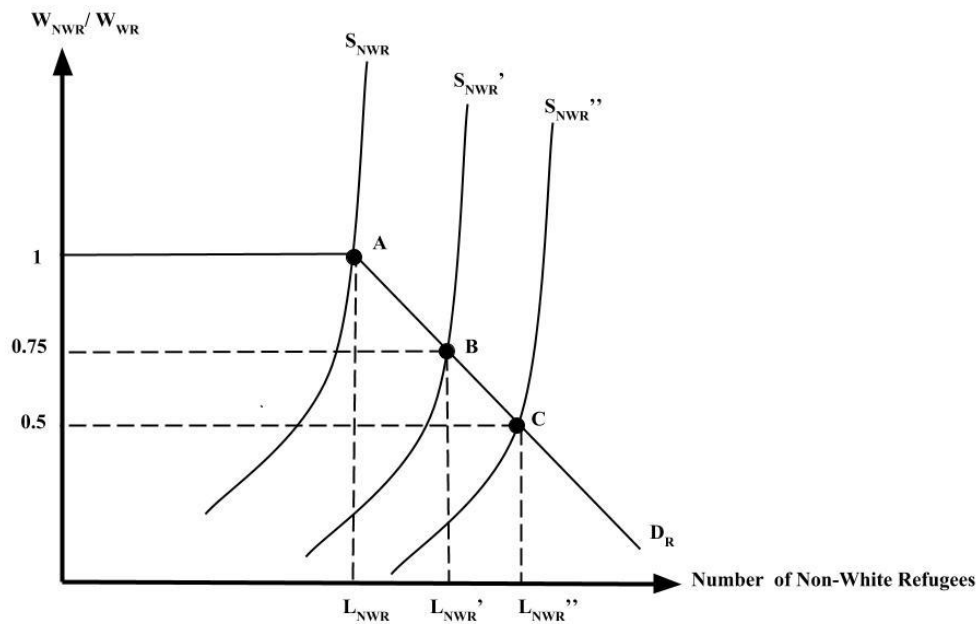
This section presents the theoretical component of this paper, which consists of human capital theory, discrimination theory, and social capital theory. Human capital theory states that human capital is the income-generating worth of an individual, and it is a function of his or her productive skills and knowledge (Rosen, 2008). Traditionally, human capital is measured by an individual's educational attainment; the higher the educational attainment level, the greater the human capital. Higher human capital thus leads to higher labor productivity, which in turn leads to higher labor earnings according to human capital theory. Age is also a proxy for measuring human capital, as it is assumed that labor market experience, a key determinant of human capital, increases as an individual ages. However, it is important to note that the initial human capital levels of refugees, which is approximated by their educational attainment and age, are only partially transferable upon arrival in their host country (Cortes, 2004).

Moreover, human capital acquired in the source country is valued significantly less than human capital acquired in the host country, and hence it is crucial for these refugees to obtain host country-specific human capital to be able to compete in the host country labor markets (Friedberg, 2000). Therefore, in this paper, in addition to the educational attainment level and age of refugees, I also analyze how English proficiency, which is a US-specific human capital, affects the wages of the different refugee groups. Since refugees are less likely to have host country-specific human capital before seeking resettlement in the host country, and country-specific human capital takes time to gain, I hypothesize that refugees who arrived in the US in

the earlier years, such as the Vietnamese and Cambodian refugees, would perform better than recent arrivals such as the Iraqi and Somali refugees.

Discrimination from employers may also play a part in determining the refugees' labor earnings in the US. Taste-based discrimination refers to how unjustified prejudicial feelings of individual members of a majority group could lead to negative employment outcomes for members of a discriminated-against group (Charles & Guryan, 2009). Taste-based discrimination can be attributed to common discriminatory factors in the labor market such as national origin, race, color, sex, religion, age, and disability (U.S. Equal Employment Opportunity Commission, n.d.). Current literature points out that certain groups of refugees may experience greater degrees of taste-based discrimination from employers based on national origin and sex, causing them to perform more poorly in the labor market (Poutvaara & Wech, 2016). Capps et al. (2015) found that although Vietnamese and Cuban refugees had similar English proficiency and educational attainment levels upon their arrival in the US, these two groups had significantly different economic outcomes in Fiscal Years 2009-11. Up to 56% of Cuban refugees received household income below twice the poverty line, whereas only 35% of the Vietnamese refugees did. This suggests that human capital is unlikely to be the only contributing factor in determining labor wages. Fortunately, it is likely that this kind of taste-based discrimination against certain characteristics of refugee groups would eventually disappear in the labor market as explained by the Becker model below (Borjas, 2016).

Figure 1: Taste-Based Discrimination among Refugee Groups Explained by the Becker Model



In Figure 1, I have simplified the labor market to consist of white refugees (WR) and non-white refugees (NWR). The vertical axis measures the wage ratio of non-white refugees to white refugees, and the horizontal axis measures the number of non-white refugees in the labor force. It is assumed that white refugee wages are fixed, but that non-white refugee wages can vary depending on the labor demand and supply. Employers who have no preference of white refugees over non-white refugees would be willing to pay an equal amount of wages for both groups (the ratio of non-white refugee wages to white refugee wages equals to one) as shown by the horizontal portion of the demand curve for non-white refugee workers. This would continue until there are no more non-discriminating employers left in the labor market (Point A) who are willing to pay non-white refugees at a wage ratio of one, and we enter the downward-sloping portion of the demand curve. Here we start with employers with a lower extent of taste-based discrimination against non-white refugees, then gradually move on to those with more distaste against non-white refugees. This indicates that after L_{NWR} number of non-white refugees are hired in the labor market, the remaining prejudiced employers would only hire non-white

refugees if the wage ratio is lower than one. The lower wage is to compensate the prejudiced employers for employing the less preferred non-white refugees, and the more discriminating an employer is, the lower the wage ratio has to be for the employer to hire non-white refugees.

The labor wages of non-white refugees are also determined by the supply of non-white refugee workers in the labor market. The greater the labor supply of non-white refugees, the more likely that the labor market equilibrium would fall into the downward-sloping portion of the demand curve, where employers have a greater preference for white refugee workers over non-white refugees as shown by the position of the three supply curves in Figure 1. As the supply of non-white refugee workers increases in the labor market, for example, a shift from S_{NWR} to S'_{NWR} , the equilibrium wages for these workers decrease due to the presence of discriminatory employers. However, eventually, this phenomenon would disappear as discriminatory employers face a higher labor cost when choosing to hire white refugee workers over non-white refugee workers. For instance, at Point B, discriminatory employers would have to pay 33% more for white refugee workers than non-discriminatory employers do. The labor costs for discriminatory employers increase along the demand curve. At Point C, they would need to pay 50% more for white refugee workers. Since higher labor costs reduce the competitiveness of firms, in the long-run, these discriminatory employers would either have to terminate their discriminatory behaviors or face potential exit from the market.

Social capital theory suggests that individuals who are well equipped with social resources such as social network and contacts are more likely to succeed in attaining their goals (Lancee, 2010). The theory states that the social ties and connections individuals have influence their labor market behavior and outcomes, and that the types of networks and relations in which individuals are embedded are important to their employment situations (Tegegne, 2015).

According to the theory, individuals are willing to invest in forming social relations with others because of the expected future value of the resources made available through these relations. The

social capital possessed by an individual can contribute to his or her access to labor markets, wages or occupational status (Tegnene). I hypothesize that the longer a refugee group has been in the US, the more likely they would have established an ethnic network that provides social connections, especially interethnic bridging social ties and network opportunities to improve labor market outcomes. Hence, refugees who have arrived in the country in earlier years would perform better in the US labor market than would those who arrived more recently.

Drawing from conclusions based on existing literature and economic theories, I hypothesize that early arrival refugees would perform better than recent arrival refugees do. The longer the refugees reside in the US, the more US-specific human capital and social capital they can gain. Furthermore, discrimination based on color, race, national origin, and religion may play a part in determining labor market performance across the eight refugee groups. On the other hand, when compared to non-refugee immigrants with similar backgrounds, refugees may be worse-off because they have less time and fewer resources to acquire desirable US-specific labor skills prior to their entry into the country.

IV. Data and Methodology

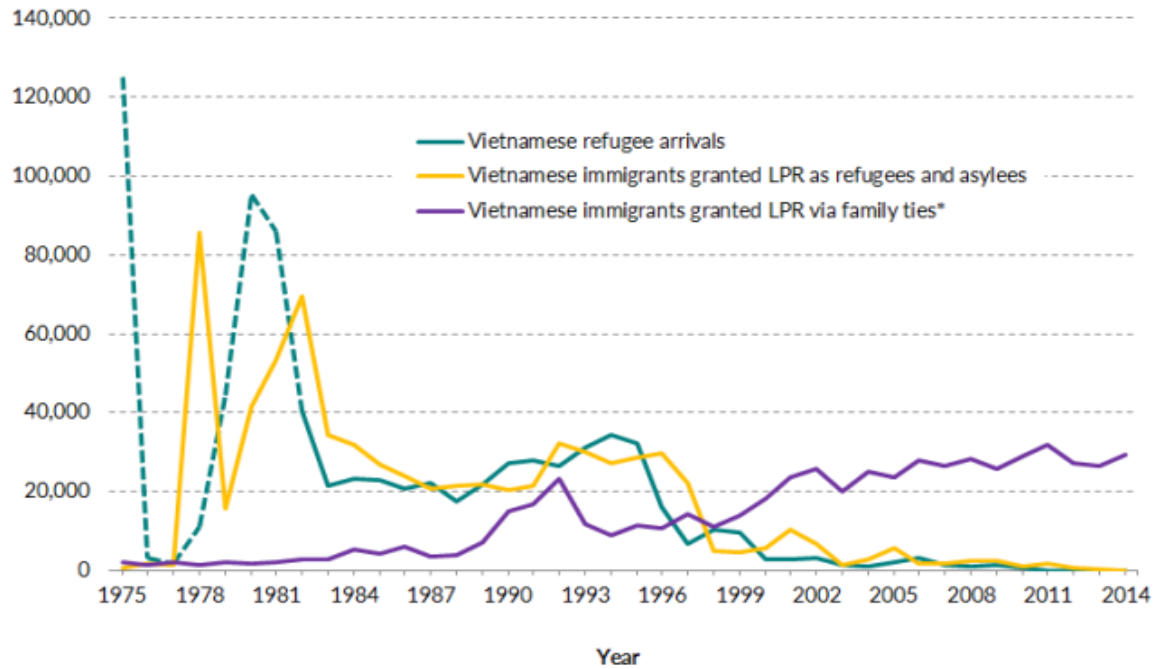
The 2011-2015 1% American Community Survey (ACS) conducted by the U.S. Census Bureau were extracted through IPUMS (Ruggles, Genadek, Goeken, Grover, & Sobek, 2017) for this paper. When extracting my data, I limited my data selection to working-age individuals who have most likely completed their education by identifying those who are between age 25 and 65 when the surveys were conducted. Since the focus of this study is on the differences between refugee groups, as well as between refugees and non-refugees, only individuals whose birthplace is outside of the US are selected. GDP per capita data for the years 2011 to 2015 are extracted from The World Bank's (2018) World Development Indicator database to serve as a proxy for the standards of living in the US and the refugee source countries.

Since ACS data do not specify the immigration type of the respondents, I have to turn to alternative methods of defining what constitutes a refugee flow to the US. I decided that if the refugees and asylees makes up at least 70% of the total immigration flow from a country to the US in a given year, then that country's immigrants during that year are included in my definition of major refugee groups in the US. There is currently no consensus in the existing literature regarding the threshold to define refugee status, so I chose to set my threshold for this study at 70% of the total immigration flow. Although arbitrary, the 70% threshold assures us that there is a substantial over-representation of refugees relative to non-refugee immigrants in my sample.

The primary source of refugee, asylee, and immigrant data is the Statistical Yearbook of the Immigration and Naturalization Services, which in 2002 is renamed the Yearbook of Immigration Statistics under the Department of Homeland Security (DHS). However, the statistical yearbooks do not contain refugee or asylee data before 1982, and therefore the earliest refugee waves from Vietnam and Cambodia prior to 1982 are identified using data from the Migration Policy Institute (MPI) instead of the 70% rule. It can be seen in Figure 2 that the arrival of Vietnamese refugees in the US peaked in 1975, and then between 1978 and 1983. Combining the MPI data with the statistical yearbooks data, I defined Vietnamese refugees as those who were born in Vietnam and immigrated to the United States in 1975, or between 1978 and 1988, as refugees. Similarly, Cambodian immigrants in the ACS data who immigrated to the US between 1978 and 1985 are defined as refugees. It is important to note that due to the limitation of identifying refugees through the 70% rule, some immigrants who are defined as refugees might have been economic or family-based immigrants, and hence the results might be biased. However, based on information I have learned from non-ACS sources such as the DHS and MPI, I am confident that most respondents in my refugee waves are in fact refugees or asylees. Again, I assumed that all non-refugee immigrants in my dataset can be constituted as

economic immigrants as they immigrated to the US in search for better employment opportunities.

Figure 2: Vietnamese Refugee Arrivals and Vietnamese Immigrants Granted Lawful Permanent Residence (LPR) as Refugees and Asylees or through Family Ties, 1975-2014 (Zong & Batalova, 2016)



Using the DHS and MPI data and the 70% rule, I identified eight major refugee groups that have arrived in the US between 1975 and 2015:

- Vietnamese refugees: Years of immigration are 1975 or 1978 through 1988
- Cambodian refugees: Years of immigration are 1978 through 1985
- Afghan refugees: Years of immigration are 1982 through 1988
- Romanian refugees: Years of immigration are 1982 through 1990
- Russian and other USSR states refugees: Years of immigration are 1987 through 1995
- Laotian refugees: Years of immigration are 1986 through 1996
- Iraqi refugees: Years of immigration are 1992 through 2000 and 2008 through 2015
- Somali refugees: Years of immigration are 1989 through 2007 and 2010 through 2015

Due to how ACS data are coded, the Russian refugee group contains individuals born in Russia and other former Soviet Republics excluding the European states. The same cohorts of refugees

are followed over time to trace their labor market assimilation process. Due to this research design, the age of the refugees would increase with the census year. The ACS data are then analyzed using descriptive statistics and Ordinary Least Square regressions to determine refugee performance in the US labor market. Detailed explanation of the regression model will be discussed in the empirical model section.

V. Descriptive Statistics

Descriptive statistics are used to compare the labor market outcomes, as well as human capital and socio-demographic information, across the eight refugee groups. Table 1 presents the employment status (employed, unemployed, and Not in Labor Force) of all individuals aged 25 to 65 across all refugee groups. In Table 1, we can see that Vietnamese, Romanian, and Russian refugees have the highest employment rates (all above 70%) among the eight refugee groups in 2011 to 2015, whereas Iraqi (50.0%) and Somali (60.6%) refugees are the least likely to be employed. These two groups also have the highest unemployment rates (both above 10%).

Table 1: 2011-2015 Employment Statistics Summary for All Refugees

	Vietnamese Refugees	Cambodian Refugees	Afghan Refugees	Romanian Refugees	Russian Refugees	Laotian Refugees	Iraqi Refugees	Somali Refugees
Sample size	19230	3177	526	1311	11299	2035	3009	1521
Employed	75.1%	67.2%	65.0%	73.3%	78.7%	63.4%	50.0%	60.6%
Unemployed	4.5%	4.6%	8.6%	5.9%	4.3%	5.2%	10.1%	10.3%
NILF	20.4%	28.2%	26.4%	20.7%	17.0%	31.4%	39.9%	29.1%

Table 2 presents descriptive statistics such as the average real wages, average usual hours worked per week, demographic information, English proficiency, and levels of educational attainment for full-time year-round employed individuals. This means that they would have worked at least 30 hours per week for at least 48 weeks in the past year. Inflation is taken into account by adjusting the annual labor wages to real wages using the CPI data from the Bureau of

Labor Statistics (n.d.), with 2015 being the base year. Thus, real wages are expressed in terms of 2015 prices.

Table 2: 2011-2015 Descriptive Statistics Summary for Full-time Year-round Employed Individuals

	Vietnamese Refugees	Cambodian Refugees	Afghan Refugees	Romanian Refugees	Russian Refugees	Laotian Refugees	Iraqi Refugees	Somali Refugees
Sample size	12138	1826	273	761	7292	1102	942	599
Real Wages (rounded to nearest dollar)	\$62,734	\$45,855	\$56,711	\$68,134	\$73,001	\$36,803	\$42,831	\$31,799
Avg usual hours worked per week	43.0	43.2	44.1	45.0	43.2	41.7	42.3	42.2
Age	48.1	47.0	45.8	47.6	45.6	42.7	40.7	38.8
Avg years in the US	32.2	31.1	28.4	26.1	21.3	23.6	10.5	12.3
Female	40.2%	44.4%	39.9%	44.7%	48.3%	43.2%	27.3%	34.9%
Married	75.7%	71.1%	79.5%	72.3%	72.9%	68.5%	68.6%	61.6%
Avg NChild	1.24	1.46	1.59	0.89	0.91	2.10	1.40	2.23
Metro	40.6%	48.5%	67.8%	55.3%	68.0%	36.7%	44.4%	45.2%
No/ limited English	16.6%	20.8%	4.7%	2.8%	6.4%	31.8%	13.9%	17.5%
Well/ only English	83.4%	79.3%	95.2%	97.2%	93.7%	68.2%	86.1%	82.5%
Less than High School	17.6%	28.3%	12.5%	6.3%	2.2%	33.4%	14.7%	26.1%
High School	14.2%	21.5%	19.0%	24.3%	10.5%	31.1%	22.7%	29.5%
SomeCollege	27.8%	28.1%	28.2%	29.3%	19.6%	23.2%	19.5%	29.2%
Bachelor's and above	40.4%	22.1%	40.3%	40.1%	67.7%	12.3%	43.1%	15.2%

In Table 2, we see similar observations as in Table 1; in the years 2011 to 2015, Vietnamese (\$62,734), Romanian (\$68,134), and Russian (\$73,001) refugees are the best performing groups in terms of both labor earnings and employment rate. It is worth noting that although Laotian refugees are more likely to be employed than Iraqi refugees are, the former

receives lower wages (\$36,803) than the latter (\$42,831). Somali refugees are the most disadvantaged group in terms of labor earnings (\$31,799) among the eight refugee groups.

We can see that there are also differences across refugee groups in terms of their human capital, such as their age, English proficiency level, and educational attainment. There is a ten year difference between the average ages of the oldest refugee group, Vietnamese refugees (48.1 years old), and the youngest group, Somali refugees (38.8 years old). About 97% of Romanian refugees speak well or only English, while only 68% of Laotian refugees do so. More than 67% of Russian refugees obtain at least a Bachelor's degree, in comparison to the 12.3% of Laotian refugees that do so. An intriguing finding in Table 2 is that Iraqi and Somali refugees are the two youngest refugee groups with the least years in the US, and they have two of the lowest wage rates across the refugee groups. According to the current literature and economic theories, refugees can improve their employment outcomes by gaining US-specific human capital such as labor market experience, as well as bridging social capital (Lancee, 2010), after their arrival in the country. This prompts me to investigate empirically how human capital and demographic factors affect the performance of refugees in the US labor market in the next section.

VI. Empirical Model and Results

In addition to descriptive statistics, Ordinary Least Squares (OLS) regression analyses are used to better examine the US labor market outcomes of the eight refugee groups in relation to each other, and to those of non-refugee immigrants with similar backgrounds, respectively. There are three regression models carried out in this section. Model 1 focuses on the wage differentials between the eight refugee groups while controlling for human capital and demographic variables. The purpose of this model is to see whether source country-specific characteristics, such as the standard of living in comparison to that of the host country, matter in labor market integration in the host country. Model 2 then expands the scope by examining the effect of refugee status on labor earnings for refugees and non-refugee immigrants from similar

countries of origin. Model 3 uses OLS regression analysis to decompose the wage gap between refugees and non-refugee immigrants with similar backgrounds due to differences in opportunities presented to them in the US labor market and due to characteristics differences. This is done by examining the counterfactual scenario in which refugees were treated according to the non-refugee immigrant earnings function, and compares the computed counterfactual wages with actual wages.

Table 3 presents the variables taken into account in the regression analyses. A brief description of each independent variable is included. Time fixed-effect variables are included in the regression as dummy variables to control for year-specific events that may bias the results. When running the regressions for Models 1 through 3, I selected only individuals who were employed full-time year-round, which means that they would have worked at least 30 hours per week for at least 48 weeks, in the past year. Inflation is taken into account when looking at labor wages as the dependent variable; the annual labor wages are adjusted to real wages using the CPI data from the Bureau of Labor Statistics (2018), with 2015 being the base year. The real wages are then converted to their natural logs to better estimate the wage differentials between refugee groups, and between refugees and non-refugee immigrants.

Table 3: Variables and Description

Variable Name	Description
Dependent	
Natural log of real wages	Natural log of annual wages for full-time year-round employed individuals, adjusted for inflation using 2015 as the reference year (2015 CPI = 100)
Real Wages	Annual wages for full-time year-round employed individuals, adjusted for inflation using 2015 as the reference year (2015 CPI = 100)
Independent	
<i>Primary</i>	
Vietnamese Refugee	1 if born in Vietnam and years of immigration are 1975 or between 1978 and 1988, 0 if not
Cambodian Refugee	1 if born in Cambodia and years of immigration are between 1978 and 1985, 0 if not

Afghan Refugee	1 if born in Afghanistan and years of immigration are between 1982 and 1988, 0 if not
Romanian Refugee	1 if born in Romania and years of immigration are between 1982 and 1990, 0 if not
Russian Refugee	1 if born in Russia/other USSR states and years of immigration are between 1987 and 1995, 0 if not
Laotian Refugee	1 if born in Laos and years of immigrant are between 1986 and 1996, 0 if not
Iraqi Refugee	1 if born in Iraq and years of immigration are either between 1992 and 2000 or 2008 and 2015, 0 if not
Somali Refugee	1 if born in Somalia and years of immigration are either between 1989 and 2007 or 2010 and 2015, 0 if not
Refugee	1 if belongs to any of the eight refugee groups; 0 if not
<i>Demographics</i>	
Female	0 if male, 1 if female
YrsUS	Years of residence in the US since immigration
YrsUSSQ	(YrsUS * YrsUS) of respondent
Age	Age of respondent; proxy for labor market experience
AgeSQ	(Age * Age) of respondent
Married	1 if married, 0 if not
NChild	Number of own children in the household
Metro	1 if lives in a metropolitan area; 0 if not
<i>Human Capital</i>	
English	1 if speaks well, very well, or only English, 0 if not
HighSchool	1 if highest degree earned is high school; 0 if not
SomeCollege	1 if highest degree earned is some college; 0 if not
BachelorsPlus	1 if highest degree earned is a Bachelor's degree or above; 0 if not
<i>Fixed effect</i>	
Yr2011	1 = census year is 2011; 0 = census year is not 2011
Yr2012	1 = census year is 2012; 0 = census year is not 2012
Yr2013	1 = census year is 2013; 0 = census year is not 2013
Yr2014	1 = census year is 2014; 0 = census year is not 2014
Yr2015	1 = census year is 2015; 0 = census year is not 2015

Model 1: Refugee Regressions by Country of Origin

As mentioned above, the first regression model compares the natural log of real wages between the eight refugee groups to study the importance of source country-specific characteristics on how refugees perform in the host country labor market. The equation for Model 1 is as follows:

$$\ln(\text{RealWages}) = \beta_0 + \beta_1(\text{Refugee}_i) + \beta_2(X_i) + \beta_3(t_i) + \varepsilon$$

where Refugee_i stands for the source-country specific dummy variable for each of the eight refugee groups, X_i represents the independent variables as listed in Table 3, t_i denotes the year-specific dummy variable for each of the five census years, and ε is the error term. Due to the nature of using dummy variables in my regression analyses, the reference group in Model 1 is Vietnamese refugees, and the reference census year is 2015. Vietnamese refugees were chosen as my reference refugee group since they are the earliest arrival group, and census year 2015 was selected as the reference year because it is used as the base year to calculate real labor wages. Table 4 presents the regression results from Model 1; a step-by-step analysis was conducted to gradually see the effects of the various controlled variables on the wage differentials between the refugee groups. All beta coefficients for the independent variables are converted to percentage values using the formula: $100 \% \times (e^{\ln(\beta_i)} - 1)$

Regression 1 focuses on the gross wage differentials between Vietnamese refugees and the seven other refugee groups in the absence of any control variables; the regression results are all statistically and economically significant. We can see that when compared to Vietnamese refugees, two groups enjoy a wage advantage: Romanian refugees (8.22%) and Russian refugees (13.7%). On the other hand, the other five refugee groups are at a significant wage disadvantage to Vietnamese refugees, with Somali refugees experiencing the largest negative wage gap (-47.1%). Regression 2 controls for year-specific events that may bias the results. The wage differentials between the refugee groups remain significant, and we can see similar patterns as

observed in Regression 1. Romanian (8.44%) and Russian refugees (13.5%) enjoy a wage advantage over Vietnamese refugees, whereas Somali refugees have the greatest wage disadvantage (-47.3%).

Table 4: Regression Results for Model 1 (Coefficients Converted to Percentage Terms)

	Regression 1	Regression 2	Regression 3
Cambodian Refugee	-23.4%***	-23.3%***	-7.87%***
Afghan Refugee	-15.6%***	-15.8%***	-11.7%***
Romanian Refugee	8.22%***	8.44%***	20.6%***
Russian Refugee	13.7%***	13.5%***	15.1%***
Laotian Refugee	-38.6%***	-38.8%***	-6.01%***
Iraqi Refugee	-37.9%***	-38.5%***	-11.8%***
Somali Refugee	-47.1%***	-47.3%***	-7.87%**
Yr2011		-11.3%***	-3.82%***
Yr2012		-7.50%***	-0.60%
Yr2013		-4.40%***	-0.60%
Yr2014		-3.82%**	-1.19%
Female			-18.5%***
YrsUS			1.41%***
YrsUSSQ			0.00%
Age			5.65%***
AgeSQ			-0.10%***
Married			12.8%***
NChild			-0.30%
Metro			2.12%**
English			19.1%***
HighSchool			9.42%***
SomeCollege			31.7%***
BachelorsPlus			126%***
Adjusted R ²	.065	.068	.313
Sample Size	23220	23220	23220

*Significant at the 0.10 level; **Significant at the 0.05 level; ***Significant at the 0.01 level

Regression 3 adds demographic and human capital factors into the equation.

Demographic factors such as gender are largely associated with workplace discrimination, and I would like to investigate whether these demographic factors would decrease the magnitude of wage differentials between Vietnamese refugees and the seven other refugee groups. Race is not taken into consideration in my research since it is assumed that the racial composition of the refugee groups is homogenous within each group. Human capital variables are also controlled for since it is known that a positive relationship exists between investing in human capital (higher education attainment and English skills) and wages. In other words, refugees with higher levels of educational attainment and English proficiency should earn more than those with lower human capital. If the wage differentials between refugee groups decrease in size or statistical significance in Regression 3 as compared to Regression 2, we can confirm that the demographic and human capital variables may account for some of the effects of refugee source country on labor earnings.

We can see in Table 4 that after adding demographic and human capital variables in the regression equation, there are significant changes in the wage differentials between Vietnamese refugees and the seven other refugee groups. For example, Romanian refugees now enjoy a 20.6% wage advantage over Vietnamese refugees as opposed to the 8.44% in Regression 2, and the wage disadvantage of Somali refugees diminished by 40%. Similar observations can be made for Laotian refugees and Iraqi refugees; after controlling for demographic and human capital variables, the wage gap between them and Vietnamese refugees decreased by 32% and 27% respectively. By controlling for demographic and human capital variables, all seven refugee groups improve their position relative to Vietnamese refugees in terms of labor earnings. Romanian and Russian refugees see an increased wage advantage, and the wage disadvantage experienced by the rest of the refugee groups diminished. Afghan and Iraqi refugees experience

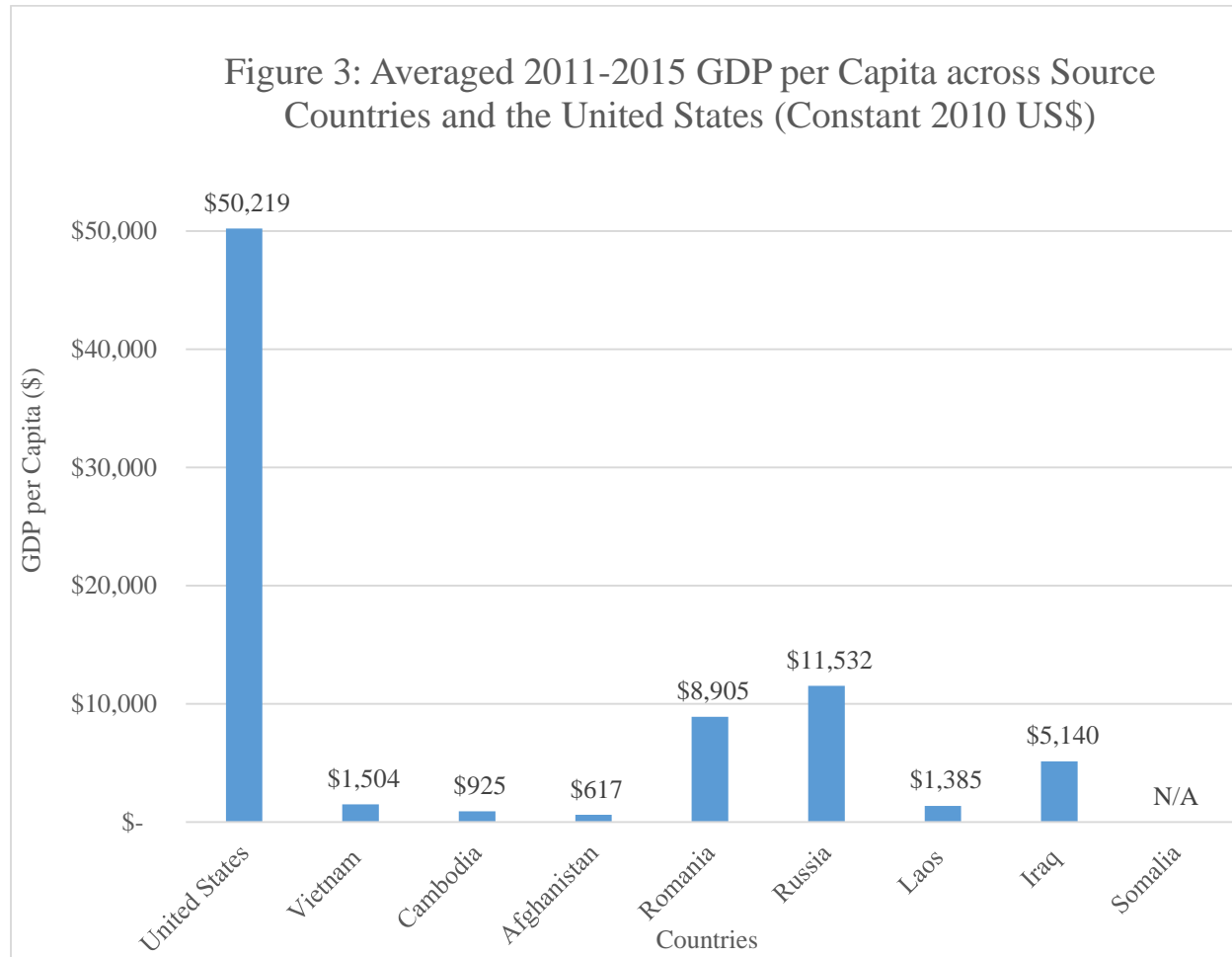
the largest negative wage gap in relation to Vietnamese refugees after controlling for demographics and human capital.

Since findings in Model 1 indicate that there are still significant wage differentials between Vietnamese and the other seven refugee groups after controlling for demographics and human capital, I decided to explore source country-specific characteristics that may explain the wage differentials between refugee groups. One such factor is the differences in standards of living between the refugee source countries and the US. The works of Friedberg (2000) and Bratsberg, Raaum, and Røed (2014) both suggest that refugees from countries with standards of living more comparable with those of the US may integrate faster in the US labor market. This may be due to a greater compatibility of the human capital the refugees acquired in their source country with the skills required in the US labor market.

I chose to use GDP per capita as a rough estimate for the standards of living in each country and extracted GDP per capita data from the World Development Indicator database (The World Bank, 2018) between the years of 2011 and 2015 for the eight refugee source countries, as well as the US. Data from 2011 to 2015 were used instead of from the refugee arrival years due to missing data on the database. According to the conclusions of Friedberg (2000) and Bratsberg, Raaum, and Røed (2014), the more similar the GDP per capita values are between the US and the refugee source country, the better the refugee from that country would perform in the US labor market. Figure 3 presents the GDP per capita numbers for each country; data on Somalia are not available.

We can see in Figure 3 that in comparison to Vietnam, Romania and Russia have GDP per capita levels that are significantly closer to that of the US, which may explain the positive wage gap refugees from these two countries enjoy over the Vietnamese refugees. In general, refugees from countries with lower GDP per capita levels than Vietnam receive lower earnings than Vietnamese refugees do. However, Iraq is the exception. Iraq has a higher GDP per capita

level than Vietnam, yet Iraqi refugees experience a significant wage disadvantage when compared to Vietnamese refugees as seen in Table 4. This indicates that variables besides human capital should be used to explain refugee performance in the US labor market.



Since human capital theory does not fully account for the earnings differences between refugee groups, I turned to the other theory suggested by current literature: social capital theory. As pointed out by Lancee (2010) and Tegnene (2015), refugees who rely on social ties established within their ethnic network to seek employment would find themselves employed in lower-paying jobs with lower occupational prestige as they most likely would end up in the ethnic economy. On the other hand, refugees who have restricted access to ethnic networks may be forced to interact more with natives, and it is found that social capital gained through interethnic networks leads to upward mobility in the labor market (Lancee). Due to lack of ACS data on individuals' social capital, my empirical model cannot directly capture the social capital

of refugees in the US, and therefore I ran a descriptive statistics analysis to look at the states in which the eight refugee groups reside. I am particularly interested in states where more than 10% of a specific refugee group reside because an ethnic network may be more readily accessible in these states for the refugees. The results are presented in the Appendix.

The findings on social capital appear to be ambiguous. While some refugee groups tend to congregate in one state such as Cambodian refugees in California, other refugee groups spread out between two to three states. Moreover, the state in which the refugee resides may be highly influenced by the US refugee resettlement program; placement allocations of refugees after admission in the country are largely dependent on the work of voluntary agencies (Office of Refugee Resettlement, 2015). Thus using the percentage of refugee sample living in a state as a proxy for social capital is not the most effective method to capture the extent of bonding and bridging social capital refugee groups possess that would impact their labor market outcomes.

Model 2: Refugees vs Non-Refugee Immigrants Regressions by Regions of Origin

Since human capital, source country standards of living, and social capital cannot fully explain the labor market performance of refugees in the US, Model 2 aims to control for common discriminatory factors such as national origin, color, race, and religion. In Model 2, I test my hypothesis to see the effect of refugee status on labor earnings by comparing refugees and non-refugee immigrants with similar backgrounds. I divided my sample into four categories according to the geographical location of their national origin: Asians, Europeans, Middle-Easterners, and Africans. Vietnamese, Cambodian, and Laotian refugees belong in the Asian category, while the Romanian and Russian are under the European category. The Middle-Easterner category includes the Afghan and Iraqi refugees, and Somali refugees are grouped under Africans. The following regression equation was run to test the relationship between refugee status and labor earnings for each of the four categories:

$$\ln(\text{RealWages}) = \beta_0 + \beta_1(\text{Refugee}) + \beta_2(X_i) + \beta_3(t_i) + \varepsilon$$

where *Refugee* is one for refugees and zero for non-refugee immigrants, X_i represents the independent variables as listed in Table 3, t_i denotes the year-specific dummy variable for each of the five census years, and ε is the error term. As in Model 1, the census year 2015 was used as the reference year. Regressions results are presented in Table 5; the wage differentials due to refugee status are highly statistically significant at the 1% level across all four categories.

Table 5: Regression Results for Model 2 (Coefficients Converted to Percentage Terms)

	Europeans	Asians	Middle-Easterners	Africans
Refugee	-4.02%***	-2.76%***	-21.4%***	-11.7%***
Female	-30.9%***	-20.2%***	-25.3%***	-15.1%***
YrsUS	0.30%***	1.61%***	2.12%***	2.84%***
YrsUSSQ	0.00%***	0.00%***	0.00%***	0.00%***
Age	9.09%***	6.08%***	9.09%***	5.44%***
AgeSQ	-0.10%***	-0.10%***	-0.10%***	-0.10%***
Married	11.2%***	13.5%***	14.0%***	10.9%***
NChild	2.12%***	0.20%	-2.27%***	-0.70%**
Metro	9.53%***	0.80%***	1.31%	3.05%***
English	43.9%***	28.3%***	28.5%***	22.0%***
HighSchool	6.18%***	8.98%***	25.9%***	10.2%***
SomeCollege	27.3%***	33.2%***	42.2%***	29.7%***
BachelorsPlus	115%***	146%***	162%***	107%***
Yr2011	-6.01%***	-5.45%***	-5.64%***	-2.76%**
Yr2012	-4.88%***	-4.40%***	-7.69%***	-2.37%**
Yr2013	-3.92%***	-2.47%***	-5.35%***	-2.08%*
Yr2014	-3.63%***	-2.66%***	-5.16%***	-2.96%**
Adjusted R ²	.268	.322	.260	.258
Sample Size	103568	209737	19719	29313

*Significant at the 0.10 level; **Significant at the 0.05 level; ***Significant at the 0.01 level

As seen in Table 5, the wage differential due to refugee status for Asians and Europeans are statistically significant yet not economically substantial. An Asian refugee earns roughly 3%

less than his non-refugee counterpart with comparable demographics and human capital. On the other hand, Middle-Eastern and African refugees experience a much more economically significant wage disadvantage when compared to non-refugee immigrants from the regions. Of all four categories, Middle-Eastern refugees suffer from the largest wage gap (-21.4%) in relation to non-refugee immigrants with comparable human capital and demographics from the region.

Similar patterns regarding the effects of demographic and human capital variables can be observed across all four categories. Females are at a significant wage disadvantage when compared to males, and married individuals earn more than unmarried ones. Speaking English well has a statistically significant and positive effect on wages, and this is especially the case for Europeans. Achieving higher levels of educational attainment also increases labor earnings, with having obtained a bachelor's degree or advanced degree being the most effective way to increase income since those who have obtained such a degree would enjoy a more than 100% wage advantage over those who have not.

Interaction terms between refugee status and the independent variables are added in the regression for Model 2. These interaction terms account for heterogeneity of return within each refugee group depending on the characteristics; for example, what is the effect of being a refugee female compared to a non-refugee female, or how do returns to schooling differ depending on refugee status. Interaction terms are computed by multiplying refugee status (one if refugee, zero if not) with the controlled variables listed in Table 3. The regressions results are presented in the Appendix.

Model 3: Wage Gap Decomposition by Regions of Origin

I conducted a counterfactual analysis in Model 3 to further examine the differences in labor earnings between refugee and non-refugee immigrants from similar countries of origin. The same four categories of national origin as Model 2 are used. The counterfactual analysis is a method to measure how refugees would perform in the US labor market if they were paid

according to the earnings function of non-refugee immigrants. To perform the analysis, I first took the means of the dependent and independent variables for refugees under each of the four categories. Only individuals who were employed full-time year-round were selected to conduct the analysis. Next, I ran a multiple regression analysis for non-refugee immigrants in each category using the following regression equation to determine the constant (β_0) and coefficients (β_1 and β_2) for the non-refugee immigrant earnings function:

$$RealWages = \beta_0 + \beta_1(X_i) + \beta_2(t_i) + \varepsilon$$

where X_i represents the independent variables as listed in Table 3, t_i denotes the year-specific dummy variable for each of the five census years, and ε is the error term. The census year 2015 was used as the reference year. The regressions results are presented in the Appendix.

I then multiplied the coefficients obtained from the non-refugee immigrant earnings function by the refugee means for each variable. The coefficients of the non-refugee immigrant earnings function signal the opportunities they enjoy in the US labor market. By multiplying the refugee means and the coefficients of the non-refugee immigrant earnings function, I can predict how refugees would perform in the US labor market if they were rewarded like comparable non-refugee immigrants. The resulting values and the constant from the non-refugee immigrants earnings function are then summed to compute counterfactual average real wages for refugees. The actual average wages and the computed counterfactual average wages for refugees of each category are presented in Table 6; wages are rounded to the nearest dollar.

As seen in Table 6, refugees from all four categories would benefit from significantly higher average wages if they had the same reward structure as non-refugee immigrants from their respective regions. The Middle-Eastern refugees would experience the largest increase in labor earnings (31.4%) if they were treated as non-refugee immigrants from the region with similar human capital and demographics, while the European refugees have the least boost (10.7%) if they were paid according to the earnings function of comparable non-refugee immigrants. Since

the predicted counterfactual wages for refugees are higher than the actual wages, this suggests that non-refugee immigrants are treated more favorably in the US labor market and enjoy more opportunities than refugees. For example, there may be a higher return to educational attainment and English proficiency for non-refugee immigrants than refugees with similar backgrounds. However, there exists a discrepancy between refugee and non-refugee immigrant wages even after computing refugee earnings according to the earnings function for non-refugee immigrants. This residual wage gap between refugee and non-refugee immigrant wages is most likely due to human capital and demographic differences between the two groups.

Table 6: Actual and Counterfactual Average Real Wages for Refugees Divided by Geographical Region of Countries of Origin (Rounded to Nearest Dollar)

	Asians	Middle-Easterners	Africans	Europeans
Actual Refugee Real Wages —(1)	\$58,792	\$45,949	\$31,799	\$72,541
Predicted Refugee Real Wages According to Non-Refugee Immigrant Earnings Function—(2)	\$66,021	\$60,395	\$37,947	\$80,301
Actual Non-Refugee Immigrant Real Wages—(3)	\$68,224	\$79,569	\$59,829	\$73,394
% difference of (1) and (2) as calculated by $[\frac{(2)-(1)}{(1)} \times 100\%]$	12.3%	31.4%	19.3%	10.7%
% difference of (2) and (3) as calculated by $[\frac{(3)-(2)}{(2)} \times 100\%]$	3.3%	31.8%	57.7%	-8.6%

Thus, I separated the wage gap between refugees and non-refugee immigrants into two parts. The first part is the wage differential due to unequal opportunities in the labor market ((difference between (1) and (2)), and this can be captured by computing a predictive counterfactual wage for refugees if they were treated as non-refugee immigrants. Refugees may have less opportunities in the US labor market due to both discrimination based on employer taste (Capps et al., 2015; Poutvaara & Wech, 2016) and limited access to job opportunities in the mainstream labor market if they rely predominantly on their ethnic bonding social capital to seek employment (Lancee, 2010; Tegnene, 2015). I argue that the residual wage gap ((difference

between (2) and (3)) that is not captured by the opportunity effect is likely due to differences in characteristics such as human capital between refugees and non-refugee immigrants.

The magnitude of the wage differentials due to opportunities, and characteristics differences varies across the four categories as seen in Table 6. For Asian refugees, the majority of their wage gap with Asian non-refugee immigrants can be explained by less favorable treatment in the labor market; if they were paid according to the non-refugee immigrant earnings function, they would earn 12.3% more than their actual wages. On the other hand, there would only be a 3.3% increase in wages for Asian refugees if they had the same characteristics as Asian non-refugees. In the case of Middle-Eastern refugees, the wage differentials due to the opportunity effect (31.4%) and characteristics differences (31.8%) are more similar in magnitude. By treating the Middle-Eastern refugees like comparable non-refugees, the wage gap between them and the non-refugee immigrants diminishes by \$15,000; the remaining \$19,000 is most likely due to differences in means for the human capital and demographic variables.

The effect of unequal opportunities in the labor market is relatively insignificant than characteristics differences when examining the wage gap between African refugees and non-refugee immigrants. If African refugees were paid according to the earnings function for African non-refugees, there would be a 19.3% boost to their earnings, but if they had the same characteristics as the non-refugees, they would earn an additional 57.7%. On the other hand, if European refugees were rewarded as non-refugee immigrants in the US labor market, they would in fact earn \$7,000 (8.7%) more than non-refugee immigrants do. This indicates that European refugees, in general, have more desirable skills than non-refugee immigrants from the region do, and their performance would exceed that of the European non-refugee immigrants if they were given the same opportunities as the non-refugee immigrants.

The findings in Model 3 suggest that the skill sets possessed by refugees from the four different categories of national origin vary; for example, European refugees are likely to arrive in

the US with greater levels of human capital than non-refugee immigrants from the region. On the other hand, African refugees may have come into the country with less transferable skills than non-refugee immigrants from the region as indicated by the larger wage differential due to characteristics differences. The magnitude of the effects of unequal opportunities on refugee labor earnings also differs, with the Middle-Eastern refugees benefiting the most if they were paid according the earnings function of Middle-Eastern non-refugee immigrants. This result is intriguing since the counterfactual wages indicate that there are discrepancies in the returns to human capital and demographics between refugees and non-refugee immigrants even after my effort to control for discriminatory factors such as race, color, national origin, and religion.

VII. Conclusion

As one of the world's top destinations for immigration and humanitarian resettlement, the United States continues to welcome immigrants from a great variety of background. With the growing size of the refugee population in the country, it is important to explore the factors that contribute to the success of refugee labor market integration and hence design a more effective resettlement program for refugees in the US. In this paper, I chose to focus on refugees from eight countries: Vietnam, Cambodia, Afghanistan, Romania, Russia and other USSR states, Laos, Iraq, and Somalia. I used American Community Survey data over five years, 2011 through 2015, to study the labor market outcomes of the eight refugee groups in comparison to each other and to non-refugee immigrants with similar backgrounds.

This paper has two foci; firstly, it looks at how source-country specific characteristics as measured by the source country's GDP per capita impact the labor market performance among the eight refugee groups. The second focus is on the wage gaps between refugees and non-refugee immigrants with similar backgrounds. Descriptive statistics results show that Vietnamese, Romanian, and Russian refugees have the highest employment rates and labor earnings, while Somali refugees have the highest unemployment rate and receive the lowest

wages. There are also differences across the eight refugee groups in terms of their human capital, such as their age, English proficiency level, and educational attainment. There is a ten year difference between the average ages of the oldest refugee group, Vietnamese refugees (48.1 years old), and the youngest group, Somali refugees (38.8 years old). About 97% of Romanian refugees speak well or only English, while only 68% of Laotian refugees do so. More than 67% of Russian refugees obtain at least a Bachelor's degree, in comparison to the 12.3% of Laotian refugees that do so.

Ordinary least squares regression analyses were used to compare the labor earnings of refugee groups. Regression results show that after controlling for demographic and human capital variables, there are still economically and statistically significant wage gaps between Vietnamese refugees and seven other refugee groups. Romanian and Russian refugees enjoy a positive wage advantage over Vietnamese refugees, whereas Afghan and Iraqi refugees experience the largest negative wage gap in relation to Vietnamese refugees. Since human capital cannot account for all of the wage gaps between the eight refugee groups, the findings suggest that source country-specific characteristics may have an impact on refugee labor market performance. When examining the standards of living as approximated by the averaged 2011-2015 GDP per capita of the source country in relation to the US, there seems to be a relationship between GDP per capita of source country and the refugee labor earnings in the US. The only exception to this is the Iraqi refugees. Although Iraq has a higher GDP per capita than Vietnam, Iraqi refugees earn significantly lower wages than Vietnamese refugees do. This finding prompts me to look into the possibility of discrimination against certain characteristics of Iraqi refugees, and hence I control for discriminatory characteristics in my second hypothesis.

To test my second hypothesis on whether refugee status still matters after controlling for common discriminatory factors such as national origin, color, race, and religion, I divided my immigrant sample into four categories according to their national origin: Asians, Europeans,

Middle-Easterners, and Africans. Regressions were run for each of the four categories to investigate the wage differentials between refugees and non-refugee immigrants with similar backgrounds. I found that for Asians and Europeans, refugee status has a minor impact on labor earnings; refugees and non-refugee immigrants from those regions do not experience an economically significant wage gap between them. On the other hand, Middle-Eastern and African refugees experience a much more significant wage disadvantage when compared to non-refugee immigrants from the same regions. Of all four categories, Middle-Eastern refugees suffer from the largest wage gap in relation to non-refugee immigrants with comparable human capital and demographics.

A counterfactual analysis was conducted to examine how wages for refugees of each category would change if they were paid according to the earnings function of non-refugee immigrants from the same region. Results indicate that the computed counterfactual wages are significantly greater than the actual wages received by refugees from all four categories, and hence refugees would benefit if they were rewarded as non-refugee immigrants from their respective regions. This suggests that even after controlling for national origin, color, race, and religion, non-refugee immigrants are treated more favorably in the US labor market and enjoy more opportunities than refugees do. The residual wage gap between the counterfactual refugee wages and actual non-refugee immigrant wages most likely arise from differences in characteristics such as human capital between refugees and non-refugee immigrants.

Overall, my results support my two hypotheses on labor market integration of refugees in the US. Source-country specific characteristics such as standards of living play a role in determining how refugees perform economically since they are related to the quality of source country human capital and its transferability to the US labor market. However, the contradicting findings in the case of Iraqi refugees suggest that discrimination from employers based on certain characteristics may contribute to the wage differentials among the eight refugee groups. The

existence of discrimination is further confirmed by computing counterfactual wages for refugees according to the earnings function of non-refugee immigrants with similar backgrounds. For all refugee groups, labor earnings would be significantly higher if they were presented with the same opportunities as non-refugee immigrants in the US labor market. Moreover, the effect of refugee status on labor earnings largely depends on the national origin of the refugee. The wages of Asian and European refugees do not differ significantly from those of comparable non-refugee immigrants, whereas Middle-Eastern and African refugees suffer from a notable wage disadvantage when compared to non-refugee immigrants from the regions.

Future research should focus on measuring how the social capital possessed by refugees affect their labor market performance. Due to the data constraints of ACS, I was not able to quantify the bridging and bonding social ties the refugees have established in the US. I believe that with a growing refugee population in the US, social ties formed by these refugees within and outside of their ethnic network would be of increasing interest when studying the labor market assimilation of refugees. Another suggestion for future research is to further analyze the impacts of refugee interaction terms on wage differentials between refugees and non-refugee immigrants. This paper touches on how interaction terms account for the heterogeneity of return within each refugee group depending on the characteristics, but this topic deserves a more in-depth analysis in the future.

My findings highlight the importance of US-specific human capital in successfully integrating refugees in the US labor market, and hence one major policy implication to draw from this is to incorporate more practical job training programs into the refugee resettlement program so refugees can gain labor market experience in the US. Another way to increase refugee US-specific human capital is to provide refugees with more opportunities to obtain education in the US, which is valued more than education attained abroad (Friedberg, 2000). Although this will not make the negative effects of discrimination disappear, it would help

refugees become more competitive in the US labor market since they would have skills that are better match to those demanded by employers. It is also crucial for policymakers to create a refugee-friendly environment and thus minimize the effects of discrimination. In conclusion, this paper contributes to the existing literature on labor market assimilation of refugees while shedding light on relevant issues that should be further investigated to help better estimate the relationship between refugee status and employment.

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Appendix

Appendix Table 1: States with Refugee Ethnic Enclaves (>10% of refugee sample)

Vietnamese Refugees	Cambodian Refugees	Afghan Refugees	Romanian Refugees	Russian Refugees	Laotian Refugees	Iraqi Refugees	Somali Refugees
Texas (10.8%)	California (44.7%)	New York (13.7%)	New York (13.4%)	New York (28.3%)	Minnesota (13.1%)	Michigan (19.5%)	Ohio (10.1%)
California (50.6%)		California (16.2%)	California (21.1%)	California (24.3%)	California (35.5%)	California (22.6%)	Minnesota (20.5%)
		Virginia (46.6%)					Washington (10.8%)

Appendix Table 2: Regression Results for Model 2 with Interaction Terms

	Europeans	Asians	Middle-Easterners	Africans
Refugee	16.6%	45.9%	170% **	49.3%
Female	-31.4% ***	-20.4% ***	-26.0% ***	-15.3% ***
YrsUS	0.20% ***	1.71% ***	2.02% ***	2.84% ***
YrsUSSQ	0.00% ***	0.00% ***	0.00% ***	0.00% ***
Age	9.09% ***	6.40% ***	9.42% ***	5.55% ***
AgeSQ	-0.10% ***	-0.10% ***	-0.10% ***	-0.10% ***
Married	11.1% ***	13.5% ***	13.4% ***	10.9% ***
NChild	2.33% ***	0.20%	-1.69% ***	-0.50%
Metro	10.19% ***	0.70% **	1.11%	2.94% ***
English	44.3% ***	29.4% ***	32.5% ***	23.4% ***
HighSchool	6.18% ***	9.42% ***	27.9% ***	10.6% ***
SomeCollege	27.8% ***	33.2% ***	45.8% ***	30.3% ***
BachelorsPlus	115% ***	147% ***	171% ***	108% ***
Yr2011	-5.54% ***	-5.26% ***	-5.73% ***	-2.86% **
Yr2012	-4.59% ***	-4.21% ***	-7.60% ***	-2.37% **
Yr2013	-3.73% ***	-2.27% ***	-5.35% ***	-2.08% *
Yr2014	-3.44% ***	-2.66% ***	-4.97% ***	-2.96% ***
Refugee*Female	12.3% ***	4.19% ***	17.4% ***	9.53%
Refugee*YrsUS	-1.19%	-0.20%	1.11%	-2.57%
Refugee*YrsUSSQ	0.10%	0.00%	0.00%	0.10%
Refugee*Age	0.30%	-2.37% ***	-4.11% **	-0.80%
Refugee*AgeSQ	0.00%	0.00% ***	0.00% *	0.01%
Refugee*Married	1.31%	-1.39%	8.44%	-5.16%
Refugee*NChild	-3.15% ***	0.60%	-6.57% ***	-2.57% *
Refugee*Metro	-10.5% ***	1.92%	4.08%	8.98%
Refugee*English	-5.07%	-9.52% ***	-19.2% ***	-11.8%
Refugee*HighSchool	13.5% **	-0.60%	-7.23%	-3.54%
Refugee*SomeCollege	7.90%	3.25% *	-16.47% **	-6.29%
Refugee*BachelorsPlus	14.7% ***	-4.02% **	-27.0% ***	-12.6%
Adjusted R ²	.271	.323	.263	.258
Sample Size	103568	209737	19719	29313

*Significant at the 0.10 level; **Significant at the 0.05 level; ***Significant at the 0.01 level

Appendix Table 3: Refugee Means for Independent Variables in Model 3

	Europeans	Asians	Middle-Easterners	Africans
Female	0.4793	0.4091	0.3012	0.3489
YrsUS	21.78	31.44	14.52	12.33
YrsUSSQ	482.9476	1007.8293	310.265	184.6578
Age	45.78	47.61	41.86	38.79
AgeSQ	2224.8569	2339.2019	1853.5004	1592.3639
Married	0.7287	0.7462	0.7103	0.616
NChild	0.91	1.33	1.44	2.23
Metro	0.6681	0.4129	0.4963	0.4524
English	0.9399	0.8175	0.8815	0.8247
HighSchool	0.1183	0.1629	0.2189	0.2955
SomeCollege	0.2054	0.2753	0.2148	0.2922
BachelorsPlus	0.6508	0.3616	0.4247	0.1519
Yr2011	0.1943	0.2062	0.1556	0.2003
Yr2012	0.2075	0.203	0.1802	0.1786
Yr2013	0.2009	0.2106	0.177	0.1753
Yr2014	0.1987	0.1953	0.2305	0.2237
Sample Size	8052	15065	1214	598

Appendix Table 4: Regression Results for Non-Refugee Immigrant Earnings Function in Model 3

	Europeans	Asians	Middle-Easterners	Africans
Constant	-140381.03***	-94516.154***	-158226.078***	-62336.352***
Female	-29458.351***	-17531.057***	-25886.043***	-12561.837***
YrsUS	-268.362***	949.614***	1142.759***	1190.045***
YrsUSSQ	1.674*	-4.963***	-9.528***	-9.218***
Age	6631.003***	4943.475***	7355.937***	3257.891***
AgeSQ	-62.562***	-54.991***	-78.84***	-33.847***
Married	6798.62***	8917.772***	10732.477***	7955.365***
NChild	3767.177***	571.671***	-121.958	125.885
Metro	6173.123***	-287.132	464.636	-923.719
English	27296.628***	12453.836***	13325.521***	6991.243***
HighSchool	1621.624	770.902	10778.427***	3618.794**
SomeCollege	13227.579***	8492.751***	17247.79***	10539.969***
BachelorsPlus	57591.733***	53068.13***	70736.638***	44876.156***
Yr2011	-5270.307***	-5172.814***	-5258.216***	-3652.186***
Yr2012	-4498.751***	-4955.295***	-9988.676***	-3004.588***
Yr2013	-2509.154***	-2193.01***	-6272.404***	-1489.582
Yr2014	-3164.422***	-2378.95***	-3516.605*	-3342.064***
Adjusted R ²	.175	.191	.151	.144
Sample Size	101634	205027	20079	30099

*Significant at the 0.10 level; **Significant at the 0.05 level; ***Significant at the 0.01 level