August 2017

Three Essays on Human Capital and Wages of Refugees and Other Immigrants in the U.S.

Abdihafit Shaeye
University of Wisconsin-Milwaukee

THREE ESSAYS ON HUMAN CAPITAL AND WAGES OF REFUGEES AND OTHER IMMIGRANTS IN THE U.S.

by

Abdihafit Shaeye

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Economics

at

The University of Wisconsin-Milwaukee

August 2017

ABSTRACT

THREE ESSAYS ON HUMAN CAPITAL AND WAGES OF REFUGEES AND OTHER IMMIGRANTS IN THE U.S.

by

Abdihafit Shaeye

University of Wisconsin-Milwaukee, 2017
Under the Supervision of Professor Scott Drewianka

Human capital is an important mechanism that influences both the migration decisions of immigrants and the rate at which immigrants assimilate in the host country. Returns to human capital could be correlated with difficult-to-observe factors such as self-selection, and legal status, and these unobservables can affect the economic assimilation of immigrants into the host country differently. The objective of this dissertation is to investigate the returns to human capital for refugees and other immigrants during the first two decades after they come to the U.S. Refugees are a subset of immigrants who have different characteristics and face different constraints than other immigrants. For example, while refugees have greater legal access to the labor market, non-refugees benefit from greater ability to self-select into both migration and (pre-migration) human capital, and those relative advantages change during the years after individuals migrate.

The empirical results show that non-refugees receive a much larger crude wage return for human capital both at arrival and over time. Although the refugees' return grows over time, they do not catch up with that of non-refugees. These findings confirm that non-refugees are not only selected on observable characteristics (as already documented in the literature) but on unobservables as well, and that the initial selection on unobservables will matter for their differential returns to human capital even after they remain a long time in the U.S. In other words, many refugees might

not be well-suited for the U.S. labor market for some permanent but unobservable reasons, whereas this may not be the case for non-refugees because they would less likely move to a country for which they are poorly-suited.

TABLE OF CONTENTS

CHAPTER 3

HETEROGENOUS RETURNS TO SCHOOLING FOR REFUGEE AND OTHER ADULT IMMIGRANTS IN U.S.

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

I would like to first thank the committee members of my dissertation Scott Adams, Hamid Mohtadi, and John Heywood for their comments and encouragement. I am especially grateful to my advisor, Scott Drewianka, for all the support he has given me during the time I pursued my PhD degree at UW-Milwaukee. He has spent tons of time to discuss the thesis with me. His insights and inputs has substantially improved this dissertation as well as my ability of conducting research independently.

I am also deeply thankful to my family for their love, support, and sacrifices during my tenure at UWM. Finally, I want to dedicate this work to my parents, wife, and children, especially my mother, Halimo Mohamed Guled who sacrificed everything to raise me and prepare me for this journey. Without her, I would not be who I am today.

The Unexpectedly Small Wage Return for English Fluency among Recent U.S. Refugees

Abstract: Previous studies have estimated that English fluency raises US immigrants' wages around 17-33 percent. This paper re-estimates that return for a sample of recent refugees, a group that has not had time to improve its fluency after arrival and is less likely to have been strongly selected on ability into the labor force. The new estimates indicate that these workers receive a much smaller return to English, suggesting that the returns to fluency estimated previously did not reflect the language requirements of workers' jobs, but rather reflected unobserved skills, job-skill matching, or else arose through post-migration mechanisms like job-shopping or networking.

1 Introduction

Language is an important determinant of both immigrants' labor market performance and their social integration. Better language skills enhance labor productivity of immigrants and also facilitate immigrants' job search by increasing the range of jobs they might qualify. Studies that have measured the effect of English fluency on immigrants' wages, have generally found large effects on the order of 17- 33 percent (Chiswick and Miller 1995; Bleakley and Chin 2004).

Most work has not drawn a distinction between the effects of pre- and post-immigration language fluency, however this distinction is critical because it is not clear if the previously estimated effect truly reflects the immigrants' language ability on their actual productivity, or whether it reflects other effects that are correlated with or mediated through language ability. It thus also speaks to the relative merits of policies that might be used to expedite immigrants' assimilation into the labor market, such as using English fluency and/or job skills as criteria in immigrant admissions, providing or subsidizing English classes for new immigrants, promoting contacts between immigrants and employers, or educating immigrants about labor market institutions.

This article aims to shed new light on these issues by estimating the wage returns to language skills for refugees who recently arrived in the U.S. Unlike other immigrants who enter the U.S. through family or employment ties, refugees are individuals who have been forced to leave their country in order to escape war, persecution, or natural disaster. As a result, the relationship between English and wages for refugees might differ from that of economic immigrants – the focus of the current literature – in at least two important ways. First, refugees are drawn more randomly from the source country population, and thus are not as strongly selected into migration. Refugees also do not arrive with a job in hand but are required to find employment quickly, and thus their initial jobs are often low-paying. On the other hand, one advantage that refugees have is a much greater

legal ability to search for new jobs, so it is plausible that their wages may rise more quickly than many economic immigrants' in later years.

The analysis uses individual-level data on the initial labor market outcomes of male refugees who were resettled in the U.S. between 2001 and 2005, as collected by a large refugee resettlement agency, the International Rescue Committee (IRC). None of the men in the sample had relatives in the U.S., so they were placed randomly by the agency in 16 cities across the country, and all were required by the terms of the resettlement program to find and accept jobs within a short period of time if possible. Consequently, the data represent a population that was not strongly selected into migration, whose geographic placement and labor force participation decisions are intended to be exogenous, and who have had little time to benefit from networking, other forms of job shopping, or post-immigration improvements in language skills or other investments in human capital. Therefore, a correlation between the English fluency and wages of refugee men from a given country more likely measures only the usefulness of language skills on the jobs that they were able to obtain relatively quickly.

Of all the specifications I estimate, the highest wage return for English fluency is around 5 percentage points. In contrast, the estimated return for newly-arrived non-refugee immigrants is 34 percent. Previous work on even broader groups of immigrants (i.e., not only including those who arrived recently) tends to find similar or even larger estimates, so our estimate for the recently-arrived refugees stands out as surprisingly small. It thus appears that the higher return estimated in previous studies of more established and more selected groups of immigrants may not have been caused only by the language requirements of their first jobs, but perhaps also by the benefits of English fluency for other mechanisms such as human capital investment or job shopping, or they may have reflected selection bias in the migration decisions of non-refugees.

In light of those potential explanations, it would seem worthwhile to explore the evolution of the biases mentioned above over the course of immigrants' time in their new country, but unfortunately it is not possible to do so using the data examined here because it includes only information on the first jobs of immigrants after they arrive. Nonetheless, the analysis below provides insight into the relationship between wages and language fluency for recently arrived refugees, and it is a rare opportunity to estimate the return to fluency for a group that is unlikely to benefit from several factors hypothesized to cause that premium.

The remainder of the paper is organized as follows. Section 2 talks about the institutional background. Section 3 describes the data set and gives some descriptive statistics. Section 4 presents empirical results. Section 5 performs some robustness checks. Finally, section 6 discusses implications of the findings.

2 Background

Refugees are immigrants who flee their country to seek asylum in other countries. Every year, the United States provides resettlement opportunities to thousands of refugees from around the world. In fact, United Nations Higher Commissioner for Refugees (UNHCR) acknowledges that U.S. refugee resettlement program is the most generous program, admitting more refugees than any other designated resettlement country in the world (UNHCR 2006). Refugee resettlement is a process that comprises several stages. Individuals first apply for a refugee status through the UNHCR while outside the U.S., and then they are interviewed by officers from United States Citizenship and Immigration Services (USCIS) to determine their eligibility for resettlement. Once granted refugee status, they receive a travel allowance to the U.S. Refugees often enter the U.S. without income or assets to support themselves during their first few months in the country.

To assist newly arriving refugees, the Department of State (DOS) administers a program of initial resettlement known as the Reception and Placement Program. Under this program, volunteer agencies that maintain nationwide networks of local affiliates provide new refugees with resettlement services including placement of refugees and enrollment into resettlement programs that help them become self-sufficient as soon as possible.

While refugees who have relatives in the U.S. are more likely to be resettled with or near their families, the resettlement agency determines the location decisions of the remaining refugees. Only this latter group of refugees appear in our data. There is little reason to suspect that their assigned locations are positively correlated with the size of ethnic networks: since the number of refugees who will be assigned to a given city is more or less fixed in advance, and since family reunification cases are given priority, there are on average fewer spots left for the remaining refugees in cities with larger ethnic networks. Therefore, to the extent that the refugees in our sample have weaker ethnic networks in their assigned locations, one might imagine that English fluency would be a more valuable skill for them than it is for refugees in family reunification cases. If so, our estimates of the fluency premium would be somewhat inflated, although this is not a serious concern in light of the small estimates I obtain.

The agencies also enroll qualified refugees into programs that will help them achieve self-sufficiency. A notable one is the Matching Grant (MG), which is a program designed to help refugees become self-sufficient within four to six months after arriving in the United States. Services provided to refugees through the MG program include case management, job placement and follow up, interim housing, and interim cash assistance. In order for a refugee case to be eligible for the MG program, at least one person in the refugee unit must be deemed employable. However, it is important to note that there are a number of people who were deemed employable

even though they had little or no fluency in English as judged by their case worker. Later, I will use refugee enrollment into the Matching Grant program as an excluded variable for possible self-selection of refugees into the labor market.

Language ability is one of the important mechanisms for the economic and social assimilation of immigrants. Generally, immigrants with good language skills perform better in the labor market in terms of employment and wages compared to those who do not have those skills. Many studies have examined the correlation between immigrants' English fluency and their earnings, and even those that correct for possible endogeneity have found large effects on the order of 17-33. For example, Chiswick and Miller (1995) find that immigrants in the U.S. who are fluent in English have wages about 17 percent (57 percent for instrument variable) higher than immigrants with limited English skills. Similarly, using the phenomenon that younger children learn languages more easily than older children to construct an instrumental variable for language fluency, Bleakley and Chin (2004) find that those who speak English earn 22.2 percent higher than non-English speakers (33.3 for IV). However, these estimates are obtained by combining diverse groups of immigrants, and they generally do not account for either the differences between refugees and other immigrants or for differences related to the amount of time since immigrants have arrived in the U.S. In other words, while impressively large, most estimates in the literature cannot be generalized to all immigrant groups in the U.S. On the other hand, the few studies that consider the effect of human capital skills on the earnings of refugees focus only specific groups of refugees mostly at the state or the city level. For example, investigating the labor market outcomes of refugees in Portland Maine, Mamgain (2003) finds that the return to English fluency for recently arrived refugees is roughly 5 percent.

There are a few reasons to believe that the return to fluency for refugees might differ substantially from that of economic immigrants. Refugees' migration decisions may be motivated mainly by persecution, whereas other immigrants may be driven mostly by their potential for success in the U.S. The difference between those decision processes may also create differences in the within-group correlations between English fluency and unobserved skills like intelligence or ambition: that correlation is likely high for non-refugees because highly-skilled potential immigrants who do not speak English would probably be better off staying in their homeland or moving somewhere else, whereas the correlation is likely to be much weaker for refugees because they typically had not planned to migrate far in advance (Chiswick 1999).

There may also be a high correlation between English fluency and quality of the initial jobs held by non-refugees because most could only migrate after having a job offer, which may be easier to obtain for an English speaker. In contrast, refugees generally do not arrive with a job and most likely experience occupational downgrade (Akresh (2008)), regardless of their fluency.[1]

3 Data

The data I use to examine refugees comes from an administrative dataset collected by the International Rescue Committee (IRC). The refugee men in this sample come from many countries, with the largest groups coming from Afghanistan, Bosnia, Liberia, Somalia, and Sudan. Since individuals in the sample did not have family already living in the U.S., the IRC placed them in 16 different cities.[2] The agency collected wages of the refugees through

[1] After arriving in the U.S., refugees have much more legal latitude than most economic immigrants to look for new jobs, but this fact is not relevant for the present study since I observe refugees soon after arrival.

[2] The cities are Abilene, TX, Atlanta, Baltimore, Boston, Charlottesville, Dallas, New York, New Jersey, Phoenix, Salt Lake City, San Diego, Seattle, Tucson, Washington DC, and Worcester, MA. Individuals are free to move

interviews intended to assess their level of self-sufficiency three months after they arrived in the U.S. Since there were no follow-up interviews, this data cannot be used to follow refugees over time or when they change jobs, but does enable us to examine the relationship between the refugees' language ability and their initial wages. Because the interview occurs shortly after the refugees resettled, that relationship would not be contaminated by post-immigration investments or employment dynamics that are plausibly correlated with refugees' level of fluency.

By the time of the interview, 68 percent of sample were employed, which is comparable to the 69 percent of refugees who were found to have been employed in other samples (Office of Refugee Resettlement 2006) and is consistent with the U.S. Refugee Policy's expectation that refugees should be gainfully employed as soon as possible.[3] However, a higher share of English-speakers are employed than the share among non-English speakers, raising a potentially important selection bias that will be addressed in Table 3 below.

The dependent variable I investigate is the refugees' hourly wages at the time of the interview, which almost certainly represents their initial wage in the U.S. labor market. The main explanatory variable of interest is the refugees' pre-immigration language fluency. It is important to note that his variable represents the opinion of the agency caseworker and not just the refugees' own evaluation, so it is expected to eliminate most of the measurement error that could arise when fluency is self-reported. The results reported in the following section consider a

whenever they like, and in the data 159 individuals had moved to new cities before the agency interview. I have dropped these people from the sample for the analyses that appear below, but I have verified that the results are not sensitive to their inclusion.

[3] A modest number of refugees are not required to look for jobs because they have extenuating circumstances like medical problems or very large families. The dataset originally included 65 individuals who received such exemptions, but I have dropped them from the analysis. Also, in the data 159 individuals who had moved to new cities before the agency interview. I have dropped these people from the sample for the analyses that appear below, but I have verified that the results are not sensitive to their inclusion.

dummy variable for fluency that equals 1 if the person speaks English "very well," but I have also experimented with other definitions that include lower levels of fluency, and the results do not change substantially. The dataset also includes other demographic and human capital characteristics such as the highest level of education[4] attained in the home country, the country of origin, and age at arrival.

Table 1 presents the summary statistics. About 20 percent of the sample speaks English very well. The mean wage for the whole sample is 7.48, though the English speakers' mean wage is 26 cents higher than that of non-English speakers. More than 45% of the sample has finished high school, with little difference between the English speakers and the others.

[Table 1 about here]

Since I want to compare these refugees to other immigrants, I have also created extract of recently arrived non-refugees[5] who came to the United States between 2001 and 2005 from the corresponding annual waves of the American Community Survey (ACS). These individuals come from all over the world, though relatively few come from the countries that sent refugees during those years.[6] The ACS data do not report the type of visa used by a particular immigrant to enter the country, so I follow the methodology used by Borjas (2002), and Cortes (2004), wherein they identify refugees by country of origin and year of immigration.

[4] The return to education for those who have a university degree or higher is about 6%.
[5] We mean "recently-arrived non-refugee" by those who were in the U.S. a year or less.
[6] The countries which sent refugees in those years are: Afghanistan, Bosnia, Burma, Burundi, Central African Republic, Democratic Republic of Congo, Republic of Congo, Cuba, Eritrea, Ethiopia, Iran, Iraq, Laos, Liberia, Sierra Leone, Somalia, Sudan, Togo, Uganda, Ukraine, and Vietnam.

4 Results

The econometric model tests the relationship between pre-immigration language ability and the initial wages of male refugees using the standard human capital earnings function in labor economics. I initially use pooled cross-sectional ordinary least squares (OLS) and country fixed effects (FE) regressions to estimate the relationship between English language fluency and wages. The log of reported hourly wages[7] is the dependent variable, and English-speaking ability serves as the main independent variable.

The assumption here is that there is a log-linear relationship between wages and language skills:

$$Log\,\omega_{ijt} = \alpha_{jt} + \beta D_i + \gamma X_i + \varepsilon_{ijt} \quad (1)$$

Log ω denotes log hourly wages, *i* is an index for individuals, *j* is an index for the city in which they were placed, and *t* is an index for the year. *D* is the focal explanatory variable, a dummy for English fluency. *X* is a set of demographic controls mentioned above, and ε_{ijt} represents the error term. The city-year[8] fixed effects α_{jt} capture the geographic and temporal effects of the local economies in which the refugees work. Most specification will also control for refugees' countries or regions of origin in order to control for international heterogeneity in the skills valued in home-country labor markets (some of which are more similar to those valued in the U.S. (Mamgain and Vaishali, 2003)), as well as for possible differences in discrimination across

[7] I construct the hourly wages of non-refugees by dividing the annual earnings by the product of weeks and usual hours individuals worked last year. I also windorize the wages for non-refugees by dropping from the sample the observations in the bottom and upper 1% tails of the distribution to account for any potential outliers, but the results are quite similar.

[8] To mitigate the concern that there might be not be enough variation if we include 16x5 city-year dummies, I use city and year dummies instead, but results are very similar.

nationalities. The hypothesis is that even in a short window of time English should be useful in job performance: $\beta>0$.

4.1. Refugees

Table 2 reports the results of this exercise. I first discuss the results of different specifications for the refugees. The third line of Table 2 reports the OLS estimate of □ when using the full sample. It shows that English fluency has a positive and statistically significant relationship with hourly wages, but the effect is small: a good command of English is associated with a wage advantage of 2.6 percentage points.

The remaining lines of Table 2 and Table 3 investigate a series of potential biases and caveats. The second line of Table 2 addresses the concern that OLS estimates could understate the true return to English fluency if refugees from countries with more English speakers had lower levels of unobserved skills. The reported regression now includes fixed effects for the refugees' countries of origin, so it estimates □ only from within-country variation. The new estimate is only slightly larger than before: 4 percent. The following two lines of Table 2 then show that results are similar if the sample is restricted to refugees from countries where English is not the dominant language: 4.5 for OLS and 4.8 with country fixed effects.

The result is also robust to including controls for the refugees' occupations: 2.9 percent. This is not surprising since refugees do not have a job ready for them when they come to the U.S. and many work at jobs that are not commensurate with their skills or qualifications.

[Table 2 about here]

4.2 Non-refugees

The first and second lines of Table 2 reports the OLS and country fixed effects estimate of □ for non-refugees. The premium for recently arrived non-refugee immigrants is about 33.7 percent and 27.6 percent, respectively. These results are in line with what other studies have found for more general samples that include persons who immigrated many years before the survey, but they are still around the lower end of such estimates – and they are clearly much larger than the estimates I saw for newly-arrived refugees.

5 Robustness Test: Potential endogeneity of English fluency

Another possible concern is that OLS estimates of the English fluency premium could be biased due to selection in terms of who is able to find a job before the interview, or in terms of who learned English before immigrating.

5.1 Selection on Who Is Employed

There are several reasons to expect that most refugees will seek to be employed: they arrive in the U.S. with full employment privileges, resettlement agencies are expected to refer refugee clients for employment as early as possible, it is the goal of the State Department that refugees find employment within six months of their arrival, and many refugees also have personal financial constraints that motivate a high level (and low elasticity) of labor supply. Even so, about 1/3 of the refugees in the sample have not found a job by the interview date, and one might be concerned that those who do are more likely to speak English. If so, I should be concerned that English speakers with relatively low levels of unobserved skills are more likely to find jobs than are similar refugees who are not fluent in English, since this would suggest that the estimated fluency premium is biased downward.

I address this using Heckman's well-known two-step procedure (Heckman 1979). I use a dummy variable for whether the refugee was enrolled into the Matching Grant program as the excluded variable that influences the selection equation, but which has no other effect on the wage equation. Although one might have expected that this variable is correlated with unobserved skills, there is little evidence of that in the data. For one thing, a relatively large share (64 percent) of all refugees are enrolled in the Matching Grant program, so the program is less exclusive than one might have imagined. More importantly, the matching grant dummy variable has no power to explain wages beyond the explanatory variables in wage equation (1). In other words, if I add the matching grant dummy to the right-hand side of equation (1), the OLS estimates of the coefficient on that dummy variable are very small (estimate=0.0015) and statistically insignificant (p=0.89).

Estimates from the Heckman two-step procedure continue to indicate a small English fluency premium (2.6 percent). This is not because the matching grant dummy creates little variation in employment; the probit for the employment equation indicates that matching grant recipients are 9.7 percent (SE=2.5 percent) more likely to be employed. Even so, the estimated fluency premium does not change much from the OLS estimate because there appears to be surprisingly little selection into employment on the basis of unobservables. The estimated correlation between the error terms of the wage and employment equations is just 0.04 (SE=0.27), implying that the refugees obtain employment nearly randomly. This is consistent with the earlier findings, perhaps because most refugees simply cannot afford not to work (Swedberg 2010).

5.2 Selection on Who Learns English

I also consider the possibility that fluency in English may be correlated with unobserved ability. This could cause an upward bias in the least-squares estimates if more productive and capable individuals were most likely to achieve English fluency before leaving the home country. However, it is also possible that time spent learning English may have crowded out other forms of human capital investments. Although this may seem less plausible, it may be the more relevant fear in light of the results above because it would cause OLS estimates above to be biased downward, rather than upward.

To address this issue, I use the linguistic distance between the refugees' mother tongue and English as an instrument for their fluency in English. Chiswick and Miller (2005) show empirically that immigrants in the U.S. and Canada whose mother tongue is more linguistically distant from English are less likely to be fluent in English, all else equal. This instrument resolves the potential problem with ability bias because it treats all individuals with the same home country and mother tongue the same way when predicting their English fluency.

I implement this idea on a subsample of African countries, the continent from which most refugees with "good" or "fair" English fluency originate (Allen 2006). While most African countries share similar economic and demographic characteristics, some do have English as their predominant language because of being British colonies. So, I create a dummy variable for the countries where English is an official or predominant language (Anglophone African countries) and use it as an instrument for English fluency; 75 percent of those from Anglophone countries speak good English, versus 27 percent of other African refugees. The first-stage IV regression is

$$D_{ij} = \delta N_{ij} + \phi X_i + u_{ij} \quad (2)$$

where N_{ij} denotes the binary instrument. This first-stage regression has a partial R^2 of 0.165 and an F-statistic of 127, easily exceeding Stock and Yogo's (2002) guideline for strong instruments.

Estimates from the African sample are similar to those for the full sample, regardless of the model specified. OLS and fixed-effect estimates are similar to those estimated earlier (2.92 and 2.74 percent, respectively), and the two-stage[9] least squares estimate is -0.05 percent (SE=2.97 percent).

[Table 3 about here]

6 Discussion

I have thus found no evidence that English ability is a major determinant of the wages of recently-arrived refugees, even though there does appear to be a large return to fluency for newly arrived economic immigrants (5 percent vs 34 percent). The findings of non-refugee immigrants are consistent with previous work, which has found that fluency is a major determinant of other immigrants' wages. The contrast thus confirms the suggestion that there is something special about refugees, such as the countries or the continents they come from, the selection process, or the initial labor market participation decision. For example, the lower return for refugee's fluency could be due to the relatively weak correlation between their language ability and their unobserved skills. Another possibility is that refugees can only find low-wage paying jobs at first

[9] The specification for the two-stage least squares contains the above-mentioned controls, except the country fixed-effects.

due to the fact that they are required to accept the first job available to them, which accounts for much of the occupational downgrade that refugees face after arrival (Akresh, 2008).

Without considering other data sets, it is impossible to determine how the discrepancy between the groups evolves over time, and whether refugees eventually receive a substantial fluency premium, since our data only include recently arrived immigrants. However, it is hoped that these results stimulate a new line of research that explains the difference, and hopefully in the process identifies some factors that promote economic assimilation.

For example, one strategy might involve examining the growth rates of the fluency return among both groups of immigrants in the years after they arrive in the U.S. If English fluency return for refugees grow over time, then time must be an important factor. English fluency might then be associated with human capital investment or its correlation with unobserved skills, or even gains from networking or job-shopping. A relevant policy implication might then involve connecting refugees to employers that demand their skills or increasing their knowledge on how labor market institutions work. Of course, such discussion must wait until the further analysis is complete.

References

Akresh, Ilana Redstone. "Occupational trajectories of legal US immigrants: Downgrading and recovery." Population and Development Review 34.3 (2008): 435-456.

Allen, Ryan. "Employment and earnings outcomes for recently arrived refugees to Portland Maine." Augusta, ME: Maine Department of Labor (2006).

Beaman, Lori A. "Social networks and the dynamics of labour market outcomes: evidence from refugees resettled in the US." The Review of Economic Studies 79.1 (2012): 128-161.

Bleakley, Hoyt, and Aimee Chin. "Language Skills and Earnings: Evidence from Childhood Immigrants*." Review of Economics and Statistics 86.2 (2004): 481-496.

Borjas, George J. "Welfare reform and immigrant participation in welfare programs." International Migration Review 36.4 (2002): 1093-1123.

Chiswick, Barry R. "Are immigrants favorably self-selected?" American Economic Review 89.2 (1999): 181-185.

Chiswick, Barry R., and Paul W. Miller. "The endogeneity between language and earnings: International analyses." Journal of Labor Economics 13.2 (1995): 246-288.

Chiswick, Barry R., and Paul W. Miller. "Linguistic distance: A quantitative measure of the distance between English and other languages." Journal of Multilingual and Multicultural Development 26.1 (2005): 1-11.

Heckman, James J. "Sample selection bias as a specification error."Econometrica: Journal of the Econometric Society 47.1 (1979): 153-161.

Mamgain, Vaishali, and Karen Collins. "Off the boat, now off to work: refugees in the labor market in Portland, Maine." Journal of Refugee Studies 16.2 (2003): 113-146.

Office of Refugee Resettlement (ORR), Report to Congress, 2006.

Stock, James H., and Morohiro Yogo. "Testing for weak instruments in linear IV regression" NBER Working Paper Series, Technical Paper 284 (2002).

Swedberg, Pablo. "The impact of education and host language skills on the labor market outcomes of immigrants in Spain." Investigaciones de Economía de la Educación 55 (2010): 798-824.

United Nations Refugee Commissioner of Refugees (UNCHR). "Rethinking Durable Solutions" The State of the World's Refugees: Human Displacement in the New Millennium. (UNHCR: Oxford University Press, 2006): Page 129.

Table 1-A: Summary Statistics

A. Refugees

	Full Sample (N=1,662)		**English-Speakers (N=340)**		**Non-English Speakers (N=1,322)**	
Variables	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Log Hourly wage (conditional on employment)	2.00	0.16	2.02	0.18	1.99	0.15
Employment	0.68	0.47	0.74	0.43	0.66	0.47
Age	33.98	11.04	31.74	10.03	34.3	10.86
Matching grant enrollment	0.64	0.47	0.65	0.47	0.63	0.48
Secondary education	0.46	0.49	0.49	0.50	0.45	0.49
University and above	0.20	0.40	0.32	0.46	0.17	0.37
Africa	0.49	0.50	0.85	0.35	0.40	0.49
Eastern Europe	0.10	0.30	0.01	0.10	0.13	0.33

Table 1-B: Summary Statistics						
B. Non-Refugees						
	Full Sample (N= 4,820)		**English-Speakers (N= 2,325)**		**Non-English Speakers (N= 2,495)**	
Variables	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Log Hourly wage (conditional on employment)	2.41	0.89	275	0.95	2.11	0.71
Employment	0.88	0.32	0.90	0.29	0.87	0.33
Age	31.1	11.0	28.64	12.36	30.09	14.47
Secondary education	0.35	0.48	0.54	0.49	0.29	0.45
University and above	0.32	0.48	0.56	0.49	0.10	0.30
Africa	0.02	0.16	0.05	0.21	0.01	0.09
Eastern Europe	0.04	0.19	0.04	0.20	0.03	0.17

Table 2: Regressions on Log Hourly Wages

Sample	Method	N	Est. English premium (x100)	Std. Error (x100)	
Non-refugees	OLS	3,552	34.0	5.00	***
	Region FEs	3,552	30.0	3.25	***
All refugees	OLS	1,110	2.60	1.07	***
	Country FEs	1,110	4.07	1.20	***
Non-English dominant countries	OLS	979	4.47	1.43	***
	Country FEs	979	4.79	1.46	***
African countries only	OLS	551	2.67	1.03	***
	Country FEs	551	2.83	1.12	**
	2SLS	551	-0.05	2.97	

Regressions also include city/state-year fixed effects, and controls such as age, marital status, race, and education. To correct for possible heteroscedasticity, I cluster the standard errors on country-city level.

***, **, * indicate significance at 1 percent, 5 percent, and 10 percent levels.

Table 3: Heckman and 2SLS Results

Sample	Method	N	Est. English premium (x100)	Std. Error (x100)	
All refugees (unconditional on employment)	Heckman (1979)	1,662	2.66	1.13	***
African countries only	2SLS	551	-0.05	2.97	

Regressions also include city/state-year fixed effects, and controls such as age, marital status, and education. To correct for possible heteroscedasticity, I cluster the standard errors on country-city level.

***, **, * indicate significance at 1 percent, 5 percent, and 10 percent levels.

Dynamics of the Crude English Fluency Premium for Refugees and Other Immigrants in the U.S.

Abstract: Previous work has established that U.S. immigrants earn more if they are fluent in English, but a portion of that premium likely reflects biases because fluency is correlated with unobserved factors like self-selection, ability to job-shop, and legal status. Since those unobserved factors represent potentially important barriers to immigrants' economic assimilation, this paper investigates them by looking for variation in the crude fluency premiums earned by different groups of immigrants. One key distinction is between refugees and other immigrants; while refugees have greater legal access to the labor market, non-refugees benefit from greater ability to self-select into both migration and (pre-migration) fluency, and those relative advantages change during the years after individuals migrate. Empirically, non-refugees initially earn a much larger crude wage premium for fluency (even though the effect of fluency on productivity is likely similar between the groups), suggesting that fluency is more strongly correlated with unobserved skills among non-refugees -- as expected given their greater opportunity to self-select. This gap persists in the first years after immigration, even though English-speaking refugees presumably have greater ability to take advantage of refugees' greater latitude in seeking more suitable employment matches. However, the refugees' premium does eventually grow at around the same time that more of them learn English, likely because more capable refugees are more likely to become fluent. Nevertheless, the gap never vanishes, possibly because the less successful non-refugees return-migrate, while that is not a practical option for most refugees. It thus appears that much of the variation in the fluency premium reflects correlations between fluency and other skills, rather than English-speakers' advantage in terms of job search

1 **Introduction**

Acquisition of language fluency is one of the important means by which immigrants culturally and economically assimilate. Previous studies have shown that immigrants who are fluent in English typically have greater success in the U.S. labor market. Studies that have measured the effect of English fluency on immigrants' wages have generally found that fluent immigrants earn 17- 33 percent more than immigrants with limited English skills (Chiswick and Miller 1995; Bleakley and Chin 2004).

To date, however, most of this work has not examined whether the earnings premium to language proficiency could differ between refugees and non-refugees. This distinction is critical because the selection process into migration is different for refugees, and also because refugees have different rights than other immigrants after they arrive in the new country. These differences could affect the initial premium to language fluency as well as its evolution over time, and the patterns in those differences could shed light on the sources of the crude fluency premium.

It is possible that the previously estimated premiums truly reflect the value of the immigrants' language ability on their actual productivity, but it could also reflect other effects that are correlated with or mediated through language ability; for example, a portion of the crude fluency premium could be due to selection bias or even job shopping. Such biases mostly likely account for the variation in estimated fluency premiums across different groups of immigrants, since it seems likely that the true productivity of English fluency is very similar for everyone.

There are a few reasons why the measured premium to fluency might differ between refugees and other immigrants both at arrival and over time. First, the estimated premium to fluency may simply be a statistical artifact that reflects a strong correlation between fluency and other

unobservable factors that employers value, such as intelligence or ambition. However, such a correlation is likely to be lower among refugees than among other immigrants (Chiswick 2008). If this is an important cause of the initial difference between the groups' fluency premiums, the gap would likely diminish over time as more refugees acquire fluency after immigrating, especially if the more capable or ambitious refugees learned English more quickly (Duleep and Regets 1999, Cortes 2004).

Second, some economic immigrants only migrate after having a job offer which is presumably more common among English speakers. But the difference between the groups' fluency premiums may diminish in the years after immigration if the refugees who are fluent utilize the fewer legal restrictions they face upon arrival and become more successful in climbing the job ladder. However, the convergence rate for the refugees may slow over time, first as the acquisition of fluency expands into the less capable groups of immigrants especially as the non-refugee immigrants gain legal opportunities to seek new jobs.

There are only a few studies that have examined the effect of language skills on refugee wages. In investigating the effect of language fluency on hourly wages of recently-arrived refugees, Shaeye (2015) finds that there is a much smaller premium than previously estimated by other studies which mainly focus on non-refugees. Although that study only investigates the fluency premium of recently arrived refugees, its findings raise new questions such as whether non-refugee immigrants receive a fluency premium from the moment they arrive and whether the refugees eventually receive a fluency premium comparable to the one of non-refugees. Finding higher estimated premiums to English fluency for newly arrived economic immigrants would reinforce the idea that there is something special about refugees, and if I found that the fluency

premium grows faster over time for refugees, that result could have implications for the effectiveness of the refugee resettlement polices that are currently in place.

In this analysis, I investigate the difference between refugees' and non-refugees' crude fluency premiums and how that gap evolves over time. Unlike most studies, my goal is not to produce an unbiased estimate of the true effect of English fluency on immigrants' productivity in their jobs. The true productivity effect is expected to be similar for both groups, but even if there is a difference, it is assumed to stay constant over time. Thus, any changes in the difference in the estimated fluency premiums for the groups mainly reflects different changing biases. While bias is ordinarily undesirable, in this case I will keep it in order to gain insight into the relative importance of some difficult-to-observe factors like job-shopping and selection bias that may have large effects on immigrants' economic assimilation and are plausibly correlated with language fluency. Since there are institutional reasons to believe that the importance of those factors will evolve differently over time for refugees and non-refugees on a known schedule, we can infer the size of their effects by examining the dynamics of the difference between refugees' and non-refugees' crude fluency premiums. Also, if the difference remains large after a very long time, we could then infer that it must represent some permanent unobservable difference between the groups that is correlated with fluency within the groups, possibly caused by differences in the processes by which the groups were originally selected into immigration.

I use the U.S. Census and subsequent cycles of the American Community Survey to examine these questions. The advantage of this data is that it has a very large sample size, and the repeated cross-sections allow me to implement a synthetic cohorts approach. Neither data set reports on immigrants' admission status, including whether they are refugees, but I supplement this data with administrative data from U.S. immigration agencies that allow me to compute the

share of immigrants from a given country in a given year who were refugees. Variation in that share over time allows me to measure the premiums to fluency among refugees, even in specifications that include country-of-origin fixed effects.

Results for the full sample of all regions of the world show that refugees have a lower fluency premium in the first five years after arrival, as the literature has already found. The fluency premium then grows for refugees for the next fifteen years, while for non-refugees it mainly grows during the last ten years. The two groups' fluency premiums begin to converge, although the difference is never completely eliminated. Furthermore, if I exclude the subsample from regions that are less likely to send refugees, or regions that send a lot of undocumented immigrants, I find that the two premiums do not converge.

The rest of the paper is organized as follows. Section two discusses background and related literature. Section three then presents the theory, and section four describes the data and methodology. Section five presents and discusses the empirical results, and section six summarizes the findings and concludes.

2 Background and Related Literature

Language ability is one of the important mechanisms for the economic and social assimilation of immigrants. Generally, immigrants with good language skills perform better in the labor market in terms of employment and wages compared to those who do not have those skills. Language skills can affect an individual's earnings for a number of reasons. First, those with good language skills may be able to communicate better with coworkers and customers, thereby directly increasing their productivity and earnings. Second, better language skills may also increase one's earnings indirectly, by allowing him to accumulate more host-country education, enter high-skill occupations, expand networks, and search for jobs more effectively.

There has been a considerable empirical work on the correlation between immigrants' English fluency and their wages in the U.S. The estimated premium could reflect the true effect of language skills on their productivity. It could also reflect other effects that could be mediated through language skills, such as selection bias, job shopping, other forms of job shopping, post-immigration improvements in language skills or even other investments in human capital. Studies that correct for the possible endogeneity have found large effects on the order of 17- 33 percent (Chiswick and Miller 1995; Bleakley and Chin 2004). Using Census data, Chiswick and Miller (1995) show that immigrants in the US who are fluent in English have earnings about 17 percent (57 percent for instrument variable) higher than immigrants with limited English skills. Similarly, Bleakley and Chin (2004), who exploit the phenomenon that younger children learn languages more easily than older children to construct an instrumental variable for language proficiency, also find that those who speak English earn 22.2 percent higher than non-English speakers (33.3 for IV). However, both studies average the immigrants across years of arrival and do not follow them over time as they spend more time in the U.S., and do they not consider the potential differential premiums to fluency between refugee and non-refugee immigrants, so their results are not necessarily generalizable to all immigrant groups in the U.S.

Immigrants can be separated into at least two distinct groups: Refugees and Non-refugees. Refugee immigrants are individuals fleeing persecution in their home country, and non-refugee immigrants are individuals searching for better jobs or reuniting with family already in the U.S. Refugees are conceptually different from non-refugees and are not selected into either migration or fluency in the same way that non-refugees are (Cortes, 2004). There are two channels, which a would-be refugee could apply for asylum in the U.S. Individuals located outside of the U.S. can apply for refugee status through United Nations High Commissioner (UNHCR) for refugees, and

then are referred to the U.S. so that immigration officials can decide if they are eligible for refugee resettlement. If granted refugee status, these individuals receive assistance traveling to the U.S., and upon entry in the U.S. also qualify for training and other benefits from the U.S. government. Since these individuals are being referred by UNHR, and are accepted by the U.S., they do not have a choice in where they are going to be resettled. On the other hand, if these individuals are already in the U.S. and decide to apply for asylum status inside the U.S.- also known as asylees- they face a different process whether an immigration officer, or a judge considers their applications. If they are granted asylum, they also qualify the rights that refugees have. Unlike refugees and asylees who are fleeing persecution, most non-refugee immigrants are drawn to the United States for economic or family considerations.

So, the plausibly exogenous nature of the migration decision of refugees would lead them to experience worse labor market outcomes than the non-refugees in the initial years after migration, but over time this gap might disappear. An analogy can be drawn between the migration decision of an immigrant and the labor market decision of a worker. Refugees are like those who were laid off due to plant closing and have to find jobs in different industries, where non-refugees are immigrants who quit their jobs, and usually have been involved in searching for work before they quit.

After arrival, refugees' movements in the labor market are less restricted than those of other immigrants. Many non-refugees have visas that are only valid for a single employer, so they cannot change jobs without overcoming legal barriers, whereas refugees face no such restrictions even in their first years in the U.S. labor market. Many non-refugees eventually obtain similar rights to job mobility, such as when they get a green card or citizenship, and at that point both groups have similar opportunities to job-shop. However, it usually takes the non-refugees at least

6 years and sometimes much longer to obtain those rights. In the years before that time, refugees have better options for finding their way into jobs that are better matched to their skills, and it seems likely that this process would have a larger advantage for the English-speaking refugees. There are only few studies that have examined the impact of language skills on refugee wages, but these studies focus on narrowly defined groups of refugees. The only exception to my knowledge is the one by Shaeye (2015), which investigates the initial fluency premium for recently arrived refugees. He finds that there is no evidence that English ability is a major determinant of the wages of recently-arrived refugees, even though previous work has found that it is a major determinant of non-refugee immigrants' wages. The findings raise a new set of questions, such as whether non-refugee immigrants receive a fluency premium from the moment they arrive, and if not whether the refugees eventually receive a fluency premium.

3 Conceptual Framework: The Endogenous Choice of Migration and Human Capital Investment

In this section, I discuss the hypotheses that I expect to account for the patterns I observe in the English fluency premium. Consider an econometric framework in which the crude premium to English fluency could differ between the two groups upon arrival for two reasons. First, refugees are not as likely to be matched well with their initial jobs because they are less likely to arrive with jobs (Akresh 2008). In other words, English speaking refugees have had less opportunity to find the employers who most value their fluency. Second, it is also likely that there is a difference in the bias component of the crude fluency premium that reflects the correlation between fluency and the unobserved skills for the two groups. Since refugees' decisions to migrate were not primarily motivated by economic considerations, those with higher levels of

unobserved skills have not necessarily moved to a new country where their language skills can best be accommodated. For example, a French-speaking economic migrant would be more likely to migrate to a French-speaking country, whereas a French-speaking refugee does not necessarily have that luxury.

Formally, say the relationship between wages and human capital skills is as follows:

$$\omega_{ijt} = \alpha_t + \beta X_{ijt} + \delta D_{it} + U_{ijt}, \qquad (1)$$

where ω is the log wage, D is a dummy for English skills, X is other relevant covariates, i indexes individuals, j indexes jobs and t represents time. The residuals term can be further decomposed as

$$U_{ijt} = a_i + b_{ij} + e_{ijt} \qquad (2)$$

Here, a_i is the ability of the individual, which is unobserved by the econometrician but relevant to employers; b_{ij} is a measure of the quality of the specific match between worker i and job j (which is also unobservable to the econometrician), and e_{ijt} is the remaining error, which is assumed to be uncorrelated with both a and b.

Under this model, the estimated crude fluency premium δ^{hat} converges to the sum of three components: (a) the true causal effect of language skills on productivity (δ), and biases associated with the correlations between fluency and (b) ability and (c) job match quality:

$$\delta^{hat} \rightarrow \delta + \text{Cov}(D, a_i)/\text{Var}(D) + \text{Cov}(D, b_i)/\text{Var}(D) \qquad \textbf{(3)}$$

Most likely δ is the same for both refugee and other immigrants (though it could differ if, e.g. one group were more likely to be initially employed in jobs that involve interactions with natives).

The covariance between fluency and ability (Cov (D, a_i)) could possibly represent an actual premium to fluency if the employer uses fluency as a signal about a_i, but otherwise if the

employer observes a_i directly this component does not represent a causal effect of fluency on wages. It probably does differ between the groups because of economic immigrants' self-selection into migration. For example, those who do not have language skills that are valued in the U.S. but do have high ability are probably better off either staying in their homeland or else moving to somewhere else. Such selection, however, is less likely for refugees (Chiswick 2000). The covariance between fluency and the job match parameter (Cov (D, b)) could probably represent a premium to language skills insofar as those skills help one search for a job that is a better match, but it is also possible that job match quality varies for other reasons besides fluency. It can also differ between the groups for two reasons. First, some economic immigrants only migrate after having a job offer, and that is presumably more common among English speakers. Second, over time refugees may have a better opportunity to increase b due to having fewer legal restrictions on job mobility.

Let us next look at the dynamics of the crude fluency premium δ over time

$$\frac{\widehat{\partial \delta}}{\partial t} \quad \rightarrow \quad \frac{\partial \delta}{\partial t} + \frac{\partial}{\partial t}\frac{\mathrm{Cov(D,a)}}{\mathrm{Var(D)}} + \frac{\partial}{\partial t}\frac{\mathrm{Cov(D,b)}}{\mathrm{Var(D)}} \qquad (4)$$

$\frac{\partial \delta}{\partial t}$ is plausibly same for everyone, and reaches to zero in the long run. The proposed hypotheses are represented by $\frac{\partial}{\partial t}\frac{\mathrm{Cov(D,a)}}{\mathrm{Var(D)}}$ and $\frac{\partial}{\partial t}\frac{\mathrm{Cov(D,b)}}{\mathrm{Var(D)}}$.

1) $\frac{\partial}{\partial t}\frac{\mathrm{Cov(D,b)}}{\mathrm{Var(D)}}$

This trend is presumably much larger factor for refugees at first because they have greater legal right to move between jobs (and they may also be more poorly matched to begin with, even

conditional on fluency). However, a similar trend should eventually appear for economic migrants too as they acquire the permanent rights to search (e.g., via a green card).

2) $\frac{\partial}{\partial t}\frac{\mathrm{Cov(D,a)}}{\mathrm{Var(D)}}$

It seems most likely that this trend is likely to be higher for the refugees ($\frac{\partial}{\partial t}\frac{\mathrm{Cov(D,a)}}{\mathrm{Var(D)}} > 0$), at least over the first few years after arrival, assuming the higher ability refugees are more likely to acquire language skills faster (Duleep and Regets 1999, Cortes 2004). This seems likely due to both their greater ability and their stronger incentive (assuming these skills are complementary to ability in the labor market). However, this trend could also be higher for non-refugees due to return migration if those who return their homelands are both less fluent and less successful. (Presumably very few refugees become return migrants).

Figure 1 Insert Here

4 Data

The analysis uses repeated cross-sections of individual level data of immigrants on both the 2000 U.S. Census of Population, and American Community Survey (ACS) from the years 2001 to 2015. I can follow year-of-arrival immigrant cohorts who came to the U.S. between 1993 and 2015. I focus only on male immigrants who are 18 and above and below 66 years of age, have immigrated after the age of 10, are in the labor force, work for wages or salary income, are non-farmer workers, and living outside group quarters. I also exclude those who report that they are self-employed.

The advantage of the U.S. Census and subsequent cycles of the American Community Survey data, though, is that it has a very large sample size, and the repeated cross-sections allow adopting a synthetic cohorts approach. The response to the year of arrival is also more accurate than the responses of earlier Censuses.

The legal definition of an immigrant is "a person lawfully admitted for permanent residence in the United States." (INS Annual Report: Legal Immigration, 2000). Throughout this paper, however, I use the Census definition of foreign-born as individuals who were born outside of U.S. with no citizenship at birth, which includes both refugees and non-refugees. Non-refugees include those on student, work, or other temporary visas; persons residing in the country without authorization; legal immigrants; and naturalized citizens. After running an initial regression that contains all regions of the world for sensitivity test, the remaining analysis is excluded from those who come from some regions that send a lot of undocumented immigrants, particularly Mexico and Central America, as well immigrants from broad geographic regions that send very few refugees to the U.S., including Northern Europe, Australia, and East Asia. In other words, I will restrict the sample to only those who come from limit the sample from regions of the world where most refugees were born (namely those from Eastern Europe, Southeast Asia, Middle East, Latin America, and Africa) – called hereafter refugee-sending regions.

Ideally, I would like to have a panel data on wages and English skills for persons who are clearly identified as refugees or non-refugees, but this information in unfortunately not included in the Census or any other large data sets. Most of the literature thus imputes refugee status based on immigrants' countries of origin (e.g. Borjas (2002), Cortes (2004)). The problem with this strategy is that it treats all immigrants from same country the same way, even if the majority of those arrived in some years were not refugees. Bollinger and Hagstrom (2008) thus propose to identify refugees by using a combination of year of immigration, gender, country of origin, and age at immigration, and I will follow a similar strategy in the analysis below.

4.1. Assignment of Refugee Status

Specifically, I use two different strategies for attributing refugee status, both of which are based on two characteristics: individuals' country of birth and their year of arrival in the U.S. The first method involves determining how many people are likely to have migrated to the U.S. as refugees from a particular country in a particular year, which I estimate as the ratio of the actual number of refugees admitted to the U.S. from a given country in a given year to the total number of people (whether on immigrant or non-immigrant visas) admitted from a that country in that year, as reported in the government's official administrative immigration records. Due to measurement error, this ratio is relatively conservative and might produce more conservative estimates since I do not count asylees among the refugees. On the other hand, I do not observe counts of undocumented immigrants, which would tend to bias the refugee ratio upwards. However, most countries that send large number of undocumented immigrants do not send large number of refugees, so the refugee ratio is still accurately computed at close to zero[10]. Conversely, countries that do send large numbers of refugees to the U.S. usually do not also send large number of undocumented migrants, in part because they are generally located far away from the U.S. The larger problem may be with asylees, especially those from Western Hemisphere countries like Colombia and Haiti. Some people from these countries come to the U.S. without documentation, hoping to apply for asylum after they arrive, and thus are not counted among the non-refugee immigrants, but they are also not counted as refugees unless they achieve refugee status-which is different from asylee status.

[10] For example, data from the U.S. Census American Community Survey (ACS) and the Department of Homeland Security (DHS) suggest that between 40 and 60 percent of Mexicans in the U.S. are undocumented, but the refugee ratio is still accurately computed at near zero because there are only a handful (perhaps a few hundred per year) of refugees from Mexico.

To assess whether refugees are correctly identified in the first method, I utilize an alternative identification strategy in which the denominator of the ratio is computed from the Census sample instead. I estimate the whole sample by dividing the actual number of respondents to their respective sample percentage, which will give us the total estimated population that the Census data represents. Only a very small number of country-years are reclassified from refugee-sending to non-refugee-sending countries. So, it is not surprising that the estimates of the fluency premium are very similar under the two methods.

To smooth out the possibility of measurement error due to misreporting of the immigration year or a discrepancy between the Census year and the fiscal year (which is what is reported in the immigration data), I work with a three-year moving average across both the year of individuals' immigration and the Census year. However, this change makes almost no difference whatsoever. In practice, so it appears that this sort of measurement error it not quite a serious problem anyhow. After weighting the sample with both cohort size, and sample weights, the resulting number of male immigrants in the full sample who are expected to be refugees is 84,381 and 1,396,662 to be non-refugees.

4.2 Summary and Data Characteristics

I present summary statistics (see table 1) for two key subsamples: a sample with a high refugee concentration, and a sample with no refugee cohort. I define entry cohorts as having a high fraction of refugees if at least 60% of that cohort are refugees (note some might not be actually refugees), and a non-refugee cohort is defined as an entry cohort with no refugees. As Figure 2 shows, nearly all cohorts that include refugees have either very few of them (less than 10 percent or so) or a very high share of refugees, so these summary statistics are robust to how we set the threshold for inclusion into the high-refugee cohorts.

Insert Table 1 and Figure 2 about Here

I then discuss some other demographic and human capital characteristics by immigrant status for immigrants who come from refugee-sending regions. Data and differences in both institutional and cultural channels for immigrant assimilation guide the division of time into four phases: arrival, adjustment, transition, and integration. During the "adjustment" period (the first years after immigration), refugees have more legal rights than other immigrants and potentially have more opportunities for job-shopping. During the transition period (6-12 years after arrival), non-refugees acquire rights equivalent to the ones that refugees had before. Finally, during an "integration" period (13-20 years after arrival), all immigrants should have similar paths for economic assimilation.

Non-refugees have higher employment rates than refugees upon arrival, but refugees catch up with them during the adjustment period, consistent with the expectation that non-refugees are more likely to have a job ready upon arrival. However, non-refugee employment rates surpass the one of the refugees during the transition period, and the two rates grow similarly afterwards. In general, non-refugees have higher annual and hourly earnings than refugees, and this persists throughout the period of study.

Figures[11] 3, 4, 5, 6 and 7 show the ability to speak English, level of education, school attendance and citizenship by years in the U.S. for both refugees and non-refugees. In general, non-refugees have higher fluency rates than refugees throughout the period, but language acquisition is higher for refugees both during adjustment and transition periods. It is also true that refugees' crude fluency premium grows faster during those two periods for those who have at least associate

[11] The analysis is for those who come from refugee-sending countries (Eastern Europe, Southeast Asia and Middle East, South America, and the Caribbean), are between ages 18 and 65, have been in the U.S. between 0 and 20 years, were surveyed between 2000 and 2015 and came to the U.S. after the age of 9.

degree. One potential explanation is that there was initially a stronger correlation between fluency and unobserved skills- as represented by higher levels of education - among the non-refugees, but the correlation among refugees grew stronger over time as the most capable refugees learned English more quickly. Figure 4 shows that non-refugees who are fluent in English are always more likely to have an associate degree or higher than refugees. Immigrants who are fluent in English are also more likely to be younger in age than those who are not fluent in English across immigration status. This is intuitive because it is easier for young people to acquire English than older immigrants all else equal.

Figures 3 and 4 Insert Here

Besides the importance of education for immigrant wages, it could also be a proxy for the correlation between fluency and unobservable skills. The level of education grows in parallel for all immigrants over time, but non-refugees have higher education levels than refugees, and they maintain that through the period of study. Even conditional on fluency, non-refugees are likely to have higher levels of education than non-refugees. The correlation between fluency and education is similar for both groups during the first three periods, but the correlation between English and education is higher for refugees during the integration period.

Figure 4 Insert Here

As reported in figure 2, non-refugees are more likely to attend school than refugees during the adjustment period. It also true that refugees acquire higher language skills faster during this period than non-refugees, suggesting that non-refugees are more likely to enroll in order to study subjects other than English. School attendance for both groups is similar after the adjustment period.

Figure 6 Insert Here

It is also not surprising that refugees are more likely than non-refugees to become naturalized citizens within six years of arrival, but they maintain that advantage throughout the period of study. Fluent non-refugees are more likely than non-fluent non-refugees to become naturalized citizens, which could suggest that those who are unsuccessful among the non-refugees would more likely return-migrate.

Figure 7 Insert Here

5 Empirical Specification and Results

5.1 Empirical Specification

The econometric model tests the relationship between language ability and the wages[12] of male refugees using the standard human capital earnings function in labor economics. I initially use pooled cross-sectional ordinary least squares (OLS) and country fixed effects (FE) regressions to estimate the relationship between English language fluency and wages for four different time periods: Initial, adjustment, transition, and integration. The log of reported yearly wages is the dependent variable, and English-speaking ability serves as the main independent variable.

The assumption here is that there is a log-linear relationship between wages and language skills:

$$Log\ \omega_{itpc} = \alpha_t + \alpha_c + \alpha_p + \gamma_p R_{cy} + \beta_p D_{itpc} + \delta_p D_{itpc} R_{cy} + \theta X_{itpc} + \varepsilon_{itpc} \quad (2)$$

Log ω denotes log yearly wages, i is an index for individuals, t is an index for year in which earnings were reported, c is an index for country of origin, and y is an index for year of immigration. Entry cohorts are thus denoted by y and c Finally, P is an index for the different time periods of arrival (0-1 years), adjustment (2-6 years), transition (7-12 years) and integration (13-20 years) phases of the assimilation process. D is the focal explanatory variable, a dummy

[12] To account for any potential outliers, I winsorize the wages by resetting the observations in the bottom and upper 1% tails of the distribution to the 1st-percentile, and 99th percentile values respectively while retaining all the observations but the results are quite similar.

for English fluency, where R is the probability for refugee status. X is a set of controls including a measure of linguistic distance (as a proxy for enclaves[13] effects), and dummies for four age groups, marital status, race, citizenship, weeks worked last year, usual hours worked per week, state of residence, and ε_{it} represents the error term. Note because I control for weeks and usual hours worked, the dependent variable in effect becomes the individual's log hourly wage; I cannot compute it directly because weeks-worked are often reported in intervals. Controlling for these characteristics are important, especially for non-refugees since they are more heterogeneous group in terms of immigration admission class and motive. I restrict the sample to only those who immigrated after the age of nine as the critical period hypothesis suggests that those over age ten might have difficult learning a new language.

To identify the fluency premium both between and within the two groups in each assimilation phase, I use a difference-in-difference technique. β is the crude fluency premium for a cohort with no refugees (R=0), and ($\beta + \delta$) is the equivalent return for an all-refugee cohort (R=1). In other words, I am measuring the effects on refugees by estimating how the return varies across cohorts with different concentrations of refugees, then extrapolating to a hypothetical cohort with R=1. In many cases this is only a mild extrapolation, since most cohorts with R>0 have R approaching 1 anyhow. I hypothesize that refugees have lower fluency premium upon arrival, but are expected to see higher growth in their premium than non-refugees' over time.

5.2 Empirical Results

5.2.1 Initial Premiums to Fluency

I first estimate the initial fluency premium for both refugees and non-refugees at the adjustment period and report the results in the first two lines of Table 2. After netting out the differences in

[13] Residence in an ethnic enclave might affect the rate of acquisition for English fluency.

human capital characteristics and socioeconomic background, I find that upon arrival non-refugee immigrants earn higher fluency[14] premiums on their hourly wages than immigrants who arrived as refugees. This confirms that the two groups initially earn different premiums for fluency, a finding that is consistent with earlier studies by Shaeye (2015) and Chiswick and Miller (1995).

Insert Table 2 About Here

5.2.2 Evolution of the Fluency Premium

I next look at the dynamics of the fluency premium over time. As the third and fourth columns of the first section in Table 2 show, preliminary results[15] from OLS[16] estimation indicate that the fluency premium grows during both the transition and integration periods for both groups, and their fluency premiums begin to converge, although the difference is never completely eliminated. The pattern for non-refugee immigrants is driven by the non-refugees from Central America and Mexico. However, the inclusion of those from Central America and Mexico only matters a great deal when I consider the full sample and do not exclude those with less than associate degree. If I exclude immigrants from Central America and Mexico – which I will do for the rest of the analysis – because of their home countries' geographic proximity to the U.S. and high rates of undocumented immigration, or restrict the sample to those associate degree or higher, I find that both refugee and documented non-refugee fluency premiums grow both during both transition and integration period, but the two groups' premiums do not converge (See Table

[14] Similar results emerge if we define "fluent" to include only those who speak English only and those who speak English very well, or if we exclude those who speak only English.

[15] This result is robust to both restricting the sample to only those with associate degree or higher, and also excluding those from English-speaking countries.

[16] I never use OLS or Mexicans/Central Americans, or even those who come from Western Europe, Canada, and Australia except in a small number of case where I explicitly mention it, and for the purpose of showing the effects of making those choices.

2). In other words, there is a parallel upward shift of the sample for non-refugees compared to the sample that includes those from Central America and Mexico (steeper slope for non-refugees). This means the two groups' premiums grow hand in hand, but the initial difference persists over time.

When I control for country fixed effects, the difference between the two groups still persists throughout all of the periods. This non-convergence is being driven by non-refugees who come from developed countries such as those from Northern Europe, Canada, Australia, and Japan. However, if I further limit the sample from the refugee-sending regions the fixed effects estimates reported in Table 2 begin to converge during the integration period.

The dynamics of the premium and its growth for both groups are robust even when I account for immigrants' occupations, or restrict the sample to those with associate degree or higher. The estimated fluency premium, which is reported in Table 3, falls if I control for occupation, or goes up when I look only those with associates degree, or higher. However, those changes are essentially uniform across time periods and regions of origin, so the differences in the fluency premiums largely remain intact expect for the first 6 years for the specification that controls for occupation. This makes sense because the fluency premium is most likely be mediated through occupation, and there could be a strong, positive relationship between earnings and the occupational English requirements. The fluency premium is also capturing part of the education return (especially for higher levels of education), suggesting that it may serve as a proxy for the correlation between earnings and unobserved skills.

To rule out the possibility that the dynamics is due to cohort effects rather than assimilation effect, I interact year of immigration with the country of origin, but the results are very similar. In fact, the difference in returns even becomes more pronounced.

I then look at the different regions individually and report the estimates[17] in Table 4. Most results are similar to those from the pooled sample without fixed effects. However, there are differences in the initial premium between refugees from different regions, with larger estimated fluency premiums for those from Eastern Europe and Cuba than for those from Asia and Africa. The premiums earned by the refugees from the former sets of countries are also more similar to those earned by non-refugees from the same countries than are those from elsewhere in the world. The differences between the two groups nearly vanish when I control for fixed effects, except for Asia[18].

One possible explanation for that difference is that the events that cause refugees to come to the U.S. from Eastern Europe or Cuba are generally most relevant for only a relatively modest subgroup of the population, whereas the refugee-creating events in Asia and Africa have generally been more severe and more pervasive. Those who are most strongly affected by big events likely constitute a less selected sample. The countries that produce those big events are also more likely to be less developed than are the countries that experience more targeted shocks. It could also have something to do with the fact that refugees from Africa and Asia are more likely to spend a long time in refugee camps before they are resettled, and during that period they are less likely to expand their formal education or to increase their work experience.

To rule out the possibility (Borjas 1985) that our results could be driven by the year of arrival itself (a cohort effect that may represent variation in the level of skills with which immigrants arrive), and not the effects of the number of years since arrival (the assimilation effect that we are interested in), I have estimated a variation on the model that includes interactions between

[17] See graphical representation of results in the appendix

[18] The non-convergence in the Asia region is an anomaly even after removing those from India, and China from the sample.

the number of years since immigration variable and country of birth dummies[19]. The estimated fluency premiums for both groups do not change, so it seems that the results are not being contaminated by such cohort effects.

5.3 Discussion of Results

Let me revisit the hypotheses I have laid out already and talk about how well they explain the results of the fluency premium for the two groups and its growth pattern over time. The different hypotheses would predict different dynamics in the evolution of the groups' fluency premiums, although the net effect remains ambiguous ex ante. Selection on both who migrates and on who acquires language skills would predict that there should be a higher premium to fluency for non-refugees at first (i.e., a larger premium shortly after the time of immigration), but that refugees might see higher growth later (a steeper trend in the estimated fluency premium) as the more capable among them acquire English and thus become more selected over time. On the other hand, selection on who can job-shop predicts the growth in the premium to fluency would be higher for refugees in the first few years after immigration if that is important for refugees, but the growth in the fluency premium for the non-refugees might eventually catch up with it once they acquire more legal rights. Selection on who decides to return to their home country would predict greater acceleration in the fluency premium for non-refugees later as the non-successful among them, who are more likely to be non-English speakers, return-migrate.

Results confirm that non-refugees receive a higher initial fluency premium, that is in part because they are more strongly selected into fluency (as seen by their higher initial correlation between fluency and education) and also because they are more likely to arrive in the U.S. with a job already in hand. Results also confirm that refugees experience higher premium growth over

[19] For each country, the estimated effects at zero years since immigration serves as a control for initial skills.

time. Figure 14 suggests that refugees with associate degree or higher are more likely to be fluent in English than those without those credentials during transition and integration periods, which could have contributed to the premium growth of refugees.

Figure 15 Insert Here

The job-shopping hypothesis would predict that refugees would be able to shop for jobs right upon arrival since they have broader legal rights than non-refugees. Results show that the premium for non-refugees does not substantially grow during the adjustment period. This is not surprising since non-refugees have fewer rights to change employers during this period. In view of their greater legal rights to search for employment, it is somewhat surprising that the fluency premium for refugees does not increase faster during the adjustment period except for those with associate degree or higher. One potential explanation is that it may be a consequence of the refugee self-sufficiency policy, which promotes early employment and thus mainly enrolls refugees in low-skilled jobs - which could mean an occupational downgrade for some of them. This also makes it difficult for refugees to transition into higher-skilled ones during this period. The return migration hypothesis would predict that non-refugee immigrants especially the less successful among them -who are more likely to be non-English speakers- would decide to return to their home country and thus would make their premium grow further during the integration period as they even become more selected. Refugees, on the other hand, are less likely to go back to their country of origin because they are unable or unwilling to return home for fear or threat of persecution (Cortes 2004).

6 Summary

I develop an econometric framework in which the crude premium to English fluency could differ between refugees and non-refugees. I exploit individual level data of immigrants on both the

2000 U.S. Census of Population, and American Community Survey (ACS) to test these hypotheses. Consistent with previous work, I find that non-refugees initially earn a larger premium for English fluency, most likely because they are more strongly self-selected into migration on the basis of fluency and because they are more likely to arrive with a job to which they are at least somewhat well-matched. However, the refugees' premium grows during both adjustment and integration periods, probably because the correlation between unobserved skills, and English is getting stronger as more capable refugees learn the language over time. Although the premium grows faster for refugees during the integration period, it does not catch up with the premium of non-refugees, who even become more selected as the less successful among them return to their home country.

In other words, although refugees have more legal rights at first and there is an increase in their fluency levels over time, differences in selection remain the most important factor for the two groups' premiums difference throughout the period of study.

An extension for future research is exploring whether other human capital skills such as schooling follow similar pattern, or whether the differential premium to skills across the two groups can explain the wage-gap between refugees and non-refugees documented in the literature.

References

Akresh, Ilana Redstone. "Occupational trajectories of legal US immigrants: Downgrading and recovery." Population and Development Review 34.3 (2008): 435-456.

Bleakley, Hoyt, and Aimee Chin. "Language skills and earnings: Evidence from childhood immigrants." Review of Economics and Statistics 86.2 (2004): 481-496.

Bollinger, Christopher R., and Paul Hagstrom. "Food stamp program participation of refugees and immigrants." Southern Economic Journal 74.3 (2008): 665-692.

Borjas, George J. "Welfare reform and immigrant participation in welfare programs." International Migration Review 36.4 (2002): 1093-1123.

Chiswick, Barry R., and Paul W. Miller. "The endogeneity between language and earnings: International analyses." Journal of Labor Economics 13.2 (1995): 246-288.

Chiswick, Barry R. "Are immigrants favorably self-selected?" The American economic review 89.2 (1999): 181-185.

Cortes, Kalena E. "Are refugees different from economic immigrants? Some empirical evidence on the heterogeneity of immigrant groups in the United States." Review of Economics and Statistics 86.2 (2004): 465-480.

Department of Homeland Security (DHS), *Immigration Statistics Data*,1991-2015. Available at *www.dhs.gov/immigration-data-statistics.*

Department of State (DS), *Immigrant Visa Statistics*, 1991-2015.Available at *www.travel.state.gov.*

Duleep, Harriet Orcutt, and Mark C. Regets. "Immigrants and human-capital investment." The American Economic Review 89.2 (1999): 186-191.

Shaeye, Abdihafit H. "The Unexpectedly Small Wage Premium for English Fluency among Recent U.S. Refugees" Working Paper, University of Wisconsin - Milwaukee (2015).

Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2015.

Table 1: Summary Statistics

	High-Refugee Cohorts (N= 62,833)				Non-Refugee Cohorts (N= 261,609)			
	English-Speakers (N= 34,105)		Non-English Speakers (N= 22,735)		English-Speakers (N= 227,453)		Non-English Speakers (N= 60254)	
Variables	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Log Hourly wage (conditional on employment)	4.90	0.73	4.60	0.65	5.02	0.81	4.63	0.69
Employment	0.93	0.26	0.90	0.30	0.94	0.25	0.91	0.28
Associate Degree and Above	0.36	0.48	0.14	0.35	0.48	0.50	0.21	0.41
School Attendance	0.17	0.37	0.04	0.20	0.19	0.39	0.06	0.25
Age	37.5	11.1	44.2	11.6	3.96	10.9	41.5	12.3
Citizenship	0.53	0.50	0.30	0.46	0.37	0.48	0.17	0.38

Table 2: Regressions on Log Hourly Wages

Years Since Migration	0-1	2-6	7-12	13-20
OLS- Whole Sample				
Fluency-Non-Refugees (β_p)	0.25** (0.04)	0.22*** (0.06)	0.26*** (0.7)	0.33*** (0.09)
Fluency-Refugees ($\beta_p + \delta_p$)	0.09** (0.04)	0.10*** (0.03)	0.19*** (0.04)	0.24*** (0.05)
Difference (δ_p)	-0.16*** (0.05)	-0.12** (0.05)	-0.07 (0.08)	-0.08 (0.11)
Whole Sample				
Fluency-Non-Refugees (β_p)	0.13*** (0.03)	0.16*** (0.04)	0.21*** (0.06)	0.29*** (0.07)
Fluency-Refugees ($\beta_p + \delta_p$)	0.22** (0.03)	0.19*** (0.02)	0.22*** (0.02)	0.27*** (0.02)
Difference (δ_p)	0.09* (0.05)	0.03 (0.04)	0.004 (0.06)	-0.02 (0.09)
Excluding Central America and Mexico				
Fluency-Non-Refugees (β_p)	0.24*** (0.03)	0.32*** (0.04)	0.38*** (0.06)	0.46*** (0.7)
Fluency-Refugees ($\beta_p + \delta_p$)	0.21*** (0.02)	0.19*** (0.02)	0.21*** (0.02)	0.24*** (0.02)
Difference (δ_p)	-0.03 (0.05)	-0.13*** (0.05)	-0.17** (0.07)	-022** (0.09)
Refugee-Sending Regions				
Fluency-Non-Refugees (β_p)	0.24*** (0.03)	0.23*** (0.03)	0.27*** (0.03)	0.34*** (0.03)
Fluency-Refugees ($\beta_p + \delta_p$)	0.20*** (0.02)	0.17*** (0.02)	0.21*** (0.02)	0.25*** (0.02)
Difference (δ_p)	-0.04 (0.03)	-0.06 (0.03)	-0.06* (0.03)	-0.09** (0.03)

Notes: "Non-refugees" and "Refugees" represent regression estimates of the return to fluency when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to fluency for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee).

Refugee-sending regions include Eastern Europe, South East Asia, and the Middle East, South America, and the Caribbean, and Africa. Regression controls include age, education, race, Hispanic status, whether attending school, network measure and state. All regressions include country-of-origin fixed effects unless otherwise specified. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

Table 3: Regressions on Log Hourly Wages

Years Since Migration	0-1	2-6	7-12	13-20
Restricting Sample to Those With At Least Associate Degree- Refugee-Sending Regions				
Fluency-Non-Refugees (β_p)	0.33*** (0.03)	0.40*** (0.03)	0.45*** (0.02)	0.48*** (0.02)
Fluency-Refugees ($\beta_p + \delta_p$)	0.12*** (0.03)	0.27*** (0.02)	0.26*** (0.02)	0.35*** (0.02)
Difference (δ_p)	-0.17*** (0.053)	-0.17*** (0.03)	-0.13*** (0.04)	-0.09** (0.05)
Controlling for Occupation				
Fluency-Non-Refugees (β_p)	0.12*** (0.02)	0.13*** (0.01)	0.15*** (0.01)	0.20*** (0.02)
Fluency-Refugees ($\beta_p + \delta_p$)	0.13*** (0.02)	0.12*** (0.01)	0.12*** (0.01)	0.13*** (0.01)
Difference (δ_p)	0.01 (0.03)	-0.01 (0.02)	-0.03*** (0.02)	-0.07*** (0.02)

Notes: "Non-refugees" and "Refugees" represent regression estimates of the return to fluency when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to fluency for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee). Regression controls include age, education, race, Hispanic status, whether attending school, native wage measure, network measure and state. All regressions include country-of-origin fixed effects. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

Table 4: Regressions on Log Hourly Wages				
Years Since Migration	0-1	2-6	7-12	13-20
Eastern Europe- Fixed- Effects				
Fluency-Non-Refugees (β_p)	0.31*** (0.04)	0.32*** (0.08)	0.33*** (0.05)	0.38*** (0.05)
Fluency-Refugees ($\beta_p + \delta_p$)	0.27*** (0.04)	0.23*** (0.08)	0.26*** (0.07)	0.27*** (0.08)
Difference (δ_p)	-0.04 (0.06)	-0.09 (0.09)	-0.08*** (0.09)	-0.11 (0.06)
South America and Caribbean- Country-Fixed Effects				
Fluency-Non-Refugees (β_p)	0.27*** (0.05)	0.20*** (0.04)	0.20*** (0.03)	0.25*** (0.03)
Fluency-Refugees ($\beta_p + \delta_p$)	0.17*** (0.01)	0.18*** (0.01)	0.20*** (0.01)	0.22*** (0.01)
Difference (δ_p)	-0.10* (0.05)	-0.02 (0.04)	-0.001 (0.02)	-0.03 (0.03)
Asia- Country Fixed Effects				
Fluency-Non-Refugees (β_p)	0.25*** (0.04)	0.26*** (0.03)	0.34*** (0.03)	0.44*** (0.04)
Fluency-Refugees ($\beta_p + \delta_p$)	0.18*** (0.03)	0.11** (0.03)	0.17*** (0.04)	0.21*** (0.02)
Difference (δ_p)	-0.07 (0.05)	-0.15*** (0.04)	-0.17*** (0.03)	-0.23 *** (0.05)
Africa-Country-Fixed Effects				
Fluency-Non-Refugees (β_p)	0.05 (0.04)	0.14*** (0.03)	0.26*** (0.05)	0.39*** (0.05)
Fluency-Refugees ($\beta_p + \delta_p$)	0.14 (0.11)	0.10** (0.04)	0.11 (0.1)	0.27*** (0.06)
Difference (δ_p)	0.08 (0.12)	-0.04 (0.06)	-0.15 (0.12)	-0.11 (0.08)

Notes: "Non-refugees" and "Refugees" represent regression estimates of the return to fluency when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to fluency for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee). Regression controls include age, education, race, Hispanic status, whether attending school, native wage measure, network measure and state. All regressions include country-of-origin fixed effects. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

FIGURE 1. HYPOTHESES ON EVOLUTION OF FLUENCY RETURNS FOR REFUGEES & NON-REFUGEES

Period	Arrival	Adjustment	Transition	Integration
Years	0-1	2-6	7-11	13-20
				
Key institutional features	• Non-refugees self-select into migration and fluency • English-speakers non-refugees have the most ability to take advantage	• Refugees can legally job-shop; expected to be more useful for English speakers • Non-refugees cannot do so easily	• Non-refugees get more legal rights • Job-shopping advantage expires • More refugees become fluent, esp. those w/ more unobservable skills	• Unsuccessful non-refugees can return-migrate, but refugees will not
Implications for fluency premium	Relatively large initial premium for non-refugees •Smaller for refugees	Expect premium for refugees to grow faster than non-refugees' (if job-shopping is important)	Expect premiums to grow for both groups, but for different reasons	Expect premium to grow faster among non-refugees

FIGURE 2. SHARE OF REFUGEES DISTRIBUTION EXCLUDING COHORTS WITH ZERO REFUGEES

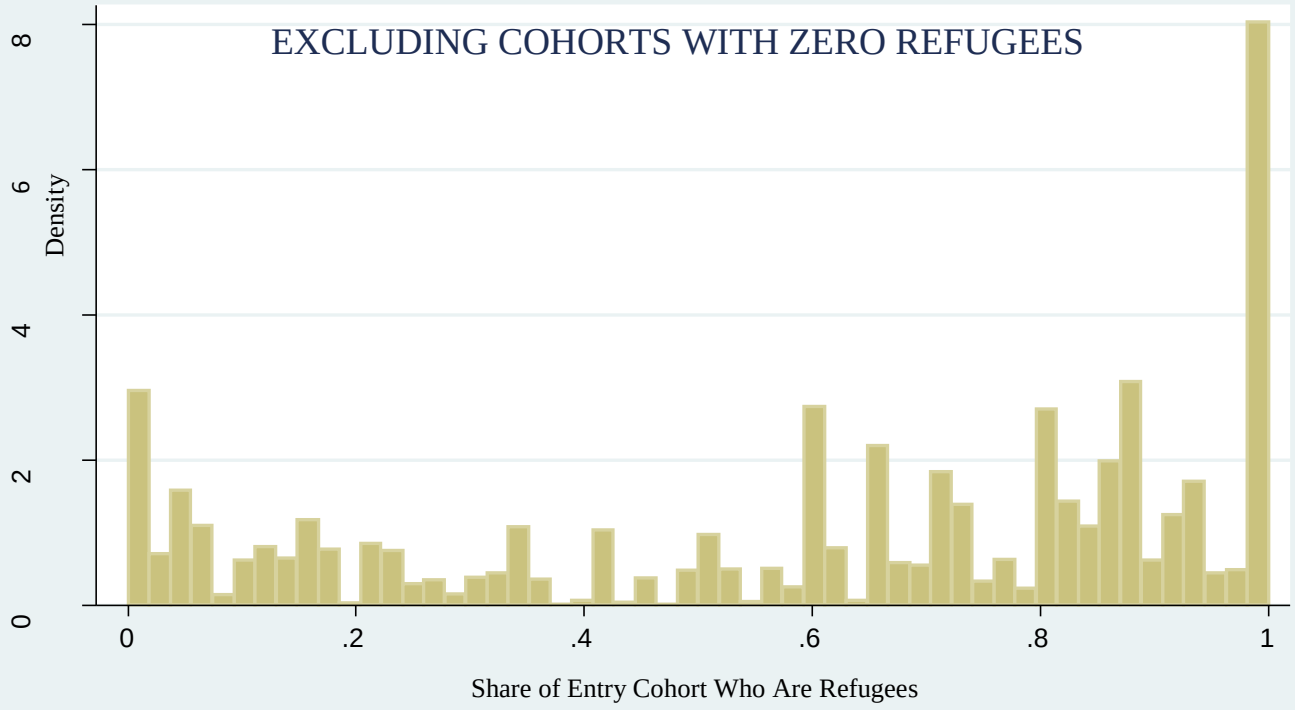


FIGURE 3. FLUENCY PROFILES FOR THE POOLED SAMPLE

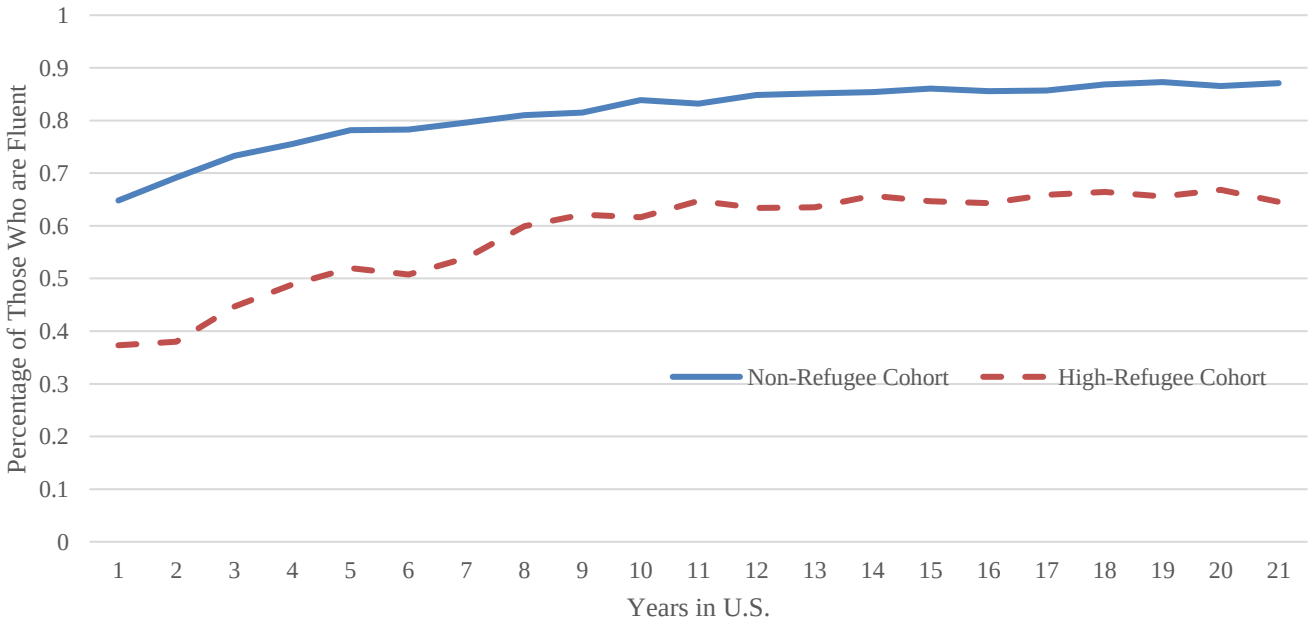


FIGURE 4. EDUCATION PROFILES FOR THE POOLED SAMPLE

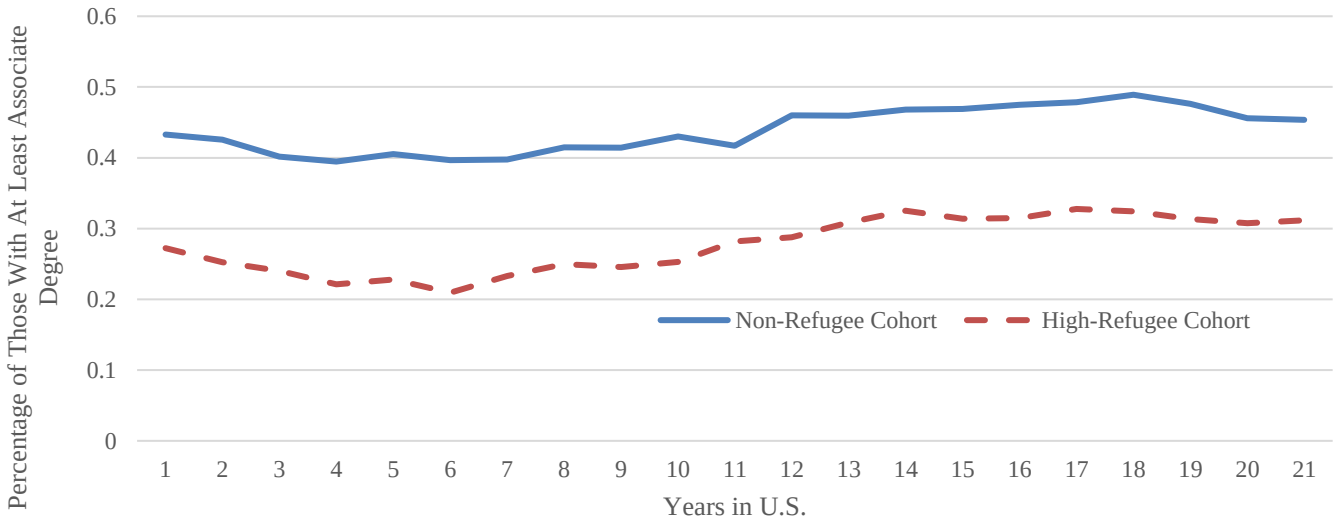


FIGURE 5. EDUCATION PROFILES OF THOSE FLUENT FOR THE POOLED SAMPLE

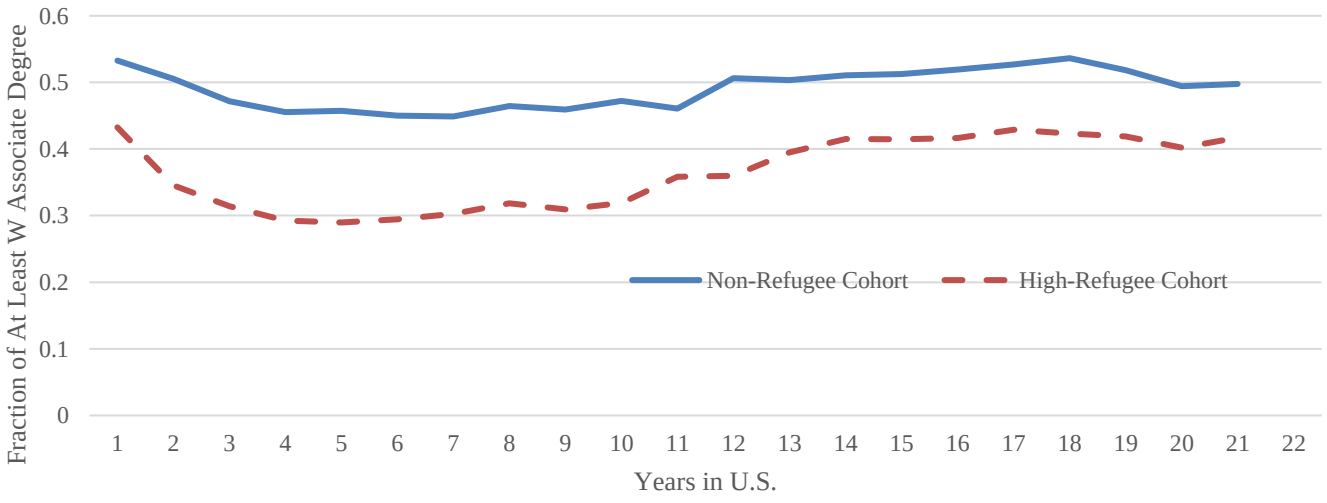


FIGURE 6. SCHOOL ATTENDANCE PROFILES FOR THE POOLED SAMPLE

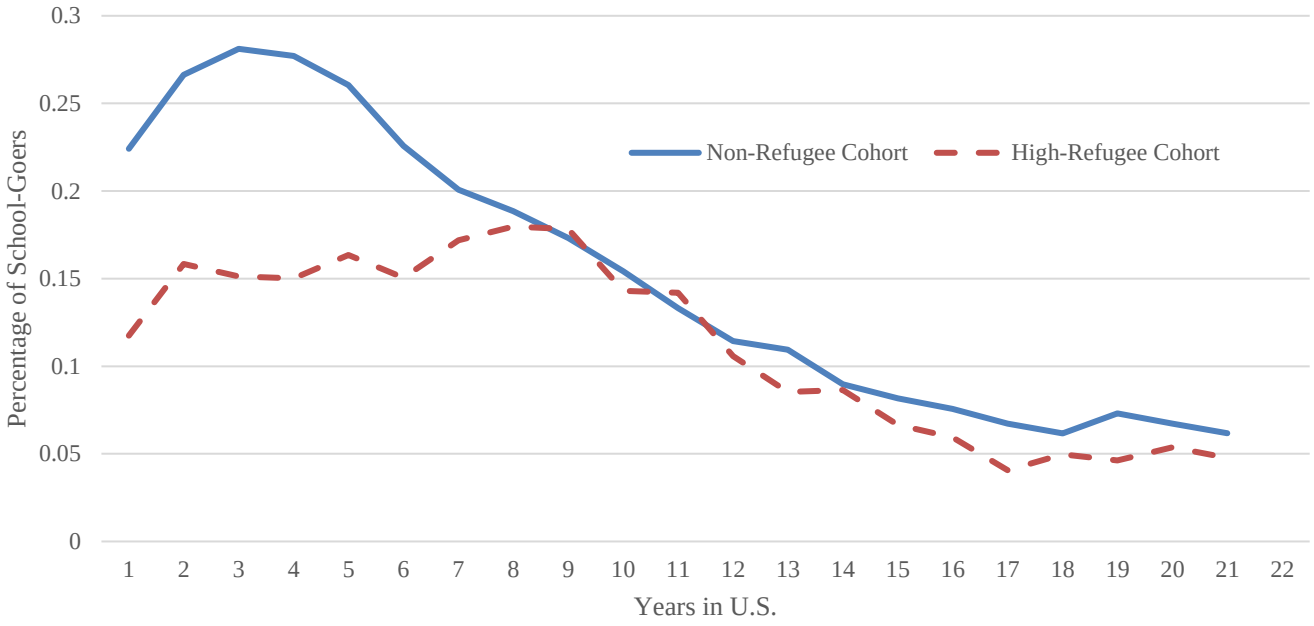


FIGURE 7. CITIZENSHIP STATUS PROFILES FOR THE POOLED SAMPLE

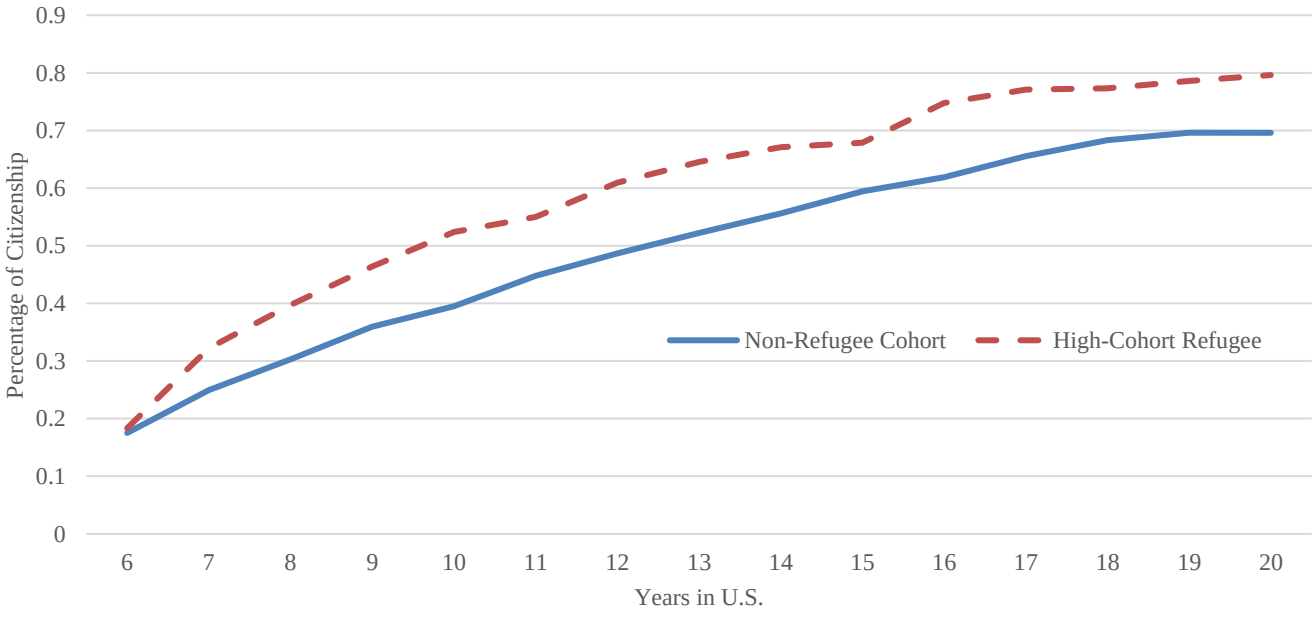


FIGURE 8. FULL SAMPLE- OLS

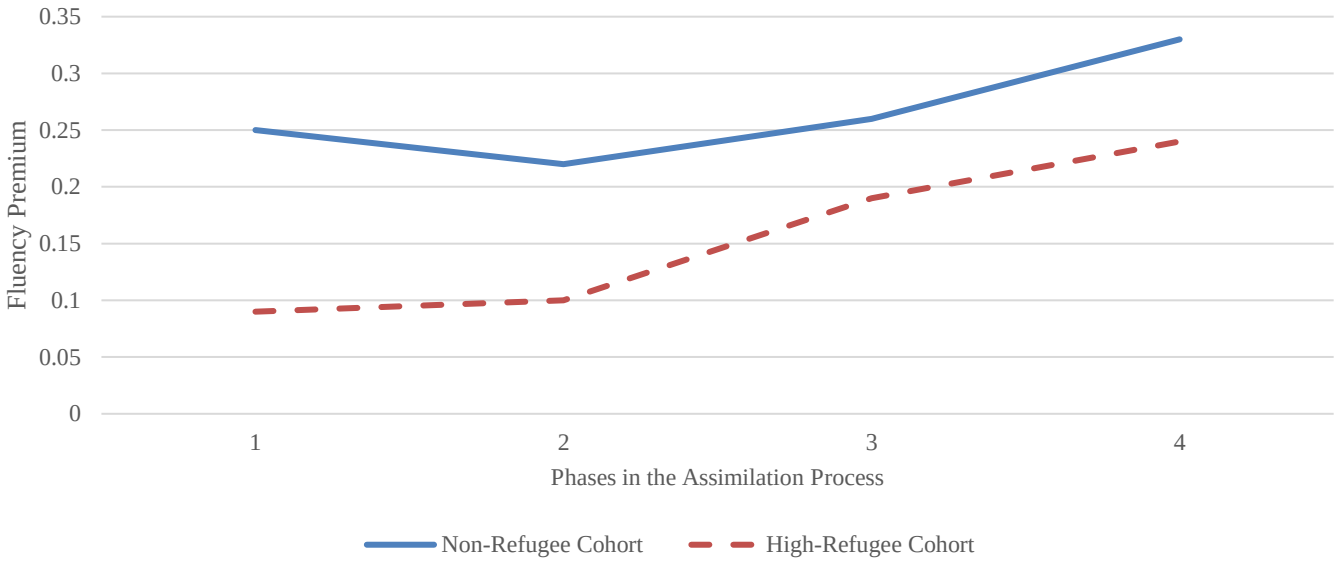


FIGURE 9. FULL SAMPLE- FIXED EFFECTS

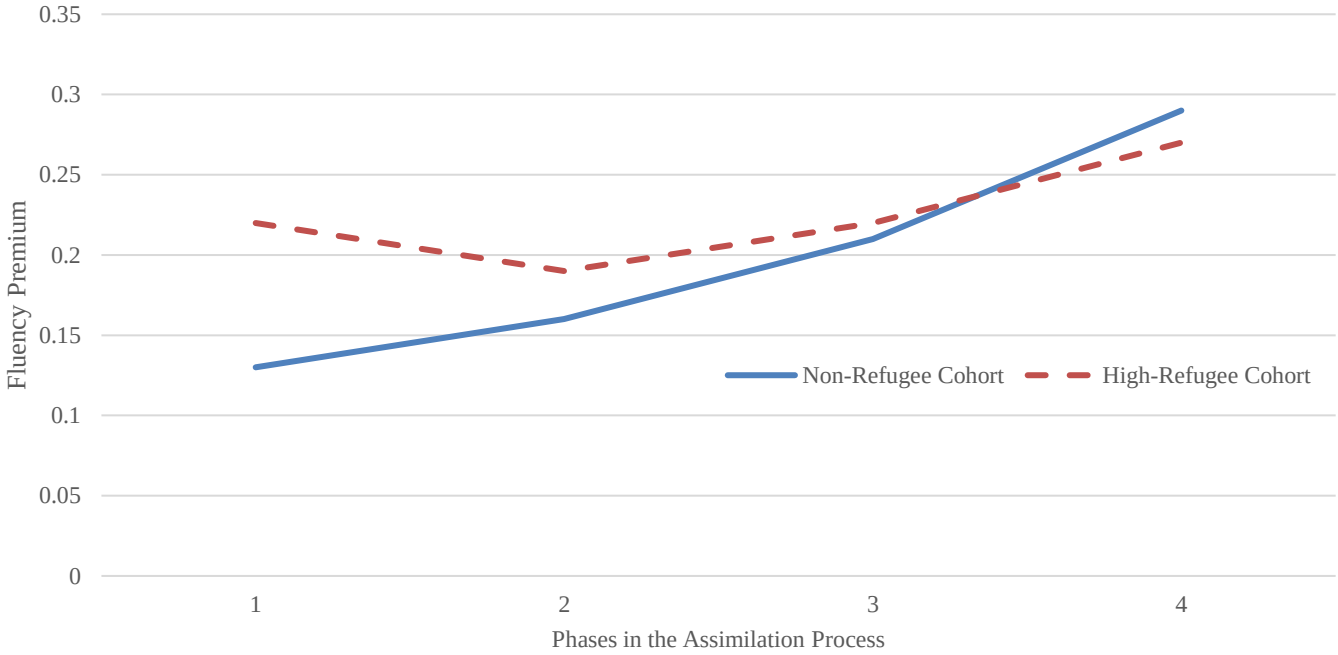


FIGURE 10. FULL SAMPLE FIXED EFFECTS BUT EXCLUDING CENTRAL AMERICA AND MEXICO

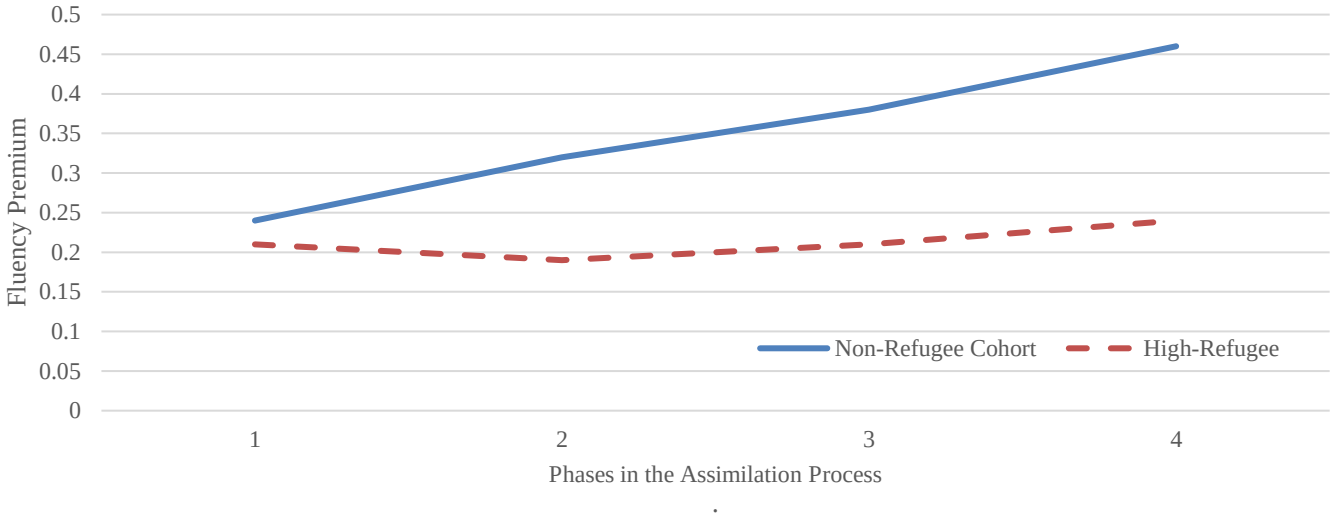


FIGURE 11. FIXED EFFECTS- REFUGEE SENDING REGIONS

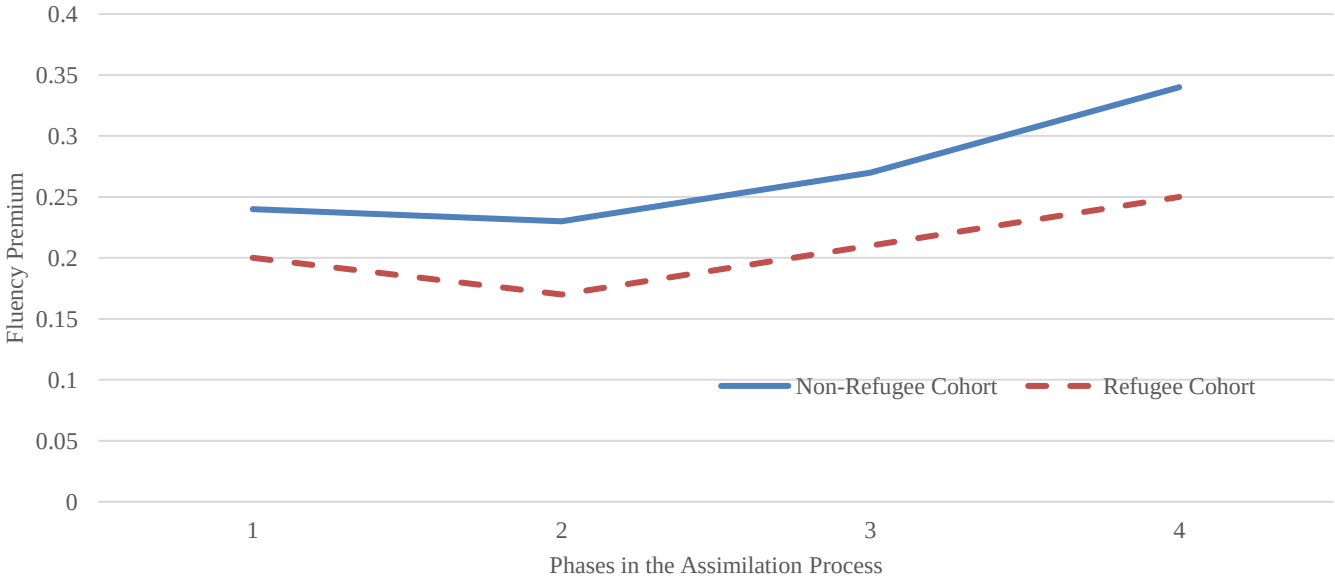


FIGURE 12. ONLY THOSE WITH ASSOCIATE DEGREE OR HIGHER

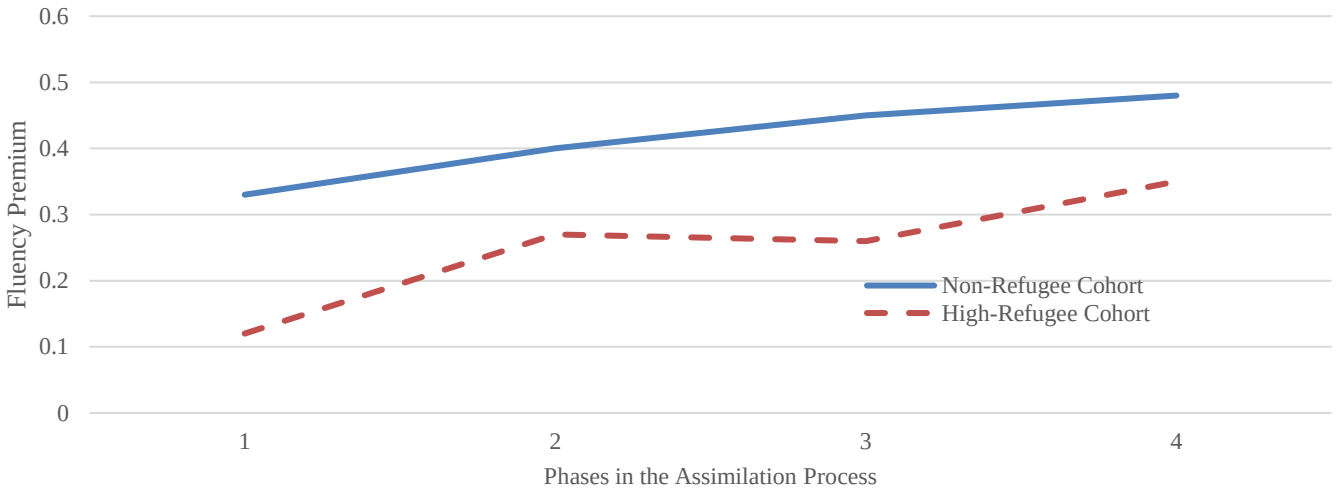


FIGURE 13. CONTROLLING FOR OCCUPATION

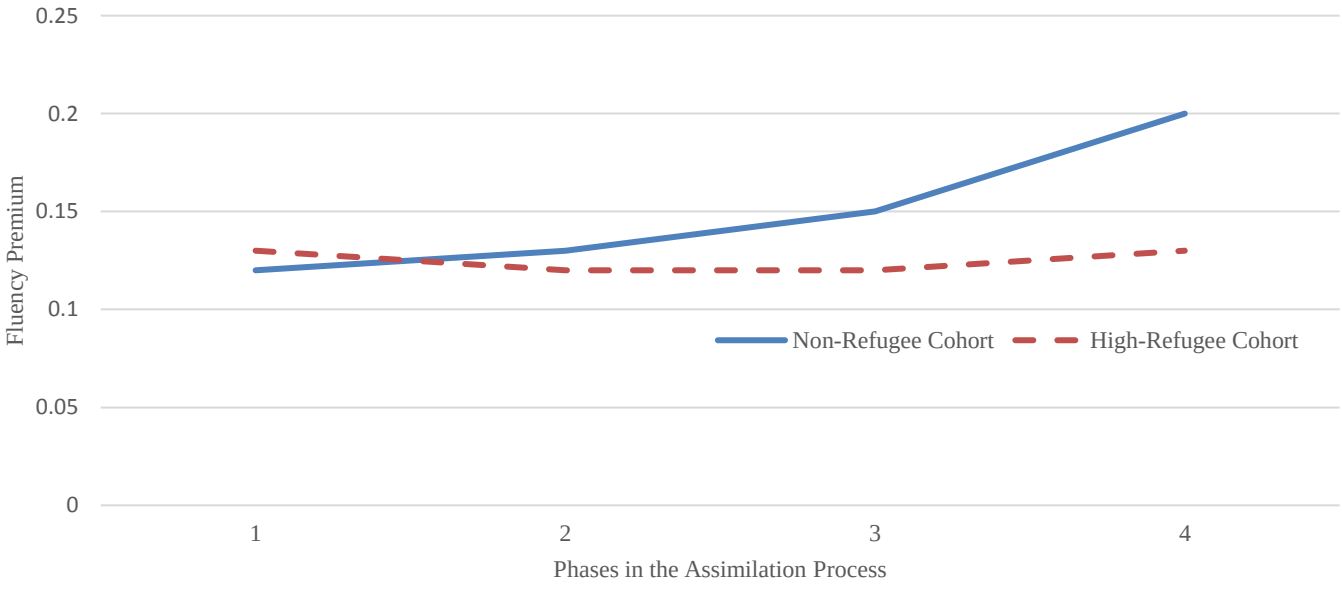


FIGURE 14. DIFFERENCE IN FLUENCY PREMIUMS BETWEEN THE TWO GROUPS STRATIFIED BY REGIONS OF THE WORLD AND YEARS SINCE ARRIVAL

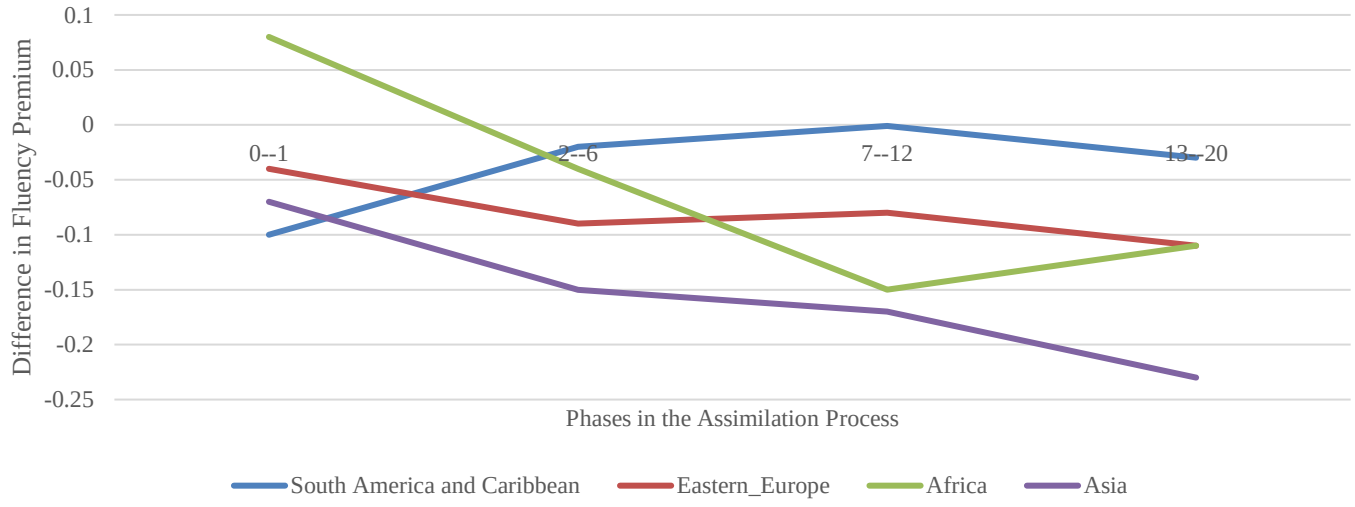
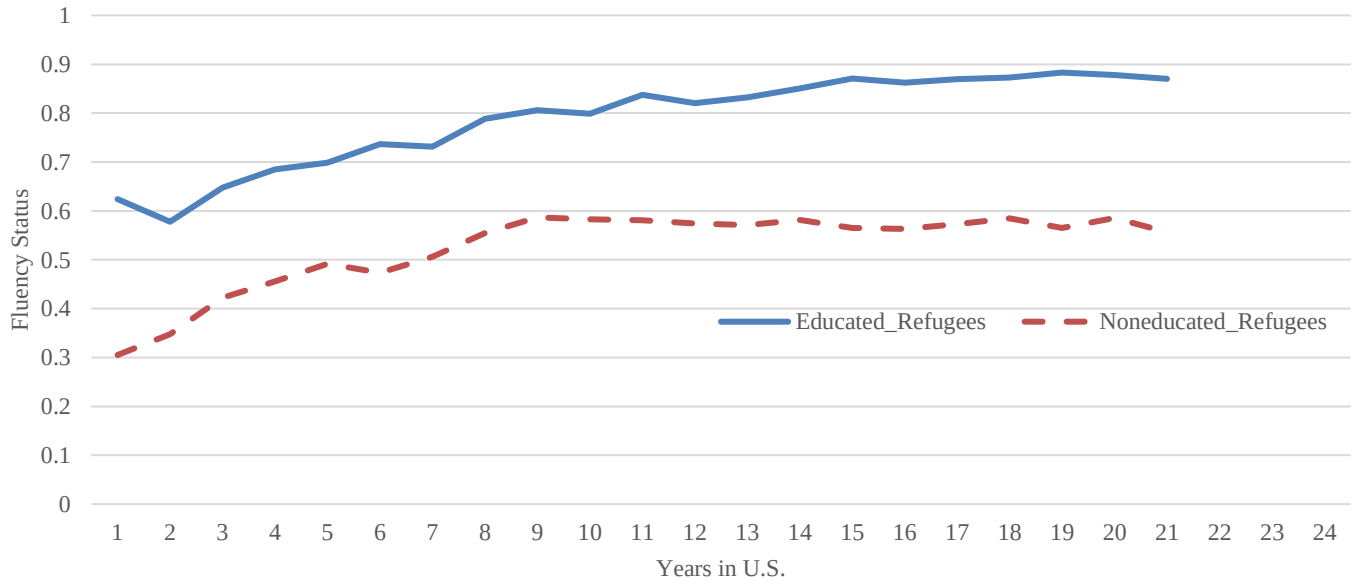


FIGURE 15. FLUENCY PROFILES BY EDUCATION STATUS FOR HIGH REFUGEE COHORT SAMPLE



Heterogenous Returns to Schooling for Refugee and Other Adult Immigrants in U.S.

Abstract: Schooling is a human capital skill that influences both the migration decisions of immigrants (especially for non-refugees), and the rate at which immigrants assimilate in the host country. Returns to schooling could be correlated with difficult-to-observe factors such as self-selection, and legal status, and these unobservables can affect the economic assimilation of immigrants into the host country differently. The objective of this paper is to investigate the returns to schooling for refugees and other immigrants. Refugees- a subset of immigrants- have different characteristics and also face different constraints than other immigrants, and this could affect the evolution of their schooling returns in the destination country.

Estimates show that non-refugees receive a much larger crude wage return for schooling both at arrival, and over time. Although educated refugees presumably have greater ability to take advantage of refugees' greater flexibility in seeking more suitable employment matches during the adjustment period, they do not see higher return growth than non-refugees. The two groups' returns grow over time, but refugees do not catch up with non-refugees. This suggests that schooling is more strongly correlated with unobserved skills among non-refugees So, it appears that selection into migration, and return-migration are more important factors than the advantage in terms of job search.

1 Introduction

The theory of economic assimilation describes the phenomenon that human capital is a key factor in the assimilation process of immigrants, because of its strong impact on both employment and wages. The research that studies the effect of schooling on immigrants' wages shows that schooling is important for their economic assimilation in the U.S. However, when the return to foreign education is compared to the education acquired in the U.S., immigrants receive lower rates of return to education than natives do (Chiswick (1978). While investigating the importance of home country education on earnings of refugees in the U.S., Siraj (2007) finds that Eastern European refugees were likely to earn between 4.7 and 6.5 percent more per hour for average year of schooling than other refugee groups.

Most of this work, however, has not explored whether the wage returns to schooling could differ between refugees and non-refugees. This distinction is important because the refugees' selection process into migration is different, and they also enjoy different rights than other immigrants after they come to the host country. There are a few reasons why the measured return to schooling might differ between refugees and other immigrants both at arrival and over time.

First, the estimated return to schooling may simply reflect a strong correlation between schooling and other unobservable factors that employers value, such as ability or motivation. However, such a correlation is, however, weaker among refugees than among other immigrants (Chiswick 2000) since economic reasoning is not a primary motive for refugees. If this accounts for an important portion of the initial difference between the groups' schooling returns, the gap would likely decrease over time if the more capable or ambitious refugees acquire more schooling, or are able to transfer their human capital skills after arrival.

Second, some economic immigrants only migrate after having a job offer which is presumably more common among those with highly transferrable education. But the difference between the groups' schooling returns may diminish in the years after immigration if the refugees who have relatively higher transferrable skills utilize the fewer legal restrictions they face upon arrival and become more successful in climbing the job ladder. However, the convergence rate for the refugees may slow over time, first as the acquisition of schooling expands into the less capable individuals among refugees, and especially as the non-refugee immigrants gain legal opportunities to seek new jobs.

In investigating the effect of language fluency on hourly wages of refugees and other immigrants, Shaeye (2016) finds that refugees receive smaller premium than non-refugees both at arrival and over time. Finding similar pattern for schooling returns would confirm that there must be some permanent unobservable difference between refugees and non-refugees that is correlated with human capital skills within the groups, possibly caused by differences in the processes by which the groups were originally selected into immigration. The results could have implications for the effectiveness of the refugee resettlement polices that are currently in place. For example, considering an immigration policy that implements post-arrival education programs targeted at refugees might be helpful.

Using data from the Census and ACS, and classifying immigrants as refugees if they belong to an immigration cohort that contained a large share of refugees (according to administrative data from governmental agencies), my empirical strategy involves examining the difference between refugee and non-refugee adults' crude schooling returns, and how that gap changes over time. Whether refugees or not, immigrants who arrive when they are young do not face constraints like the adults do, and thus would not receive different returns to schooling. The empirical results for

those who immigrated before they were ten years old support this prediction, and shows that their schooling returns are very similar. So, in this paper, I restrict the analysis to only those who arrived after the compulsory school attendance age.

Unlike most studies, my goal is not to get rid of the bias that is correlated with the schooling returns. Causal returns to education actually could differ systematically across adults who were educated in different countries (e.g. If the same amount of schooling produces different amounts of human capital), but I don't have a reason to believe that those differences between countries change in the years after immigration. So, by keeping the bias I am still able to identify factors that encourage economic assimilation by examining changes in the return to education. For example, the bias could be due to differences in the correlation between schooling and unobservable skills between the two groups, differences in the how well refugees and other immigrants are matched to jobs suitable for their skills, or differences in how the groups were selected into migration in the first place or into return migration. Furthermore, there are institutional reasons and group characteristics which suggest that those factors will change differently over time for refugees and non-refugees on a known timeframe, we can conjecture the size of their effects by examining the dynamics of the difference between refugees' and non-refugees' crude schooling returns. For example, we know that there is a period of about six years after immigration in which refugees have more legal rights than most other immigrants to search for better jobs, and assuming that those rights are more beneficial to those with higher levels of education, we would expect that the crude schooling return may increase by a larger amount for refugees during that period if job matching is an important barrier facing recently-arrived refugees. Also, if the difference remains large after a very long time, we could then conclude that permanent unobservable difference between the groups that is correlated with schooling within

the groups is the one that is more relevant, possibly caused by differences in the processes by which the groups were originally selected into immigration.

Using the 2000 U.S. Census and subsequent cycles of the American Community Survey (ACS) data, in conjunction with data from U.S. immigrant agencies, I construct synthetic cohorts of immigrants to compute the share of immigrants from a particular country who were refugees in each year. Given the variation in the refugee share, we can estimate the returns to schooling among refugees in specifications that also include country-of-origin fixed effects

Results show that refugees receive a lower return for schooling at arrival. Refugees' return, however, sees growth over time as the more capable individuals among the refugees acquire more education, but the gap in the returns does not completely disappear. The fact that the gap lasts over the long run suggests that the groups are fundamentally different. So, differences in selection mechanisms, and better matches are determinants of the initial difference in returns, as well as its evolution.

The rest of the paper is organized as follows. Section two discusses background and some related literature. Section three then presents a conceptual model, and section four describes the data and methodology. Section five presents and discusses the empirical results, and the last section concludes.

2 Background and Literature Review

In general schooling is considered an important factor and a key determinant of individual earnings in the labor market for immigrants, whether it was acquired in the immigrant's home country or even in the host country. Most studies on the return to schooling for immigrants- which focuses on how it compares to that of native born- find that immigrants experience much

lower return to the same levels of education than do natives, and that where the immigrant's education is acquired matters. For example, based on the 1970 Census, Chiswick's (1978) finds the partial effect of a year of schooling on earnings for the native born was 7.2 percent, and that it was 5.7 percent for immigrants. This is usually due to the limited transferability of the education acquired abroad. However, immigrants from developed countries receive higher returns to human capital acquired in the host countries after their arrival compared to migrants from less developed countries. This could be either because home and host country are more similar in terms of cultural, institutional, and technological aspects of their economies so that skills are easily transferable, or because more developed countries of origin simply have higher quality education systems.

In the refugee context, Siraj (2007), who investigates the importance of home country education on earnings of Eastern European refugees in the U.S., finds that the return of a year of schooling on their hourly wages is 6 percent.

Although previous work on immigrant and native earnings has allowed the return to schooling to differ for immigrants and natives, it does not distinguish between returns of schooling for refugees and other immigrants. To my knowledge there are no studies that investigate the difference in schooling returns between refugees and non-refugees.

Refugees and asylee immigrants are individuals who leave their home country for fear of persecution. Refugees are different from asylees in that their asylum status is determined while outside of the U.S. Asylees, on the other hand, travel by their own means to the United States and then apply for refugee status upon entering the country. Unlike refugees and asylees who are leave their home countries for political reasons, most non-refugee immigrants do come to the United States mainly for economic reasons. So, refugees are expected to be more motivated by

the push factor of persecution in the sending country and less motivated by economic gains in the host country.

After immigration, refugees are able to shop for jobs thanks to the legal rights they enjoy, but that is not the case for non-refugees. The visas that non-refugees qualify for are usually valid for a single employer, so it takes a while for them to adjust those visas to permanent residence ones, whereas refugees do not have such restrictions even at arrival. But this changes after about six years of non-refugees' arrival, and they eventually obtain similar rights for better job mobility, such as when they get a green card or citizenship, and at that point both groups have similar opportunities to job-shop. So, if this is an important factor for immigrants' labor market outcomes, then refugees would have a larger advantage during this period especially among those whose education can easily be transferrable.

Shaeye (2016) who investigates the difference in English fluency premium between refugees and non-refugees find that non-refugees initially earn a larger premium for English fluency, and although the refugees' premium grows over time, it does not catch up with the premium of non-refugees. In a similar fashion, I investigate in this paper the potential differential returns to schooling between refugees and non-refugees. Both fluency and schooling constitute human capital investments, and schooling is one of the important determinants of the migration decision for immigrants a well as an indicator for economic assimilation, especially for non-refugees. Like fluency, education could be correlated with unobservable skills of the immigrants that could bias the return to schooling for different groups of immigrants. It could represent a statistical signal to employers, and could even reflect an omitted variable bias.

In other words, the measured return to schooling might differ between refugees and other immigrants both at arrival and over time and could reflect different sources of bias. Such biases

mostly likely account for the variation in estimated schooling return across different groups of immigrants over time, since this difference may not be related to the initial difference in true productivity of schooling. For example, non-refugees are more likely to have invested in education that are easily transferable to the host country to ensure maximum returns to their education, whereas refugees do not have such education (Chiswick 1979). Non-Refugees are also more likely to have arrived with jobs that are a close match to their qualifications. Most non-refugees, however, face some legal barriers when they wish to change jobs, but from the moment they arrive in the U.S. refugees enjoy much greater legal rights in the labor market, similar to those of green card holders.

3 Empirical Model and Theoretical Considerations

In this section, I adopt a similar theory of the one outlined in Shaeye (2016) which discusses the hypotheses for the dynamics observed for the English fluency premium: In this model, the schooling returns differs between refugees and non-refugees upon immigration for reasons such as skill transferability, and self-selection. First, refugees are not as successful as other immigrants to transfer their schooling because they are less likely to come with jobs in the first place (Akresh 2008), and they are asked to take lower paying jobs below their previous occupational status in their country of origin (Potocky-Tripodi 2003). For example, refugees with relatively higher transferable schooling might not be able to find jobs that match their skills. Second, it is also likely that there is a difference in the bias component of the crude schooling return that reflects the correlation between schooling and the unobserved skills for the two groups. Since refugees' decisions to migrate were not primarily motivated by economic reasons, those with higher levels of unobserved skills have not necessarily moved to a new country where those skills can best be accommodated. On the other hand, non-refugees may have a wider range

of options in choosing a destination than do refugees, and thus are more likely to move to a country where they expect their human capital skills to be highly rewarding.

Let us formalize the relationship between wages and schooling as follows:

$$\omega_{ijt} = \alpha_t + \beta X_{ijt} + \delta S_{it} + U_{ijt}, \qquad (1)$$

where ω is the log wage, S is a measure for schooling, X is other relevant covariates, i stands for individuals, j stands for jobs and t represents time. The residual term can be further decomposed as

$$U_{ijt} = a_i + b_{ij} + e_{ijt} \qquad (2)$$

Here, a_i is the ability of the individual, which is relevant to employers but is unobserved by the econometrician; b_{ij} is a measure of the quality of the specific match between worker i and job j (also unobservable to the econometrician), and e_{ijt} is the residual term, which is assumed to be uncorrelated with both a and b. I am interested in the difference between the true δ and its estimated value δ^{hat} because it reflects unobserved factors that may help immigrants earn higher wages with the same level of schooling. Under this model, the estimated crude schooling return δ^{hat} converges to the sum of three components: (a) the true causal effect of schooling (δ), and biases associated with the correlations between schooling and (b) ability and (c) job match quality:

$$\delta^{hat} \rightarrow \delta + \mathrm{Cov}(S, a_i)/\mathrm{Var}(S) + \mathrm{Cov}(S, b_i)/\mathrm{Var}(S) \qquad \textbf{(3)}$$

The covariance between schooling and ability (Cov (S, a_i)) could possibly represent an actual return to schooling if the employer uses schooling as a signal about a_i, but otherwise if the employer observes a_i directly this component does not represent a causal effect of schooling on

wages. It probably does differ between the groups because of economic immigrants' self-selection into migration. For example, those who do not have educational skills that are easily transferable in the U.S. but do have high ability are probably better off either staying in their homeland or else moving to somewhere else. That might not be an option for refugees, who are more likely to be less selected than non-refugees.

The covariance between schooling and the job match parameter (Cov (S, b)) could probably represent a return to schooling insofar as those skills help one search for a job that is a better match, but the job match quality could vary for other reasons. It can also differ between the groups for two reasons. First, some economic immigrants only migrate after having a job offer, and that is presumably more common among those with easily transferrable schooling. Second, over time refugees may have a better opportunity to increase b due to having more legal rights to shop for jobs.

Empirical estimates of equation (1) could be interpreted most cleanly if we posit that the true return to schooling is the same across all immigrants. This does not mean that the realized returns are actually identical, just that they would have been identical if different types of immigrants who have the same levels of education would have been selected via the same processes and if they had been equally well-matched to jobs. However, even if that were not the case, the identification strategy would still be appropriate as long as the difference between the true returns of refugees and other immigrants were constant during their years in the U.S. Such a situation could arise, for example, if the refugees had systematically acquired less human capital than economic immigrants who have the same number of years of schooling.

Let us next look at the evolution of the crude schooling return δ over time

$$\widehat{\frac{\partial\delta}{\partial t}} \quad \rightarrow \quad \frac{\partial\delta}{\partial t} + \frac{\partial}{\partial t}\frac{Cov(S,a)}{Var(S)} + \frac{\partial}{\partial t}\frac{Cov(S,b)}{Var(S)} \qquad (4)$$

$\frac{\partial\delta}{\partial t}$ is probably similar for groups, and should converge to zero in the long run. The suggested hypotheses are characterized by $\frac{\partial}{\partial t}\frac{Cov(S,a)}{Var(S)}$ and $\frac{\partial}{\partial t}\frac{Cov(S,b)}{Var(S)}$.

1) $\frac{\partial}{\partial t}\frac{Cov(S,b)}{Var(S)}$

This trend is presumably much larger factor for refugees at first because they have greater legal right to move between jobs (and they may also be more poorly matched to begin with, even conditional on schooling). However, a similar trend should eventually appear for economic migrants too as they acquire the permanent rights to search (e.g., via a green card).

2) $\frac{\partial}{\partial t}\frac{Cov(S,a)}{Var(S)}$

It is possible that this trend is likely to be higher for the refugees ($\frac{\partial}{\partial t}\frac{Cov(S,a)}{Var(S)} > 0$), at least over the first few years after arrival, if the higher ability refugees are able to transfer their skills faster by complementing with U.S. schooling (Duleep and Regets 1999, Cortes 2004). This seems likely due to both their greater ability and their stronger incentive (assuming these skills are complementary to ability in the labor market). But this trend could also be higher for non-refugees later in the assimilation process due to return-migration if those who go back to their homelands are both less educated and less successful, especially that very few refugees become return-migrants (Cortes 2004).

Figure 1 Insert Here

4 Data

We perform this analysis using pooled individual level data of immigrants on the 2000 U.S. Census of Population, and American Community Survey (ACS) that spans the years 2001 to 2015. The analysis follows year-of-arrival immigrant cohorts who came to the U.S. between 1993 and 2015. I restrict the analysis on male immigrants who are above 18 and below 66 years of age, immigrated after the age of 17, are in the labor force, work for wages or salary income, are non-farmer workers, and are living outside group quarters.

After running an initial regression that contains all regions of the world for robustness test, I exclude from the remaining analysis those immigrants who come from regions that send a lot of undocumented immigrants, particularly Mexico and Central America, as well immigrants from broad geographic regions that send very few refugees to the U.S., including Northern Europe, Australia, and East Asia. In other words, I restrict the sample to only immigrants from regions where most of the refugee come from (namely Eastern Europe, Southeast Asia, Middle East, South America, the Caribbean, and Africa)- called hereafter refugee-sending regions. This restriction actually makes surprisingly little difference in practice, but I impose it anyhow because it seems to create the most comparable control group for the refuges. However, at one point later on I will briefly reincorporate the immigrants from Central America and Mexico in order to assess the value of having legal status on the growth of the schooling return. This change will be made clear at the time.

The legal definition of an immigrant is “a person lawfully admitted for permanent residence in the United States.” (INS Annual Report: Legal Immigration, 2000). Throughout this paper,

however, I use the Census definition of immigrants as individuals who were born outside of U.S. with no citizenship at birth, which includes both refugees and non-refugees. Non-refugees include those on student, work, or other temporary visas; persons living in the country without authorization; legal immigrants; and naturalized citizens.

The U.S. Census and the subsequent cycles of the American Community Survey data allows me to simulate a panel since they have large number of observations that we can follow immigrants for a long time.

4.1 Assignment of Refugee Status

Large data sets like the Census report individuals' birthplaces and citizenship, so it is possible to identify immigrants, but they do not report the circumstances under which the individuals immigrated. So, a panel data on wages and schooling for individuals who are clearly identified as refugees, or non-refugees would apparently be ideal, but unfortunately no such data is available.

Thus, most of the literature assigns refugee status based on immigrants' countries of origin (e.g. Borjas, 2002). This strategy treats all immigrants from same country the same way, even if majority of those arrived in some years were not refugees. So, I replicate the process outlined in Shaeye (2016) to impute refugee status based on estimated probabilities that a given immigrant is a refugee. These probabilities are based on an immigrant's country of origin, and year of entry in the U.S. to identify refugees.

The method I use for attributing a refugee status is based on two characteristics: individuals' country of birth and their year of arrival in the U.S. It involves determining how many people are likely to have migrated to the U.S. as refugees from some country in some year, which I estimate as the ratio of the actual number of refugees admitted to the U.S. from a given country in a given

year to the total number of people (whether on immigrant or non-immigrant visas) admitted from a that country in that year, as reported in the government's official administrative immigration records. I have explored an alternative identification strategy in which the denominator of the ratio is computed from the Census sample instead and the results are similar. Details of this strategy can be found in Shaeye (2016). After weighting the sample with both cohort size, and the sample weights, the number of male immigrants in the full sample who are expected to be refugees is 84, 381 (approximately 6% of the full sample), and it is 1,396,662 for non-refugees.

4.2 Summary and Data Characteristics

Table 1 shows descriptive statistics for some of the variables used in the analysis. For the purpose of describing the data, I report these summary statistics for two key subsamples: a high-refugee cohort sample, and a non-refugee cohort sample. I define entry cohorts as having a high percentage of refugees if at least 60% of that cohort are refugees (some might not be actually refugees), and a non-refugee cohort is defined as an entry cohort that includes no refugees whatsoever. Nearly all cohorts that include refugees have either very few of them (less than 10 percent or so) or a very high share of refugees, so these summary statistics are not very sensitive to how we set the threshold for inclusion into the high-refugee cohorts.

Insert Table 1 about Here

I then present some other demographic and human capital characteristics by immigrant status for immigrants who come from the refugee-sending regions. We divide the timeline of immigrant assimilation into four different phases based on data and institutional differences. Refugees enjoy more legal rights than other immigrants during the initial "adjustment" period (the first years after immigration), and this might potentially give them more opportunities to job-shop. During

the transition period (7-12 years after arrival), however, non-refugees acquire rights similar to the ones that refugees had before. During an "integration" period (13-20 years after arrival)- which is the assimilation period- there shouldn't be any difference between the groups in terms of legal status, or human capital investment, and this would allow them to have similar paths for economic assimilation.

When we look at the labor market outcomes of the groups, non-refugees have higher employment rate in general, as well as higher earnings. Consistent with the expectation that non-refugees are more likely to have a job ready upon arrival, non-refugees have higher employment rates than refugees at first. Refugee employment rates seems to catch up with one of non-refugees during the adjustment period. The two rates grow similarly afterwards, but refugees do not close the gap. In terms of earnings, non-refugees have higher annual and hourly earnings than refugees, and this continues throughout the period of study.

Figures[20] 2, 3, and 4 show level of fluency for those who are educated, level of education in general, and school attendance by years since arrival in the U.S. Although the level of education grows in parallel for all immigrants over time, non-refugees have higher education levels than refugees, and they maintain that through the period of study. But Figure 3 shows that although non-refugees who are fluent in English are more likely to have associate degree or higher than refugees, refugees see growth in acquiring schooling, and they almost close the gap especially during the integration period.

[20] The analysis is for those who come from refugee-sending regions (Eastern Europe, Southeast Asia and Middle East, South America, and the Caribbean), are between ages 18 and 65, have been in the U.S. between 0 and 20 years, were surveyed between 2000 and 2015 and came to the U.S. after the age of 17.

The correlation between fluency and education is similar for both groups both at arrival and during adjustment period. But the correlation between English and education then grows for refugees during the transition and integration period.

Figures 2 and 3 Insert Here

As reported in figure 2, non-refugees are more likely to attend school than refugees during the adjustment period. The attendance goes down for both groups during the transition period, especially more for non-refugees., and is quite similar for both of them after that.

Figure 4 Insert Here

Refugees are more likely than non-refugees to become naturalized citizens[21] within six years of arrival, and that advantage persists throughout the period of study. Educated non-refugees are more likely than non-educated non-refugees to become naturalized citizens, which could suggest that those who are unsuccessful among the non-refugees would more likely return-migrate.

5 Empirical Specification and Results

5.1 Empirical Model

The econometric model examines the relationship between schooling and wages of male refugees using the human capital earnings function. I use pooled country fixed effects (FE) regressions to estimate the relationship between schooling and wages for four different time periods: arrival (0-1 years), adjustment (2-6 years), transition (7-12) and integration (13-20 years). The individual's log wage (Log ω) is the dependent variable, schooling S is the main explanatory variable, and its return is allowed to vary with the percentage R of immigrants in an

[21] See Shaeye (2016) for pattern of citizenship for both groups over time.

entry cohort who are refugees. To avoid distinguishing between years of schooling within the high school dropout population, I code all dropouts as having 11 years of education. The return to education that I measure is thus the return to the last year of high school and beyond.[22]

The estimated wage equation is as follows:

$$Log\ \omega_{itpc} = \alpha_t + \alpha_{\mathrm{c}} + \alpha_{\mathrm{p}} + \gamma_p R_{c\mathrm{y}} + \beta_p S_{itpc} + \delta_p S_{itpc} R_{c\mathrm{y}} + \theta X_{itpc} + \varepsilon_{itpc} \quad (2)$$

Subscript i stands for individuals, t stands for the year in which earnings were reported, c stands for the country of origin, and y stands for year of immigration (because the refugee share varies by entry cohorts even within home-countries). Entry cohorts are thus defined by c and y. The final index, p, represents the four phases of the assimilation process: arrival (0-1 years after arrival), adjustment (2-6 years), transition (7-12 years), and integration (13+ years).

Vector X is a set of covariates including a measure of linguistic distance (as a proxy for enclave effects) and dummies for four age groups, English fluency, marital status, race, citizenship, age at arrival, state of residence, weeks worked last year, usual hours worked per week. Note that because I control for weeks and usual hours worked, the dependent variable in effect becomes the individual's log hourly wage; the only reason this cannot be computed directly is that weeks-worked are often reported in intervals. ε_{itpc} represents the error term.

To identify the schooling return, I use a difference-in-difference technique. β is the crude schooling return for a cohort with no refugees (R=0), and ($\beta + \delta$) is the analogous return for an all-refugee cohort (R=1). In other words, I am measuring the crude returns to schooling for

[22] Specifically, I define continuous variable for schooling as follows: 1st-11th grade 11; high school graduate 12; some college 13; associate degree 14; bachelor degree 16; masters' degree 18; professional degree 20; doctorate degree 22 years.

refugees and non-refugees by estimating how the crude return to schooling varies across cohorts with different concentrations of refugees, then extrapolating to a hypothetical cohort with R=1 or R=0. In many cases this is only a mild extrapolation, since most cohorts with R>0 have R approaching 1 anyhow. The tested hypothesis is that refugees have lower return to schooling upon arrival, but that their return grows over time, especially as compared to that of non-refugees. More interestingly, we want to know when the convergence occurs if any, and what that signifies about barriers to assimilation.

When estimating the return to immigrants' schooling, it is important to note that where schooling is acquired matters. Many immigrants complete their schooling in their countries of origin. Many others, however, immigrate at young ages and obtain virtually all their human capital after immigration. Another portion possesses a combination of both foreign and domestic education.

Unfortunately, the Census does not ask respondents where the schooling of the immigrants was acquired, so we divide the immigrants into two groups. The first group consists of immigrants who arrived in U.S. before turning age 17 and who therefore have obtained some, or all of their compulsory schooling in the U.S. The second group consists of immigrants who arrived in U.S. after the age of 16 and who therefore had the opportunity to complete their compulsory education before migrating to U.S. With this division of the data we can compare the returns to schooling between immigrants who were integrated into the U.S. school system at an early age and immigrants who acquired most of their schooling in their home country. So, to test our hypothesis, I restrict the sample to only those who were more likely acquired their education in the country of origin (i.e. those who arrived after the age of compulsory education). As predicted, the empirical results for those who immigrated before they were ten years old, and

thus received most of their education in the U.S. reveal that their schooling returns[23] are very similar regardless of their immigration status. So, in this paper, I restrict the analysis to only those who arrived after the compulsory school age.

5.2 Empirical Results

5.2.1 Initial Returns to Schooling

I first estimate the initial schooling return for both refugee and non-refugee adults at the arrival period and report the results in the first two lines of Table 2. After controlling for other forms of human capital and socioeconomic characteristics, I find that upon arrival non-refugee immigrants earn higher schooling returns on their hourly[24] wages than immigrants who arrived as refugees (0.03 versus 0.06) for an average year of schooling. This is in line with the findings of Shaeye (2015, 2016) for the English fluency premium, where refugees earn lower premium for fluency than economic immigrants at arrival.

Table 2 Insert Here

5.2.2 Dynamics of the Return to Schooling

I next examine how the return to schooling evolves over time. As the third and fourth columns of the first section in Table 2 show, results indicate that the schooling return grows during both the

[23] Refugees receive 0.092 versus 0.093 for non-refugees, and the difference is statistically insignificant.

[24] The estimates do not change substantially if we instead measure weekly wages using the "weeks worked last year" variable, even though this procedure most likely introduces additional measurement error. It is not clear whether workers' hourly wages or their weekly wages (using the "weeks worked last year" variable) are measured more accurately, but fortunately the estimates are substantially similar regardless of which measure is used

transition and integration periods for both groups, and the difference in the schooling returns is never eliminated, and the initial difference persists over time.

Differences in educational systems could still be an issue even if we consider only those who received their education outside of the U.S. (Akresh, 2007). Some of the non-refugee immigrants come from countries that have similar educational systems to the one of the U.S. Bratsberg and Terrell (2002) found important differences in the return to education by country of origin among US immigrants when studying the impact of source country schooling. But since the specification includes country fixed effects, it controls for differences in education systems.

The dynamics of the return and its growth for both groups are robust even when I control for immigrants' occupations. The estimated schooling return, which is reported in Table 2, falls if I control for occupation, However, those changes do not affect the pattern of the returns for the two groups. This is not surprising because the schooling return is most likely be mediated through occupation, and there could be a strong, positive relationship between earnings and the occupational schooling requirements. A similar pattern also emerges when I restrict the sample to only those who are fluent in English (see Table 2).

The magnitude of the schooling return is sensitive to definition of schooling (see Table 3) - as it should since there is a large difference between the education of the two groups - and it increases as we use more restrictive definition. But the difference between the two groups persist across all different levels of education levels (i.e. less than high school, college grads, bachelor degree or higher), and the pattern stays similar. However, the difference is greater for those with bachelors' degree or higher. This makes sense because those who have higher levels of education among refugees, but end up with jobs they are overqualified for will face the highest penalty.

Table 3 Insert Here

One possible concern (Borjas 1985) is that there may be separate effects of the number of years since arrival (the assimilation effect that we are interested in) and the year of arrival itself (a cohort effect that may represent variation in the level of skills with which immigrants arrive). To address this concern, I have estimated a variation on the model that includes interactions between the number of years since immigration variable and country of origin dummies.[25] For each country, the estimated effects at zero years since immigration serves as a control for initial skills. When I do this, the estimated crude schooling returns for both refugee and non-refugee immigrants remain very similar to what they were previously, so it appears the results are not driven by such cohort effects.

Table 4 reports separate estimates for several broad geographic regions of the world. Most results are similar to those from the full sample, suggesting that the results are not driven by the fact that it is much more common for refugees to come from some regions than others.

Table 4 Insert Here

5.3 Discussion of Results

The different hypotheses we have discussed above predict different dynamics in the groups' schooling returns, but it is not clear which one is more dominant. For example, selection on both who migrates and on who invests in easily transferrable skills predicts that non-refugees would receive higher returns to schooling shortly after arriving in the host country. But refugees' returns should grow if the more capable among them invest in new human capital skills, or

[25] Note that the country-specific growth rates are linear trends, so they are not collinear with the phases of immigration dummies that we are interested in.

complement their pre-immigration schooling with U.S. country specific skills, especially if prior education is correlated with unobserved ability.

Furthermore, if selection on who can job-shop is important, then refugees' schooling returns should grow during the first few years after arrival. But that will not continue for a long time, especially after non-refugees acquire similar rights to the ones refugees have. Finally, selection on who decides to return to their home country predicts that non-refugees would see higher growth in schooling returns if the non-successful among them, who are more likely not to possess easily transferrable skills, go back to their countries of origin.

Results show that non-refugees receive a higher schooling returns upon arrival, and that is in part because they have more easily transferrable education (as suggested by their pre-immigration higher schooling). It is also because they are more likely to have a job ready for me when they arrive. Results also confirm that refugees experience higher premium growth over time. Figure 11 suggests that fluent refugees are more likely to have higher schooling than those who are not fluent during transition and integration periods, which could have contributed to the return growth of refugees.

Consistent with the literature, we also find that refugees arrive with less schooling than non-refugees, and this doesn't change over time, and that is probably due the initial difference in human capital skills to begin with.

Figure 9 Insert Here

The job-shopping hypothesis would predict that refugees would have an edge moving to new jobs because they have more legal rights than non-refugees who face legal constraints when they first arrive in the country. But the results show that the return for refugees do not substantially

grow during the adjustment period except for those who are fluent in English. This is surprising since refugees are able to take advantage of the legal rights they have. It could be due to the State Department policy, which encourages refugees to take the first job they can find even if they are overqualified for it. So, it looks that it takes more for refugees to secure jobs although they have the legal status to search for one.

It may be premature to conclude that job-shopping is an irrelevant advantage for refugees. For example, wage convergence between refugees and non-refugees may appear to be misleadingly slow if many of the non-refugees in the sample actually do have some form of legal status that also helps them to upgrade (or at least not downgrade) their jobs during their time in the U.S. However, even if many immigrants in our main sample may have visas that do not show up in the data, we can be confident that relatively few Mexicans and Central Americans would, since a high percentage of them (often estimated to be a majority) do not have legal authorization to be in the U.S. at all. It is thus instructive that our estimates indicate a different pattern when we compare refugees' returns to education to those of Mexicans and Central Americans, who have been otherwise excluded from our analysis.

When we compare their schooling return to the refugees', we find that those from Mexico and Central America do have higher initial returns, but their schooling returns do not grow over time. The crude returns to schooling for this group range between 6.5 to 7.5 percent per year of schooling in all four of the phases of assimilation, whereas the returns for refugees grow substantially over time. This difference is consistent with the idea that legal access to the labor market allows refugees to move gradually into jobs better suited for their skills.

One other potential remaining bias is related to differences in incentives for return migration. The return migration hypothesis would predict that those among non-refugee immigrants who

are not able to transfer their skills easily into the labor market, or are not able to secure legal rights, would go back to their home countries. This is not a practical option for refugees, since most would fear persecution (Cortes 2004). Such dynamics would, if anything, bias us toward the conclusion the non-refugees' wages (and likely their returns to schooling) grow faster over time, especially after the transition period.

6 Summary

This paper analyses the return to schooling for refugee and other immigrant adults in the U.S. by using individual level data from the 2000 U.S. Census of Population and several waves of the American Community Survey (ACS). I find that non-refugees initially earn a larger return to schooling, most likely because they are more strongly self-selected into migration on the basis of easily transferable skills such as schooling and because they are more likely to come with jobs that are close match to their qualifications. Although refugees have more legal rights than non-refugees and they could invest more human capital skills especially among those who are capable, their return does not catch up with that of non-refugees, who even become more selected as the less successful among them return-migrate to their home country.

These findings confirm that non-refugees are not only selected on observable characteristics (as documented in the literature) but on unobservables as well, and that the initial selection on unobservables will matter for their differential returns to schooling at arrival and over time. In other words, many adult refugees might not be well-suited for the U.S. labor market for some permanent but unobservable reasons, whereas this is less likely for non-refugees because they would likely not move to a country for which they are poorly-suited.

An extension for future research is exploring whether the differential return to human capital skills such as schooling, and fluency across the two groups can explain the wage-gap between refugees and non-refugees documented in the literature. One idea is to use an Oaxaca decomposition to measure how much of the overall wage gap between refugees and non-refugees can be explained by differences in their human capital and other observable skills and by the returns to those skills. Depending on results, we may find that refugees would benefit from greater investments in human capital, or perhaps that there are other unobservable skills that are important for non-refugees.

References

Akresh, Ilana Redstone. "Occupational trajectories of legal US immigrants: Downgrading and recovery." Population and Development Review 34.3 (2008): 435-456.

Akresh, Ilana Redstone. "US immigrants' labor market adjustment: Additional human capital investment and earnings growth." Demography 44.4 (2007): 865-881.

Borjas, George J. "Welfare reform and immigrant participation in welfare programs." International Migration Review 36.4 (2002): 1093-1123.

Borjas, George J. "Assimilation, changes in cohort quality, and the earnings of immigrants." Journal of Labor Economics 3.4 (1985): 463-489.

Bratsberg, Bernt, and Dek Terrell. "School quality and returns to education of U.S. immigrants." Economic Inquiry 40.2 (2002): 177-198.

Chiswick, Barry R. "The economic progress of immigrants: some apparently universal patterns." (1979). In Fellner William, ed., *Contemporary Economic Problems*. (Washington, D.C.: American Enterprise Institute): 357–99.

Chiswick, Barry R. "The effect of Americanization on the earnings of foreign-born men." Journal of Political Economy 86.5 (1978): 897-921.

Chiswick, Barry R. "Are immigrants favorably self-selected?" The American Economic Review 89.2 (1999): 181-185.

Department of Homeland Security (DHS), *Immigration Statistics Data, 1991-2015*. Available at *https://www.dhs.gov/immigration-data-statistics*.

Department of State (DS), *Immigrant Visa Statistics, 1991-2015*.Available at *www.travel.state.gov.*

Duleep, Harriet Orcutt, and Mark C. Regets. "Immigrants and human-capital investment." The American Economic Review 89.2 (1999): 186-191.

Potocky-Tripodi, Miriam. "Refugee economic adaptation: Theory, evidence, and implications for policy and practice." Journal of Social Service Research 30.1 (2003): 63-91.

Shaeye, Abdihafit H. "Dynamics of the Crude English Fluency Premium for Refugees and Other Immigrants in the United States." Working Paper, University of Wisconsin - Milwaukee (2016).

Shaeye, Abdihafit H. "The Unexpectedly Small Wage Premium for English Fluency among Recent U.S. Refugees." Working Paper, University of Wisconsin - Milwaukee (2015).

Siraj, Tabassum. "The Effect of Refugees' Homeland Education on Their Earnings in the United States." Dissertation, Georgetown University (2007).

Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2015.

Table 1: Summary Statistics								
	High-Refugee Cohorts (N= 55,821)				No-Refugee Cohorts (N= 232,279)			
	Associate Degree or Higher (N= 15,289)		Less than Associate Degree (N= 40,532)		Associate Degree or Higher (N= 105,283)		Less than Associate Degree (N= 126,996)	
Variables	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Log Hourly wage (conditional on employment)	5.04	0.75	4.65	0.65	5.25	0.82	4.72	0.70
Employment	0.94	0.24	0.91	0.28	0.95	0.21	0.92	0.27
Fluency	0.75	0.43	0.40	0.47	0.90	0.30	0.70	0.46
School Attendance	0.12	0.33	0.07	0.26	0.15	0.36	0.12	0.33
Age	43.0	10.0	0.41	0.11	40	10.0	38.7	11.4
Citizenship	0.52	0.50	0.38	0.48	0.36	0.48	0.28	0.45

Table 2: Regressions on Log Hourly Wages

Years Since Migration	0-1	2-6	7-12	13-20
Whole Sample				
Schooling- Non-Refugees (β_p)	0.06*** (0.01)	0.07*** (0.01)	0.09*** (0.01)	0.11*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.03*** (0.01)	0.03*** (0.01)	0.06*** (0.01)	0.09*** (0.01)
Difference (δ_p)	-0.03*** (0.01)	-0.04*** (0.01)	-0.03*** (0.01)	-0.02 (0.01)
Restricting Sample to Fluent Immigrants				
Schooling- Non-Refugees (β_p)	0.08*** (0.01)	0.08*** (0.01)	0.09*** (0.01)	0.11*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.03*** (0 .01)	0.04*** (0.01)	0.07*** (0.01)	0.10*** (0.01)
Difference (δ_p)	-0.05*** (0.01)	-0.04*** (0.01)	-0.02*** (0.01)	-0.01 (0.01)
Controlling for Occupation				
Schooling- Non-Refugees (β_p)	0.04*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.07*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	-0.01 (0.02)	0.01** (0.01)	0.03*** (0.01)	0.05*** (0.01)
Difference (δ_p)	-0.04*** (0.01)	-0.03*** (0.01)	-0.02*** (0.01)	-0.02*** (0.01)
Restricting the Sample to Those Who Arrived before Age Ten				
Schooling- Non-Refugees (β_p)	0.093*** (0.01)			
Schooling- Refugees ($\beta_p + \delta_p$)	0.092*** (0.02)			
Difference (δ_p)	-0.001 (0.009)			

Notes: Non-refugees" and "Refugees" represent regression estimates of the return to schooling when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to schooling for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee). Regression controls include age, English fluency, race, Hispanic status, whether attending school, native wage measure, network measure, and state. All regressions include country-of-origin fixed effects. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

Table 3: Regressions on Log Hourly Wages

Years Since Migration	0-1	2-6	7-12	13-20
High School Graduate Versus Drop-outs				
Schooling- Non-Refugees (β_p)	0.02 (0.04)	0.07** (0.01)	0.10*** (0.01)	0.13** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.01 (0.04)	0.03** (0.01)	0.07*** (0.01)	0.05** (0.02)
Difference (δ_p)	-0.01 (0.04)	-0.04** (0.02)	-0.03** (0.01)	-0.08** (0.03)
Bachelor's Degree Versus Associate Degree				
Schooling- Non-Refugees (β_p)	0.21*** (0.03)	0.18*** (0.02)	0.20*** (0.01)	0.24*** (0.02)
Schooling- Refugees ($\beta_p + \delta_p$)	0.22*** (0.07)	0.10*** (0.03)	0.15*** (0.04)	0.19*** (0.03)
Difference (δ_p)	-0.01 (0.08)	-0.08*** (0.04)	-0.05 (0.05)	-0.05 (0.04)
Additional Degrees Versus Bachelor's Degree				
Schooling- Non-Refugees (β_p)	0.19*** (0.03)	0.22*** (0.01)	0.32*** (0.02)	0.38*** (0.02)
Schooling- Refugees ($\beta_p + \delta_p$)	0.04 (0.08)	0.11*** (0.07)	0.20*** (0.06)	0.29*** (0.05)
Difference (δ_p)	-0.15* (0.08)	-0.11 (0.07)	-0.12* (0.06)	-0.09* (0.05)

Notes: Non-refugees" and "Refugees" represent regression estimates of the return to schooling when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to schooling for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee). In this specification, I use four different categories; less than high school, high school graduates; those who has completed four-year college degree, and those with at least a bachelor's degree. Regression controls include age, English fluency, race, Hispanic status, whether attending school, native wage measure, network measure, and state. All regressions include country-of-origin fixed effects. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

Table 4: Regressions on Log Hourly Wages

Years Since Migration	0-1	2-6	7-12	13-20
Eastern Europe				
Schooling- Non-Refugees (β_p)	0.05*** (0.01)	0.06*** (0.01)	0.07*** (0.01)	0.09*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.05*** (0.02)	0.04*** (0.01)	0.06*** (0.01)	0.09*** (0.01)
Difference (δ_p)	-0.01 (0.02)	-0.02* (0.01)	-0.01 (0.01)	-0.003 (0.006)
South America and Caribbean				
Schooling- Non-Refugees (β_p)	0.07*** (0.01)	0.07*** (0.01)	0.08*** (0.01)	0.10*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.01*** (0.002)	0.02*** (0.001)	0.04*** (0.01)	0.05*** (0.01)
Difference (δ_p)	-0.06*** (0.01)	-0.05*** (0.01)	-0.04*** (0.01)	-0.05** (0.01)
Asia				
Schooling- Non-Refugees (β_p)	0.07*** (0.01)	0.08*** (0.01)	0.10*** (0.01)	0.13*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.05*** (0.01)	0.05*** (0.01)	0.08*** (0.01)	0.10*** (0.01)
Difference (δ_p)	-0.02 (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)
Africa				
Schooling- Non-Refugees (β_p)	0.07*** (0.01)	0.07*** (0.01)	0.09*** (0.02)	0.10*** (0.01)
Schooling- Refugees ($\beta_p + \delta_p$)	0.03 (0.02)	0.03* (0.01)	0.07*** (0.01)	0.11*** (0.02)
Difference (δ_p)	-0.04 (0.03)	-0.04*** (0.01)	-0.01* (0.007)	0.01** (0.02)

Notes: Non-refugees" and "Refugees" represent regression estimates of the return to schooling when there are no refugees in the entry cohort (so the probability is 0 that a given observation from that cohort is a refugee) and the return to schooling for a hypothetical entry cohort that contains only refugees (so that the probability is 1 that a given observation from that cohort is a refugee). Regression controls include age, English fluency, race, Hispanic status, whether attending school, native wage measure, network measure, and state. All regressions include country-of-origin fixed effects. To correct for possible heteroscedasticity, I cluster the standard errors on country level. ***, **, ** indicate significance at 1 percent, 5 percent, and 10 percent levels.

FIGURE 1. HYPOTHESES ON DYNAMICS OF SCHOOLING RETURNS FOR REFUGEES & NON-REFUGEES

Period	Arrival	Adjustment	Transition	Integration
Years	0-1	2-6	7-11	13-20
Key institutional features	• Non-refugees self-select into migration and schooling • Highly-educated non-refugees have the most ability to take advantage	• Refugees can legally job-shop; expected to be more useful for those with higher education • Non-refugees cannot do so easily	• Non-refugees get more legal rights • Job-shopping advantage expires • More refugees become highly educated, esp. those w/ more unobservable skills	• Unsuccessful non-refugees can return-migrate, but refugees will not
Implications for fluency premium	Relatively large initial return for non-refugees, but smaller for refugees	Expect return for refugees to grow faster than non-refugees' (if job-shopping is important)	Expect returns to grow for both groups, but for different reasons	Expect return to grow faster among non-refugees

FIGURE 2. EDUCATION PROFILES FOR THE POOLED SAMPLE

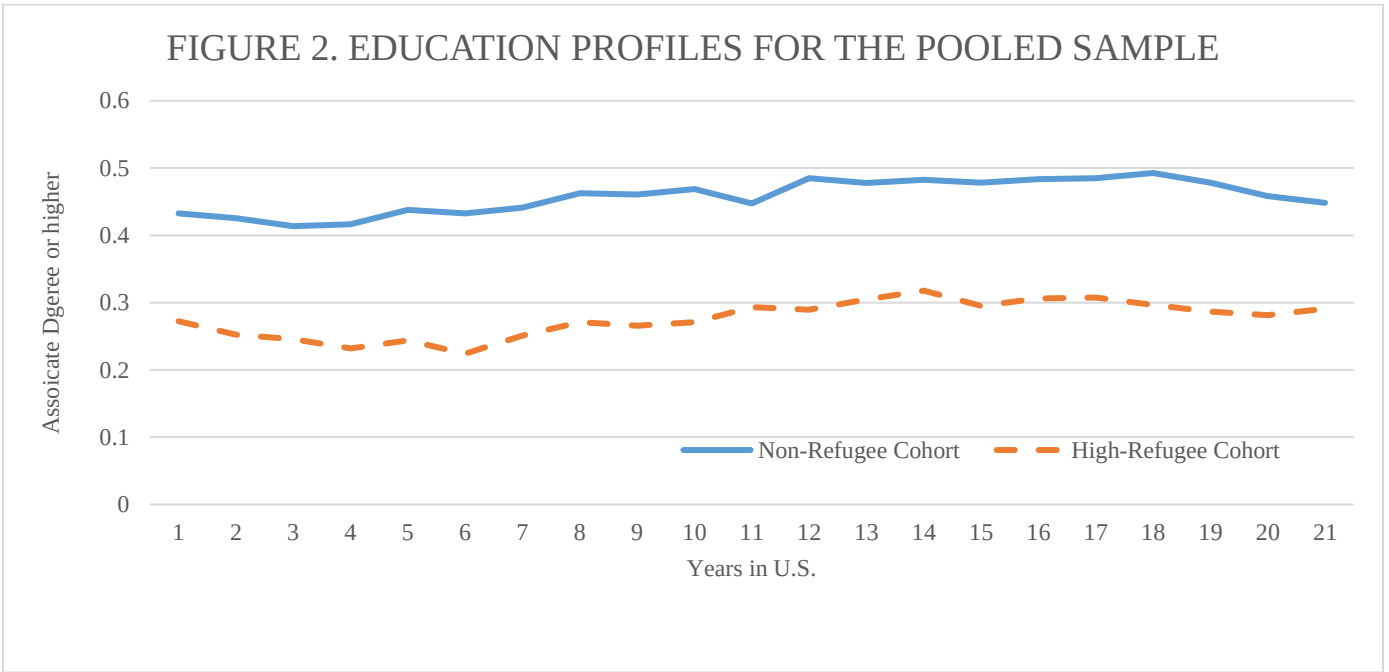


FIGURE 3. FLUENCY PROFILES OF THOSE WHO ARE EDUCATED FOR THE POOLED SAMPLE

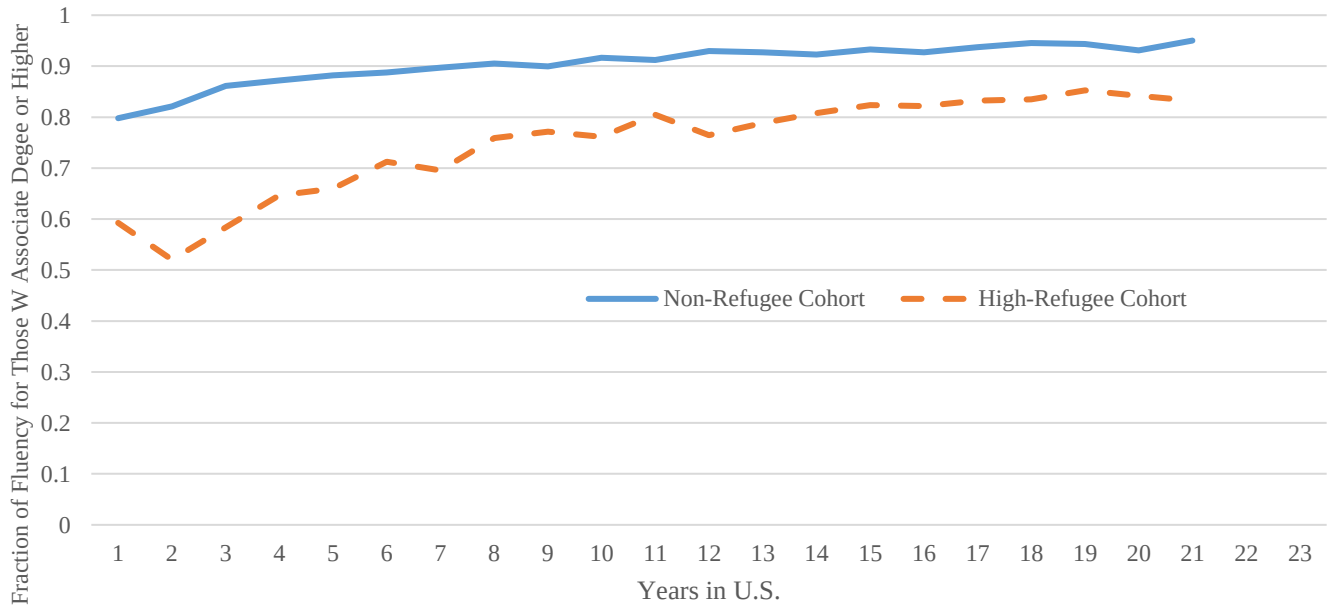


FIGURE 4. SCHOOL ATTENDANCE PROFILES FOR THE POOLED SAMPLE

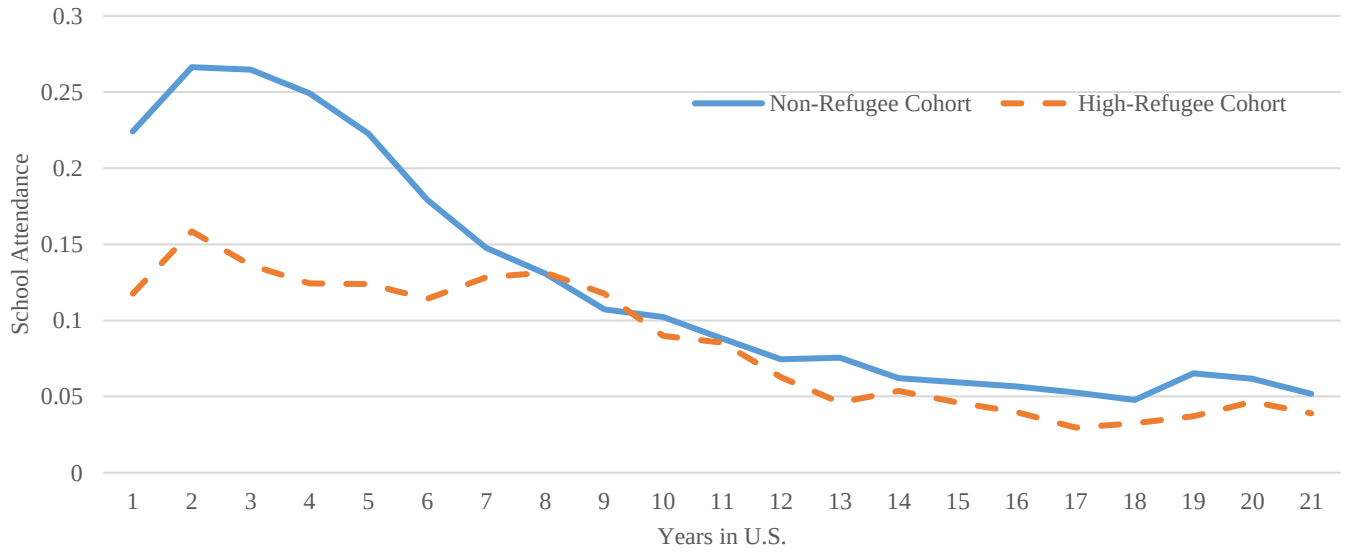


FIGURE 5. MAIN SAMPLE (EASTERN EUROPE, SOUTHEAST ASIA AND MIDDLE EAST, SOUTH AMERICA AND THE CARRIBEAN, AND AFRICA)

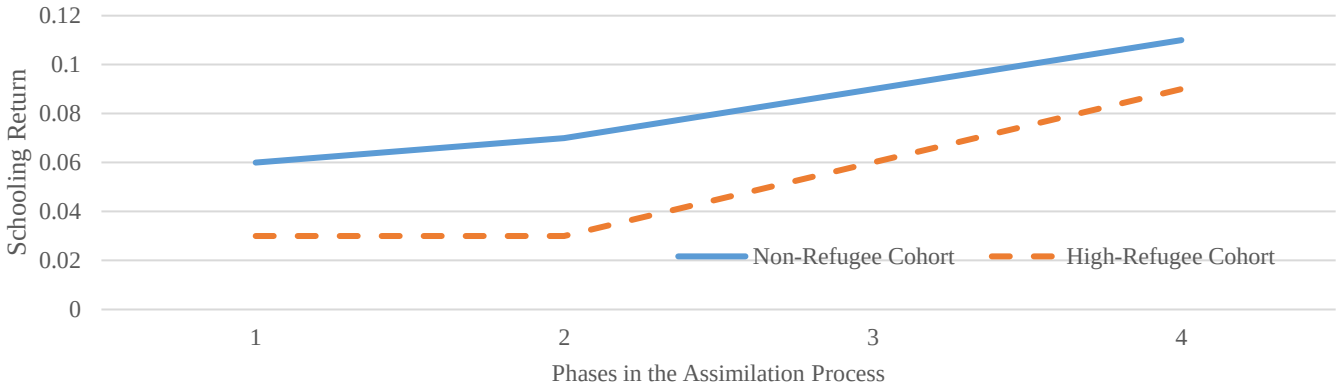


FIGURE 6. FLUENT IMMIGRANTS

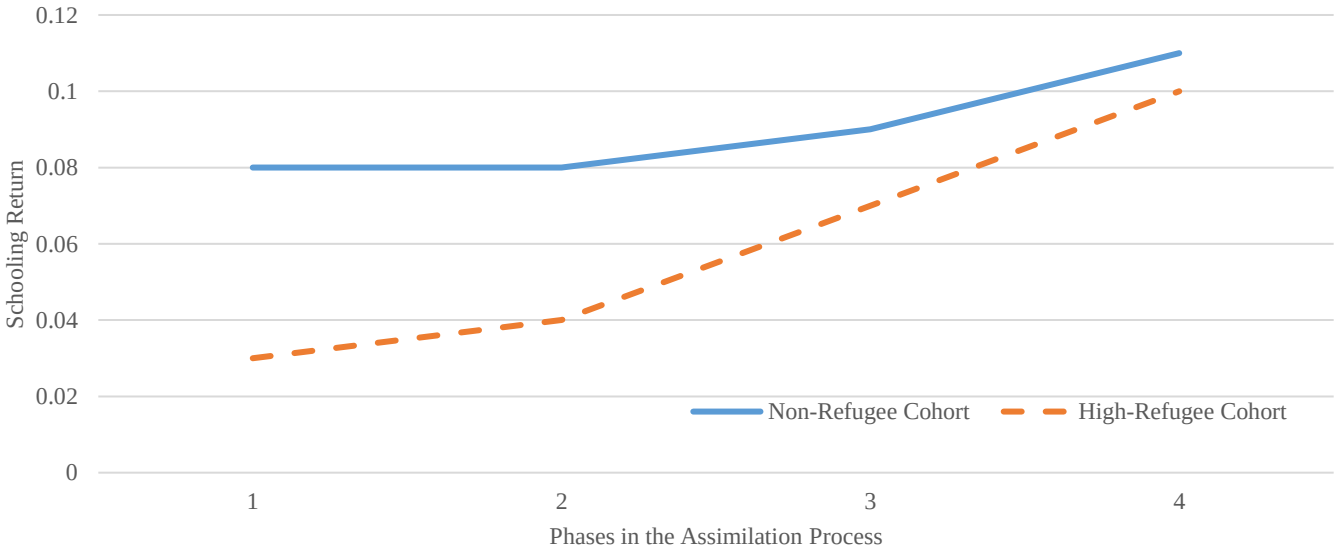


FIGURE 7. CONTROLLING FOR OCCUPATION

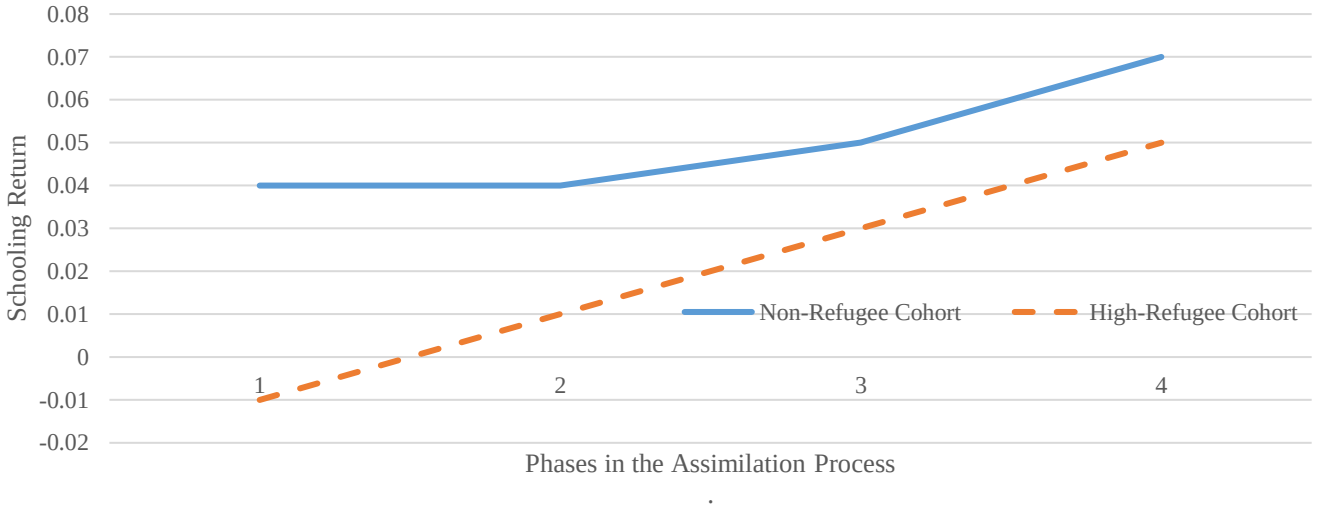


FIGURE 8. DIFFERENCE IN SCHOOLING RETURNS BETWEEN THE TWO GROUPS STRATIFIED BY REGIONS OF THE WORLD AND YEARS SINCE ARRIVAL

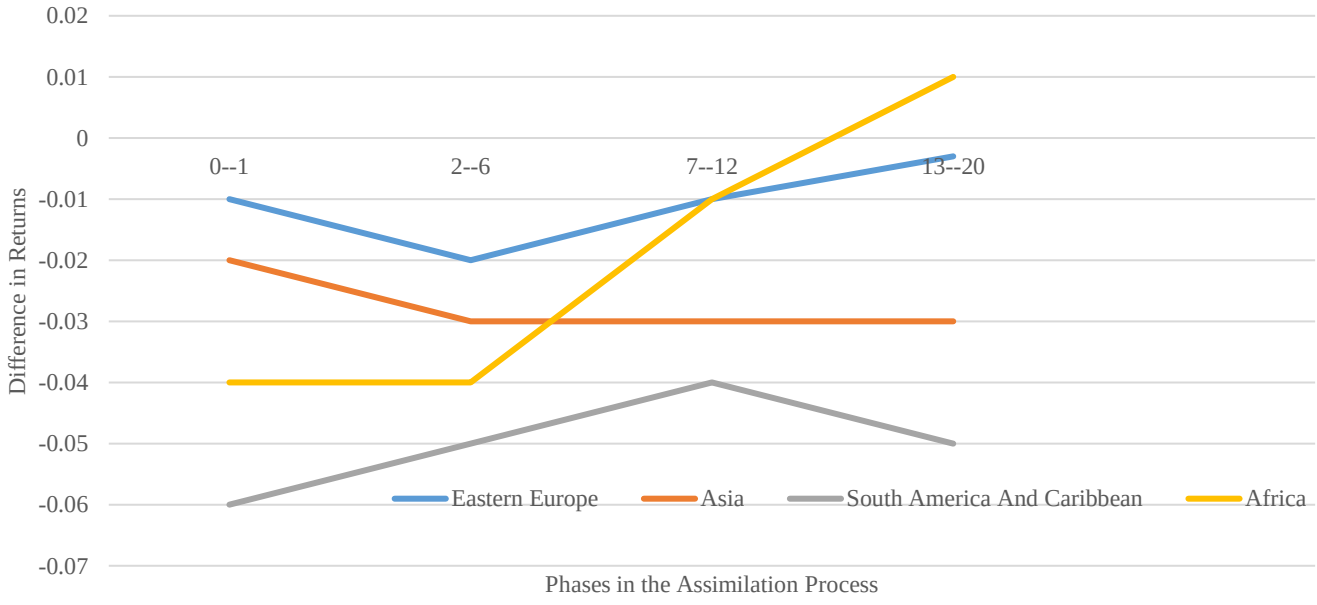
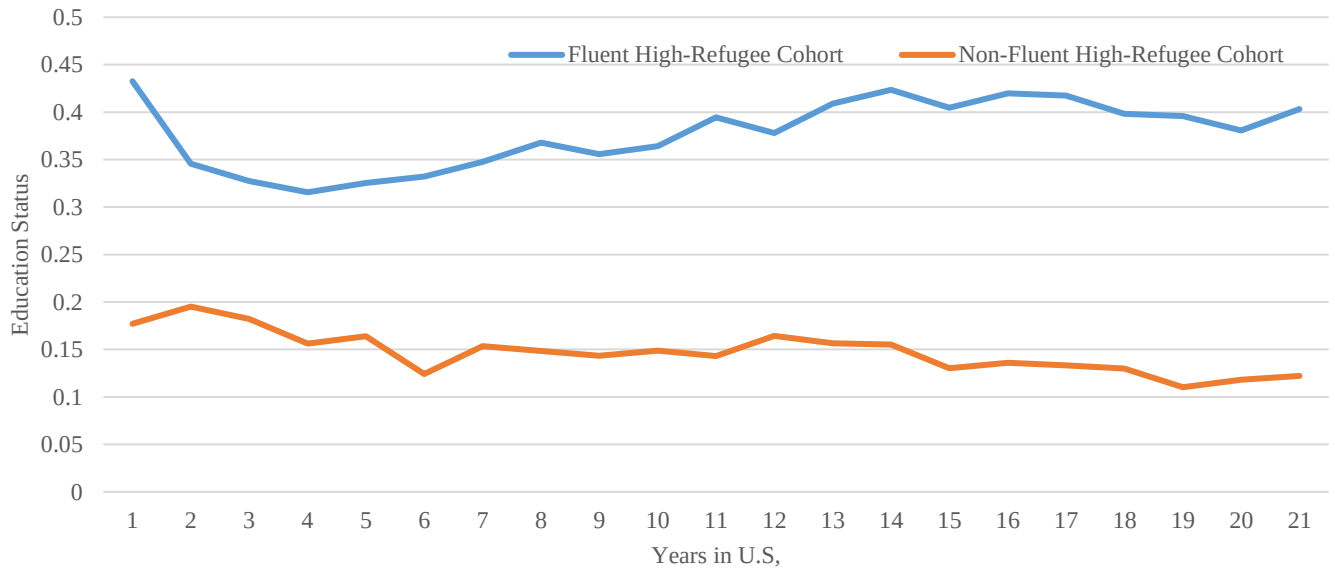


FIGURE 9. EDUCATION PROFILES OF FLUENT IMMIGRANTS AMONG THE HIGH - REFUGEE COHORT SAMPLE



CURRICULM VITAE

Abdihafit Shaeye

Fields:
Primary: Labor Economics, Applied Microeconomics
Secondary: Development Economics, Applied Econometrics
Teaching: Health Economics, Monetary Economics

Education:
Ph.D. University of Wisconsin-Milwaukee-Economics Summer 2017
Thesis: **Essays on Human Capital and Wages of Refugees and Other Immigrants in the U.S.**
B.A and Post-Graduate D., Institute of Arabic Research and Studies in Egypt, Economics 2008
B.A., Cairo University, Accounting, and Business 2006

Research:
"Heterogenous Returns to Schooling for Refugee and Other Adult Immigrants in U.S." 2017
"Dynamics of English Fluency Premium for Refugees and Other Immigrants in the U.S." 2016
"Unexpectedly Small Wage Premium for English Fluency among Recent U.S. Refugees." 2015
"Exchange Rate Pass Through to Inflation: Evidence from Somali Currency Devaluation." 2016

Teaching Experience:
Economics Instructor, University of Wisconsin-Milwaukee 2015-2017
Courses: Principles of Economics (4 sections)
Principles of Microeconomics
Economics of Personal Finance (4 sections, Blended Format)
Adjunct faculty, Cardinal Stritch University (Glendale, WI) 2015-2017
Courses: Health Economics
Adjunct Faculty, Lakeland University (Sheboygan, WI) 2013-2017
Courses: Cash Management and Investments (MBA, Blended Format)
Applied Microeconomics (MBA, Blended Format)
Principles of Microeconomics (2 Sections, Blended Format)
Money and Banking (2 Sections, Blended Format)
English Instructor**,** Cairo Interpreters' Project, American University in Cairo 2007-2010
Teaching Fellow, University of Wisconsin-Milwaukee 2015
Courses: Principles of Macroeconomics (2 sections)

Pedagogical Training:
Faculty Development on BlendEd® and online courses at Lakeland University
Intercultural training at American University in Cairo
Experience with Blackboard, Canvas, and D2L course management software

Presentations
"The Unexpectedly Small Wage Premium for English Fluency among Recent U.S. Refugees."
Midwest Economic Association Conference, Minneapolis, March 2015
UWM Labor Lunch Seminar, October 2015
Southern Economic Association Conference, New Orleans, Nov. 2015
"Dynamics of the Crude English Fluency Premium for Refugees and Other Immigrants in the U.S."

Midwest Economic Association Conference, Evanston, April 2016
UWM Labor Lunch Seminar, April 2016
Southern Economic Association Conference, DC, Nov. 2016
"Heterogenous Returns to Crude schooling for Refugee and Other Adult Immigrants in the U.S."
Midwest Economic Association Conference, Cincinnati, April 2017

Professional Activities:

Chair:

Session: Assimilation and Economic Mobility, Southern Economic Association Conference, D.C., Nov. 2016

Discussant:

Session: Labor Markets, Immigrants and Remittances, Midwest Economic Association Conference, Minneapolis, March 2015
Session: Immigrant Earnings Potential, Southern Economic Association Conference, New Orleans, Nov. 2015
Session: Immigration, Midwest Economic Association Conference, Evanston, April 2016
Session: Assimilation and Economic Mobility, Southern Economic Association Conference, D.C., Nov. 2016
Session: Labor Market Issues II, Midwest Economic Association Conference, Cincinnati, April 2017

Referee: International Economic Journal

Honors and Fellowships:

Named an Elite Graduate Scholar by UWM's Advanced Opportunity Program Fellowship, 2014
Advanced Opportunity Fellowship, University of Wisconsin-Milwaukee, 2012-2015
Undergraduate Scholarship, Cairo University, 2002-2006

Professional Associations: American Economic Association, Southern Economic Association, Midwest Economic Association

Languages: Somali (native), English (fluent), Arabic (fluent)