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Economic Analysis of the Labor Market Experience of African Immigrants in the U.S.

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Abstract

Because African immigrants have become a significant presence in the United States in the past few decades, understanding the dynamics of their immigrant labor market has become increasingly important. In this paper, I follow a cohort of immigrants from 2001-2012 to see whether African immigrants assimilate with natives. I also investigate the effects of immigrant specific variables such as education, time of arrival in the U.S., and English-speaking abilities, on their wages in the U.S. labor market. Using a cohort over time and cross sectional data sets, respectively, from the American Community Survey, this study employs OLS regression analysis to test hypotheses about the progression of immigrant wages with natives and the effect of immigrant specific variables on immigrant and native earnings. Results show immigrants experience incomplete assimilation with natives. Also, after controlling for education and demographic variables, African immigrants are at an earnings disadvantage compared to natives. Lastly, I find that African immigrants that are non-citizens are at a greater disadvantage than those that are naturalized citizens, and late arrivals are at a greater disadvantage than early arrivals.

I. INTRODUCTION

From 1980 to 2009, the African-born population in United States grew from just under 200,000 to almost 1.5 million (McCabe, 2011). According to the New York Times, the number of black African immigrants alone doubled in the 2000's (2014). Evidently, there has been a significant increase in the population of Africans in the U.S. If we agree with Barry Chiswick (1999) that "economic migrants tend on average to be more able, ambitious, aggressive, entrepreneurial, or otherwise more favorably selected than similar individuals who choose to remain in their place of origin" (p. 181), we may conclude that the economic returns to all these qualities must be increasing. The aforementioned facts and literature prompted the first question I attempt to answer in this paper: what is the labor market experience of African immigrants, and how does it change over time in comparison to U.S. natives?

Economic literature also provides evidence for the importance of immigrant specific characteristics in determining the wages of immigrants. In their research on the Chinese immigrant experience, Liao and Seeborg (2015) find that variables such as year of arrival, citizenship status and English-speaking abilities are partly the reason for the decrease in the income gap between Chinese immigrants and natives over time. I attempt to investigate the role of immigrant specific variables in determining the wages of African immigrants compared with natives.

Thus, this paper explores two related research questions. First, what is the assimilation experience of the African immigrant population in the United States? Second, do some African immigrants have an advantage over others in the assimilation process due to some immigrant specific variables? For example, do immigrants who are naturalized have a significant advantage over those who are not? Are recent arrivals at a disadvantage compared to earlier arrivals in

their assimilations with natives? Do the varying levels of English language proficiency among African immigrants determine rates of assimilation?

The rest of this paper proceeds as follows: section II discusses the relevant economic theory on which this paper is based and previous scholarly efforts to answer similar questions. Section III is a description of data used for each part of my analysis and the methodology, section IV presents the empirical models that I developed to answer my questions, section V is the results section, and section VI is conclusions and discussion.

II. THEORY AND LITERATURE REVIEW

The economic theory of human capital is the rightful foundation of any discussion of earnings variation. Human capital theory captures both the inherent and dynamic money-making abilities of individuals. This theory describes the productive ability of individuals based on their education, either formal or informal. It is the stock of knowledge, skills, and aptitudes that an individual or a group of individuals possesses (Hyclak et al, 2005). This human capital is rewarded with wages in the labor market, and it follows logically that the more productive individuals are, the greater their wages. However, the factors that affect productivity are slightly different for immigrants and natives. For instance, immigrants have smaller job networks (Maynard, 2011), so they are often limited in their job search. Also, immigrants experience difficulties in adjusting to the culture of the American workplace (Wu, 2012). Furthermore, their citizenship status often limits their job search to companies that have the tradition of hiring immigrants, and resources to maintain such a tradition, and so on. Because of these limitations, many immigrants may be measured to be less productive than they actually are, and so a wage gap ensues. Although there is no appropriate proxy for business networks, data on variables such

as year of arrival, English-speaking abilities and citizenship status are available, and constitute an essential portion of this project as a way to explore how the wage gap between immigrants and natives change based on the aforementioned immigrant specific variables.

The theory of human capital is well developed. Jacob Mincer, one of the earliest writers on the subject, noticed that the distribution of earnings was skewed positively while initial abilities were considered normally distributed (Haveman et al, 2003). He developed an economic model that attempted to explain the skewed distribution of income. Basically, individuals have initial abilities that are normally distributed, but people supplement these by getting involved in training programs, school, and activities to further develop their skills, and people with greater initial ability tend to receive more of these human capital investments.

The concept of assimilation is closely related with human capital theory. Assimilation means to absorb, digest, and integrate (usually into a culture), making disparate people/items become similar (Moskowitz, 2007). This process takes place along several lines: socioeconomic status, spatial concentration, language assimilation and intermarriage (Waters and Jiménez, 2005). Adopting this theory into my economic analysis, economic assimilation is said to have occurred when immigrant wages change over time such that the income gap becomes smaller.

Reasons to Expect Assimilation

The economic literature on the immigrant labor market experience suggests that there are opposing forces that drive their assimilation. There is some evidence that suggests African immigrants are likely to do well because they engage in more human capital investments than the typical U.S. native (Chiswick 1999). According to Chiswick, immigrants tend to be favorably selected from their countries of origin when the cost of initial and return migration is high. Given the distance of the U.S. from Africa, and the cultural differences, we can assume that these costs

are high (1999). Therefore, we expect favorable selection to apply to African immigrants. This means that African immigrants will have high levels of innate ability, and we expect their earnings to reflect this positive selection. In other words, if African immigrants are the most resourceful, productive, and ambitious people from their home countries, we might expect them to occupy the right end of the income distribution compared with natives.

Reasons Not To Expect Assimilation

Just as there are reasons to expect assimilation of African immigrants with U.S. natives, there are reasons to expect an enduring wage gap. Borjas conducted various studies using the human capital theory to answer questions about immigration. He found that after controlling for skills, the U.S. earnings of immigrants from 41 countries including African countries were highly dependent on the political and economic condition of their home countries (1994), with immigrants from less developed countries experiencing the greatest difficulties in economic assimilation. The varying levels and paces of economic growth and development in African countries, and the major wars in places like Liberia, Sudan, and South Africa, imply that African immigrants will often be at a disadvantage in comparison to U.S. natives.

The literature has also established that whether the immigrant acquires human capital in the host country or in the destination country matters. Friedberg found that human capital acquired abroad is significantly less valuable than skills acquired domestically (2000). This is because some skills are country specific, and African immigrants do not have access to these skills until they have been resident in the U.S. for several years. This makes year of arrival crucial in the discussion of immigrant wages. That is, those immigrants who have been in the United States for more years would have more time to acquire unique U.S. specific human capital and enjoy the resultant earnings advantage of this human capital.

Assimilation is multifaceted, but as far as this research project is concerned, the main idea is that more time in the United States is directly related to acquisition of U.S. specific human capital, an acclimatization to the U.S. workplace, more investment in skills and qualifications, all which help the immigrant to approach parity with natives.

Based on all the surveyed literature, I hypothesize that:

- *ceteris paribus*, African immigrants will earn lower wages than natives, but this wage differential will decrease over time.

- immigrant specific variables like year of arrival, English-speaking abilities and citizenship status are significant determinants of the wage disparity between immigrants and natives.

In conclusion, even though there is a great deal of economic research on overall immigration and on immigration from Latin America, there has been very little economic research on African immigrants, and what information we have does not allow us to confidently predict the labor market experience of African immigrants. The number of countries on the African continent, and the heterogeneity of the people in terms of language and economic development present a challenge when we attempt to analyze the economic assimilation of African immigrants and differences between African immigrants that arise from immigrant heterogeneity. This paper seeks to answer important questions about the assimilation of African immigrants and the factors that drive it.

III. DATA AND VARIABLE DEFINITIONS

The data requirements are significant in addressing my two research questions. First, annual data that includes a large number of African immigrants is required to determine if African immigrants are assimilating with natives. Second, recent data with large numbers of college educated immigrants is required to address the question of whether the assimilation experience varies across African immigrants depending upon their citizenship status, years in the United States and English language ability. The data sets were obtained from the American Community Survey (ACS) from the Integrated Public Use Microdata Series (Ruggles, et al, 2010). All the data pertinent to my research were available in the ACS. Furthermore, the ACS had a large number of African immigrants, which increased the feasibility of my research and credibility of the results from this analysis.

Data for Assimilation Analysis

I consider full-time workers earning positive real wages who are at least 25 years old and at most 54 years old. To test the assimilation hypothesis, data are drawn from seven survey years: 2001, 2003, 2005, 2007, 2009, 2011, and 2012. Table 1 below presents some details about my sample. Note that the sample ages with time so that the same cohort is being followed over time. Also, sample selection for all seven years required that the immigrants arrived in 2000 or earlier. Therefore, we are following the same cohort of immigrants from 2001 through 2012. This makes it possible to address assimilation of a specific cohort.

Table 1: Summary of Sample sizes

Survey Year	Age	Number of Observations	
		Natives	African Immigrants
2001	25-54	265,781	1182
2003	27-56	251,279	1121
2005	29-58	583,068	2760
2007	31-60	582,495	2837
2009	33-62	575,350	2907
2011	35-64	534,187	2692
2012	36-65	532,091	2791

Data for Cross-sectional Analysis

The cross-sectional sample consists of full-time workers earning positive real wages; they are at least 25 years old and at most 67 years old, and have obtained at least a bachelors degree. The focus on the relatively small sample of college-educated immigrants necessitates pooling the data from multiple years (2010, 2011, 2012 and 2013) to get a good sample size. While studying the labor market experience of African immigrants, it was evident that a lot of heterogeneity exists within the group. Including only college graduates from these four years still leaves a great deal of heterogeneity in terms of degree level, citizenship status, years in the U.S., and English language skills. Therefore, restricting the sample to college graduates suffices for my investigation of the importance of immigrant specific variables to immigrant wages.

Table 2 below presents some descriptive statistics of the cross sectional sample of college graduates that was compiled for the four-year period from 2010 through 2013. The real wages are adjusted to 2013 price levels by applying the CPI. When this is done, African immigrant wages are somewhat less than the native wages.

Table 2: Descriptive Statistics for African Immigrant and American Native College Graduates

Variable	African immigrants	American natives
Sample size	10,690	1,131,164
Dependent Variable		
Mean RealWage	$80,578	$83,700
Degree Level		
Bachelors	54.3%	62.2%
Masters	27.5%	26.4%
Professional	10.1%	7.4%
Doctorate	8.2%	3.9%
Demographic Variables		
Married	67.8%	67%
Female	46.0%	33.4%
UhrsWork	44.83	45.37
Immigrant Specific Variables		
Notcitizen	33.3%	
Naturalized	66.7%	
SpeaksOnlyEnglish	88.2%	
SpeaksNotWell	1.2%	
SpeaksWell	10.5%	
EarlyArrivals	37.7%	
MidArrivals	34.9%	
RecentArrivals	27.4%	

As Table 2 shows, African immigrants are more likely than natives to have advanced degrees. In line with human capital theory, this starts to suggest that a comparative analysis would reveal an advantage over natives in real wages. Although Table 2 shows that my sample contains many noncitizens, it also shows that many of them have been in the United States for many years. For instance, 37.7% of my sample has been in the U.S. for more than 20 years and is considered the group of early arrivals, and 34.9% has been in the U.S. for more than 10 years but less than 20 years. This should also lessen the immigrant disadvantage. However, more of African immigrants in this sample are females. Since numerous studies (Mandel & Semyonov 2014, Lips 2013, Misra & Murray-Close 2014) show that females often receive lower

compensation than males for the same job, we could expect that this would decrease the wages of the immigrant group.

Given the information in Table 2, we can conclude that the sample contains mostly highly educated, seasoned immigrants, of which most are naturalized, and are proficient in the English Language. The mean wages of both groups are close, with immigrants receiving 3.7% less than natives on average.

Dependent variable

The dependent variable is real annual wages for the assimilation simulation, and the natural log of real wages for the cross-sectional analysis. The natural log is more convenient than the actual income because the coefficients of the regression are an estimate of the percentage change in real income that results from a one unit change in any given independent variable.

Independent Variables

The following dummy variables are proxies for educational attainment, English-speaking abilities, basic human capital, and a set of immigrant specific variables. Table 3 below defines the variables and indicates the hypothesized relationship between the dependent variable and independent variables.

Table 3: Description of Regression Variables

Variable	Description	Expected Sign
Dependent Variable		
REALWAGE	Wages adjusted for inflation	
LNREALWAGE	Natural log of real wages	
Independent Variables		
Educational Attainment		
BACHELORS	0=No Bachelors degree	Positive
	1=Bachelors degree	
MASTERS	0=No Masters degree	Positive
	1=Masters degree	
PROFESSIONAL	0=No Professional degree	Positive
	1=Professional degree	
DOCTORATE	0=No Doctorate degree	Positive
	1=Doctorate degree	
English-speaking abilities		
SPEAKSNOTWELL	0=Native	Negative
	1=Does not speak English well	
SPEAKSWELL	0=Native	Positive
	1=Speaks English well	
SPEAKSVERYWELL	0=Native	Positive
	1=Speaks English very well	
Citizenship Status		
IMMIGRANT	0=Born in the U.S. or born in Africa of American parents	Negative
	1=born in Africa	
NATURALIZED	0=Unnaturalized African immigrant or native	Unknown
	1=African Citizen who has obtained U.S. citizenship status	
NOTCITIZEN	0=Naturalized African immigrant or native	Negative
	1=Unnaturalized African immigrant	
Years in the U.S.		
RECENTARRIVAL	0=Native	
	1=immigrated 0-10 years ago	
MIDARRIVAL	0= Native	
	1=immigrated 11-20 years ago	
EARLYARRIVAL	0=Native	Positive
	1=immigrated 21+ years ago	
Demographic Variables		
AGE	A person's age at last birthday	
AGESQUARED	AGE*AGE	
FEMALE	0= Male	
	1= Female	
UHRSWORK	Usual hours worked per week	Positive
MARRIED	0=Unmarried	Unknown
	1=Married	

IV. EMPIRICAL MODELS

As earlier mentioned, the empirical analysis consists of two parts:

- a study of the overall assimilation experience of African immigrants in the U.S.

- an analysis of immigrant specific variables to determine their influence on immigrant wages relative to natives.

Assimilation Simulation Model

The first part of the analysis is a simulation to show the assimilation of African immigrants with natives. From the literature, it is evident that there are various forces that determine the economic assimilation of African immigrants; immigrant status, and English language difficulties are often disadvantages, but high investments in human capital, especially after arrival in the U.S., are found to be an advantage. There is also the logic that because of positive selection from African host countries, the most productive workers are the ones that moved to the U.S.

However, the human capital literature on immigration provides a framework for expecting assimilation after a period of struggle in American labor markets. First, immigrants arrive with skills that are not completely transferrable to the American labor market, including language skills. But, over time, immigrants have incentives to invest in U.S. specific human capital, and this should result in earnings convergence with natives. Therefore, I hypothesize that *ceteris paribus*, African immigrants would earn lower wages than natives, but this wage differential would decrease over time.

The equation below is the basis of the simulation to compare what African immigrants earned from 2001 to 2012 with their native counterparts.

$$REALWAGE = \alpha + \beta_1(ONEYEARCOLLEGE) + \beta_2(TWOYEARSCOLLEGE) +$$

$$\beta_3(BACHELORS) + \beta_4(MASTERS) + \beta_5(PROFESSIONAL) + \beta_6(DOCTORATE) +$$

$$\beta_7(NOENGLISH) + \beta_8(SOMEENGLISH) + \beta_9(GOODENGLISH) +$$

$$\beta_{10}(EXCELLENTENGLISH) + \beta_{11}(AGE) + \beta_{12}(AGESQUARED) + \beta_{13}(FEMALE) +$$

$$\beta_{14}(UHRSWORK)$$

Equation 1

The simulation includes the following five steps:

1. Run the regression for equation 1 for the native population for 2001. The regression results are in the Appendix Table 1.

2. Compute the mean values for each of the Equation 1 variables for the African respondents in the 2001 sample. The African mean values are presented in Appendix Tables 2.

3. Plug the African mean values into the native equation estimated in Step 1 to estimate what African earnings would have been in 2001 if the Africans were paid according to the native earnings function.

4. Compare the estimated 2001 wage of African immigrants to the actual 2001 average wage of African immigrants. If the actual African earnings are equal to or greater than the estimated African earnings, we can conclude that assimilation has occurred.

5. Repeat the above steps for each of the remaining six selected survey years from 2003 to 2012.

Cross-Sectional Analysis

The second part of the analysis is a regression analysis of cross-sectional data over four years 2010 to 2013. The regression is run according to equation 2 below:

LNREALWAGE

$$= \alpha + \beta_1 \,(Immigrant\ Status) + \beta_2(English\ Speaking\ Abilities)$$

$$+ \beta_3 \,(Educational\ attainment) + \beta_4 \,(Other\ Human\ capital\ variables)$$

$$+ error\ term$$

Equation 2

I create dummy variables for each category in equation 2 above. The details of the variables are presented in Table 3, also above.

V. RESULTS

Assimilation Simulation Results

Table 4 presents the simulation results for each of the seven years. Column 1 contains ever year from which I pulled data; column 2 represents the annual wages African immigrants would have earned if they had been rewarded according to the native earnings functions (Appendix Table); column 3 shows the difference between these estimated earnings and their actual earnings, and as we can see, the difference is positive.

The simulation results reported in Table 4 show that in 2001, African immigrants had actual earnings that were almost 16% less than they would have earned if they had their actual characteristics, but were paid according to the native earnings equation. But this simulated earnings gap lessened considerably over the course of twelve years. Since complete assimilation suggests equality between estimated earnings and simulated earnings, earnings parity has not been reached.

Table 4: Simulation Results

Survey Year	Estimated African Real Wage	Actual African Real Wage	Estimated Minus Actual	Percentage Difference
2001	$49,009.87	$42,382.82	$6,627.059	15.64%
2003	$51,262.09	$46,725.86	$4,536.233	9.71%
2005	$53,689.61	$49,361.05	$4,328.558	8.77%
2007	$55,435.06	$49,180.23	$6,254.83	12.72%
2009	$56,883.94	$51,663.87	$5,220.068	10.10%
2011	$54,244.61	$51,694.91	$2,549.703	4.93%
2012	$55,176.31	$52,597.56	$2,578.75	4.90%

However, with the exception of the Great Recession years, there has been significant narrowing of the gap. This indicates that the cohort that is followed in this analysis has experienced a good amount of assimilation, and parity is on the horizon.

To further illustrate the assimilation experience of African immigrants in the U.S., I have included Figure 1 below to show the changes in estimated immigrant real wages and actual immigrant real wages from 2001 to 2012. This graph is a visual representation of the results presented in Table 4.

Figure 1: Estimated Immigrant Real Wages vs Actual Immigrant Real Wages
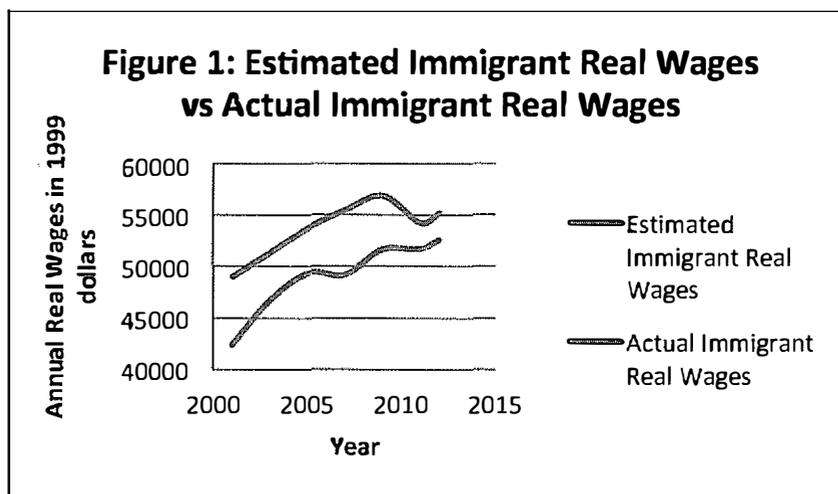
According to Figure 1, there is assimilation between African immigrants and natives, but not complete wage convergence.

Cross-Sectional Analysis

The simulation results showed incomplete wage assimilation between African immigrants and natives, but as earlier discussed, there exists a significant amount of heterogeneity amongst the African immigrant population. Therefore, I designed the cross-sectional analysis to explore the differences in economic performance between different kinds of African immigrants. Do some groups have certain advantages or disadvantages compared with others? For example, are there advantages associated with citizenship status, years in the United States and English language proficiency?

I created different regression models to determine the importance of different variables in explaining the wage gap between African immigrants and natives. Because I am predicting natural log of real wages, the coefficients of the independent variables represent percent changes in real wages that result from one unit changes in the variable. The strategy of this section is to partition the immigrant portion of the sample into groups depending on some immigrant characteristics. In each of the six models run, the sample consists of college-educated African immigrants and natives. Thus, the coefficients to all immigrant related dummy variables should be interpreted in reference to college-educated natives in the sample.

The regression results are presented in Table 5. Model 1 is the baseline model that regresses only whether the respondent is an African immigrant (IMMIGRANT) against the natural log of annual earnings. Model 2 retains IMMIGRANT and adds a standard set of demographic and human capital control variables. Models 3 through 5 replace IMMIGRANT with sets of immigrant specific dummy variables that capture whether the immigrant is a naturalized citizen (Model 3), year of arrival in the United States (Model 4), English speaking

ability (Model 5). The coefficients to the immigrant related dummy variables should be interpreted in reference to natives in the sample.

Model 1 is a simple regression with LNREALWAGE as the dependent variable and IMMIGRANT as the independent variable. According to this model, being an African immigrant decreases real wages by 9.1% compared with natives. This simple model shows the initial disparity in wages between the two groups when no other variables are controlled for.

Model 2 adds human capital and demographic variables to the earnings equation. It is interesting to see that when these variables are controlled for, the effect of the immigration variable increases in magnitude. However, having seen that there is a significant difference in educational attainment between African immigrants and natives, as shown in Table 2, it is only appropriate to control for education. Model 2 includes this control in order to isolate the magnitude of the disadvantage faced by immigrants compared to natives. Note that the education and demographic variables are present in all the subsequent regressions.

I also sought to establish a difference in the labor market experience of naturalized citizens and non-citizens. Naturalization suggests that the individual has spent a reasonably long amount of time in the U.S. Consequently, we can expect such a person to have become used to the U.S. labor market, acquired at least some of the necessary U.S. specific job skills, and become more proficient in the English Language. Model 3 includes this division of the immigrant group, and it proves to be worthwhile as the results show that naturalized citizens face a 10.9% disadvantage compared with natives while non-citizens' wages are 28.3% lower than natives.

Table 5: Regression Results (T-statistics in parentheses)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	11.119***	8.417***	8.418***	8.420***	8.418***
	(16539.073)	(841.206)	(841.331)	(841.490)	(841.36)
IMMIGRANT	-.091***	-.168***			
	(-13.098)	(-27.064)			
MASTERS		.140***	.140***	.140***	.140***
		(101.081)	(101.092)	(101.056)	(100.922)
PROFESSIONAL		.485***	.485***	.485***	.484***
		(202.814)	(202.772)	(202.774)	(202.709)
DOCTORATE		.307***	.307***	.307***	.305***
		(98.515)	(98.552)	(98.462)	(98.359)
AGE		.083***	.083***	.083***	.083***
		(185.918)	(185.912)	(185.866)	(185.992)
AGESQUARED		-.001***	-.001***	-.001***	-.001***
		(-166.31)	(-166.34)	(-166.35)	(-166.380)
FEMALE		-.129***	-.129***	-.129***	-.129***
		(-61.337)	(-61.440)	(-61.501)	(-61.441)
MARRIED		.230***	.230***	.230***	.230***
		(122.669)	(122.545)	122.567	(122.621)
FEMALE*MARRIED		-.178***	-.178***	-.178***	-.178***
		(-69.385)	(-69.324)	(-69.291)	(-69.337)
UHRSWORK		.013***	.013***	.013***	.013***
		(182.508)	(182.549)	(182.5)	(182.460)
NATURALIZED			-.109***		
			(-14.387)		
NOTCITIZEN			-.283***		
			(-26.602)		
RECENT ARRIVALS				-.358***	
				(-30.721)	
MIDARRIVALS				-.129***	
				(-12.497)	
EARLY ARRIVALS				-.056***	
				(-5.830)	
SPEAKSNOTWELL					-.699***
					(12.512)
SPEAKSWELL					-.472***
					(-24.807)
SPEAKSVERYWELL					-.124***
					(-18.845)
FE2010		.026***	.026***	.026***	.026***
		15.747	(15.784)	(15.756)	(15.715)
FE2011		-.002	-.002	-.002	-.002
		(-1.344)	(-1.321)	(-1.353)	(-1.379)
FE2012		-.002	-.002	-.002	-.002
		(-.922)	(-.936)	(-.978)	(-.964)
Adjusted R-squared	.000	.206	.206	.207	.207

Note: *** significant at 99% level
**significant at 95% level
*significant at 90% level

Even though number of years in the U.S. is correlated with naturalization, it is important to include the dummy variables that measure time in the U.S. As explained in Table 3, RECENTARRIVAL means the individual moved to the U.S. 10 years ago or less, MIDARRIVAL means 11 to 20 years ago, and EARLYARRIVAL means 21 or more years ago.

Model 4 includes these dummy variables, and their coefficients should be interpreted in reference to natives. The coefficients show that years in the U.S. is important in determining African immigrant wages. According to the results, RECENTARRIVAL shows a 35.8% earnings disadvantage for immigrants who migrated less than 10 years ago. Fortunately, African immigrants who have been in the country for longer show a much smaller wage gap with natives, with MIDARRIVAL immigrants showing a gap of 12.9% and EARLYARRIVAL showing a gap of only 5.6% between their wages and those of natives. Since it is logical that the longer one stays in the U.S., the more likely they are to receive formal and informal education here, acquire skills, and become legal citizens, it is not surprising that the earlier arrivals had higher wages compared to more recent ones and have nearly achieved earnings parity with natives.

Since the cross-section portion of this study is conducted on individuals with at least a college degree, English Language abilities are not as widely distributed as they would have been had the sample had included all levels of educational attainment. Still, I include a model that focuses on English Language abilities. Model 5 shows that compared with natives, African immigrants in the SPEAKSNOTWELL category earned 69.9% lower annual wages while SPEAKSWELL and SPEAKSVERYWELL leads to a 47.2% and 12.4% decrease in real annual wages, respectively.

The above analysis shows that as expected, citizenship status is absolutely crucial in determining the labor market experience of African immigrants in comparison to natives. Education and English-speaking abilities are also important as discussed.

Throughout this analysis, the coefficients for the demographic variables remain rather stable, statistically significant and consistent with expectations. For example, wages increase with AGE, but at a decreasing rate. There is a significant wage penalty from being a woman (FEMALE). Also, being MARRIED adds to wages, but for married men than for married women as indicated by the negative coefficient to the interaction term (MARRIED*FEMALE).

I also included variables to account for the differences in the sample years. FE2010, FE2011, and FE2012 are fixed effects variables. They capture any differences in earnings that are related to time that are not controlled for by the other variables included in the model. The reference year in interpreting the coefficients to these variables is 2013.

VII. CONCLUSIONS AND DISCUSSIONS

The population of African immigrants has increased significantly in the past few decades. Compared with other foreign born, the African immigrant population is dominated by highly educated individuals with good English speaking skills but they are more likely to come from households with an annual income below the poverty line (McCabe 2011). Are they connected to the employers that can use them the best? How do their wages compare with natives of the same human capital endowments? This paper attempted to answer two related questions. First, what is the labor market experience of African immigrants, and how does it change over time in comparison to U.S. natives? Secondly, what is the role of immigrant specific variables such as education, time of arrival in the U.S., and English-speaking abilities, on their wages in the U.S. labor market.

I follow a cohort of immigrants over a period of twelve years, and conduct a simulation to show how their wages would change over time if they were rewarded according to the wage structure of their native counterparts. Comparing these simulated wages with actual average immigrant wages shows incomplete assimilation. In other words, there was a wage gap at the beginning of the simulation in 2001 of 15.64%, but this gap decreased to 4.9% by 2012. These results are in alignment with human capital theory. The older the cohort got, the more experience they had at their jobs, the more productive they were and the higher their wages climbed.

What these simulation results could not give empirical evidence for was the role of immigrant specific variables such as citizenship status and year of arrival. For this reason, I conducted a cross-sectional analysis that shows that the time of arrival, citizenship status, and English-speaking abilities are indeed important to the wages of African immigrants compared with natives. As evident by the results, advanced degree holders do better in terms of wages. Also, immigrants who have been in the U.S. for more than 20 years are significantly more successful than recent arrivals. The results showing the effect of educational attainment and years in the U.S. on annual wages are also consistent with human capital theory.

The results also showed that citizenship status is important, with immigrants earning lower wages than natives and naturalized immigrants earning more than non-citizens. With such an educated sample, there were few people with poor English-speaking abilities. However, the effect was significant and negative on annual wages.

In the analysis of wage variations, a gap that cannot be explained by differences productivity could be due to discrimination. Workers are rewarded for their productivity, and ideally, workers with equal productivity receive equal wages. What makes the investigation of the immigrant experience in the U.S. interesting, is economic literature that suggests that

productivity for immigrants and natives is measured by slightly different lists of qualities. For example, years in the U.S is not factored into natives' productivity as it is for immigrants. For a native, experience would be gauged by age and past jobs, while for the immigrant, the specific number of years in the U.S. is factored into determining experience. Although it is possible that the wage gap is partly due to discrimination, this paper seeks to acknowledge the variances in determining productivity factors, so it does not include a measure of discrimination. Future research, however, may explore discrimination between natives and African immigrants.

Furthermore, it would be beneficial to follow an African immigrant cohort for a longer period to see if complete wage convergence takes place. In her study of the Chinese assimilation experience from 1994 to 2011, Wu (2012) found that the Chinese cohort equaled and surpassed their native counterparts by 4% by the end of the long sample period. It would be interesting to see if an African cohort shows similar patterns over a long period.

With regard to policy implications, it is evident from the results that encouraging employment of African immigrants in American firms by providing opportunities for long-term residency would help hasten the assimilation process. The results of the simulation showed incomplete assimilation and the results of the cross-sectional analysis showed the significance of citizenship status along with English-speaking abilities, years in the U.S. and educational attainment. Therefore, an effective way to close the wage gap between African immigrants and natives would be to encourage long-term residency and to provide the types of social services to new immigrants that assist them to develop U.S. specific human capital and social networks.

In conclusion, my goal was to attempt to answer two related research questions about the labor market experience of African immigrants in the United States. For consistency, further research could use the same sample for both the assimilation simulation and for the cross-

sectional analysis. In addition to already mentioned possible extensions to this research, there

could be an exploration of the differences among different occupations that African immigrants

engage in. If there is a particular occupation in which African immigrants do very well, it would

be helpful to see if that group assimilates faster than others. This could inform people's decisions

to migrate, and what occupations to choose.

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Appendix Table 1: Regression Results for Natives (t-statistics are reported in hypotheses)
Dependent variable: REALWAGE

Natives	2001	2003	2005	2007	2009	2011	2012
(Constant)	-70663.759	-77580.066	-89593.982	-91448.976	-92243.637	-73494.343	-74657.508
	(-41.748)	(42.764)	(-61.896)	(-54.267)	(-49.956)	(-37.233)	(-35.788)
ONEYEARCOLLEGE	6486.058	6587.756	7260.785	7553.264	7346.125	7336.215	7203.493
	(32.172)	(33.183)	(49.957)	(48.175)	(47.130)	(48.046)	(45.898)
TWOYEARSCOLLEGE	7604.659	8467.392	8914.469	9324.582	9770.751	9674.050	9564.407
	(30.511)	(35.373)	(51.707)	(51.019)	(52.831)	(54.095)	(52.348)
BACHELORS	24043.906	24185.391	27224.308	28563.511	28538.678	28443.738	28630.932
	(131.859)	(135.496)	(208.459)	(205.372)	28538.678	(206.704)	(204.272)
MASTERS	32048.557	33087.859	35739.002	37992.629	36844.420	36503.771	37023.843
	(116.231)	(127.483)	(193.082)	(196.440)	(197.316)	(202.188)	(202.197)
PROFESSIONAL	66141.009	66531.309	75778.897	80295.978	84789.632	81073.018	82867.463
	(141.091)	(148.974)	(237.099)	(236.796)	(255.741)	(252.694)	(254.044)
DOCTORATE	39760.161	42597.011	45004.206	47084.835	47994.247	49831.322	49797.792
	(57.419)	(68.827)	(99.754)	(98.574)	(107.428)	(119.203)	(116.780)
NOENGLISH	-8184.122	377.886	-10460.40	-10093.296	-9822.056	-10959.099	-8099.610
	(-1.306)	(0.087)	(-3.014)	(-2.517)	(-2.421)	(-2.880)	(1.986)
SOMEENGLISH	-3045.121	-2076.947	-3630.929	-5164.323	-5224.656	-3800.585	-3444.372
	(-2.171)	(-1.601)	(-3.886)	(-4.704)	(4.440)	(-3.144)	(-2.851)
GOODENGLISH	-4466.218	-3929.963	-4684.415	-5299.611	-5255.507	-4448.691	-4615.756
	(-4.628)	(-4.116)	(-7.136)	(-7.342)	(-7.131)	(-6.226)	(-6.468)
EXCELLENTENG	-1235.304	-1160.889	-2176.789	-2107.058	-2067.917	-1751.210	-1924.181
	(-3.599)	(-3.421)	(-9.219)	(-8.289)	(-8.187)	(-7.169)	(-7.759)
AGE	3271.952	3578.163	3906.188	3825.504	3631.288	2904.001	2886.887
	(38.424)	(40.990)	(58.592)	(51.341)	(46.275)	(35.870)	(33.788)
AGESQUARED	-33.524	-36.863	-39.971	-38.417	-35.669	-27.651	-27.155
	(-31.491)	(-35.379)	(-52.527)	(-38.417)	(-43.167)	(-35.870)	(-31.806)
FEMALE	-13009.381	-12882.226	-13490.660	-14249.409	-14.715.118	-13962.806	-14318.470
	(-91.326)	(-92.823)	(-133.508)	(-132.333)	(-137.135)	(-133.632)	(-134.155)
UHRSWORK	736.587	737.122	814.252	865.936	960.729	841.965	865.212
	(85.863)	(87.381)	(134.878)	(137.134)	(142.231)	(130.568)	(131.319)
Adjusted R-Squared	.221	.241	.237	.234	.248	.255	.255
Sample Size	265,767	251,279	583,067	582,495	575,350	534,187	532,091

Note: All coefficients are significant at the 99% level

Appendix Table 2: Mean values for Regression Variables for African immigrants

African	2001		2003		2005		2007	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
REALWAGE	42551	42551	46187	46187	49361	50105	49180	50864
ONEYEARCOLLEGE	0.1218	.32722	0.1044	.30588	0.1181	.32280	0.1086	.31115
TWOYEARSCOLLEGE	0.0778	.26802	0.0839	.27729	0.0975	.29664	0.1068	.30892
BACHELORS	0.302	.45933	0.2953	.45637	0.2949	.45609	0.2908	.45421
MASTERS	0.1404	.34759	0.1624	.36894	0.1533	.36030	0.1569	.36373
PROFESSIONAL	0.0541	.22640	0.0517	.22160	0.054	.22603	0.0599	.23738
DOCTORATE	0.0415	.19942	0.0464	.21042	0.0551	.22816	0.0479	.21367
NOENGLISH	0.0059	.07676	0.0036	.05965	0.0018	.04253	0.0014	.03753
SOMEENGLISH	0.0347	.18306	0.041	.19846	0.033	.17859	0.0349	.18355
GOODENGLISH	0.1658	.37208	0.1677	.37377	0.1565	.36342	0.1607	.36735
EXCELLENTENGLISH	0.5178	.49990	0.5076	.50017	0.5558	.49697	0.5471	.49787
AGE	39.14	7.69	41.39	7.69	43.00	7.66	44.86	7.67
AGESQUARED	1591	607	1771	638	1907	662	2071	696
FEMALE	0.3629	.48105	0.3666	.48210	0.3565	.47906	0.3705	.48301
UHRSWORK	44.59	9.41	44.48	9.42	45.02	10.14	45.23	10.25

Appendix Table 2 (Continued): Mean values for Regression Variables

African	2009		2011		2012	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
REALWAGE	51663	50632	51694	51883.	52597	52263
ONEYEARCOLLEGE	0.1152	.31937	0.1226	.32802	0.1039	.30519
TWOYEARSCOLLEGE	0.1087	.31132	0.1007	.30095	0.1082	.31069
BACHELORS	0.2838	.45092	0.2786	.44840	0.2856	.45176
MASTERS	0.1675	.37351	0.1649	.37119	0.1655	.37173
PROFESSIONAL	0.0612	.23980	0.0591	.23579	0.067	.25007
DOCTORATE	0.0554	.22877	0.0513	.22057	0.0534	.22484
NOENGLISH	0.0017	.04144	0.0015	.03853	0.0014	.03784
SOMEENGLISH	0.02	.13986	0.026	.15917	0.0236	.15198
GOODENGLISH	0.1534	.36046	0.1389	.34594	0.143	.35009
EXCELLENTENGLISH	0.5855	.49272	0.5713	.49498	0.5908	.49177
AGE	46.56	7.653	48.28	7.611	49.29	7.576
AGESQUARED	2226	719	2389	744	2487	754
FEMALE	0.3746	.48411	0.3782	.48502	0.3887	.48755
UHRSWORK	44.85	9.632	44.48	9.368	44.19	9.165