

Old But Not Late

July 04, 2022

Abstract

The average arrival ages of US immigrants are increasing - from 26 years in 2000 to 31 years in 2019. Past studies show that older immigrants may pay a penalty for spending less time in host countries than those arriving earlier. The net impact of immigration has been strongly linked to the age of arrival as well as migrants' levels of education. Using multilevel models, I estimate the early-arrival effect on the native-immigrant wage gap of male immigrants from 23 African countries in comparison with their US cohorts. Results show that African immigrants in the US experience a wage-gap and this may increase with arrival ages. However, adult arrivals from Anglophone countries counteract the claim that these arrivals are late and will most likely experience wage inequality - a result strongly linked to higher levels of education, English proficiency and transferability of African-earned degrees of Anglophone adults. This paper shows that the origin of education is salient in examining the economic assimilation of immigrants and the effect of age of arrival varies by these differences and contributes to the need for contextualizing age-of-arrival in describing what is late.

Keywords: Age of Arrival; African Immigrants; Language; Education Migration.

Introduction

Improved wages are salient signals of social mobility, intergenerational mobility and the well-being of immigrants and their children (Greenman and Xie [2008](#)). The wage-gap of immigrants, with other legal, class and racial differences in comparison with US-born cohorts, is often considered an important indicator of wage equality. However, wage equality, a term used to refer to a wage-gap parity between immigrants and natives, often differs by race, class and original conditions (Kreisberg [2019](#)). For example, immigrants' improved earnings do not mean we observed that immigrants achieved equal earnings to their native cohorts with similar education.

The differences in education returns of immigrants may be due to the timing and origin of education – factors that are related and important drivers of wage equality. In this paper, I focus on African immigrants in the US – who are often regarded as highly and more educated than native Americans, on average (Dodoo [1997](#); Dodoo and Takyi [2002](#)). The age of arrival of African immigrants in the US, as well as educational attainment at arrival, intersects with their life course dynamics. Studies examining the role of these interrelated factors are few. Past studies have often focused on age-of-arrival effect, origin-of-education and country-level differences as independent mechanisms of economic assimilation.

The average age of migrants in a host country may indicate the country's demographic and economic potential – which partly informs its immigration policies (National Academies of Sciences, Medicine, et al. [2017](#)). Older arrivals in the US have increased significantly from 2010 with an average of 25.7 years in 2010 to 30.6 years

in 2019 (Camarota and Zeigler [2019](#)). Scholars that focus on the age-at-immigration often show that the wage gap increases as immigrants' arrival age increases and that older immigrant often perform worse than natives (Alexander and Ward [2018](#); Hermansen [2017](#); Schaafsma and Sweetman [2001](#)). Most of these studies compare child arrivals with teenage arrivals, a disproportionate proportion of new arrivals in the United States. These past researches provide us reasons to believe that child arrivals (immigrants who arrived age 1-10) are more likely to reduce the wage-gap than other arrivals referred to as older (teenage or adult) immigrants for three main reasons. (1) The first is an obvious one - spending more years in the United States allows child arrivals more youthful time and resources to assimilate than older arrivals, and (2) child arrivals may have higher transferable skills that are required in the US labour market and (3) they have more networks that improve their chances of economic integration. However, these studies often focus on child and teenage arrivals and not a disproportionately higher number of older arrivals to the United States.

The second and third reasons mentioned above raise a congruent question within the structural assimilation framework (SAF) which enables us to explore whether early arrivals and older arrivals wage differentials if immigrants earn a college degree in the United States. The SAF maintains that education exposes immigrants to information and networks that reduce potential inequality. This may be important for African immigrants who are regarded as more educated (Kollehlon and Eule [2003](#)). Does a college education make a significant difference for African racial groups when received in the US or in Africa and what does this mean to those who arrive at older ages from both Anglophone and non-Anglophone regions? Research points to the fact

that multiple labels for analyzing age-of-arrival have different implications for different outcomes and may have lesser weight on a college education than other levels of education (Myers et al. [2009](#)). Little is known about the heterogeneous effects of the nature, levels and timing of completed education by African immigrants in the US.

The earning potentials of African immigrants are often stratified by country-level differences - with little explanation of why these variations occur. In an extensive study of African immigrants in the US, (Elo et al. [2015](#)) show that older arrivals (18 and above) from Nigeria, Ghana, Egypt and East Africa perform better in the labour market than those who arrived early, with a reverse trend observed among early arrivals from South Africa, Zimbabwe, Senegal, Cameroon. These differences may be peculiar to the waves and years that were studied. (Bleakley and Chin [2004](#)) also found that English fluency at the time of migration, which is often correlated with the dominant language of the country of origin, determines wage equality. Discounting the starting position of racial groups tells us little about the true convergence of wage differences (Case et al. [2002](#); Kreisberg [2019](#)) This connotes that racial groups with similar levels of education may differ in returns to education when compared to natives if their origin of education is less accounted for.

Research also shows that US-degree increases the returns to education for immigrants (Bratsberg and Ragan Jr [2002](#); Friedberg [2000](#)) but the outcomes vary by country of birth. We still do not know how the arrival effect is moderated by immigrants' US-college education and country-level differences. These country-level differences can be indexed by the medium of instruction and dominant language

in origin countries. In this paper, I also argue that receiving at least a college education in the United States reduces the native-wage gap and counteracts any negative effects they may experience that are due to arrive as teenagers.

The questions this paper addresses are (1) whether the effect of an immigrant's US college education overweighs the negative effect of old arrival (in comparison to early arrivals) on wage equality. (2) Additionally, is the wage equality of immigrants from non-English speaking African origin different from those from Anglophone origin? and (3) How does the effect of different levels of education vary across these two origins?

My first expectation (Hypothesis 1) is that the early arrival does not reduce the negative immigrant-native wage gap for Anglophone immigrants and a negative effect is only observed at college arrival ages (above 23 years). I critically re-assessed the limitation in generalized claims that the negative effect of wage equality is associated with older arrivals (Alexander and Ward [2018](#)) as contrasting research has shown that a US education may matter for immigrants from specific countries (Bratsberg and Ragan Jr [2002](#); Friedberg [2000](#)). This holds under the conditions that a US college education is better rewarded in countries with a language and skill consonance with the US. African immigrants from Anglophone Countries are more likely to be positively selected into the US by skills and experiences than non-Anglophone immigrants. This suggests that teen and youth arrivals (10-17; 17-23) from Anglophone African countries do not have an advantage over older arrivals who received their degree in the United States. . Although most teenage arrivals to the US will probably receive their education in the US - can we observe wage-gap differences

between teenage arrivals from Anglophone or non-Anglophone regions even when arrivals from both countries received a US education. The second hypothesis which is a subset of the first hypothesis is that there is a strong and positive effect of US college education on the wage gap and that the effect of US college education is a salient factor in reducing the gap. The third hypothesis (hypothesis 3) is that immigrants from non-Anglophone origins are more likely to benefit from a US degree at any arrival age.

Last, I expect that there is a significant difference between African immigrants with the same level of education by their arrival ages. Immigrant's additional education does not converge with the arrival effect - a higher education level alone does not moderate the difference we observe at early or older arrival ages (Hypothesis 4). I used the American Community Survey by the U.S. Census Bureau which collects regular data on citizenship, educational attainment, income, language proficiency, migration, and employment. This study bridges two gaps in the literature. The first is a need to broaden the scope of immigrants' arrival ages of immigrants and to consider that it may not be negatively sloped for the immigrant's category. The second contribution is to highlight the importance of levels of education in moderating the effect of the arrival age on wage inequality.

From a policy perspective, previous studies on age-arrival effects suggest that older arrivals are less motivated to improve their human capital and may have less marketable work experiences. Nonetheless, educated immigrants may have leverage - their networks and premium skills gained specifically during schooling can converge the native immigrant gap. The generic negative slope of the age-of-arrival effect may differ and tells us nothing when integration strategies are not explored or

regrouped to capture contextual meanings (Lee and Edmonston [2011](#); Myers et al. [2009](#)). The extent to which the strategies of integration constitute an advantage over other forms for the different arrival ages is empirically vague.

This paper contributes to the study of immigrant wage inequality and returns to education. It advances the claim that education is an important mechanism for estimating that the timing of migration may be inadequate for screening potential Immigrants into the US. Early arrivals from non-Anglophone countries are still less likely to converge, and old arrivals from Anglophone countries may still reduce the earnings gap. It also shows that estimating a specific group or age cohort may provide a limited understanding of why age-of-arrival matters in integration studies.

2 Previous Research

2.1 Old Arrivals are not Late Arrivals

This question of what early arrival means has been an important component for assessing immigrant assimilation in the past decades. This is because researchers often refer to early arrivals as child arrivals as the same, and regroup others as late or older. It is important to make a distinction between the two concepts - early and late as different descriptions of child or old arrivals. Child arrivals may not necessarily be early, while old arrivals may not be late.

(Elo et al. [2015](#)) examined the labour market outcomes of Africans in the US and

found that though early arrivals (below 18) on average earn more, their earning differentials between early and late arrivals. Male African immigrants from Nigeria, Ghana, Liberia, Egypt, Ethiopia, Eritrea, and Cape Verde do better when they arrive after the age of 18 – though this paper does not deepen on why we observe these intra-country variations.

Other research focuses on which dichotomy of early/old works the most in describing what is late and their effect on wage equality. (Myers et al. [2009](#)) tested the explanatory powers of multiple age categories and their impact on wage inequality and concluded that examining multiple categories (more than 3) is better than the 3-level generational arrivals category suggested by (Rumbaut [2004](#)). While it is important to examine the effects of age categories on wage equality, assessing the mechanism by which early arrivals influence wages are salient. For example, (Myers et al. [2009](#)) show that early arrival was more important for language proficiency than for educational attainment and that old arrivals bore less heavily on college graduation than high school. This result reflects the need to rethink the impact of arrival ages on college-educated categories, and specifically examine the origin of a college education.

From stylized fact, evidence shows that child arrivals promote human capital potential because where children spend their formative years is important (Almond et al. [2018](#); Basu [2018](#); Hermansen [2017](#); Lee and Edmonston [2011](#); Schaafsma and Sweetman [2001](#)) and in the same vein, teenage arrivals and 1.5 generation might suffer a worse fate than child arrivals. (Chiswick and DebBurman [2004](#); Myers et al. [2009](#)). However, contesting results show older arrivals from Eastern Europe in the US

earn more than those from Northern and Western Europe with the same level of education, despite the Northerners/Westerners having a significantly higher level of completed education (Alexander and Ward [2018](#)). The authors suggest that the differences may be due to (1) cultural differences within the two groups, and they examined critically (2) the origin of foreign schooling as a component of extra education – where higher levels of foreign educational exposure may have no value in the US labour market. Their result shows that the return to education and the country of education was lower for less-educated Eastern European immigrants than for more-educated Northern and Western Europeans when the degree of US educational exposure is examined.

Defining the mechanism by which old arrivals can be described as late requires examining (1) the conceptual dissimilarities between early and late, and (2) how these dissimilarities affect the outcome of interest. The dissimilarities can be described in three forms – cultural, linguistic and human capital differences.

First, the cultural variations capture children's mediation with ethnic awareness and social assimilation. For early arrivals, they can adjust quickly to the host country and develop a lower sense of ethnic cleavage to their country of origin (Hutnik [1986](#); Phinney [1990](#)). Older arrivals, on the other hand, may have convoluted identities by trying to combine the cultures learned in the country of origin with the culture of the new country (Rumbaut and Portes [2001](#)). This suggests that what leads to a discontinuity in the decline of the effect of arrival ages is whether immigrants are likely to be subjected to cultural distortions. Because college education presupposes

universalism and merit, college students may be less likely to be subject to the whims of cultures; as may even be experienced by those arriving during high school. What early means should be defined by whether earliness influences the mechanism at which a given outcome will be achieved?

For the second explanation, it is believed that older immigrants may have limited exposure to English and are thus subjected to a higher wage-gap (Basu 2018; Meng and Gregory 2005; C. Wang and L. Wang 2011). Bleakly and Chin found that immigrants who arrived at 9 have the same English proficiency in both Anglophonic and non-Anglophone countries, after which there is a downturn for older arrivals. They also found that English proficiency increase labour outcomes for immigrants and their spouse (English proficiency also increase the chances of intermarriage). Immigrants with lower English proficiency may find it difficult to adjust to schools (Chiswick and Miller 1994), but college students may not find this challenge for two reasons. First, is related to selectivity - one main criterion for college education in the US is that applicants should have English proficiency or be successful in the Test Of English as a Foreign Language (TOEFL) and second, the structural advantage of education makes immigrants adjust to speaking better English over time - even if they have arrived from non-English speaking regions. College arrivals in the context of language resonance may not be referred to as late arrivals if they are or become inherently proficient in English.

The last explanation on why college arrivals may not be referred to as late arrivals is the human capital differences; it is presumed that those who arrived as a child have earned most of their education in the US and may have higher skill levels. While this

may be true and intuitive, if the United States college education provides the substantial skills that students require and Immigrants are able to adjust to college, the differences between child arrival and old arrivals may not be significant.

2.2 Earning Gap among Anglophone and Non-Anglophone Africans in the USA

The origin of immigrants' education may influence wage differentials. Research shows that this is likely due to two reasons (1) the school-skill gap and (2) lingua franca in the origin country. By school-skill gap, I mean whether we can observe a gap between the nature of schooling received in the country of origin and transferable skills in the host country's labour market. For example, (Coulombe and Tremblay [2009](#)) found that the skill-schooling gap decreased by the annual per capita income of the country of origin. In similar research, (Mattoo et al. [2008](#)) found that the probability of college-educated migrants obtaining a job in the United States varies by country of origin - influenced by the country's expenditure on education and medium of instruction.

Could the skill gap be different in Anglophonic and non-Anglophone countries? In an extensive study of Africans in the US by (Elo et al. [2015](#)), they found that the country of origin has heterogeneous implications in determining their labour market earnings. While they do not focus on the mechanism that drives these differentials, their research shows that the labour market outcomes for Africans in the United States may be nuanced and complicated. Using census data, Kollehlon Eule (2003) found that English-speaking white African men earn more than their non-white and non-

English-speaking counterparts. They suggested that the differences between white-African men and black African men are due to context of perception and that spending more time in the United States does not diffuse pre-migration conditions such as race and the “perception” of the dominant language in an immigrant’s country of origin.

While past research points to an obvious language limitation for non-English speaking immigrants, we do not know if it also explains differences in assimilation. Prior studies have shown that language is a salient determinant of economic assimilation. There are indications that language ability improves both economic and social assimilation (Bleakley and Chin 2004; Chiswick 1978). (Chiswick 1978) shows that English speaking and reading fluency at the time of migration make a difference in the success of immigrants. In another example, Bleakley and Chin (2004) found that those who have English-speaking skills are more likely to complete a reasonable minimum education such as high school which increases their chances to reduce the native-Immigrant gap.

As a consequence, when white natives decide to integrate with Africans, and specifically those of non-English origin, status exchange theory alludes that they are more likely to be attracted to “the best” among their country nationals and with similar education profiles. What this means is that the propensity of non-Anglophone immigrants to benefit from education will be lower, affecting the native-wage gap significantly. This triggers the role of cultural perception on aggregate status - which suggests that the education effect may be reduced due to the immigrants of lower aggregate status. Structural assimilation and horizontal sorting of education may work differently for racial groups that are relatively disadvantaged. This supports the

need for a general consideration of the baseline status of groups as a way of estimating the impact of integration factors that are likely to bridge the native-status gap (Kalmijn [2012](#)).

Because these assimilation factors may be highly interrelated, this paper evaluates the relative importance of pre-college arrivals on these components of African immigrants. I expand on previous literature that studies the economic inequality of the African community in the United States by testing the gains from early arrival after immigrants' migration decisions and the pathways that are assessed. A sharp division of pre-college and post-college arrivals allows me to subsume the subsets of integration decisions by African immigrants. These I believe are mainly influenced by their arrival age for transnational college education.

In addition, focusing on African immigrants allows the estimation of the acculturation received in origin countries and whether it provides immigrants with a social or economic benefit that early arrival may not provide. Most African countries are franco phonic, and this may influence how the "average" African is assessed in the labour market. However, Immigrants from English-speaking countries are expected to have different educational experiences and language proficiency in relation to those from non-English speaking origins. While previous research often suggests that all pre-college arrivals may benefit nonetheless, they do not consider that immigrants' pre-migration conditions may not benefit all immigrants. I provide an analysis that the early arrival positive effect is still important for non-Anglophone countries, whether they received a US college education or not.

One important factor to assess is whether college arrivals from non-Anglophone countries are self-selected based on their English proficiency – specifically migrants who arrived independently without their families and were accepted to the United States for educational purposes. I controlled for the effect of relative education, which is the probability of finding migrants from the same country with similar levels of education. I found that Tunisia and Cameroon are two non-Anglophone countries with higher relative college-education and migrants with high English proficiency. In Tunisia, there has been widespread English acceptance (at the expense of French) in schools, advertising and in the workplace and in English for specific purposes (ESP) courses. For example, English was taught in schools 3–4 hours/week to all students. In the same vein, Cameroon may as well qualify as an Anglophone country with 25.2 percent of its population in the English-speaking regions, compared to 46 percent in French-speaking regions. In the paper, the regions of migrants who originated from Cameroon were not determined. It is however likely that Cameroonian and Tunisian immigrants have higher English proficiency.

2.3 Beyond Human Capital: Does the origin of education matter?

Beyond the human capital components of education, an immigrant's education may provide them with the networks and information that promote economic assimilation. This may happen in two ways. The first largely aligns with the structural assimilation approach that describes the institutional support and networks that education provides – which is embedded within the system of formal education. Put simply, education breaks the structural constraints and creates leeway for connecting Africans and Whites which promotes assimilation such as interracial marriages,

intercultural networks and information. Second, it may be based on the intuition that a college education provides immigrants with crucial skills needed to succeed.

But even when we consider these two points aforementioned, the “more” educated status that is attributed to African immigrants may not improve their opportunity structure, if the effect of (1) the level of education (college education) that particularly promotes channels for networks and interconnections is not disentangled, and (2) the college education was not received in the US. The origin of college is critical to understanding the native-wage gap of African Immigrants in the US. While it is often cited that educated immigrants are positively selected from their origin countries; the selectivity argument does not preclude that African immigrant are better prepared to compete with natives. Therefore, for immigrants that receive their degrees in their origin country and not in the US, we may know little about the education difference and its impact on the wage gap. I do not attempt to decompose the quality effect of the education, but to redress the claim that the origin of the college degree can discount the claim that early arrival matters. When African immigrants receive their high school education in Africa or somewhere else, and arrive in the United States much older, a college education in the US may reduce the importance of arriving much earlier (Bratsberg and Ragan Jr [2002](#); Friedberg [2000](#)). On the other hand, an immigrant from a highly educated group where the dominant language is English may also not be affected by the US college education penalty.

A number of studies show that Blacks, who are often more educated than natives in the United States earn lesser wages – an indication that the wage variations may be unexplained by earnings-related attributes (Dodoo [1997](#); Dodoo and Takyi [2002](#);

Kalmijn 1996), Educated Africans in the US may be affected by discrimination and lower education status of their parents (Haveman and Wolfe 1994; Mulligan 1997). While this paper does not observe this directly, I crudely control for unobserved heterogeneity by controlling for group variances in a hierarchical model where country-level differences are observed. This includes the immigrant's English-speaking rate per capita at the year of migration. I expect that the differences in African countries are likely to largely inform their pre-migration experiences. Education increases access to premium earnings and increases economic parity in the United States (Ellwood 2000) but what is still obscure is whether the Immigrant may benefit more from a US education in itself over education received elsewhere.

The native-immigrant wage gap debate is also tied to the status-exchange model where immigrants' assimilation is believed to be rationalized by natives. This model presupposes that natives and immigrants consider the payoff and incentives before making the decision to integrate. For instance, it is possible immigrants with a college education are more likely to for example intermarry - due to an education premium associated with "marrying up" or what is referred to as hypergamy since education may promote social status.

Another strand argues that the status-exchange and structural assimilation do not fully explain the differences in integration patterns, and most of the effects that are often unexplained in analytical findings are due to the immigrant's cultural enclave. The nature of cultural affinity ascribed to "blackness" may restrain the role of education in the interracial marriage market. Older arrivals may be more likely to

cleave to racial cohorts and this may reduce their chances of assimilating, affecting their chances of getting jobs similar to natives with the same college education. The argument is that education may not necessarily have an assimilation effect on immigrants with high ethnic preferences. While this explanation may affect the assimilation of Immigrants in general, it does not displace the structural role of educational institutions in improving opportunities for integration. Additional schooling and higher levels of education inherently integrate immigrants. This varies by the location where most of their education was received and the propensity to claim citizenship in the US, spousal education and number of Immigration years. What we know from the literature is that there is a substitution effect.

3 Data and Methods

3.1 *Conceptual Clarity*

I identify the difference between two forms of advantages that can accrue to an Immigrant which I conceptually define as gains or premiums. Immigrants gain when they are able to positively converge the economic gap with native Americans. On the other hand, a premium occurs when an Immigrant earns close to or more than a native to include only outcomes that are propelled by their integration conditions (pre-migration conditions) or strategies. A gain is not necessarily a premium if Immigrants are still below the average outcome of a typical native with the same opportunity

structure. Early arrivals denote what has been largely described in the literature as those arriving before age 10, while college arrivals specifically cover those without a college education before arrivals - often between the ages of 19-24.

3.2 *American Community Survey (2010-2020)*

I used the cumulative survey from 2010-2019 (19 years) of the American Community Survey. The survey is credited to the U.S. Census Bureau which collects regular data on citizenship, educational attainment, income, language proficiency, migration, and employment. The survey is sent to approximately 3.5 million residents per year, and the weights are provided. The ACS annual survey samples 1 percent of the US population. The migrants in the sample have been in the United States for an average of about 11 years. The data also includes the weight of each household, which was included in the analysis to generalize to the United States population.

TABLE 1 HERE

The American Community Survey used in the study is sent to approximately 3.5 million residents per year, and the weights are provided. The average year of immigration in the data sample is 11.

3.3 *Dependent Variable*

Log Hourly Earnings: This is based on pre-tax earnings from wages and salaries from the preceding year before the census. – that is, money received as an employee – for the previous year. Hourly earnings are derived by dividing annual earnings by the multiplication of weeks and hours worked per year. Hourly income is top-coded at 5,000 USD. To make the wages comparable across time, I used the CPI-U multiplier available from the Bureau of Labor Statistics to convert dollar figures to constant 2020 dollars.

3.4 *Explanatory Variables*

Age of Arrival: Rather than Age, I used arrival ages to capture assimilation trends and temporality across cohorts. It is derived from the deduction of the years since the Immigrant's current Age. To categorize the age of arrival, I coded it into two different bin types. One is categorized into two-year bins (0-1, 2-3, etc) to capture the variety of slopes more closely, and the other captures the differences in college entry ages (1-5, 6-16, 17-22, 22-25 etc.). However, the ages included are those between 20-50 to capture those in the active working categories. Arrival cohorts only include those who arrived in the US in the past 25 years (1995– 2020).

Education: This indicates the immigrant's educational attainment, as measured by the highest year of school or degree completed. I excluded those who are currently enrolled to fully capture the independent impact of schooling on wage-gap. Education was divided into four parts (High School and Below, Some College, College and Post College). Descriptive statistics show that those who have attained more than 4-years

of a college education are significantly different and had to maintain a separate bin.

Country of College Education: This is the binary variable that shows where a college education was received. Because there are no direct measures for this in IPUMS, I follow similar methods used (Dodoo 1997) to compute this variable. Other methods proposed by (Alexander and Ward 2018; Friedberg 2000) might be a biased measure for African immigrants that do not have continuous education and are likely to have worked in Africa or spend some time planning to migrate.

3.5 Control Variables

Citizenship status: reports the citizenship status of respondents, distinguishing between naturalized citizens and non-citizens.

Year of Immigration: reports the year in which a foreign-born person entered the United States. To control for non-linearity, the quadratic form was also specified.

Gross Domestic Product (GDP) per capita: calculated as the percentage change in the real GDP per capita between two consecutive years for each immigrant at the year of migration. This was sourced from the World Bank Data.

English proficiency: English proficiency was attributed to three discrete scales. Immigrants who speak only English and speak very well are categorized “Grade 1”; those who speak well (but not very well) are “Grade 2” speakers, while Immigrants who do not speak or do not speak well are referred to as “Grade 3”.

Work Experience: a crude measure derived by subtracting Immigrant’s current age from schooling years from six years of compulsory education – with the assumption

that Immigrants did not stop schooling.

Immigration Cohort: I divided this into five-year intervals: 1995-1999; 2000-2004; 2005-2009; 2010-2014; 2015-2019

Interracial Marriage/Intraracial/Others: Interracial marriage includes the marriage of a male African immigrant to a white female native rather as against marrying a non-native female Black (intra-marriage). I only included those married for the first time to avoid the bias that may be due to marriages before migration. The assimilation effect of multiple marriages is hereby excluded. Other categories such as single, separated etc. are referred to like others.

Region: identifies the region and division where the Immigrant's housing unit was located.

3.6 Country-level Variables

Country-Language: This is a dummy variable where English-speaking (ES) countries are those where the English language is spoken by the majority of people in the country even when other languages coexist. The source was from the World Fact Book. I included 11 ES countries (Ghana, Gambia, South Africa, Kenya, Libya, Liberia, Nigeria, Uganda, Tanzania, Eritrea, Seychelles) and 13 Non-English-speaking (NES) countries (Algeria, Guinea, Sierra Leone, Sudan, Morocco, Rwanda, Egypt, Senegal, Togo, Tunisia, Cameroon, Congo and Ivory Coast). Countries omitted are not fully available within the time frame of the sample.

4 Analytical Strategy: Random Intercept Model

I used a model that includes a random intercept to capture the country-level group variance in the level of the wage-gap and a random slope to capture the variance in the age-of-arrival effect on income. I adopt the random intercept model which allows controlling for system random variations in pre-migration country heterogeneity that is likely to be constant over the period considered and not correlated with other independent variables. Using multilevel regression, I examine the relative odds of arriving early on the economic outcomes of African Immigrants.

I regressed the wage gap with age-of-arrival, education, intermarriage, immigration status and other control variables discussed above. The logit or log odds of the wage-gap is an additive function of covariates indexing male African Immigrants according to age from 20-50.

The wage gap estimate adopted is aimed at avoiding the collinearity of age and age-of arrival. This requires an adjustment of age when examining differences and an effect on income. Income and age-of-arrival are also linearly related to age. The idea is to create a measure of age that allows me to examine the effect of age on income without incorporating the effect of income on age. The wage-gap is the Immigrants predicted logged wages derived from the age-specific logged wages of the native white stocks from their current wages. I estimated the age-earning profile of native Americans from the fitted values of regressing income on the fixed-effect of age. The residuals from the derived estimates were subtracted from the immigrant's wage. The

income-age profile is modelled using a full range of age-fixed effects. The final results are estimated from the deviations from the native age-earnings profile while regressing age-of-arrival on the immigrant's age at arrival, controlling for other variables. I adopted the standard method in wage-differentials estimation.

While previous methods mainly controlled for the years in the United States, I estimated the effect with controls for individual-invariant unobservables that are correlated with age at arrival including additional education (beyond 2 years of college), inter-racial marriage, sex, citizenship status, year of immigration, year of marriage and language proficiency.

Because older and early arrivals may be different in unobservable ways, I used a multilevel model where the immigrant's country of origin was the first level. This method controls for the effect of differences in country of origin including the quality of education received on the wage-gap. The intercept and baseline odds were included for all values of covariates are zero. I interacted with a vector of coefficients for the main effect of predicted education from the age-profile of native Immigrants, indicated by high school or less, some college, and college and post-college dummies, all relative to less than a high school or less degree. I included vectors of coefficients for the interactions between education dummies and age-of-arrival, and also included the interaction of education on intermarriage and accounting for older arrivals and intermarriages.

5 Descriptive Statistics

5.1 Earning and Wage-gap on Age-of Arrivals

First, I present the descriptive result on the age-of-arrival effect on earnings and also on wage-gap from both origins. Results follow what has been found by (Hermansen 2017; Myers et al. 2009) that younger ages of arrival have higher levels of economic assimilation and achievement. This suggests that younger immigrants are a lesser burden to the United States and should be preferred to old arrivals - although this prior research often considered immigrants 18 years or below - with claims that arrival ages above the age of 18 are more likely to arrive independently and are influenced by other factors.

I analyzed all arrivals by (1) adjusting for pre-migration conditions including country of college education and pre-migration country language. Following Borjas (1995), we also know that most arrivals are adults- as, in the current sample, only 13.7 percent (in non-Anglophone origins) and 17.3 percent (Anglophone) of immigrants arrived below the age of 18.

Results on earning and nonetheless consistent with previous work which shows that older arrival ages earn less than younger arrivals from both origins - depicting a negative effect of arrival-ages on their economic success. The median hourly wages of Anglophonic immigrants were 18.5 USD while those from non-Anglophone countries were 16.1 USD, compared to the US hourly wage of 19.1 USD. The log wage-gap was also stronger for non-Anglophone immigrants which were reduced by 0.5 and 0.4 for Anglophone immigrants. As regards the wage gap which is adjusted with the age-specific earnings of American natives, the gap reduces by age for Anglophone immigrants. For non-Anglophone immigrants, wage-gap is reduced by age until the

ages of 35–37.

5.2 Does relative college attainment increase by language proficiency of Origin–Country?

I assessed the relationship between the mean language proficiency and the proportion of African immigrants with a minimum of a college education. The gradient of Figure 1 shows a strong positive relationship between mean language proficiency (derived from transforming categorical responses into a linear scale with the same measure) and college/post-college attainment. First, we observe that countries with immigrants of higher English proficiency are more likely to have immigrants that have attained a higher college and above degrees.

Second, from Figure 1, we observe that there are more immigrants from Anglophone countries in the upper bound of the curve. This suggests that Anglophone immigrants are more likely to be positively selected by higher levels of education than immigrants from non-Anglophone countries. We observe in Figure 1 that Anglophone countries including Nigeria, Libya, South Africa, Zimbabwe and Uganda are the most educated in the United States. South African immigrants have the highest English proficiency while Egypt immigrants are the most educated in the US, followed closely by Nigerians.

On the other hand, results show that immigrants from non-Anglophone countries are in the lower bound including countries such as Congo, Somalia, Sudan, Guinea, Eritrea, Togo, Algeria and Rwanda with Egypt as an exception. Chiswick (1978) had

written about the benefits of higher levels of education on language proficiency – that an additional year of education is associated with a higher probability of English proficiency. One may expect that there is an indirect positive link between Anglophone countries and higher levels of education that increases their earning potential.

Results from Ghana in relation to immigrants from non-Anglophone countries were a bit surprising. Though Ghanaian immigrants have higher English proficiency, they have relatively lower tertiary attainment than immigrants from Tunisia, Cameroon, Ivory Coast and Algeria that are non-Anglophonic. The difference observed between these countries and Ghana may be due to lower preferences for college degrees or education in general.

FIGURE 1 HERE

5.3 Relative Tertiary Attainment and Mean Wage-Gap by Country

Figure 2 shows that the track with which language affects college and post-college attainment is similar to the manner in which college and above attainment reduces the wage-gap. In other words, results show that there more English-speaking and Anglophone immigrants are able to reduce the wage gap more than non-Anglophone

countries- the relative exception again is Egypt and Ghanaian immigrants.

Furthermore, results show that Tanzanian immigrants, though have lower English proficient immigrants than Ugandan Immigrants have relatively higher chances of a lower wage-gap. Also, immigrants from Egypt, Tunisia, Uganda and Tanzania are able to lower the wage-gap than Nigerian immigrants though Nigerians have higher English proficiency than immigrants from these countries. These differences are likely to be due to other non-educational factors, for example, their macro-structure and migration policies. I include the Gross Domestic Product (GDP) per capita for each immigrant at the year of migration which is calculated as the percentage change in the real GDP per capita between two consecutive years. An important finding here is that English language proficiency and the proportion of immigrants with tertiary education are similarly sloped with few exceptions.

5.4 Educational Attainment, Age-of-Arrival and Wage Gap

Figure 3 shows that African immigrants have higher returns to higher levels of education. This is not surprising considering the strong positive correlation between education and wages. What is more interesting is the age-of-arrival effect and where I observed the highest significant differences in means between each level of education. I observed a steady difference between those with 4 years of college and those with some college across all arrival ages till arrival-age of 38. This means that having a college degree as opposed to some college or high school (or less) makes a significant difference and matters irrespective of the arrival period. This provides the

basis for the key question of this paper – as to the difference a college degree makes – and to further analyze its heterogeneity across the origins where the education was received.

Additionally, I compared those with college degrees and those with additional education above college and found that there is a significant difference between them from the arrival ages of 18-40. There is no significant difference between these college-educated and above college-educated African immigrants that arrive earlier (18 or below). This means older arrivals are more likely to benefit from above-college degrees as compared to immigrants with only a college degree than early arrivals. What I observed is that the negative effects of age-of-arrival occur at different arrival ages for each educational level. For example, the rise in wage-gap for African immigrants with above college degrees begins at the arrival-age of 20. For African Immigrants with some college and high school (or less) degrees, the decline stems from the arrival-age of 18. For African immigrants with only 4-year college degrees, the decline starts at the arrival-age of 11, an earlier age compared to the other levels.

FIGURE 2 HERE

FIGURE 3 HERE

6 Results

6.1 *The Effect of US College Education on Wage Gap*

I begin the analysis with a preliminary discussion on the downward slope of the wage-gap of immigrants which is shown in Model 1. The result in this model shows arriving at older ages 11-17, 18-23 and 24-27, 28-30, 31-40 (compared to arriving as a child arrival: ages 1 -10) increases the wage-gap by 17.1, 23.5 18, 12 and 19.5 percent respectively. Before controlling for the effect of US college education, results shows that early arrival matters and this is a determinant in reducing native-immigrant wage gap in the US. However, with the full inclusion of all controls, as shown in Figure 4 & 5 that for immigrants from Anglophone origins (A) The slope begins to declines at post-college arrivals ages (27 and above) but this is not observed for non-Anglophone immigrants and (B). Early arrivals (1-18 years) among Anglophone immigrants are not able to close the wage-gap, unlike non-Anglophone immigrants that benefit from early arrivals even as a non-degree immigrant. This result is in parity with expectations as stated in Hypothesis 1 that the wage gap does not fall continually by arrival ages for Anglophone immigrants and that the early arrivals advantage are salient for non-Anglophone immigrants (C). Anglophone immigrants without a degree experience a drop in the wage gap from early arrival ages.

TABE 2 HERE

The implication of the analysis above is that a US college degree redirects the direction of the age-of-arrival curve for Anglophone immigrants, especially in the early arrival ages for those who a US ocolleg degree and changes little for those without a degree. This accentuates what we find in Model 1 (including immigrants from both origins) that a US college degree plays an important role in reducing the wage gap - closing the wage gap by 23.4 percent. But as we will discuss in the subsequent section, a US college education differs for Anglophone and non-Anglophone immigrants per their timing of arrival to the US. Again, a US college education as used here means a terminal degree that is either college or post-college that is received in the United States. For Anglophone immigrants as observed in model 2, a US degree, compared with non-degree holders, improves the chances of wage parity by 16.6 percent and 29.5 percent for non-Anglophone immigrants. This result is similar to what was found by (Dodoo [1997](#)) that a US degree increases the earnings of Male African immigrants by 29.1 percent over a non-degree immigrant.

Furthermore, I discuss whether there are differences in US college education and African college education for immigrants from both origins. I observed a larger effect for non-Anglophone immigrants than for English-speaking Africans in the US (Hypothesis 3). For Anglophone immigrants, while a US degree reduces the wage gap by 16.6 percent over a non-degree immigrant, an African college degree reduces it by 14.5 percent. This gap is larger for non-Anglophone immigrants, where a US degree gives a 29.5 percent premium but an African degree reduces the gap by 16 percent. A US college degree is more beneficial to non-English speaking Africans than those

from Anglophone origins. It is important to note here that the effect of Africa-earned degrees is more likely for arrivals above the age of 21 since only very few immigrants would have earned a degree below the age of 21 before arriving in the US.

FIGURE 4 HERE

FIGURE 5 HERE

6.2 *Age-of-Arrival differences for Anglophone and Non-Anglophone*

Immigrants

Model 2 and 3 (all controls inclusive) in Table 2 includes the result of the effect of US college education on age-of-arrivals for both origins. I already showed that a US degree reduces the wage gap for Anglophone immigrants by 16.6 percent and for non-Anglophone Africans by 29.5 percent, both at significant levels. Could the differences between these two origins be dependent on age-of-arrival, English language proficiency or additional education received in Africa vis-à-vis US?

I return to Models 2 and 3 from Table 2 which provide results for both origins separately and discuss the role of college education received in Africa. As previously mentioned, the result shows that in relation to non-degree holders, Anglophone immigrants benefit significantly from the US degree received in Africa than those from non-Anglophone countries. We can infer two conclusions from this (1) it could

be that the penalty between a college degree and a non-college degree holder among Anglophone Africans is very high. (2) chances are that education received by Anglophone Africans is found more valuable in the US than those received by non-Anglophone immigrants. This is also a consequence of having more highly skilled immigrants among arrivals from Anglophone origins

Second, I discuss hypothesis four which answers the question of whether the result we observed in hypothesis one for Anglophone immigrants may vary by higher levels of education. By examining whether the effect of age-of-arrivals changes by earning a US degree, the visualization in Figure 5, it appears that Anglophone immigrants with no-degree and Africa-earned college degrees are not different if they arrive below the age of 18. This means we do not observe a marked advantage for pre-college arrivals (below 18) with an African-earned degree. Because, intuitively, there are likely very fewer pre-college arrivals (below 18 years) that earned an African degree, I focus this analysis on the differences we observe across educational levels after the ages of 18. We observe a large difference between holders of a US college degree and no degree for pre-college arrivals. The differences in wage-gap by a degree or non-degree status are observed across all arrival ages - which is similar to results found in Figure 3.

When we observe early arrivals from non-Anglophone regions, as shown in Figure 4, there is a contrast. First, the typical downward sloping age-of-arrival curve is retained. Second, we found that what matters more for early arrivals is not higher levels of education but that they arrived early. Since we ignore African-earned degrees below the arrival age of 18, because these categories are less likely, we still do not

observe significant differences across educational levels for non-Anglophone immigrants. After the arrival age of 27, it does not make a difference whether the college education of non-Anglophone immigrants was received in the US or Africa, the wage gaps are relatively similar. A US college degree may not change the importance of post-college arrivals (above 23 years) for non-Anglophone immigrants. We already observed that non-Anglophone immigrants benefit more from US education, in line with hypothesis 3, but the results as shown in Figure 4 confirm that a US education is more important in the early arrival periods for non-Anglophone immigrants and at all arrival ages for Anglophone immigrants in reducing the wage gap.

The third is a reference to the difference in US college education across origin countries and the language proficiency of immigrants. In the descriptive analysis, we already observe a lower level of English proficiency for immigrants from non-Anglophone origins. Results in Model 5, Table 2 show that English language proficiency does not strongly predict a reduction in wage-gap for Anglophone immigrants though it has a non-significant positive effect. Anglophone immigrants are not likely to receive any advantage for being proficient with the language as the impact of the language on them is likely to be expressed indirectly through other strategies of assimilation including education. On the other hand, non-anglophone immigrants who are proficient in English reduce the wage-gap by 12.6 percent - results statistically significant. This again points to the need to assess the spectrum of pre-migration origin as a basis for analyzing the effect of wage differentials. On one hand, non-Anglophone countries do not predict wage-gap parity, on the other hand, Anglophone immigrants benefit more from English language proficiency.

7 Conclusion

This research points to what other research has found - that age-of-arrival is important and that education is crucial for lowering wage immigrant native wage gaps (Almond et al. 2018; Basu 2018; Hermansen 2017; Lee and Edmonston 2011; Schaafsma and Sweetman 2001). What we do not know is whether the origin of education counteracts the effect of early arrivals specifically for highly educated immigrants with an educational advantage than can rebuff previous assimilation disadvantages. This paper shows that a US degree plays a role and increases the chances of reducing the wage-gap for African Immigrants and non-Anglophone regions. However, I answer the question of whether a US college education makes a difference on adult arrivals and whether we can refer to adult arrivals as latecomers.

Findings in this paper support the claim that wage-gap parity depends on the dominant language in the country of origin which may be correlated with a higher level of educational attainment. As already highlighted, we know from previous research shows that child arrivals (1-10) years are assimilated better than older ones. However, among anglophone immigrants, we observed that the early-arrival effect does not matter when immigrants have a college degree, compared to those without a degree where a steady decline by arrival age is observed. This result is important because about 65 percent of Anglophone African immigrants in the sample arrived in the US and arrived within this category (1-27 years), which is close to the average age-of-arrival in the US. This result may be because anglophone immigrants are more likely to have a higher level of education - as shown in this paper, and are more educated than their non-Anglophone counterparts and US counterparts (Dodoo

1997). In addition, we also observe that the degree received by Anglophone immigrants in their home country may be highly valuable in the US compared to those from non-Anglophone countries. This suggests that Anglophone immigrants are likely to be positively selected by education and work experience from the country of origin and the older ages at which they arrive may be counteracted by their higher-level skills and occupational exposure. The variations observed from both Anglophone and non-Anglophone origins are likely due to lower educational levels and English language deficiency. The last and important finding is that earning a US degree are not salient for the wage-gap parity of non-Anglophone immigrants when they arrive after post college years (after 27 year) to the US. On the contrary, the differences for receiving a US college or Africa-earned degrees retained across all arrivals for Anglophone immigrants.

This paper has four important findings. First is that a US-college education is a salient in examining wage gap and the effect of age-of-arrival differs based on country of origin. Second, higher levels of education are important for immigrants arriving from non-Anglophone countries and do predict their wage-convergence with natives - arriving early for them does not close the gap. Third, this paper contributes further to the need for contextualizing age-of-arrival in describing what is late. (Myers et al. 2009) found that age-of-arrival matters only for English language acquisition and somewhat less for other socioeconomic variables. It is also further corroborated by findings from (Kollehlon and Eule 2003) that show that old arrivals from specific African countries perform better. Last, this paper shows that the education gradient does not vary significantly by immigrant's arrival ages. We observed a similar effect of arrival ages across different educational levels except for

Anglophone immigrants arriving below the ages of 18 years.

I demonstrate that older African arrivals can have similar outcomes to early arrivals and that earning a US-degrees are important assimilation strategy for closing the wage gap. The question of what can be referred to as late is largely addressed. What should be considered more critically are three factors. (1) Whether immigrants received the extent to which the home-country education is transferable in the US labour market and the (3) extent to which they can speak English. Immigrants who are able to mitigate these shortcomings are not late arrivals.

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322.

TABLES AND FIGURES

Table 1 Conceptual Clarity on Early and Old Arrivals by Schooling

Terms	Definition	Schooling Implication
Educated Migrants		Immigrants who are currently in the United States who have attended at least two years of college and have lived in the United States for 10 years, on average.
Early Arrivals		
Child arrivals	Arrival at the ages of 0-11.	Arrivals in this category are likely to have received their elementary and post-elementary school education in the United States.
Teenage (Pre-college) Arrivals:	Arrival at the ages of 1-17.	Arrivals in this category are likely to have received their high school and post-high school education in the United States.
Youth arrivals	Arrival at the ages of 18-23.	The schooling implication for these arrivals cannot be determined by their arrival ages. They are likely to have received their college education in the United States or in Africa
Old Arrivals		
Post-college arrivals	Arrival at the ages of 24-27 and 28-30.	Arrivals in this category are likely to have received their college education in Africa

Post-college arrivals	Arrival at the ages of 31- 50	Arrivals in this category are likely to have received their college and post-graduate education in Africa, and only received additional schooling in the United States.
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Table 2 Random intercept model of age-of-arrival and US-education effect on African immigrant wage gap

Wage-gap derived from age-fixed effect of US-born male workers.						
	No Edu. Origin & Wrk. Exp	All Controls without interactions		All Controls with interactions ¹		
	Full (1)	Anglo (2)	Non-Anglo (3)	Full (4)	Anglo (5)	Non-Anglo (6)
Arrival Ages						
11-17	-0.009	0.144***	0.047	0.099**	0.171***	0.022
	(0.029)	(0.051)	(0.055)	(0.044)	(0.062)	(0.063)
18-23	-0.071***	0.213***	0.006	0.122**	0.235***	0.001
	(0.027)	(0.067)	(0.070)	(0.053)	(0.074)	(0.075)
24-27	-0.197***	0.208**	-0.082	0.022	0.180**	-0.132
	(0.028)	(0.084)	(0.086)	(0.064)	(0.091)	(0.091)
28-30	-0.294***	0.147	-0.139	-0.046	0.120	-0.216**
	(0.030)	(0.097)	(0.098)	(0.074)	(0.105)	(0.104)
31-40	-0.403***	0.164	-0.260**	-0.056	0.195	-0.300**
	(0.030)	(0.115)	(0.116)	(0.085)	(0.120)	(0.121)

¹ interactions of Agearrived*OriginOfDegree. This model was mainly used to derive Figure 4 & 5.

41-50	-0.532***	0.095	-0.311**	-0.121	0.093	-0.315*
	(0.039)	(0.149)	(0.154)	(0.113)	(0.156)	(0.163)
Degree Ref: Non-degree						
African degree		0.145***	0.160***	0.151***	0.178**	0.084
		(0.026)	(0.024)	(0.056)	(0.074)	(0.085)
US degree		0.166***	0.295***	0.238***	0.201***	0.276***
		(0.031)	(0.030)	(0.042)	(0.059)	(0.060)
YRS in USA	0.0002	0.016***	0.008	0.010***	0.016***	0.007
	(0.003)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
I(YRS in USA) ²	-0.0001**	-0.0002	-0.0002**	-0.0002**	-0.0002	-0.0002**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Marriage: (Ref:Single/Others)						
Interracial marriage	0.144***	0.266***	0.083***	0.138***	0.264***	0.081***
	(0.019)	(0.030)	(0.026)	(0.019)	(0.030)	(0.026)
intraracial-marriage	-0.031**	-0.047**	-0.028	-0.039***	-0.047**	-0.029

	(0.014)	(0.018)	(0.020)	(0.014)	(0.018)	(0.020)
GDP	0.004***	0.004***	0.003	0.004***	0.005***	0.003
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
I(GDP2)	-0.0001*	-0.0001**	-0.0001	-0.0001*	-0.0001**	-0.0002
	(0.00003)	(0.00003)	(0.0003)	(0.00003)	(0.00003)	(0.0003)
Work Experience		-0.033***	-0.019***	-0.024***	-0.032***	-0.016***
		(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
I(Work Experience) ²		0.001***	0.0004***	0.0004***	0.0005***	0.0003***
		(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Schooling years	0.061***	0.036***	0.031***	0.030***	0.033***	0.029***
	(0.002)	(0.006)	(0.005)	(0.004)	(0.006)	(0.005)
Eng. Proficiency Ref: Low						
Good English Proficiency	-0.036	0.015	-0.015	-0.012	0.014	-0.011
	(0.028)	(0.062)	(0.031)	(0.028)	(0.062)	(0.031)

A

African Immigrants with college-education and above by english proficiency

Source : IPUMS, 2000-2019

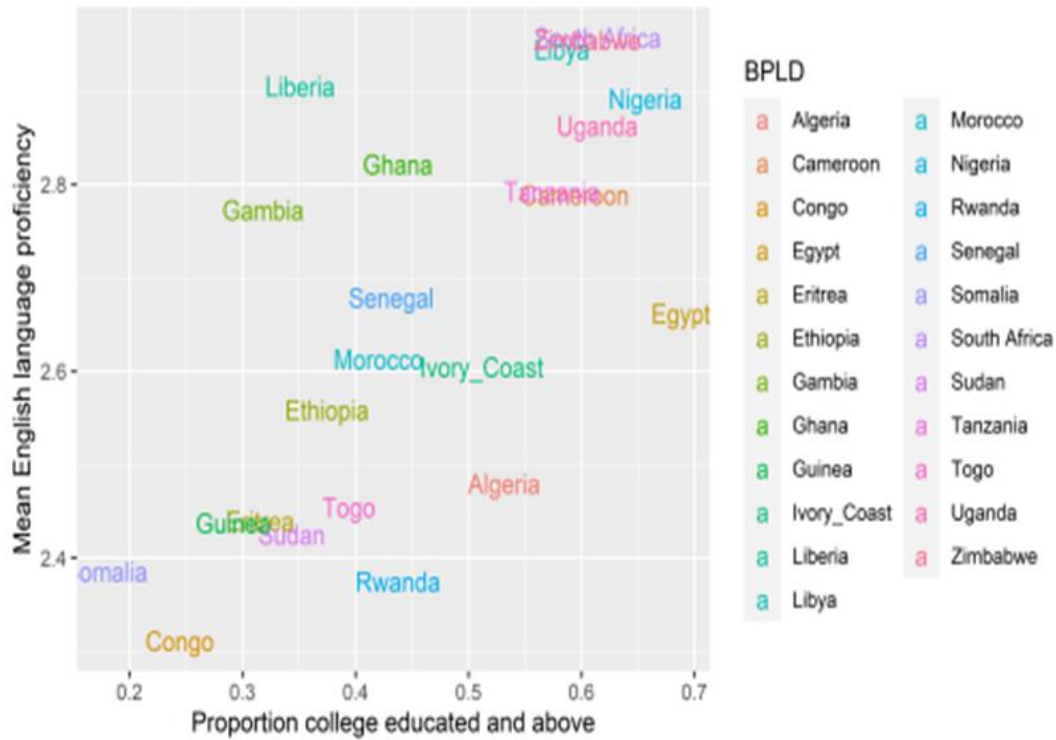


Figure 1: African Immigrants with college and post-college degrees by English language proficiency

A

African Immigrants with College-education and above by Wage-gap

Source : IPUMS, 2000-2019

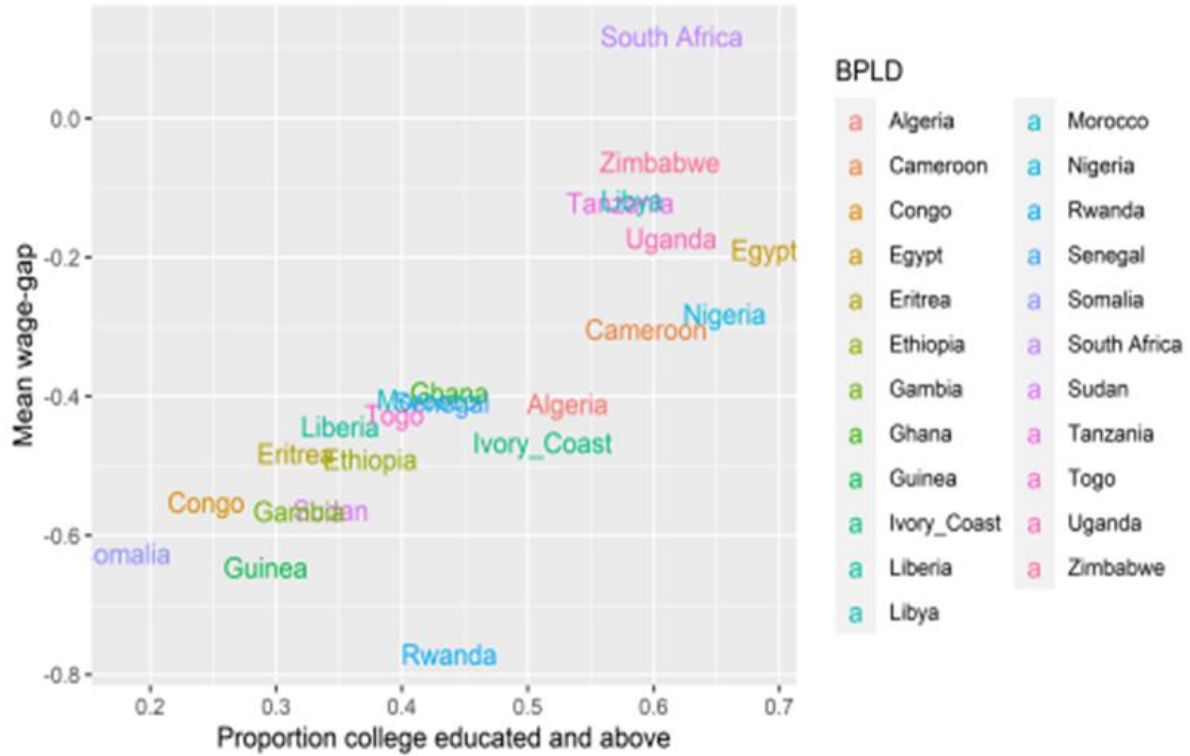


Figure 2: African Immigrants with college and post-college degrees by wage gap

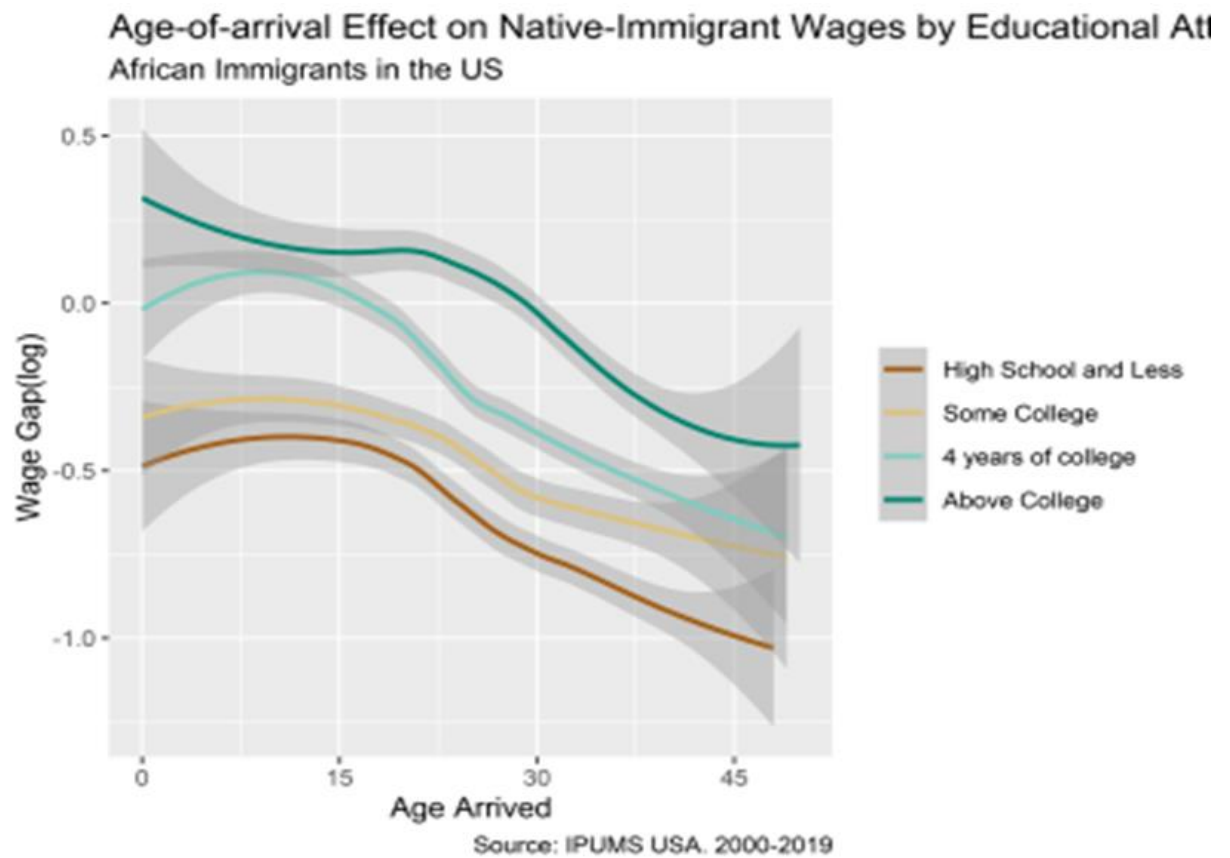


Figure 3: Age of arrival effect on Wage-gap by Educational Attainment

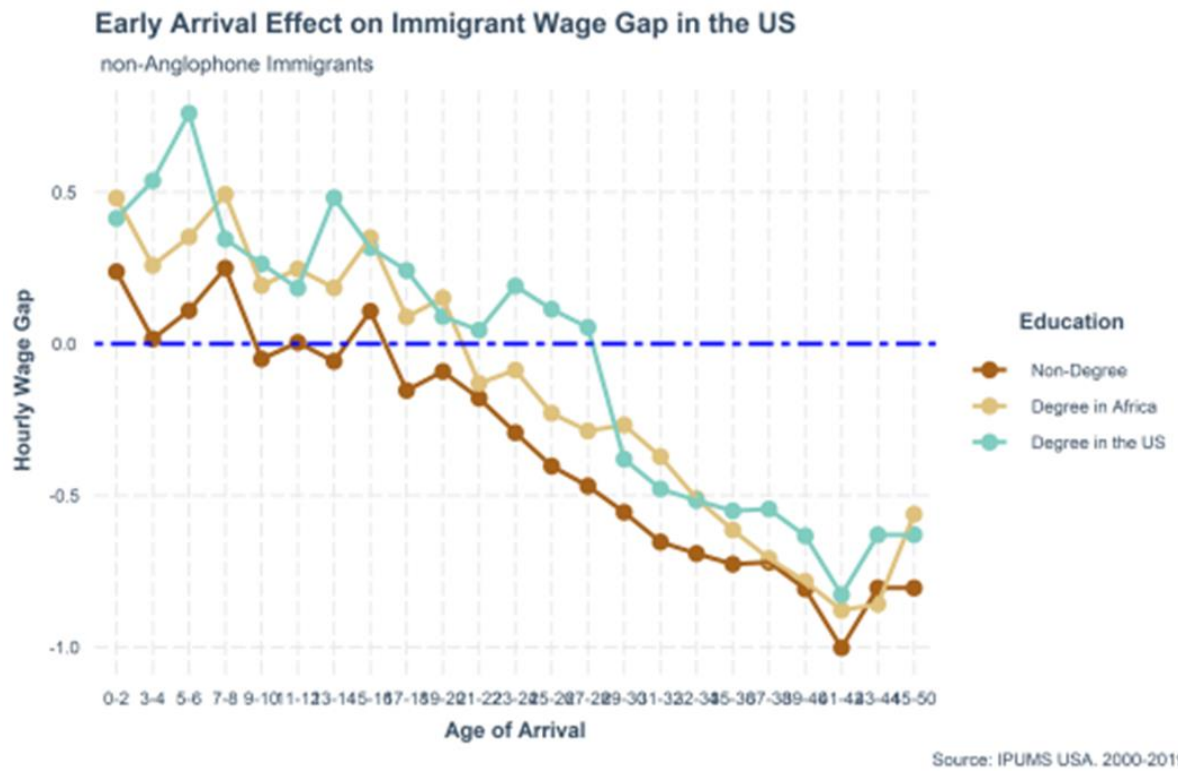


Figure 4: Early Arrival Effect: Non-Anglophone Countries

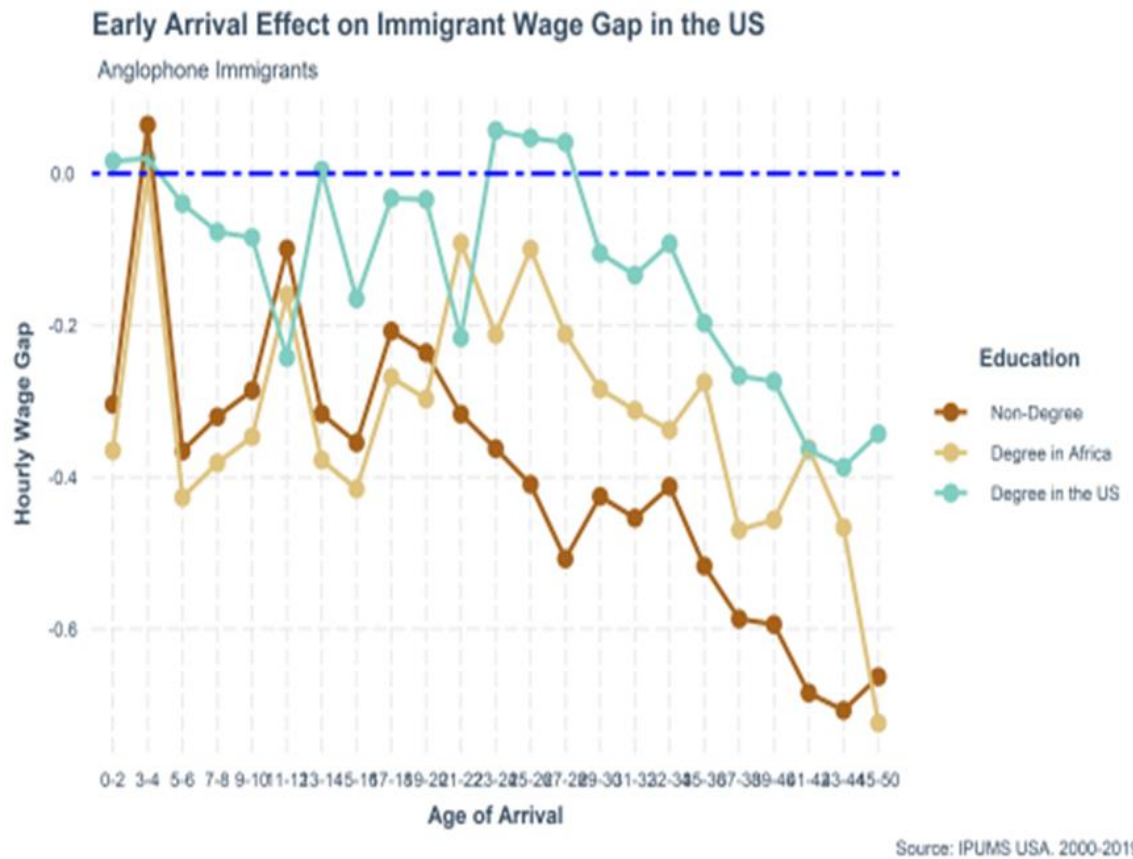


Figure 5: Early Arrival Effect: Anglophone Countries

