The Wage Gap between Immigrants and Native-born Americans in the United States

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Bachelor's Project

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Abstract

Over the last several decades, the United States is one of the most popular destinations for international migrants with the number of immigrants increasing dramatically. A number of people immigrate to the U.S. because of economic factors. Thus, the study investigates the wage gap between immigrants and native-born Americans in the U.S. over four chosen years from 2000 to 2022. I conclude that there is a positive relationship between the duration of residency in the U.S. and the earnings of immigrants. In addition, English-speaking fluency and educational attainment play a role in determining one's wage in the U.S. labor market. While this study takes no account of the effect of selective out-migration and return migration as well as country of origin of the immigrants. Future research can look into the wage differences among immigrants from different parts of the world, and take account of self-selection in out-migration.

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I. Introduction

Over the past few decades, there has been an estimated rise in the number of international migrants. According to data from 2020, 3.6 percent of the world's population, which was approximately 281 million people, no longer live in their nation of birth. This represented an increase of 128 million since 1990, more than triple that the estimated number in 1970 (IOM, 2020). North America accounted for 21 percent of all international migrants in the world in 2020 with nearly 59 million immigrants (IOM, 2020). International migrants are people who have left their home country to settle in another country with the goal of staying there. A long-term migrant is one who changes their place of regular residence for a minimum of one year, while a short-term migrant is one who changes their place of usual residence for more than three months but less than a year (United Nations, 2012). For the purposes of this study, immigrants cover both refugees and immigrants for economic, political or any other personal reasons. The United States has been one of the most popular countries for immigration, with many immigrating in search of better economic opportunities (Hanedar et al., 2023; Naugler & Conroy, 2018). This paper examines the wage gap between native born and foreign-born immigrants, the possible factors that contribute to the gap, and the effect of length of residence in the United States on the earnings of immigrants.

For many years, researchers have been interested in the wage gap that exists in the United States between native born and immigrants. However, much of the previous research on this topic was published a decade or more ago. They might not be directly applicable to the immigration situation nowadays. Over time, the country-of-origin composition of immigrant groups has changed. In the early twentieth century, the majority of the immigrants were coming from Europe (U.S. Immigration and Naturalization Service, 1997). In recent decades, immigrants from Asia and North America have grown to become the two largest cohorts of newly arrived immigrants. In 2000, about 345,000 people, or roughly 41 percent, came from North America, making up the largest group (U.S. Immigration and Naturalization Service, 2002). In 2022, the majority of individuals obtained lawful permanent resident status were from Asia, accounting for around 415,000 people, or nearly 41 percent, while the number of individuals from North America decreased to approximately 33 percent (United States Department of Homeland Security, 2023). Given these changes in the U.S. demographics, it is critical to update the understanding of the wage gap between native-born Americans and immigrants.

Numerous researchers, most notably Chiswick, have conducted various studies on the wages of migrants at different parts of the globe (Chiswick, 1992; Chiswick et al., 2005; Chiswick et al., 2008; Husted et al., 2001). However, the scope of Chiswick's (1978) study about the earnings of international migrants in the U.S. was limited to a particular immigrant group as it only included adult white men. In order to alleviate this constraint in the current situation where Asians have become the largest immigrant group in the United States, this study proposes to examine immigrants from a wider range of ethnic origins and countries of origin. Furthermore, his study has solely examined male immigrants, ignoring the experiences of female immigrants in the job market. Women are now more prevalent in the labor force than they were half a century ago. Recognizing the significance of gender as a potential factor

impacting wage differences, this paper seeks to bridge this gap by incorporating both men and women in the analysis.

Additionally, it is generally recognized that academic credentials play a major role in determining one's prospects in the job market, while language proficiency and communicative abilities can influence a person's earning capacity and the type of employment they could access. By integrating individual statistics based on educational attainment and level of English speaking, this paper examines plausible pay differences between native born and immigrants.

This paper adds to the body of knowledge by filling up research gaps of only white men who were born abroad. It considers changes in the demographics of immigrant communities, including cases of all countries of origin and for both men and women, while investigating the impacts of educational attainment and English-speaking proficiency on wages. In addition, the article examines if the wage gap between native born and immigrants narrows as the immigrants reside in the U.S. longer.

Research Question: *What is the extent of the wage difference between immigrants and native-born Americans in the USA, and is there wage assimilation over time?*

Sub-question: *To what extent do levels of education and English-speaking proficiency contribute to the wage gap between immigrants and native born?*

The remainder of this paper is organized as follows. The theoretical framework and hypotheses are developed in Section II. Section III describes the methodology of the study, the statistical approach is included. While Section IV discusses the results of the data analyzed. The earnings of native-born Americans and foreign-born immigrants are compared. Section V concludes the article.

II. Theoretical framework

It is commonly known that when compared to natives, immigrants most of the time start out in the labor market with relatively lower earnings. As they gain more experience in the host nation, their earnings increase (Chiswick, 1978). In some cases, the immigrants do not necessarily start out with lower wages than natives due to the fact that different types of immigrants exist such as highly skilled immigrants. Regardless of the type of the immigrants, the assimilation result from Kim and Lee (2022) stated that their wages will either go up or down and gradually become similar to the native-born workers over time. However, some studies have found no evidence of immigrants catching up, the question of whether or not there is salary convergence between native-born workers and immigrants is up for debate in the assimilation literature (Schmidt, 1997).

According to Chiswick (1978), in the case of immigrants from non-English speaking nations, wages increase with years of residence in the United States. The number of years since migration is a significant variable in an analysis of the wages of immigrants. Immigrants typically see an increase in wages as a result of gradually learning English, customs, and nature of labor markets after arriving (Chiswick, 1978). Using the data from the 1990 and 1980 Census of Population of the Unites

States, with all other things being equal, Chiswick and Miller (2002) found foreign-born individuals from non-English speaking nations who are fluent in the language made roughly 14 percent and 17 percent respectively more money than those who do not speak well. This showed the importance of fluency in the English language for earnings. Furthermore, educational attainment is another important factor influences the income. Having completed four years of college gives people a significant advantage in the U.S. labor market. The wage differences between working individuals with a college degree and those with only high school education are significant and have widened during the previous four decades (Valletta, 2016). The wage gap may be exacerbated by the fact that the skills needed to learn and use advanced technologies in the workplace are often acquired through or associated with higher education (Acemoglu & Autor, 2010; Autor et al., 2003).

Chiswick's (1978) work showed that adult white men who were born outside of the USA earn 1 percent less per year than those who were born in the country. This prior research only used adult white males as its subjects, I look at all other racial groups and both sexes. Furthermore, the immigrants who are less successful on the labor market tend to leave the country earlier (Borjas, 1989). His work did not consider self-selection in out-migration, which would inflate the assimilation effect estimated from cross-sectional data. However, he later added in the appendix that the selective out-migration group was relatively small and they had similar characteristics to the foreign born in the U.S., therefore it would not cause much bias to the findings. Moreover, the research was done nearly half a century ago, the results were not the most applicable to current days. There was a substantial number of immigrants from Europe who used to emigrate to the USA, nowadays immigrants come from more diverse backgrounds, with Mexicans and Asians being the largest groups (United States Department of Homeland Security, 2023; U.S. Immigration and Naturalization Service, 1997; U.S. Immigration and Naturalization Service, 2002). I add more research to the existing literature using more recent demographic data.

Hypothesis

The wage is closely linked to the position in the workplace. Generally speaking, the higher the position, the higher the salary. For instance, managers usually make more money than the staffs that they supervise within the same department. When transitioning to the American labor market, immigrants may face difficulties that their previous working experience is not fully recognized. This may be due to the different systems and requirements between the U.S. and the home country in the same field of work. They may have to settle for lower-paying positions when they first arrive. Besides, immigrants who relocate to regions with limited job opportunities in their former industry are forced to switch to a new field and start over from an entry-level position. In some cases, employers prefer to hire native-born workers over immigrants due to an adequate supply of domestic talent in the industry. These situations lower the average wage of immigrants.

Since English is the primary language used for everyday communications in the United States, proficiency in English usually increases with time spent in the country. Immigrants will be able to obtain more varied and well-paying professions over time owing to their improved language skills. Immigrants from English-speaking countries

like Canada, Australia and New Zealand may have an early advantage over immigrants from non-native English-speaking regions in terms of English proficiency, which could help them get into higher-level and better-paying positions. The incomes of immigrants from different countries of origin arriving at the same time period are not necessarily similar. However, the assumption that the English level of people from non-native English-speaking countries is generally much lower than that of people from English-speaking countries may no longer hold true in recent years. Many countries have been advocating the importance of English over the last ten to twenty years. A growing number of non-native English speakers, even from developing countries, now possess sufficient English skills for daily life and work functions with little to no difficulties. In addition to language skills, academic qualifications also have a great impact on a person's salary. Increased educational attainment makes it possible for people to apply for higher-level, more specialized and technical jobs, for which companies are willing to pay more. Immigrants from developed countries are more likely to have the necessary credentials, which makes them more appealing to employers (Global Education Monitoring Report Team, 2015).

The average income of immigrants from different countries of origin varies. This can be caused by differences in the average educational attainment and English language proficiency. Factors such as the level of development of the country and the importance that the nation places on the English language play a role. Considering the availability of resources and emphasis on education in established economies, immigrants from developed countries typically have higher educational attainment and English proficiency compared to those from developing or less developed ones (Global Education Monitoring Report Team, 2015; McCormick, 2013; Paprotny, 2021). The average level of English skills also depends on the education system. In some countries, English education is mandatory from an early age, while in other countries, English is not taught as much.

In the old days, a large number of immigrants, for example from Asia, arrived in the U.S. mostly seeking better economic prospects and an improved standard of living. Many source countries in Asia were relatively backward at that time, offering little employment opportunities and cheap wages. For these first-generation immigrants, leaving their home country was their best opportunity for upward mobility, regardless of the situation that they arrived without much formal schooling or competence in the English language. Consequently, they frequently worked in low-paying and entry-level jobs, such as in Asian restaurants. In contrast, the current wave of young Asian immigrants has a different profile. With higher educational attainments and better skill sets, this younger generation often finds employment in technology companies or stays in the United States after completing their higher education. The average starting salary of them is significantly better than their predecessors due to their high-skill and high-tech occupations. In actuality, their wages may not be very much different from native-born Americans, or it may even be higher. This suggests that the degree of assimilation between the wages of the new generation of immigrants and the native born in the United States is not as strong as it was in earlier decades, because the gap of the starting wages between the two groups is not as great as it was. The theory that the longer the immigrants stay in the U.S., the higher their wages, and

the closer the wage gap between them and native born will eventually be, seems more likely to occur in the case of previous generations. This is often explained by the fact that the wages of immigrants are gradually catching up with those of the native born. However, given the current situation, it is possible that the wages of certain immigrant groups may already be higher than those of the native born. I explore not only whether there is a trend towards assimilation between the average wage of immigrants and the native born, but also whether immigrants have higher wages to begin with, without an assimilation trend being involved.

   In order to find out whether the length of time immigrants reside in the United States, English-speaking proficiency and educational attainment, as Section II suggests, have a direct effect on wages of both immigrants and native born. I set up the following hypotheses (all hypotheses are null hypotheses):
"*In the population, there is no monotonous relationship between wages and number of years spent in the USA.*"
"*In the population, there is no linear relationship between wages and level of English-speaking proficiency and educational attainment.*"

Figure 1
Conceptual model of immigrant-native income gap
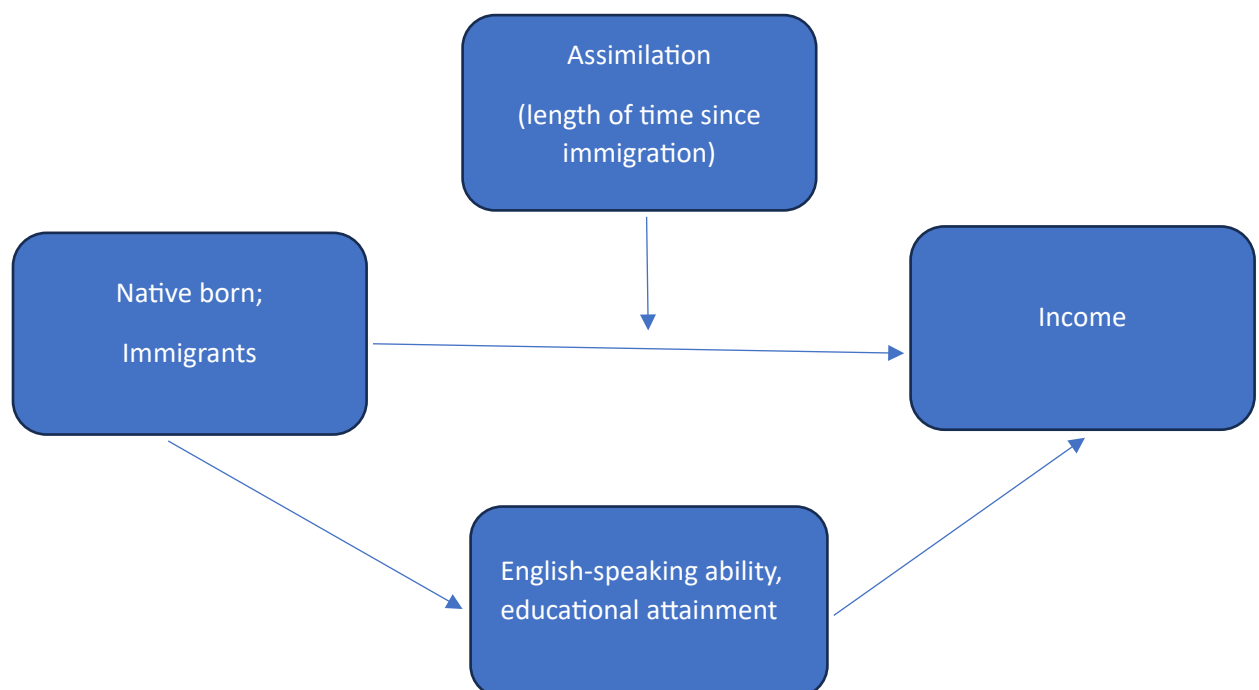
   This study looks into the immigrant-native wage gap, and investigates the differential impact on these two groups across different levels of education and English-speaking proficiency. In addition, their wage gaps are influenced by the length of residence of the immigrants in the host country. Assimilation theory

suggests that immigrants start out with low wages, the longer they reside in the host country, the smaller the wage gap between them and the native-born people (Chiswick, 1978; Constant & Massey, 2005).

III. Methodology

The research question is to determine how much the wages of immigrants and native-born Americans differ from one another in the United States and whether or not their wages can eventually assimilate. In this study, immigrants are defined as the individuals who were born in a foreign country or U.S. outlying area and have been living in the United States, while native-born Americans refer to those born in the 50 states and the District of Columbia.

The study employs a quantitative research approach, it makes use of a sizable dataset to analyze trends and patterns in the income data. The data used in this study are collected from the Integrated Public Use Microdata Series (IPUMS) USA, which provides data from the American Community Survey (ACS). In particular, information from the censuses of year 2000, 2007, 2014, and 2022 is used in the analysis. For the ACS year 2000 sample, individuals living in group quarters were not included in the statistics and around 1-in-750 people nationwide were chosen at random. The data for the ACS 2007, 2014 and 2022 samples include people living in group quarters, and a 1-in-100 national random sample of the population was selected. All four of the sample years are weighted samples. The chosen dataset from the survey comprises data on people who reside in each of the 50 states and the District of Columbia. Eight variables are selected from the survey data to do this research. These variables are age, sex, birthplace, census year, years residing in the United States, English-speaking level, educational attainment, and wage and salary income.

The original datasets from IPUMS USA do not include cases with missing and unknown values. However, when I organized the data, I categorized people with a birthplace labeled as n.e.c. (not elsewhere classified) as unknown values, which is less than 0.01 percent, and these unknown cases are excluded in the analysis. Age and sex are used as control variables, with the study restricted to individuals between the ages of 18 and 65, and sex is classified into either male or female. The wages and income samples are individual income that can be found in the survey. The wage and salary income variable shows the respondent's total pre-tax wage for the previous calendar year. Wages, salaries, commissions, cash bonuses, tips, and other financial income received from an employer are examples of the sources of income. Only people with valid income data are taken into account and people with zero income are excluded from the research. Due to the fact that the research aims to understand the wage differences and wage assimilation over time between immigrants and native-born individuals in the United States, it is more relevant to those who are actively participating in the labor force. By removing individuals with no income, the analysis concentrates on the working population and gives a more realistic picture of the salary disparities. Zero income would lower the mean or median wages, including these people in the wage analysis can skew the results, misrepresenting the actual income levels of those in employment. In representing the number of years that every person of the sample has been lived in the United States, interval data rather than continuous data are chosen since the interval data offers a wider range of availability in the data

set, compared to the precise number of years that each person has been in the country which has a limited availability. Four categories are used to code the English-speaking proficiency. This sample reports on whether or not the respondent speaks only English at home, as well as how well the respondent speaks English if they speak a language other than English at home. The level of educational attainment variable is categorized into six categories based on the highest year of school or degree completed.

A descriptives statistics is used to obtain the average wages of immigrants and native born in the four separate study years. Regression models are used to estimate the significance and coefficient magnitudes of the explanatory variables of years spent in the United States dummy, English-speaking proficiency dummy, and educational attainment dummy, on wages.

In terms of ethical considerations and data management, this is a theoretical research involving the use of both existing literature and publicly available resources. The data have been supplied by IPUMS USA, an external party. All the respondents of the census are anonymous. Secondary analysis is done on these existing datasets. During the research, the data is stored in the X-drive of UG (University of Groningen) network which is a personal access network. The retention period of the data will be two months after the completion of the research. The data will not be shared with any parties (Appendix Table A1).

IV. Results

Table 1

Average wage of immigrants and native-born Americans

Census year	number of cases	average wage	number of cases	average wage
		Immigrants		Native-born Americans
2000	22627	31940	159707	33961
2007	204774	40071	1196828	41925
2014	219205	45884	1172562	46241
2022	250304	66980	1232101	61559

Notes: Average wage is rounded to the nearest whole number.

Source: Author's calculation, based on data from IPUMS USA, 2024-5.

Table 1 displays the average wages of immigrants and native-born Americans in the U.S. for the four study years. The sample contains 4,458,108 individuals, 15.6 percent of whom are immigrants. It is clearly shown in the results that between the years 2000 and 2014, native born had a higher average salary than immigrants. However, the result from the most recent census data year 2022 indicates that immigrants earned more than native-born people. Additionally, the results indicate that the average wage

difference was just around $2000 per year at its widest in years when native-born workers received higher wages than immigrants. The gap narrowed to roughly $400 in 2014, and by 2022, the average wage of immigrants have surpassed native born by almost $5500 yearly.

The result from the latest census statistics shows that, contrary to some research studies and migration theories have suggested, immigrants do not necessarily earn less than natives. The average wage of immigrants has actually exceeded those of natives by a wide margin in the United States in most recent years.

This result also supports the assumption that, in the past, a number of immigrants came to the U.S. to work in minimum or low wage occupations because their countries of origin were relatively backward and had limited job opportunities. These days, many immigrants are highly educated, highly skilled, and searching for a well-paid position in the high-tech, high-opportunity U.S. market that fits their profession and utilizes their technical skills. This is shown in the study, the average income of immigrants was lower than those of native born in the first chosen year, but over time, the gap has narrowed and eventually have surpassed those of Americans.

Table 2

The relationship between the number of years spent in the USA and the wages of immigrants

R	0.267
R-Squared	0.072
Adjusted R-Squared	0.072
ANOVA	
	Sig.
Regression	0.000
Coefficients	
	B
0-5 year	-11465**
6-10 years	-5000*
11-15 years	-4546*
16-20 years	-4499*
21+ years	Reference category

Notes: The dependent variable is the wage. All regressions include age, sex and year of data collection as control variables, the purpose of including year of data collection is to capture inflation. Wages outcomes are rounded to the nearest whole number. See interaction term between time since migration and census year in Appendix Table A2.

Source: Author's calculation, based on data from IPUMS USA, 2024-6.

**p = 0.000,

p < 0.001.

    The immigrants who have resided in the U.S. for 21 years or more are the reference category in table 2. The reference category functions as a comparison group against which the other categories are assessed. My result shows that immigrants who have stayed in the U.S. for 0-5 years, 6-10 years, 11-15 years, and 16-20 years had average annual incomes of $11465, $5000, $4546, and $4499 less, respectively, than immigrants who have been in the U.S. for 21 years or more. The result is indeed in line with the assimilation theory that the longer the immigrants stay in the host country, the higher their wages are. It can also be noticed from the results that the positive relationship between time since migration and increase in wages is the strongest at the start and then slows down over time. Different explanations are valid based on these results. First, there was a change in the pace of assimilation over time. Second, given that the different residency duration groups were likely consisted of individuals who arrived at different time periods, the results may be representing different cohorts. Third, selective out-migration can be a cause of influencing the pattern (Borjas, 1989). Since less successful immigrants are more likely to leave the host country, the datasets of individuals with longer duration of residence will contain a larger proportion of flourishing immigrants. The highest wage group is immigrants who have been in the U.S. for 21 years or more, they may be performing better than those who arrived more recently. They are likely to leave in five years if they are unsuccessful after emigrating, at which point they will no longer be included in the dataset. If they have been staying for more than two decades, they are likely successful.

    R-Squared is the percentage of the variance that has managed to explain in the model. The result is 0.072, it means the R-Squared captures 7.2 percent of the total variance in the model. This indicates that just 7.2 percent of the variation in wages can be explained by the number of years spent in the USA for the immigrants. The remaining 92.8 percent of the variation is explained by other factors that are not taken into consideration by this model. The result of adjusted R-Squared is the same as R-Squared. In this case it means the majority of the variables that are put in the test are useful. The R stands for the correlation between the prediction of reality and the actual data that have been measured, the R value of 0.267 shows a relatively weak relationship. The ANOVA result indicates the overall regression model is significant. All the regression coefficients are significant with the p-values either 0.00 or smaller than 0.001. The null hypothesis is rejected, there is a monotonous relationship between number of years spent in the USA and wages of immigrants. The variance of the wage variables can be explained by the number of years spent in the USA. Even though the test is significant, the low R and R-Squared values suggest that the independent variable of number of years spent in the USA have a relatively weak ability in explaining the variation in the dependent variable of wages. This indicates there are other significant factors not included in this model that can better explain the differences in wages between immigrants and native born than the number of years the immigrants have spent in the USA.

Table 3

The relationship between the English-speaking ability and educational attainment and wages

	Immigrants		Native-born Americans	
R	0.450		0.435	
R-Squared	0.202		0.189	
Adjusted R-Squared	0.202		0.189	
	ANOVA			
	Sig.		Sig.	
Regression	0.000		0.000	
	Coefficients			
	B	t	B	t
Does not speak English	-15789***	-45	-4279*	-2
Speaks English, but not well	-16927***	-70	-5113**	-9
Speaks English well	-13997***	-73	-3101**	-9
Speaks English very well	Reference category		Reference category	
No schooling	-2660**	-6	-1883**	-4
Nursery school to grade 4	-6581**	-11	-4590**	-4
Grade 5 to 9	-3244**	-12	-10062***	-38
Grade 10 to 12	Reference category		Reference category	
1 or 2 years of college	5733**	26	8759***	122
3 or more years of college	48127***	260	44899***	674

Notes: The dependent variable is the wage. All regressions include age and sex as control variables. For immigrants, the regressions also include the number of years reside in the USA as a control variable to test the mediation effect of English-speaking ability and educational attainment on the assimilation process. Wages outcomes and t-statistics are rounded to the nearest whole number.

Source: Author's calculation, based on data from IPUMS USA, 2024-6.

***$p = 0.000$,

**$p < 0.001$,

*$p = 0.015$.

In table 3, the reference category is individuals who speak only English at home, or who speak a language other than English at home but still speak English very well. Compared to immigrants who do not speak English at home, do not speak English well, and speak English just well, those can speak English very well earned an average of $15789, $16927 and $13997 more per year respectively. While in the case of native-born Americans, those who speak exclusively English at home, or who do not speak English at home but are nevertheless speak the language very well earned, on average, $4279 more per year than those who do not speak English at all at home and $5113 more per year than those who do speak English but not well and $3101 more than those who speak English well.

The findings suggest that the wages of immigrants are significantly impacted by their ability to speak English. Immigrants with high spoken English proficiency made far more money than others, regardless of whether English is their native or second language. Although there is still a salary premium for native-born Americans with very well English-speaking skill, the wage gap is not as big as it is for the population of immigrants. It can be concluded from the results that the economic prospects and earning potential of immigrants can be greatly enhanced by improving their English language skills. In addition, it shows the importance of language learning for immigrant communities to integrate more successfully into the labor market and earn more income.

In terms of educational attainment, the reference category is people who have completed grade 10 to grade 12. Table 3 confirms the theory that people with higher educational attainment tend to have higher wages, whether they are foreign born or native born. This is more pronounced among those with a high school education or above, it can be seen from the values of t-statistics for 3 or more years of college education are much higher than the other categories. Among both immigrant and native-born groups, the highest wage earners are those with 3 or more years of college education, followed by those with 1 or 2 years of college education, and then those who have completed grades 10 to 12. People with a college degree earn substantially more than others, with average $48127 for immigrants and $44899 for native born annually when comparing to people with a high school degree. My results show that education below the high school level does not have a direct positive relationship with average wages. For both immigrants and native born, those who never attended school have higher wages than those attended nursery school until grade 9. The fact that the average wage gap between lower educational attainment and three or more years of college education is higher among the population of immigrants than for native born, this result can be taken into account in a further study to look at what degree areas immigrants typically pursue in college in relation to the job market situation in the United States and the proportion of different types of skilled immigrants. Another point to note is that the relative average salary of native born with a grade 5 to 9 degree is unusually low, the reasons behind it could be investigated in more depth if needed.

The R-squared is 0.202 and 0.189 for foreign born and native born respectively. This indicates that 20.2 percent and 18.9 percent of the variation in salaries can be explained by the combination of the educational attainment and English-speaking

ability for immigrants and native born. The results of adjusted R-Squared are the same as R-Squared, indicating the majority of the variables that are put in the test are useful. The R value of 0.45 for immigrants and 0.435 for native born shows a moderate to strong linear relationship between the prediction of reality and the actual data that have been measured. The ANOVA results indicate the overall regression model is significant. The null hypothesis is rejected, there is a linear relationship between the variables. All the regression coefficients are significant with all the p values equal to or smaller than 0.015. The results suggest that the combination of educational attainment and English-speaking proficiency is a reasonably effective factor in influencing wages. Nevertheless, a significant amount of the variation in the wage outcome can still be attributed to other factors that are not included in the model.

V. Conclusions

Although there have been many studies on the topic of immigrant-native wage gap and assimilation, relatively little relevant studies have been found from recent years on the average wage gap between immigrants and native born across the entire United States as a whole. I have seen studies that focus on one gender, focus on a certain region or consider the occupation of the population to look at their wage gap. My article uses length of residence of immigrants, English-speaking proficiency and educational attainment as independent variables to understand the importance and effects of these factors on the average wages of the two study groups.

This study investigates the average wage gap between immigrants and native-born workers in the United States in four different years between 2000 and 2022, and the subsequent trend of wage assimilation between these two groups over time in the country. I have found that in the early 2000s immigrants were indeed having lower average wage than native born in the U.S. This is in line with many previous studies that have shown that immigrants are earning less than native born on average. However, my result based on the latest census data available, from the year 2022, has shown that immigrants do not necessarily earn less, and that their average wage has outpaced those of native-born Americans. This supports the hypothesis that this younger immigrant generation, who typically have higher English skills and educational attainment, do not earn much lower than native born, they may even earn more.

The wages of immigrants do increase over time, shown by significant results from regression in table 2. There is a positive correlation between the duration of residence in the U.S. and their wages; the longer the immigrants reside in the U.S., the higher their wages. It is worth noting that the positive relationship between time since migration and wages increase is the strongest at the start and then slows down over time. Three explanations are suggested in Section IV under table 2: change pace of assimilation, different cohorts and selective out-migration. The faster pace of assimilation can be linked to Chiswick's (1978) study that immigrants typically see increase in wages as a result of learning English, customs, and nature of labor markets after arrival. Furthermore, the demographic of immigrants has changed over time according to the fact that in early 2000s, the largest immigrant group was from North America and in the most recent years, the largest immigrant group is from Asia.

Lastly, the theory of selective out-migration has discussed by Borjas (1989) that immigrants who are less successful on the labor market tend to leave the country earlier.

I have also found out the extent to which different levels of English-speaking proficiency and educational attainment affect wage outcomes for immigrants and native born. The results of these two variables are significant. Higher English-speaking ability and educational attainment contribute to higher wages. However, the educational attainment argument mostly applies to high school and higher education degrees. Degrees below high school levels do not have a direct positive relationship with average wages. Besides, people with a college degree earn substantially more than others, with an average of approximately $48000 for immigrants and $45000 for native born per year when comparing to people with a high school degree. Furthermore, the group of immigrants who have the highest English-speaking level earn about $15800 and $17000 more per year on average than those who speak no English at home or who speak English but not well. It indicates that having high spoken English proficiency is very helpful in improving the wages of immigrants. Whilst the average wage gap between native-born individuals who are fluent or nonfluent in English is not as significant, with a difference of around $3000 to $5000 per year. I find that immigrants do not necessarily earn lower wages, but they need to be able to speak English very well and have at least a college degree to make a good amount of salary.

Limitation

The chosen years in this research are every seven or eight years from 2000 to 2022. It is possible that the years that are selected is just an exception, which does not necessarily mean that there is really such a trend. The conclusions may be different when using datasets from the previous or following census years.

The results do not take into account the effect of selective out-migration and return migration (DaVanzo, 1983; Van Hook & Zhang, 2011). Some people decide to return to their home country after emigrating for a variety of reasons (Borjas & Bratsberg, 1996). It can be social reasons, such as they do not integrate well in the host country or they experience discrimination, or personal circumstances, like family reunification or non-naturalization. One common reason for people to move back to their home country is that they experience economic failure in the host country, which can happen when they do not achieve the level of success in their jobs as much as they expected and have not been able to develop a new career and to improve their standard of living (Borjas, 1989). It is a limitation of my test that the coefficients of wages and salaries only consider successful cases of those who are staying in the United States. However, a study of the Netherlands by Bijwaard and Wahba (2014) has shown that the intensities of return migration are U-shaped, with high intensities for both low- and high-income groups. The impact of this limitation can be slightly evened out by return flows from high-income group.

The country of origin of the immigrants is a factor that affects the average and the convergence of the amounts of wages. Immigrants from some countries are not doing the catch up as well as people from other countries. In my article, I do not take into

account the proportion and effects of immigrants from different nations. It is possible that immigrants from certain places have a relatively big impact on the results.

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Appendix

Table A1

Research Data Management Plan

(Answers are highlighted in yellow.)

1. General	
1.1 Name & title of thesis	The Wage Gap between Immigrants and Native-born Americans in the United States
1.2 *(if applicable)* Organisation. Provide details on the organisation where the research takes place if this applies (in case of an internship).	

2 Data collection – the creation of data	
2.1. Which data formats or which sources areused in the project? For example: - theoretical research, using literature andpublicly available resources - Survey Data - Field Data - Interviews	==Theoretical research, using literature and publicly available resources from IPUMS USA.==
2.2 Methods of data collection What method(s) do you use for the collection ofdata. (Tick all boxes that apply)	Structured individual interviews Semi-structured individual interviews Structured group interviews Semi-structured group interviews Observations Survey(s) Experiment(s) in real life (interventions) ==Secondary analyses on existing data sets== (if so: please also fill in 2.3) Public sources (e.g. University Library) Other (explain):
2.3. (If applicable): if you have selected 'Secondary analyses on existing datasets': who provides the data set?	Data is supplied by the University of Groningen. ==Data have been supplied by an external party. (Integrated Public Use Microdata Series (IPUMS) USA)==

3 Storage, Sharing and Archiving	
3.1 Where will the (raw) data be stored *during* research? If you want to store research data, it is goodpractice to ask yourself some questions: · How big is my dataset at the end of my research?	==X-drive of UG network== Y-drive of UG network (Shared) UG GoogleDrive Unishare Personal laptop or computer External devices (USB, harddisk, NAS)

· Do I want to collaborate on the data? · How confidential is my data? · How do I make sure I do not lose my data? Need more information? Take a look at the site of the Digital Competence Centre (DCC)) Feel free to contact the DCC for questions: dcc@rug.nl	Other (explain):
3.2 Where are you planning to store / archive the data after you have finished your research? Please explain where and for how long. Also explain who has access to these data NB do not use a personal UG network or google drive for archiving data!	X-drive of UG network Y-drive of UG network (Shared) UG Google Drive Unishare In a repository (i.e. DataverseNL) Other (explain): The retention period will be 2 months.
3.3 Sharing of data With whom will you be sharing data during your research?	University of Groningen Universities or other parties in Europe Universities or other parties outside Europe I will not be sharing data

4. Personal data	
4.1 Collecting personal data Will you be collecting personal data? If you are conducting research with personal data you have to comply to the General Data Privacy Regulation (GDPR). Please fill in the questions found in the appendix 3 on personal data.	Yes
If the answer to 4.1 is 'no', please skip the section below and proceed to section 5	
4.2 What kinds of categories of people are involved? Have you determined whether these people are vulnerable in any way (see FAQ)? If so, your supervisor will need to agree.	My research project involves: Adults (not vulnerable) ≥ 18 years (Immigrants and native-born Americans in the USA between the age of 18 and 65 with valid income) Minors < 16 years Minors < 18 years Patients (other) vulnerable persons, namely (please provide an explanation what makes these

	persons vulnerable)
4.3 Will participants be enlisted in the project without their knowledge and/or consent? (E.g., via covert observation of people in public places, or by using social media data.)	<mark>No, anonymous data.</mark>
4.4 Categories of personal data that are processed. Mention all types of data that you systematically collect and store. If you use particular kinds of software, then check what the software is doing as well. Of course, always ask yourself if you need all categories of data for your project.	Name and address details Telephone number Email address Nationality IP-addresses and/or device type Job information Location data Race or ethnicity Political opinions Physical or mental health Information about a person's sex life or sexual orientation Religious or philosophical beliefs Membership of a trade union Biometric information Genetic information Other (please explain below): <mark>None of the above</mark>
4.5 Technical/organisational measures Select which of the following security measures are used to protect personal data.	Pseudonymisation Anonymisation File encryption Encryption of storage Encryption of transport device Restricted access rights VPN Regularly scheduled backups Physical locks (rooms, drawers/file cabinets) <mark>None of the above</mark> Other (describe below):
4.6 Will any personal data be transferred to organisations within countries outside the European Economic Area (EU, Norway, Iceland and Liechtenstein)? If the research takes places in a country outside the EU/EEA, then please also indicate this.	<mark>No</mark>
5 – Final comments	

Do you have any other information about the research data that was not addressed in this template that you think is useful to mention?	No

Table A2

The interaction term between time since migration and census year

	Coefficients		
	B	t	Sig.
Interaction term o-5 years (excluded variables)	-2.714	-8.053	<0.001
Interaction term 6-10 years (excluded variables)	1.261	5.061	<0.001
Interaction term 11-15 years (excluded variables)	1.732	4.712	<0.001
Interaction term 16-20 years (excluded variables)	-1.240	-3.506	<0.001
Interaction term 21+ years	2.482	19.646	<0.001

Source: Author's calculation, based on data from IPUMS USA, 2024-6.

According to the results that are shown in table A2, there is a statistically significant effect of the interaction between time since migration and census years. This means that the relationship between the time since migration and income has changed over the years. The coefficients show that the curve is steeper in the first years, which may suggest either the immigrants are assimilating more quickly, which seems to be unlikely because there is no reason this would happen, or the 'quality' of the immigrants is changing, potentially due to level of education or the selective out-migration is stronger now than it used to be, which is more likely to be the reason. Basically, the speed which immigrants used to catch up natives was slower than it is now, which might explain partially why the immigrant-native wage gap is now disappearing at the overall level. However, the findings may also suggest that there are many temporary immigrants who only stay for a few years. They come, do badly paid low skilled jobs, and then leave, either voluntarily or as a result of being dissatisfied with the job prospects and decide to leave quickly.