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The effect of immigration on the wages of the natives

Dissertation submitted

by

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to

Department of Economics, University of Cyprus

in partial fulfilment of the requirements for the degree of

Master in Monetary and Financial Economics

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Cyprus May 19, 2023

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Abstract

This study investigates how immigrants affect the wages of native people, using 1% representative sample of the U.S. population of 2019 American Community Survey (ACS) data. The natives and the immigrants are separated into two groups based on their education: the "low skill" group and the "high skill" group. The "low skill" group contains individuals who only have a high school diploma or less or attended college without getting a degree. Individuals who are more educated, for example college graduates, or those who own an associate degree or a master's degree belong to the "high skill" group. To account for the impact of immigration on wages of native individuals this study uses regressions with variables that are separated in two groups, the occupational level variables, and the individual level variables. The occupational - level variables are the following: the percentage of men in each occupation, the average education level of people in each occupation, and the immigrant variable, that is the percentage of immigrants in each occupational category. The individual - level variables are the following: the individual's employment status, sex, minority status, and the education level. There is also the difference between the age of the individual and the average age of their occupation and the difference between the age of the individual and the average age of their occupation squared. The dependent variable that will be used is the log of the natives' weekly wages for four different specifications. The first specification will be performed to check the affection on the wages of all native workers. The second regression is using the same variables as the first, with the addition of two interactive

terms. The first one is the product of the average occupational education level and the percentage of immigrants in the occupation. This will define if the amount of immigrants in an occupation is dependent upon the average occupational education level. The second interaction term is the product of the percentage of men in each occupation, multiplied by the percentage of immigrants in each occupation, in order to define if the percentage of immigrants in an occupation is dependent upon the percentage of men in that occupation. The third specification will be performed as the first one, but only for low-skilled native workers, in order to define how immigrants affect the wages of this vulnerable group and finally, the last regression only for high-skilled native-born workers. Next, since USA has a lot of minorities in its population, this study will show how immigrants affect the wages of native individuals who belong in minorities and non-minority groups.

Introduction

Nowadays, immigration is common everywhere in the world. Violent conflicts, natural disasters, poverty, limited access to healthcare and education, seeking for jobs and business opportunities, are some of the most important and common reasons that force people to immigrate. Immigrants try to restart their lives under better conditions, which will make their life more comfortable and help them view future in an optimistic way. But inflows of immigrants, are affecting natives' lives at the same time. Natives' attitudes toward new immigrants have vacillated over the years between welcoming and exclusionary.

The United States has long been considered a nation of immigrants as it was mostly built by them. Fueled by popular culture old and new, many people are taken in by the idea of the United States. Some of the most important reasons that people immigrate to the United States, are educational opportunities, reunification, marriage, safety and stability and of course the job opportunities that are offered. Trends indicate that many immigrants move to areas where wages are higher and there are more jobs available. A representative example is the large inflows from Mexico before 2009 recession. Many Mexicans came in search of work in the agricultural industry because the promise of economic prosperity was greater.

According to the OECD International Migration Statistics, immigrant inflows in the United States during 2019 were the largest between G7 countries, counting approximately 1.03 million immigrants (Graph 1). U.S. had about half million more immigrants than the second country, Germany. Moreover, immigrant inflows have a rising tension in the United States during the last 20 years. Together, immigrants and their U.S.-born children make up about 26 percent of U.S. inhabitants, and some

researchers have predicted that this number will reach 36 percent by 2065. Many of the U.S. workers are immigrants, together making up a vital part of the country's labor force in a range of industries. The top countries of origin for immigrants in the U.S. are Mexico, India, China, Philippines, and El Salvador. In 2019, about 14 percent of the nation's residents were foreign-born, over half of whom are naturalized U.S. citizens and only 3.1 percent of foreign labor force was unemployed, which is relatively small in comparison with other countries. Immigrants in the United States contributed billions of dollars in taxes, and they also added over a trillion dollars to the U.S. economy as consumers.

As a result, these observations allow us to conclude that immigrants in the U.S. play an important role in the lifestyle of the natives. But how are immigrants affecting the wages of native Americans?

There are different attitudes and policies about immigrants and how they affect the wages of the natives. Different governments of the Unites States examined various ways to cope with immigrants, in order to achieve the balance between the quality and safety in lives of native people and the best hospitality of immigrants.

In response to discussions about who is eligible to apply for citizenship or enter the nation as a contract employee, student, refugee, or permanent resident, American immigration policy has changed over time. The executive branch has extensive power over immigration law and has the ability to change it through executive orders and actions. Immigration policy also establishes who is ineligible for entry into the nation and specifies how those who break the law will be expelled.

The history of immigration in the United States during the last centuries is quite complex. According to the U.S. immigration timeline, immigration policies often

changed in order to adapt to the conditions of each period and benefit as much as possible the U.S. nation. Early in the 20th century, the majority of immigrants in the country came from southern and eastern Europe rather than from countries in northern and western part of Europe, as it used to be. This change forced the government to limit yearly immigration and impose numerical restrictions based on immigrant nationality that benefited immigrants from northern and western European countries to restore prion immigration trends.

When a law allowing a small number of Chinese immigrants to enter the country in 1943, long-standing immigration restrictions started to fall. A few other Asians were given visas under a 1952 law that officially removed race as an excuse for exclusion. In addition, congress did not agree to abolish the national-origins quota system, despite a presidential commission's recommendation.

A mixture of social, political, and geographical forces resulted in the momentous Immigration and Nationality Act of 1965 being passed, creating a new system that prioritized family reunion and skilled immigrants over country quotas. First restrictions on immigration from the Western Hemisphere were also introduced by the statute. Prior to that, there were little limits placed on the entry of Latin Americans into the United States.

Since then, other laws have been passed that have a particular focus on refugees, making possible the entry of Indochinese refugees who were seeking asylum in the 1970s and later included assistance for other nationalities, including Chinese, Nicaraguans, and Haitians. The "temporary protection status" which was established by law in 1990, has protected immigrants from deportation to nations experiencing natural catastrophes, military conflicts, or other extreme circumstances.

The Immigration Reform and Control Act, passed by Congress in 1986, gave legal status to millions of previously undocumented immigrants, mostly from Latin America, who complied with specific requirements. Additionally, penalties were imposed on employers who employed undocumented workers. Serious worries about terrorism and undocumented immigrants led governments to pass subsequent legislation in 1996, 2002, and 2006. These actions stressed border security, made admissions requirement more strict, and prioritized the enforcement of immigration law.

President Obama used executive authority in 2012 to make it possible for young adults who had entered the country illegally to qualify for a work permit and deportation protection. Deferred Action for Childhood Arrivals, or DACA, was expanded in 2014, and a new program was established to provide some undocumented immigrant parents of children born in the United States with comparable benefits.

In 2017, President Donald Trump issued two executive orders aimed at curtailing travel and immigration from six majority Muslim countries (Chad, Iran, Libya, Syria, Yemen, Somalia) as well as North Korea and Venezuela. Both so-called Muslim travel bans are challenged in state and federal courts.

Theoretical background

According to the basic laws of supply and demand, immigration could reduce wages by increasing the supply of workers, because there is a greater demand for labor at a given wage. If wages are unable to respond, wage losses may be replaced by more unemployment. On the other hand, immigration leads to more consumption. Businesses must expand their workforce in order to increase the production of goods and drive-up wages once more.

The most common opinion that is supported by many people is that immigrants are decreasing wages of the natives. The main reason is that immigrants, are generally willing to work with low wages which makes them easier accepted by the employers who want to hire new employees at a low cost. As a result, natives are forced to depress their income requirements in order to compete with natives and find a job. These concerns are much more intense for native people who only have a high-school diploma or less, because most of the immigrant's inflows are consisted by people who only have these skills to provide to the local employers in order to get a job. This was one of the many concerns that led the former president of the Unites States, Donald Trump to sign an Executive Order, which formally directed the government to begin attempting to construct a wall at the borders with Mexico, to stem such low-skilled immigrant inflows. The concern that immigrants are decreasing wages of the natives, was also strongly supported by Bernie Sanders, an American politician who was once wary of immigrant workers who came in USA looking for jobs. For years, Bernie Sanders warned that increased immigration would lower the wages of U.S. workers. Specifically, these are some of his statements in the previous years: "If poverty is increasing and if wages are going down, I don't know why we need millions of people to be coming into this country as guest workers who will work for lower wages than

American workers and drive wages down even lower than they are right now… It does not make a lot of sense to me to bring hundreds of thousands of those workers into this country to work for minimum wage and compete with Americans kids…". On the other hand, supporters of immigrants believe that their nation will be benefited by the new energy and ingenuity that immigrants bring. The wages of the natives will not be affected by immigrants, instead they will transmit new skills and knowledge to native workers, making their jobs more productive.

The effects of immigration to the natives have been the subject of a sizable number of studies. Many researchers have examined this effect with various ways and ended up with interesting results.

A good example is the Mariel Boatlift, in 1980. Around 125,000 Cubans embraced Fidel Castro's promise to let them leave Cuba from the port of Mariel in Cuba and move in the United States. David Card ("The Impact of the Mariel Boatlift on the Miami Labor Market", 1990) investigated how the boatlift affected the Miami labor market. This inflow of immigrants increased Miami labor force by 7%. Because the majority of the immigrants were low-skilled (in terms of their education), the labor supply to lower-skilled jobs and sectors increased even more. Card concluded that the Mariel migration had little to no impact on lower-skilled employees' salaries. According to Card, the reason that Miami labor market managed to assimilate those large inflows of immigrants without having any negative effects on the wages of the natives, was a result of its adaptation to other earlier sizable waves of immigration. George J. Borjas, who also investigated this topic disagrees. He published the first draft of a paper in 2015 that fully refuted the findings of earlier research on the Mariel supply shock. According to Borjas, any realistic analysis of the salary impact must compare the skills of newcomers to those of the existing workforce. At least 60% of

Cuban immigrants had dropped out of high school, which caused high school dropouts' salaries in Miami decrease drastically, by 10% to 30%.

David A. Jaeger (paper "Skill differences and the effect of immigrants on the wages of natives") examined the effects of changes in the supply of immigrant labor on the wages of the natives in the 1980s. Estimates show that in terms of broad skill areas, immigrants and natives are nearly perfect substitutes. The impacts of the significant influx of immigrants into the American labor market are then calculated using this outcome. He suggests that immigration depresses wages of natives' dropouts by as much as 3 percent and can account for up to 24 percent of the increase in the college – high school wage differential in the 1980s.

Stephen Nickell and Jumana Saleheen (paper: "The impact of immigration on occupational wages: evidence from Britain", 2015) investigates whether immigration to Britain has had any impact on average wages, by breaking the workforce down into different occupational groups. They discover that average British salaries are slightly impacted negatively by the immigrant to native ratio and, immigration has the strongest effect on earnings in the semi-skilled and unskilled services occupational group.

Giovanni Peri (University of California, paper: Do immigrant workers depress the wages of native workers?), finds that short-term wage effects of immigrants are close to zero—and in the long-term immigrants can boost productivity and wages. Immigration has a very small effect on the average wages of native workers and there is little evidence of immigration lowering the wages of less educated native workers.

According to Anthony Edo (paper: The Impact of Immigration on Native Wages and Employment), immigration does not affect the wages of competing natives in France. He finds no detrimental impact of immigration on wages.

Orrenius and Zavodny (paper: Does Immigration Affect Wages? A Look at Occupation-Level Evidence, 2003) found that an increase in the fraction of workers in an occupation group who are foreign born tends to lower the wages of natives in blue collar occupations but does not have a negative effect among natives in high-skilled occupations.

But many previous studies have been criticized about the way they investigate the effect of immigrants on the income of the native people. Many old studies examine the effect of immigration by comparing cities or metropolitan areas with different percentage of immigrants. The problem with this, is that cities are not closed economies, as commodities and services are moving vastly and create economic connections between them. It appears highly likely that immigrants themselves modify their movements to stay away from regions with higher unemployment and lower incomes. As a result, comparing earnings in towns with different levels of immigration may not show much of a difference because both locals and recently arrived immigrants change their migratory patterns when the job market in a certain place deteriorates. Due to the decrease in the labor supply, this would have enhanced the job prospects of both those who moved and those who remained back. As a result, there may be no reason to anticipate much of a correlation between local workers' earnings and the presence of immigrants if locals and businesses move away from locations offering inferior possibilities in response to the admission of immigrants. Another important problem that previous literature has, is the fact that the analysis of the data is used for the wages of the whole labor force, which may end up at incorrect

results, because they may reflect the aftermath of immigration on natives' wages for a specific sector of the labor force (ex: low-skilled) and not investigating other subcategories of the population.

Since minorities are a vital part of American society, it would be useful to see if immigration affects the wages of native people who belong in minority groups different than people who do not belong in minority groups and mention why is this happening. In this paper, minorities are considered as the native people who are not white Americans.

First off, being a minority and competing with immigrants may have interactive effects meaning that, competition with immigrants may be different for minorities than for non-minorities.

The fact that native-born minority workers typically earn less than their white counterparts is the second factor to consider when analyzing the specific impact of immigration on these individuals. This indicates that even if all groups are equally impacted by immigration, minorities will still be most significantly affected by any pay losses, because their income will become even more poorer.

Third, there may be an unbalanced concentration of minorities in professions with short educational requirements. Therefore, a greater percentage of minorities could suffer from immigration.

Starting with the interactive effects of being a minority and competing with immigrants, it is important to mention the hardships that minorities face in the society.

As it is well known, minorities are not treated equally in terms of job opportunities, as their white counterparts. McKinsey's research, tried to characterize Black Americans' experience in the US private sector workplace. According to this research, the scale of

the issues that Black US workers face is massive, and the roots of the problem are deep. Some of the problems that this research exposes are the following: higher unemployment for black workers compared to other workers, underrepresentation of black workers in faster growing, higher wage industries, higher wage jobs and most in demand jobs, a lack of managerial sponsorship and allyship for black employees and a trust deficit among black employees towards their companies.

In the case of Latinos born in USA, according to ABC news, they face harassment at work, according to the report, including wage theft and sometimes the threat of deportation. Latinos are more likely to hold low-paying jobs and to work in the service industries, and they are underrepresented when it comes to boardrooms and managerial positions. Also, in McKinsey's research, Latinos remain concentrated in roles generally dismissed as "jobs no one else wants to do", although they are a vital part of US labor force. According to McKinsey's research, they are underpaid, less likely to have nonwage employer benefits, and disproportionately vulnerable to disruption. The gap in income between Latinos compared with non-Latino White workers not only represents lost economic opportunity but has significant implications for Latinos' ability to start businesses, build wealth, and fully participate as consumers.

The minority group that does not seem to suffer so much compared to other minorities, is the group of Asian Americans. According to Emily Greenman (paper: ASIAN AMERICAN-WHITE DIFFERENCES IN THE EFFECT OF MOTHERHOOD ON CAREER OUTCOMES), U.S.-born Asian Americans are unique among American minority groups in that they lack earnings disadvantages relative to whites with similar education levels. Controlling for education and age, there is little difference in the earnings of U.S.-born Asian and White men, but Asian

women have higher earnings than comparable White women. According to Mckinsey's research, American Asians are wide-range distributed across industries, as they are overrepresented in low-paying occupations but, at the same time, they are also overrepresented in higher-wage technical fields. Also, Asians Americans as a group, experience poverty rate in line with the white population. It is also mentioned that, even when Asian Americans are in high-wage fields, they make $0.93 for every dollar earned by their white colleagues. The earnings gap is correlated with Asian American underrepresentation at higher-paying manager levels.

Research approach and data exploration

The effect of immigration on the wages of all natives

To limit the problems that occurred from previous research on this subject, I follow a model similar to that one used by Steven A. Camarota in the paper "The wages of immigration". This study seeks to quantify the impact of immigration on salaries at the national level by comparing workers in occupations with various immigrant percentages. The model will be able to show the positives and drawbacks of an increase in immigration-induced labor supply. Next, this strategy has the advantage of not looking at changes over time, which reduces the potential of missing variables.

Considering the ideas in this analysis, this paper hopes to add to the discussion on how immigration affects native workers' salaries in USA and limit the problems that occurred from previous research on this subject.

The variables used are separated in two groups, the occupational level variables, and the individual level variables. The occupational level variables are the following: the percentage of men in each occupation, the average education level of workers in each occupation and the immigrant variable, that is the percentage of immigrants in each occupational category. The individual-level variables are the following: the individual's employment status, sex, education level, minority status, marital status, disability status, the difference between each worker's age with the average age of his occupation category and the difference between each worker's age with the average age of his occupation category squared. The dependent variable that will be used is

the log of the natives' weekly wages, for four different specifications, as you can see from the Table 2.

The first specification will be performed to check the effect on the wages of all native workers. The second regression is using the same variables as the first, with the addition of two interactive terms, which is the product of average occupational education level and the percentage of immigrants in the occupation and the second one, is the product of the percentage of men in each occupation category multiplied by the percentage of immigrants in each occupation category. This will define if the number of immigrants in an occupation is dependent upon the average occupational education level and the percentage of men in each occupation.   The third specification will be performed as the first one, but only for low-skilled native workers, in order to define how immigrants, affect the wages of this group and finally, the last regression only for high-skilled native-born workers.

The cross-sectional data used are extracted from IPUMS, using 1% sample of the year 2019.

The model has the following formal structure and explained as follows:

$Wi = a + b1\ (PM) + b2\ (AE) + b3\ (PI) + b4\ (ESi) + b5\ (Si) + b6\ (Ei) + b7(MISi) + b8(MASi) + b9(DSi) + b10(Ai) + b11(AAi) + e$

Where:

The occupation level variables are described as: *PM* is the percentage of men in each occupation category, *AE* is the average education level in each occupation category, and *PI* is the percentage of immigrants in each occupation category.

The individual level variables are described as: *ES* is the employment status (assigned 1 if the individual is full-time employed and 0 if part-time employed), *S* is the sex (1 for males and 0 for females), *E* is the education level (1 for school dropouts or high school graduates, 2 for individuals who attended college but did not manage to complete it, 3 for those who own a 4 – year degree like an associate degree or a bachelor degree, and 4 for individuals with more education). *MIS* is the minority status for each individual (1 if the individual is native-born, and not American white and 0 if he is not). *MAS* the marital status (1 for married people and 0 for those who are not) , *DS* the disability status (1 for those who have any physical or mental condition that make it difficult or impossible to perform basic activities outside the home alone. This does not include temporary health problems, such as broken bones.) Also, *A* is the difference between each worker's age with the average age of the occupation category in which they belong and *AA* is the difference between each worker's age with the average age of the occupation category in which they belong, squared.

In addition, *a* is the constant and *e* the error term.

The occupational level variables' descriptive statistics are presented in Table 1. Table 2 presents the coefficients of the non – interactive model (column 1) and the interactive model (column 2) using the log of weekly wages of the natives as the dependent variable. The third column gives the coefficients for the low skilled native individuals only (education level <=2), using the log of the weekly wages of low skilled natives as the dependent variable. Finally, the fourth column presents the coefficients for the high skilled native individuals only (education level >2), using the log of the weekly wages of high skilled natives as the dependent variable. At the 0.05

significance level, every variable in every model is statistically significant, except the interactive terms, the percentage of immigrants in each occupation category, the average education level of each occupation category and the percentage of men in each occupation category. In order to be able to include these variables in the model, I performed an F – test which showed that these variables are overall significant and can be included in the regression. In Table 9, the correlations between the variables are presented. Table 9 reveals that there is no high correlation between the variables used in the model, except the interactive term that has high correlation with the immigrant variable.

As can be seen from the non – interactive model of Table 2 (first column), high presence of immigrants in occupations decreases slightly the native individuals weekly earnings. A one percent increase of immigrants in an occupation category decreases weekly wages of the natives by 1.94 %. Since the standard deviation of this variable is 3.15 %, this results in an average worker's earnings declining by around 6.11 %. Other factors that depress individual wages is the marital status of the individual, the minority status and the disability status. Specifically, married native people receive 4.68 % approximately lower wages than the single ones and people with disabilities receive almost half the wages of people with no disabilities as their weekly wage is 54.80 % lower. Also, native people who belong in minorities get 10.55% lower weekly wages than American native whites. In terms of the age the variable that represents the difference between the age of the individual and the average age of the occupation to which they belong equals 0.0100 and the variable that represents the squared difference between the age of the individual and the average age of the occupation to which they belong equals -0.0010 suggesting that the relationship between the difference in age and the log of the weekly income of the

natives is non-linear and has an inverted-U shape. Individuals who are younger than the average age of their occupation, have an increasing wage. When they pass the average age of their occupation, their wage will still increase with a lower rhythm, and it will reach its max point when their age is 5 years older than the average age of their occupation.

The other variables that are included in the first model seem to affect positively the individual weekly wages. Particularly, a one percent increase of men in an occupation category, increases weekly wages by 0.51%. Also, a one unit increase of the average education level of the occupation category, will increase the wages of the individuals by 33.59%. For the individual level variables, full time workers receive obviously much more income than the part time ones and a one unit increase of the education level of the individual increases his wage by 19.86%. In terms of gender, men get higher wages than women by 20.48%.

The second column of Table 2 contains the interactive model, which has the same variables as the first model, plus the two interactive terms. The reason that the interactive terms exist is to reveal if the effect of immigrants on the log of individual weekly wages of the natives is dependent upon the average education level of the occupation for the first interactive term, and on the percentage of men in each occupation for the second term. In fact, the interactive term that is the product of the average education level of the occupation multiplied by the percentage of immigrants in the occupation is 0.0431. The occupation category with the lowest average education level is farming, fisheries and forestry as can be seen from Table 1. The average education level of this occupational category is 1.5128 and multiplying this by the interactive term (0.0431) gives us 0.0652. The coefficient for the percentage of immigrants in each occupation is -0.1173. Summing these last two numbers gives us

the slope of the immigrant variable in the lowest - skilled occupations which is - 0.0521. The occupation category with the highest average education level is legal with average education level of 3.4457. The product of this with the interactive term (0.0431) equals 0.1485. Now, summing this product with the coefficient for the percentage of immigrants in each occupation (-0.1173), equals 0.0312 which is the slope of the immigrant variable in the highest - skilled occupations. As a result, the immigrant variable's slope has a value between -0.0521 and 0.0312. This suggests that while immigrants lower earnings in occupations requiring the lowest ability levels, they raise wages at the greatest skill levels.

The second interactive term that is the product of the percentage of men in the occupation multiplied by the percentage of immigrants in the occupation is 0.0004. The occupation category with the lowest percentage of men is Healthcare Support as can be seen from Table 112.21. The percentage of men in this occupational category is 12.21 % and multiplying this by the interactive term (0.0004) gives us 0.0048. The coefficient for the percentage of immigrants in each occupation is -0.1173. Summing these last two numbers gives us the slope of the immigrant variable in the occupations with the lowest percentage of men which is - 0.1125. The occupation category with the highest percentage of men is Extraction, as it is made by 97.26 % by men. The product of this with the interactive term (0.0004) equals 0.0389. Now, summing this product with the coefficient for the percentage of immigrants in each occupation (- 0.1173), equals -0.0783 which is the slope of the immigrant variable in the occupations with higher percentage of men. As a result, immigrants are affecting more negatively the occupations that have lower percentage of men, than the occupations that have higher percentage of men.

In order to calculate the slope for each case, I used a type of the paper of Friedrich (1982)[1].

The third column of Table 2 contains the regression coefficients and standard errors for the log of individual weekly wages, only for the low skilled, native - born individuals. The regression coefficient for the immigrant variable is -0.0213, so a one percent increase of immigrants in the occupations of low skilled workers, decreases their wages by 2.13 % approximately. Since, low skilled workers are employed in occupations with standard deviation 3.6447, this makes the reduction of the weekly wage of the low skilled native workers equal to 7.7632 %. The other variables that are used for this specification have similar coefficients to those from the first specification.

The fourth column of Table 2 contains the regression coefficients and standard errors for the log of individual weekly wages, only for the high skilled, native - born individuals. The regression coefficient for the immigrant variable is -0.0244 which means that a one percent increase of immigrants in jobs of high-skilled native-born individuals decreases their wages by 2.44 %. Since, high skilled workers are employed in occupations with standard deviation equal to 2.1639, this makes the

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[1] Friedrich (1982): In defense of multiplicative terms in multiple regression equations

According to Friedrich, multiplicative terms in regression analyses are desirable, as they have clear-cut, straightforward interpretations. Though a multiplicative term and its constituent variables are often highly correlated, this multicollinearity does not pose problems for the interpretation of the regression results. Multicollinearity does not "distort" the coefficients in an interactive model as compared with an additive model.

Not only is it permissible to include multiplicative terms in regression models, but if there is any possibility of interaction, it is desirable to do so. All in all, the consequences of including such a term are preferable to the consequences of leaving one out.

Prove of the type in a regression model with a multiplicative term:

$Y=a+b_1*X_1+b_2*X_2+b_{int}*X_1*X_2+b_3*X_3+b_4*X_4+\ldots+e$

$Y= a+b_2*X_2 + (b_1 + b_{int} * X_2)* X_1 +b_3*X_3+b_4*X_4+\ldots+e$

reduction of the weekly wage of high skilled native worker equal to 5.27 %. The other variables that are used for this specification have similar coefficients to those from the first specification.

As we can observe, on individual level, all native – born individuals are negatively affected by higher percentages of immigrants in their occupations. But, on occupational – level, according to the interactive term used in Specification 2, occupations that are mostly made by low – skilled individuals are negatively affected by immigrants, while those who are mostly made by high – skilled individuals are positively affected by immigration. This means that it is not the education level of the individuals that changes the effect of immigrants on their weekly wages, but the average education level of their occupation. Moreover, immigrants are affecting more negatively the individuals that work in occupations with higher percentage of women than men, according to the other interactive term.

Comparison of the effect of immigration on native born minorities and American whites

Since the United States is a highly diverse country with a significant population of racial and ethnic minorities it would be interesting to investigate how immigrants affect these groups of people. For this paper, minorities are considered as those individuals who were born in the United States but are not American whites.

In this paper I will compare how immigrants are affecting the wages of the native minorities and non-minorities by using two regressions for each group. The variables

used are the same as before except the variable Minority status, which is now omitted, since the groups of people are now treated separately and there is no point using it. Table 3 presents the coefficients of the variables of these regressions, for minorities (specification 1 and specification 2 including the two interactive terms) and for non-minorities (specification 3 and specification 4 including the interactive terms) using the log of their weekly wages as the dependent variable. For all the variables for these regressions that are not statistically significant at 0.05 level, I performed an F – test which showed that these variables are overall significant and can be included in the regressions.

For specification 1, the coefficient of the percentage of immigrants is -0.0193. The standard deviation of this variable is 3.2366 % meaning that the amount of variability in the log of the wages of native-born minorities caused by the percentage of immigrants in occupations is -6.24%.

For specification 2, the interactive term that is the product of the percentage of immigrants in each occupation multiplied by the average education level of each occupation is 0.0552. The occupation category with the lowest average education level for native born minorities is farming, fishing and forestry which equals 1.4542. Multiplying this by the interactive term (0.0552) gives us 0.0802. The coefficient for the percentage of immigrants in each occupation is -0.1379. Summing these last two numbers gives us the slope of the immigrant variable in the lowest - skilled occupations for native born minorities which is -0.0576. The occupation category with the highest average education level for native born minorities is legal with average education level 3.3143. The product of this with the interactive term (0.0552) equals 0.1829. Now, summing this product with the coefficient for the percentage of immigrants in each occupation (-0.1379), equals 0.045 which is the slope of the

immigrant variable in the highest - skilled occupations for native born minorities. As a result, the immigrant variable's slope for native born minorities for this interactive term has a value between -0.0576 and 0.045. The second interactive term which includes the percentage of men in each occupation multiplied by the average education level of each occupation is 0.0004. The occupation category with the lowest percentage of men for minorities is healthcare support with 13.90 % of men Multiplying this by the interactive term (0.0004) gives us 0.0055. The coefficient for the percentage of immigrants in each occupation is -0.1379. Summing these last two numbers gives us the slope of the immigrant variable in the occupations with the lower percentage of men for minorities which is -0.1323. The occupation category with the highest percentage of men for minorities is extraction with 94.61%. Multiplying this by the interactive term (0.0004) gives us 0. 0378.The coefficient for the percentage of immigrants in each occupation is -0.1379. Summing these last two numbers gives us the slope of the immigrant variable in the occupations with the higher percentage of men for minorities which is -0.1000.

 As a result, immigrants are affecting more negatively the occupations of native-born minorities that have lower percentage of men, than the occupations that have higher percentage of men.

For specification 3, the coefficient of the percentage of immigrants is -0.0193. The standard deviation of this variable is 3.1399 % meaning that the amount of variability in the log of the wages of American whites caused by the percentage of immigrants in occupations is -6.06%.

For specification 4, the interactive term that is the product of the percentage of immigrants in each occupation multiplied by the average education level of each

occupation is 0.0406. The occupation category with the lowest average education level for American whites is farming, fishing and forestry which equals 1.7233. Multiplying this by the interactive term (0.0406) gives us 0.0699. The coefficient for the percentage of immigrants in each occupation is -0.1134. Summing these last two numbers gives us the slope of the immigrant variable in the lowest - skilled occupations for American whites which is -0.0435. The occupation category with the highest average education level for American whites is legal with average education level 3.4445. The product of this with the interactive term (0.0406) equals 0.1398. Now, summing this product with the coefficient for the percentage of immigrants in each occupation (-0.1134), equals 0.0264 which is the slope of the immigrant variable in the highest - skilled occupations for American whites. As a result, the immigrant variable's slope for American whites for this interactive term has a value between - 0.0435 and 0.0264. The second interactive term for American whites, which includes the percentage of men in each occupation multiplied by the average education level of each occupation is 0.0004. The occupation category with the lowest percentage of men for American whites is healthcare support with 12.04 % of men. Multiplying this by the interactive term (0.0004) gives us 0.0048. The coefficient for the percentage of immigrants each occupation is -0.1134. Summing these last two numbers gives us the slope of the immigrant variable in the occupations with the lower percentage of men for American whites which is -0.1086. The occupation category with the highest percentage of men for American whites is extraction with 97.60 %. Multiplying this by the interactive term (0.0004) gives us 0. 0390.The coefficient for the percentage of immigrants in each occupation is -0.1134. Summing these last two numbers gives us the slope of the immigrant variable in the occupations with the higher percentage of men for American whites which is -0.0743.

Conclusions

The findings of this study offer valuable insights into the effect of immigrants on the wages of the natives. When looking at individual level, all the natives are affected negatively by immigrants, especially those who are low skilled in terms of their education. But, when looking at the occupational level, immigration has different effects for each occupation category. Native individuals that are employed in occupations that have low average education level are negatively affected by immigration, while native individuals that are employed in occupations that have high average education level are positively affected by immigration. This may happen for various reasons. A possible reason is that some low – skilled jobs may require high skilled staff for specific positions. As a result, employers of low skilled occupations, may find more efficient to employ immigrants who are willing to work for lower wages, instead of employing an expensive native born individual who has more skills than the immigrant. They may believe that low skilled immigrants will reach the skills and qualifications of high skilled native-born individuals through the experience they will gain in their position. Another possible reason is credential recognition challenges. Immigrants often face obstacles in having their foreign qualifications and credentials recognized in the host country. This can result in them being forced to accept low – skilled jobs, which may impact negatively the wages and job opportunities for high – skilled workers already present in those positions.

In terms of, the difference between the effect of immigration on native born minorities and American whites, the effect of immigration on these two groups is very similar. In addition, both native born minorities and American whites are more negatively

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affected by immigration in occupations with lower percentage of men. Also, native born minorities and American whites that are employed in occupations that have low average education level are negatively affected by immigration, while native born minorities and American whites that are employed in occupations that have high average education level are positively affected by immigration. In general, immigrants in the United States are affecting minorities and non – minorities similarly.

Immigration has shaped the United States significantly over the course of its history and continues to strengthen its social, cultural, and economic base. The numerous talents, abilities, and ideas that immigrants brought to the country have benefited it, fostering innovation, entrepreneurship, and overall economic prosperity. Immigrants have played significant roles in a variety of areas of the economy, helping to meet the demands of the labor market and filling both high- and low-skilled positions.

Additionally, immigration poses difficulties and necessitates careful policy analysis. It can be difficult to successfully control immigration flows and ensure that newcomers are assimilated into society. It takes carefully crafted policies that balance the demands of native-born employees and immigrants to address issues like job market competition and salary discrepancies.

Tables - Graphs

TABLE 1				
Descriptive statistics				
Occupation categories	Average square age	Average education level	Percentage of men	Percentage of immigrants
Management in Business, Science and Arts	47.81	2.7453	57.48	5.73
Business operations specialists	45.47	2.7719	42.30	5.25
Financial specialists	46.60	3.0159	45.38	5.55
Computer and mathematical	44.07	2.8568	72.62	8.20
Architecture and Engineering	45.54	3.0524	83.90	6.58
Technicians	46.88	2.1723	81.42	5.12
Life, physical and social science	43.41	3.2261	50.70	7.25
Community and social services	45.46	3.1602	32.16	4.74
Legal	47.16	3.4457	44.66	4.88
Education Training and Library	45.02	3.1743	24.29	4.60
Arts, Design, Entertainment, Sports and Media	42.76	2.7309	48.95	6.20
Healthcare practitioners and Technicians	45.29	3.0579	22.67	5.34
Healthcare support	42.41	2.0151	12.21	9.43
Protective service	43.62	2.2311	76.34	3.83

Food preparation and serving	1328.04	1.7128	42.66	10.11
Building and grounds cleaning and maintenance	45.68	1.5621	60.69	16.28
Personal care and service	41.58	1.9399	21.82	10.02
Sales and related	43.43	2.1397	47.18	5.45
Office and administrative support	45.61	2.0918	26.40	4.94
Farming, fisheries and forestry	43.12	1.5128	73.45	31.51
Construction	45.04	1.6020	96.17	12.24
Extraction	42.47	1.5372	97.26	3.96
Installation, maintenance, and repair	45.68	1.7875	95.76	5.32
Production	45.77	1.6638	71.48	9.62
Transportation and material moving	45.34	1.6625	81.15	8.22
Military	31.36	2.2050	87.12	4.47

TABLE 2

Regression coefficients and robust standard errors for log of individual weekly wages of the natives

Variables	Specification 1: Non-Interactive for all	Specification 2: Interactive for all	Specification 3: Low-Skilled natives	Specification 4: High-Skilled natives
Occupational level variables				
Percentage of men	0.0051 * (0.0015)	0.0015 (0.0032)	0.0041 * (0.0013)	0.0063 * (0.0028)
Average education level	0.3359 * (0.0989)	0.0748 (0.3220)	0.2582 * (0.1051)	0.3560 * (0.1082)
Percentage of immigrants	-0.0194 * (0.0072)	-0.1173 (0.0699)	-0.0213 * (0.0077)	-0.0244 * (0.0116)
Interactive term (occ_educ*per_immi)	-	0.04310 (0.0429)	-	-
Interactive term (per_men*occ_immi)	-	0.0004 (0.0004)	-	-
Individual level variables				
Employment status	1.0967 * (0.0686)	1.0938 * (0.0710)	1.1199 * (0.0342)	1.0269 * (0.1212)
Sex	0.2048 * (0.0260)	0.2054 * (0.0256)	0.1826 * (0.0302)	0.2386 * (0.0258)
Education level	0.1986 * (0.0223)	0.1988 * (0.0222)	0.0557 * (0.0102)	0.2324 * (0.0245)
Minority status	-0.1055 * (0.0134)	-0.1041 * (0.0133)	-0.1062 * (0.0146)	-0.0934 * (0.0170)
Marital status	-0.0468 * (0.0055)	-0.0472 * (0.0049)	0.0547 * (0.0053)	-0.0367 * (0.0059)
Disability status	-0.5480 * (0.0251)	-0.5471 * (0.0251)	-0.5417 * (0.0256)	-0.5496 * (0.0306)
Age difference	0.0100 * (0.0009)	0.0099 * (0.0009)	0.0117 * (0.0013)	0.0066 * (0.0005)
Age difference squared	-0.0010 * (0.0000)	-0.0010 * (0.0000)	-0.0010 * (0.0000)	-0.0010 * (0.0000)
Constant	5.0970 * (0.2038)	5.7748 * (0.5357)	5.5394 * (0.2940)	4.9259 * (0.1814)
Adjusted R-squared	0.4731	0.4739	0. 4501	0.3610
Observations	1127190	1127190	595452	531738

* : p – value<0.05

TABLE 3

Regression coefficients and robust standard errors for log of individual weekly wages of the natives

Variables	Specification 1: Native – born minorities	Specification 2: Native – born minorities with interactive terms	Specification 3: American whites	Specification 4: American whites with interactive terms
Occupational level variables				
Percentage of men	0.0046 * (0.0014)	0.0008 (0.0033)	0.0051 * (0.0016)	0.0016 (0.0033)
Average education level	0.3698 * (0.1004)	0.0436 (0.2759)	0.3299 * (0.0994)	0.0820 (0.3299)
Percentage of immigrants	-0.0193 * (0.0080)	-0.1379 * (0.0650)	-0.0193 * (0.0072)	-0.1134 (0.0706)
Interactive term (occ educ*per immi)	-	0.0552 (0.0355)	-	0.0406 (0.0440)
Interactive term (per men*occ immi)	-	0.0004 (0.0004)	-	0.0004 (0.0004)
Individual level variables				
Employment status	1.0661 * (0.0459)	1.0631 * (0.0477)	1.0999 * (0.0737)	1.0971 * (0.0763)
Sex	0.0843 * (0.0245)	0.0837 * (0.0250)	0.2265 * (0.0260)	0.2274 * (0.0256)
Education level	0.1965 * (0.0188)	0.1947 * (0.0189)	0.1990 * (0.0233)	0.1994 * (0.0231)
Marital status	-0.0454 * (0.0052)	-0.0456 * (0.0050)	-0.0475 * (0.0056)	-0.0478 * (0.0048)
Disability status	-0.4645 * (0.0325)	-0.4629 * (0.0322)	-0.5672 * (0.0256)	-0.5665 * (0.0254)
Age difference	0.0094 * (0.0013)	0.0095 * (0.0014)	0.0101 * (0.0009)	0.0100 * (0.0009)
Age difference squared	-0.0010 * (0.0001)	-0.0010 * (0.0001)	-0.0010 * (0.0000)	-0.0010 * (0.0000)
Constant	4.9274 * (0.2656)	5.7300 * (0.5476)	5.1160 * (0.1960)	5.7701 * (0.5375)
R-squared	0.4333	0.4343	0.4748	0.4755
Observations	169538	169538	957652	957652

* : p – value<0.05

Table 4
Correlations

	Percentage of men in each occupation	Average Education Level of occupation	Percentage of Immigrants in each occupation	Emp. status	Sex	Education level	Minority status	Disability status	Marital status	Age difference	Age difference squared	Interactive term (Percentage of men in each occupation * Average Education Level of occupation)	Interactive term (Percentage of Immigrants in each occupation * Average Education Level of occupation)
Percentage of men in each occupation	1												
Average Education Level of occupation	-0.4134	1											
Percentage of Immigrants in each occupation	0.3308	-0.5553	1										
Emp. status	0.2056	0.0802	-0.0534	1									
Sex	0.4705	-0.2014	0.1620	0.2035	1								
Education level	-0.2326	0.5626	-0.3124	0.1056	-0.0994	1							
Minority status	-0.0197	-0.0596	0.0203	-0.0315	-0.0277	-0.0691	1						
Disability status	0.0037	-0.0489	0.0357	-0.0708	-0.0053	-0.0553	0.0160	1					
Marital status	-0.0102	-0.1589	0.1027	-0.1709	-0.0071	-0.1612	0.1700	0.0540	1				
Age difference	0.0087	0.0130	-0.0021	0.1160	-0.0147	0.0358	-0.0809	-0.0017	-0.4391	1			
Age difference squared	-0.0217	-0.1013	0.0408	-0.2401	-0.0036	-0.1694	0.0464	0.0119	0.4005	-0.4182	1		
Interactive term (Percentage of men in each occupation * Average Education Level of occupation)	0.7434	-0.5518	0.8469	0.0906	0.3534	-0.3104	-0.0053	0.0226	0.0461	0.0065	0.0105	1	
Interactive term (Percentage of Immigrants in each occupation * Average Education Level of occupation)	0.1455	0.0434	0.7897	0.0007	0.0713	0.0244	-0.0177	0.0074	0.0172	0.0055	-0.0226	0.6158	1

<u>Graph 1: Immigrant inflows in G7 countries in 2019 (OECD international migration statistics)</u>
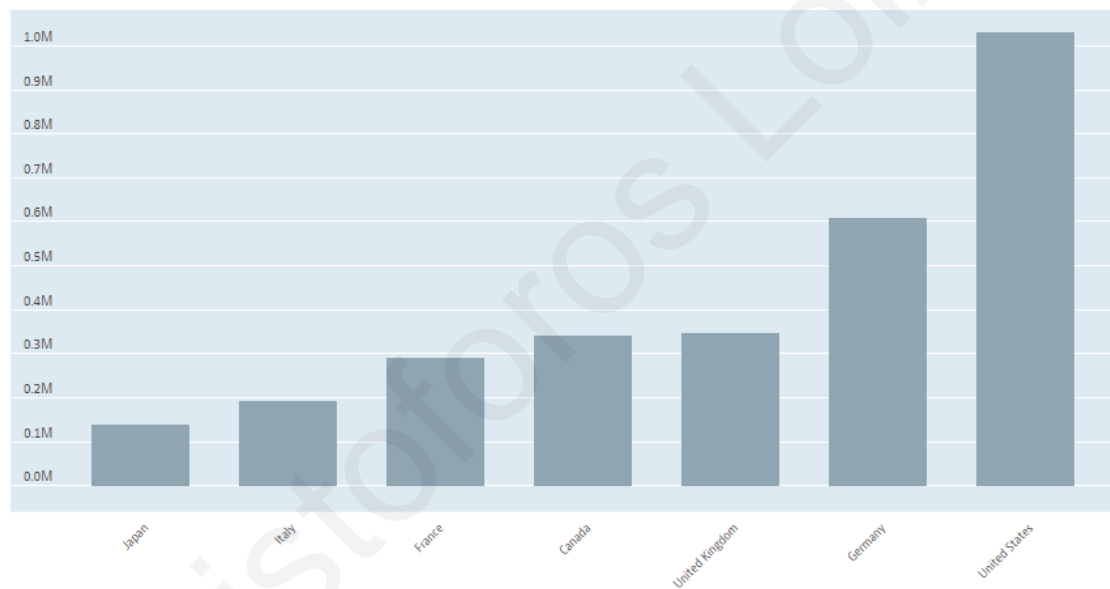
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