

Wage Inequality of Mexican Immigrants by Type of Job Qualification in the United States

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Abstract: *The objective of this research is to analyze the characteristics of the labor market insertion of Mexicans by type of qualification and their wage differences in relation to native workers in the United States. The hypothesis is that there is a wage inequality between Mexican migrant workers and native workers, accentuated among skilled workers, due to a segmentation of the U.S. labor market. The methodology used to analyze each of the components that add up to the wage gap between Mexican and native workers is the Ñopo decomposition. The results showed the opposite of what is established by the human capital theory since the wage difference between Mexicans immigrants and natives by type of job qualification is mostly unexplainable from a statistical point of view and escapes modeling. This means that having citizenship and education does not eliminate the differences between Mexicans and natives. This allows us to accept the hypothesis, except in the case of low-skilled Mexican immigrants, since they have a wage differential in their favor.*

Keywords: *International migration, labor qualification, wages, wage differentials, labor force and employment.*

JEL Classification: F22, J24, J3, J31, J21.

Desigualdad salarial por tipo de calificación laboral de los mexicanos inmigrantes en estados unidos

Resumen: *El objetivo de este artículo es analizar las características de la inserción laboral por tipo de calificación y las diferencias salariales de los mexicanos inmigrantes, en relación con los trabajadores nativos de Estados Unidos. La hipótesis es que los inmigrantes mexicanos en Estados Unidos tienen salarios precarios en comparación con los trabajadores nativos, mientras que los trabajadores calificados son el grupo más afectado por la subutilización de sus habilidades y la falta de experiencia. La metodología utilizada para analizar cada uno de los componentes que suman la diferencia salarial entre los trabajadores mexicanos y los nativos, es la descomposición de Ñopo. Los resultados mostraron lo contrario a lo establecido por la teoría del capital humano, ya que la diferencia salarial por tipo de calificación laboral de los mexicanos frente a los nativos estadounidenses, permanece en su mayor parte inexplicada desde un punto de vista estadístico y escapa a la modelización. Esto significa que tener ciudadanía estadounidense y educación no elimina las diferencias entre trabajadores mexicanos y nativos. Esto permite aceptar la hipótesis PROPUESTA, excepto para el caso de la población inmigrante de baja calificación, ya que ésta tiene una diferencia salarial a su favor.*

Palabras clave: *migración internacional, calificación laboral, remuneraciones, diferencias salariales, mano de obra y empleo.*

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Inégalité salariale des immigrants mexicains par type de qualification professionnelle aux États-Unis

Résumé: *L'objectif de cet article est d'analyser les caractéristiques de l'insertion professionnelle par type de qualification et de différences salariales des immigrants mexicains, par rapport aux travailleurs natifs américains. L'hypothèse est que les immigrants mexicains aux États-Unis ont des salaires précaires par rapport aux travailleurs autochtones, tandis que les travailleurs qualifiés constituent le groupe le plus touché par la sous-utilisation de leurs compétences et par le manque d'expérience. La méthodologie utilisée pour analyser chacune des composantes qui s'ajoutent à la différence des salaires entre les travailleurs mexicains et américains est la décomposition de Nopo. Les résultats ont montré que, contrairement à ce qui est établi par la théorie du capital humain, la différence salariale par type de qualification d'emploi chez les mexicains par rapport aux américains, reste majoritairement inexpliquée d'un point de vue statistique et ceci échappe à la modélisation. Cela signifie que le fait d'avoir la citoyenneté américaine et une éducation, n'élimine pas les différences entre les travailleurs mexicains et autochtones. Ceci permet d'accepter l'hypothèse proposée, sauf pour le cas de la population immigrée peu qualifiée car celle-là a un écart salarial en sa faveur.*

Mots clés: *migration internationale, compétences de la force de travail, salaires, écarts de salaires, travail et emploi.*

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Wage Inequality of Mexican Immigrants by Type of Job Qualification in the United States

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–Introduction. –I. Labor market segmentation theory. –II. Data and methodology. –III. Results. –Conclusions. –References.

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Introduction

Globalization and economic opening have generated the internationalization of the labor force, which is accompanied by the introduction of labor, cultural, and social aspects in accordance with the educational level into a foreign market. When immigrants come from less developed countries, their educational levels are normally low. This has been proven in the case of Mexicans because the population with low levels of education migrates more to the United States (Ibarraran & Lubotsky, 2007). Nevertheless, due to a greater proportion of connections between businesses and institutions, the qualified Mexican population has been able to increase although it does not exceed the participation of the less-skilled immigrants (Ibarraran & Lubotsky, 2007).

A qualified immigrant is usually defined as an individual who settles in another country in labor, cultural, and social terms and has completed a bachelor's degree, graduate degree, or doctorate (Delgado & Chávez, 2015; Gaspar, 2017; Pellegrino, 2001). This population is characterized by its involvement with international organizations, multinational companies, and international research and project execution (Pellegrino, 2001). Different authors such as Pellegrino (2001), Gaspar (2017), UNESCO (2019), have

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documented that people with a tertiary education level, usually young adults, have greater possibilities of emigrating due to the information, work opportunities, and financing they possess.

From the total number of Mexicans living in the United States, only 12% have higher education, constituting the smallest of all migrant groups, while the rest are poorly qualified (García, 2019). The latter have large participation in the U.S. labor market. According to statistics from the Pew Research Center, 26.5% of all immigrants in the United States are Mexicans who have occupations aligned with their low level of education such as dishwashers, food preparers, janitors, etc. These immigrants are employed in jobs where they are at a disadvantage in terms of pay by the same level of education (Tinley, 2009).

Piore (1979), the most notable exponent of this theory, postulates a labor market segmented into a primary and a secondary sector. In the primary sector are the higher income, more stable, and higher status jobs reserved for native workers. Immigrants, on the other hand, are concentrated in the secondary sector, occupying unskilled, low-wage, lower-status jobs that often entail difficult conditions, insecurity, and few opportunities to move up in the occupational hierarchy. Considering these reasons, the native population alone does not have the workforce to fill these positions. Immigrants keep the U.S. labor force young and, in themselves, represent a replacement of the labor force; demographically, they contribute to filling the gaps left in the age structure by the aging process of the U.S. population, so this demographic complementarity contributes to both the reproduction of the population and the reproduction of the labor force. These are immigrants in full reproductive age, but also economically active (Canales, 2009). The tendency for immigrants to take on this type of work, according to Canales (2009), would no longer be derived solely from the native demographic structure, but it would also be built by a structure of social, cultural, and ethnic inequalities that are transferred to the labor market. This type of social and cultural inequality relegates immigrants to low-wage jobs with little specialization.

Conversely, individuals defined as qualified present difficulties in terms of salary and labor. Authors such as Cruz and Ruiz (2010) indicate that

the biggest problem for qualified immigrants is the recognition of university degrees due to the lack of validation of certifications that come from the country of origin. However, this situation may not pose a problem in finding employment in a foreign country but rather might hamper obtaining a better-paid position within the same job context (Carrión & Hualde, 2013).

In recent years, Mexican immigrants have had lesser movement to the United States; this is due to different factors such as the opportunity to migrate to other countries, high transportation costs, etc. Nevertheless, Mexicans living in the U.S. stand out for mostly representing unskilled labor force and minorly representing skilled labor force. This has created concern about the effect of immigration within the labor market of the destination country, coupled with the impact and wage differences concerning the native population.

In the last decades, the effect of education years on income in immigrants compared to natives has stood out in immigration analyses; the main statement is that for one more year invested in education, the salary return would be greater for natives than for immigrants. This idea has been taken up by different authors such as Chiswick (1978), who estimated with a 1970 Census that immigrants obtained a salary return of 5.7% for one more year of education, while the natives obtained a 7.2% return. This pattern has been consistent within the U.S. market after the use of more recent data and different methodologies, such as the studies of Chiswick and Miller (2005), Caponi (2006), Borjas and Katz (2007), and others. Among the several provided explanations for the lower increase in salaries among immigrants, Chiswick (1978) proposes the lack of familiarity with U.S. institutions, the lack of knowledge of better employment opportunities, differences in human capital, and the possibility of discrimination against immigrants within the labor market that would increase with a higher educational level. Other authors (Aldahsev et al., 2008; Nadeau & Seckin, 2010) mention the lack of language skills, problems of cultural and regional integration, among others.

Several studies have analyzed the wage differentials between men and women and have revealed that these are not only explained by factors associated with human capital and occupational segregation, which is also

a form of discrimination, but that there are other aspects, such as wage discrimination in the labor market, which contribute to women being paid less than men. According to Oaxaca (1973) and Anker (1997), throughout the world, women earn lower wages than men due to different factors, such as educational level, age, race, and migration status, so that a determining element in explaining these differences is the migratory status of women. As found by Caceido (2009), Montoya (2011), and Ramírez-García and Gandini (2016) in their studies of immigrant Mexican women in the United States.

Most studies emphasize differences in human capital and assimilation within the destination country as determinants of low immigrant income; others take it from the perspective of labor segregation and the higher risk of unemployment and over-skilling.

Similarly, the studies mentioned use the variable of the place of birth for the analysis of wage differences. Furthermore, the Mexican immigrant population stands out because of researchers' great interest in describing the characteristics of this population and their effect on educational earnings (Borjas & Katz, 2007; Borjas, 2013; Caponi, 2006; Ibarraran & Lubtosky, 2007) as well as wage differences by gender (Oaxaca, 1973; Anker 1997; Caceido, 2009; Montoya, 2011; Ramírez-García & Gandini, 2016). Mexican population has been the most prominent in the analysis of Latin American migration, as there is evidence of a large movement of people seeking to work in the United States (Pellegrino, 2006; UAM, 2018). Likewise, Mexicans constitute 62% of the Hispanic immigrant population residing in the U.S. (Noe-Bustamante et al., 2019). These migratory dynamics and the large volume of Mexicans in the neighboring country have established an interest in understanding the type of labourlabor they perform, and their demographic characteristics.

The evolutionary changes in society and the economy have generated mechanisms for the exchange of labor. Migration is important because immigrants generate positive effects on the recipient country. These include greater employment in low-skilled areas, greater cultural diversification, greater dynamism and growth of the economy, a larger population of young adults, and even a greater intake of remittances, in this case, for the country

of origin. This paper addresses the problem of the effect of the educational level of immigrants on their income within a specific age and type of labor. Considering these variables, as opposed to most of the migratory studies thus far, could provide further insight into this population.

The research questions are the following: (1) What are the demographic and labor characteristics of Mexican immigrants compared to those of natives? and (2) What are the salary differences between natives and Mexican immigrants?

The objective of this research is to analyze the characteristics of the labor market insertion of qualified Mexicans and their wage differences in relation to native workers in the United States.

The hypothesis to be tested is that there is a wage inequality between Mexican migrant workers and native workers, accentuated among skilled workers, due to a segmentation of the U.S. labor market.

The methodology used to analyze each of the components that add up to the wage difference between Mexican and native workers is the so-called “Nopo pairing decomposition”.

The results showed the opposite of what is established by the theory of human capital. A comparison of the characteristics of the natives within and outside common support (by combinations of compatible and non-compatible characteristics) shows that the natives obtain a positive wage difference as opposed to the Mexicans for the last two levels of qualification. The wage difference for Mexicans can be explained largely by unobservable characteristics and minimally by observable characteristics. This means that having citizenship and education does not eliminate the differences between Mexicans and natives, but these differences are rather derived from characteristics that cannot be observed. This allows us to accept the hypothesis except for the case of the low-skilled immigrant population since they had a wage difference in their favor. This may be due to the selection criteria or to the effect of having different jobs and working overtime to compensate for their living conditions and remittance sending.

The first section details the theoretical framework explained by the theory of human capital and the theory of the dual market concerning segmentation and discrimination in the labor market. In the second section, we present the decomposition methodology of Ñopo (2004). This chapter also includes a description of the survey on which the analysis of the research is based: The Current Population Survey March Supplement 2019 for the United States. The last chapter contains a descriptive analysis of the data, the results of the application of the methodology by Ñopo, and finally the respective conclusions.

I. Labor market segmentation theory

By the end of the 1960s, the approach known as labor market segmentation theory emerged to explain a set of phenomena that persist in the labor market, such as unemployment and wage inequalities among individuals with equal productive capacities.

The evolution of economic processes allowed a boom in the term “economic dualism”, where companies from developed countries, for different reasons, would take advantage of either their productive process, economies of scale, or business growth strategies that would begin to form a center or nucleus of market power. Fundamentally, it gave rise to the creation of a core segment with high productivity and profit levels, and the periphery, which would be the opposite, with low profits and productivity (Fernández, 2012). Similarly, this dual relationship of the economy could also influence the labor market.

From this perspective, Piore (1969) established the primacy of this idea, where there is a primary segment known as the most stable with opportunities for salary and professional growth (or, colloquially, the one that introduces “good” jobs) and another as the secondary market, which is totally the opposite, characterized by lower salaries, less desirable opportunities, and unstable sectors (Piore, 1969, 1972) later refined the theory by creating a new division in addition to the primary sector; he developed an upper segment for those with professional or managerial positions, and the lower segment characterized by manual or low-skilled workers.

Piore (1969, 1972) approach has been related in the same sense for international migration, based on the existence of a divided market for natives and another for foreigners. Natives would benefit from a much more prosperous primary market, with better income and social status, while immigrants would be in the secondary market, which would be characterized by low wages, status, precarious and insecure conditions (Alarcón et al., 2014).

Likewise, workers in the primary sector are considered for certain people who meet certain characteristics, and those positions determine the remunerations set by the administrative processes. However, for workers in the sector with secondary jobs, a higher entry point would be achieved, where there is little chance of promotion and pay at low levels with jobs that in themselves would be unpleasant. This presumes the scarcity of jobs in the primary sector for certain individuals, and it may even happen that individuals with the same productive characteristics are transferred to the secondary sector and acquire behaviors, skills, and/or characteristics that prevent them from leaving this sector to go to the primary sector (Fernández, 2012). This type of labor segregation presents entry barriers for certain occupations, as well as for accessing better jobs. Within this segmentation of workers in their primary or secondary jobs, wage assignment is also included. In the case of migration, segregation is expressed in the same sense, primary and better paid positions for the native and the worst paid for the immigrant or minority.

With this, other theories that take up the explanation of labor segregation together with wage inequality in certain minority groups have been developed from the point of view of discrimination within the labor market.

II. Data and methodology

The research methodology is carried out with the use of microdata from the Current Population Survey March Supplement 2019 (CPS), issued annually by the Integrated Public Use Microdata Series (IPUMS), which is known as one of the most important microdata sample access programs in the United States.

CPS March Supplement contains sociodemographic and labor variables that allow the generation of a much more complete picture of the characteristics of individuals, in addition to the fact that data are continuously updated and scientifically selected based on their residential area to more than 65,000 non-institutional households. Therefore, it is a survey that provides information about individuals and households in terms of occupation, employment, demographics, and other variables of interest/supplement.

The survey design is characterized by a stratified sample for each state in the country. The sample is created by selecting individuals separately for each stratum, employing the systematic sampling technique, which consists of randomly choosing an initial individual from the population (Flood et al., 2020). An additional weighting method is needed based on the inverse probability of sample selection by adjusting the data to the following factors: by vacant housing units, households that were not interviewed due to absence or refusal to participate, and oversampling of persons with the objective of generating a macro representation of the data.

The selected sample is the economically active population between 15 and 65 years of age. Therefore, by focusing on immigrant workers, permits are needed to perform the activity, such as a residence visa, an employment authorization document or an employee visa that supports the legality in which the individual is (USCIS, n. d). This generates an emphasis on the legal population, and the most approximate variable that can offer us information on the legal status of the immigrant within the survey is attributed to citizenship or naturalization. For this, the citizen immigrant must have fulfilled the requirements to obtain the status of naturalized citizen such as permanently residing five years in the country or receiving citizenship for reasons of native partner and/or work (USA GOV, n.d). Ingwersen and Thomsen (2019) mention that citizenship is related to the permanence factor, considering those workers who obtain greater privileges, including the ability to invest in improving their skills for outstanding job performance and establish social and cultural contact in the country.

Based on the above, the population to be studied is delimited by labor qualification based on educational level. The category of low-skilled was

constructed considering workers with either no education or some grade within primary education or secondary education up to the twelfth grade without a diploma. According to Tinley (2009), basic education in the United States is considered up to the twelfth grade, while in Mexico it is considered up to high school (on average with nine years of education). The semi-skilled is those who have a high school certificate or diploma and the technical level (this type of degree is commonly completed in community colleges for an average period of two years). Obtaining the high school certificate allows the individual the opportunity to enter higher education and obtain a higher income since it specifies the approval of the basic level. In addition, in the United States, obtaining this certificate is a mandatory requirement (Tinley, 2009). Finally, the qualified individual is one who meets several or some of the following characteristics: has a bachelor's degree, a master's degree, a professional degree and a doctorate.

In the same way as mentioned, the survey comes to offer weighted estimates. This was used only in the case of descriptive statistics. With respect to the estimates with the Ñopo decomposition methodology, weighting was not used because the econometrics estimation does not allow it.

A. Salary decomposition by Ñopo (2004)

Ñopo (2004), proposes a methodology based on a non-parametric decomposition by matching. Mainly, the author takes the salary gap decomposition by the Oaxaca-Blinder method developed in the seventies as a basis to explain the differences in the observable and non-observable individual characteristics from the formation of linear equations of salary income.

The matching technique developed by Ñopo (2004) is a non-parametric. The method answers the same question but considers differences across the wage distribution and not just the average unlike Oaxaca-Blinder. Matching does not require assuming a functional form for the model. The relationship between the explanatory variables need not be linear as assumed by the Mincerian regressions used in the Oaxaca-Blinder (1973) model. Due to specification errors, parametric techniques could lead to inaccurate inferences

and the matching does take into account differences in the supports between the comparison groups. In contrast, Oaxaca-Blinder must extend its linear estimators outside the brackets for which they have been calculated. Ñopo (2004) shows that this tends to overestimate the unexplained factor of the wage gap.

Due to the nature of this method, combinations of characteristics pertaining to only certain individuals could not be calculated as the Oaxaca-Blinder method only estimates the combination of traits shared between native and Mexican workers. Consequently, this lack of disparity leads to inaccurate calculations in the results. Ñopo (2004) proposes a non-parametric decomposition method. The method responds by measuring the wage differential and its decomposition, but considering differences across the wage distribution and not only in the average as Oaxaca-Blinder does.

The Ñopo methodology restricts the comparison of differences only between natives and immigrants with comparable characteristics. Thus, it creates a synthetic sample of individuals by matching natives and immigrants with identical observable characteristics, so it does not need to assume any functional form in the relationship between characteristics and wages.

The advantages of this methodology are threefold. Firstly, it generates common support based on "the differences in common characteristics obtained from the distributions of characteristics of the individuals of interest and those who do not have them" (Botello, 2015, p.17). Thus, the common support equals all those distributions of paired or similar observations of both groups, while those that are not paired and whose distribution is not similar are outside of the common support. Secondly, it provides information on the distribution of the unobservable or unexplained components of the wage gap. And thirdly, since it is a non-parametric estimate, it does not require validation of assumptions (Franco, 2010; Ñopo, 2004). However, among the biggest disadvantages is the so-called "dimensionality curse," which means that, due to the presence of many explanatory variables, it generates dispersion among the data (Franco, 2010).

Based on the non-parametric method and with the use of matching, Ñopo (2004) develops a wage decomposition, that is, for the distribution

of observations of the treated variable and control in X characteristics, the explanation of the wage difference is separated into four components.

First, the methodology selects Individual A from the sample without replacement; this means that not every observation in the sample is repeated, but the original line of the distribution of observations of this individual is maintained. Secondly, it selects all Individuals B (with replacement) who have the X characteristics identical to the previously selected Individual A. Then, a synthetic Individual B is constructed, which has similar characteristics to the average of that whole population. Furthermore, B is matched with the original individual A. Thus, a sample of the observations of both matched individuals is obtained (synthetic Individual B and original Individual A). This is done until the observations of the original Individual A are exhausted (Ñopo, 2004).

Based on this, our objective was to generate the decomposition of the salary into the four components from the integration of these steps. This would result in a distribution of matched or similar characteristics (common support; for example, matched Mexican and matched native) and another distribution of unmatched characteristics (outside the common support; unmatched Mexican and unmatched native) of both populations.

The equation is broken down into the following four elements based on the description in the study of Ñopo (2004):

$$\Delta = \Delta_M + \Delta_X + \Delta_0 + \Delta_N \quad (1)$$

Δ represents the total sum of the four components that would explain the average wage difference between the native and the Mexican based on the control variables.

Δ_M represents the part of the wage difference explained by the differences between two groups of Mexicans: those where the distribution of compatible observations of Mexicans is combined with the characteristics of the natives and those where the distribution of non-compatible observations of Mexicans is combined with the characteristics they do not share with the natives. This component is calculated as the difference of the expected wage [Y] of Mexicans [MX] who are within the common support with the native

(the distribution of matched characteristics), minus the expected wage of Mexicans who are outside the common support with the native, weighted with the probability measure where only Mexicans possess certain characteristics that natives do not.

$$\Delta_{MX} = YMX(\text{inside common bracket}) - YMX(\text{outside common bracket}) * \mu MX(\text{outside common bracket}) \quad (2)$$

Δ_X represents part of the wage difference explained by the difference in the expected salary [Y] for having the same combination of observable characteristics between the native and the Mexican. It can refer to the combination of compatible characteristics or to the combination of characteristics that are within the common support.

$$\Delta_X = Y \text{ native (compatible)} - Y \text{ mexican(compatible)} \quad (3)$$

Δ_N represents the part of the wage difference explained by the differences between two groups of natives: those where the distribution of non-compatible native observations is combined with those characteristics that the Mexican does not possess and those where the distribution of compatible native observation characteristics is combined with the characteristics of the Mexican.

In other words, it represents the difference of the expected wage [Y] of the natives [N] who are outside the common support with the Mexican, minus the expected wage of the natives who are within the common support with the Mexican (the distribution of matched characteristics), weighted with the probability measure where only the natives possess certain characteristics that Mexicans do not.

$$\Delta_{NAT} = Y NAT(\text{outside common support}) - Y NAT(\text{within common support}) * \mu NAT(\text{outside common support}) \quad (4)$$

In summary, Δ_N and Δ_M are the components that the author developed within the salary decomposition with the previous justification that, within the matching methodologies, the introduction of elements with characteristics

that were not shared by both samples was not considered. These elements create a better understanding of the wage difference (Ñopo, 2004).

Δ_0 , which is the unobserved component, explains the part of the difference that is not attributed to the observed characteristics but is rather related to the combination of elements that are not observable in individuals with the same level of job qualifications.

By defining each component, we can account for all the differences in wages for the labor market, including the ones induced by observable characteristics ($\Delta_M + \Delta_X + \Delta_N$) and non-observable characteristics (Δ_0).

The methodology allows the use of dichotomous and continuous variables of X characteristics of the individuals. Thus, within the control variables, sex, age in years, education, marital status, health insurance, occupation, economic sector, hours worked and “potential” work experience were used (Table 1). The individual characteristics (demographic variables) of the workers were added sequentially; however, the job characteristics (labor market variables) were added with replacement in the following order: occupation, economic sector, hours worked, and work experience. This was done by Ñopo (2004) and Ñopo et al. (2011), since it is not possible to know which labor variables are more endogenous than others, and also in the estimation it allows to keeping a high percentage of individuals within the common support. Finally, the “all variables” line includes all demographic and labor sets.

In summary, the Ñopo (2004) methodology only considers observable particularities, without considering those that are not observable, such as effort, interest in participating in the labor market, workers’ innate skills and cultural issues, among others.

III. Results

This section shows the results of the descriptive analysis of the survey and the application of the methodology by Ñopo to evaluate the characteristics and salary differences between both groups.

A. Descriptive statistics for both groups

By 2019, 16.8% of the employed Mexicans who have a citizenship had preschool and elementary schooling (Table 1). However, only 38% of Mexicans have a bachelor’s degree, while the rest, who participate less in the labor market, have higher education. Using data from the 2007 Census Bureau, Tinley (2009) found that in the Mexican population over the age of 25, Hispanics were concentrated in a secondary level—with no more than 9 years of education—while the natives had 12 years of education on average.

Table 1. *Percentage distribution of average variables of Mexicans and natives in the United States in 2019*

Educational level	Mexican	Native
No studies, pre-school and elementary education	16.86	0.25
Seventh and eighth grade	4.56	0.48
Ninth grade	5.94	0.55
Tenth Grade	3.38	1.41
Eleventh grade	4.42	2.45
Twelfth grade without a diploma	4.23	1.27
Twelfth grade with a diploma	38.52	31.71
Technical level	4.98	14.32
Degree	13.09	31.25
Master’s degree	3.13	12.26
Professional grade	0.45	1.78
Doctorate	0.44	2.26
Total	Mexicans	Native
	unskilled	unskilled
	Semi-skilled	Semi-skilled
	Skilled	Skilled
	36.29	45.85
	46.62	47.55
	17.1	6.6

Continue

Table 1. *Continuation*

Gender	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Man	66.2	58.7	51.5	58	53.4	47
Woman	33.8	41.2	48.4	42	46.5	53
Age	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
15-29	8.17	20.97	15.8	50.47	29.56	19.96
30-44	41.07	42.68	45.06	21.56	30.08	39.01
45-65	50.75	36.35	39.15	27.97	40.36	41.03
Civil Status	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Single	17.6	26.7	24.9	68.8	44.5	30.4
Married (couple present and absent)	82.3	73.3	75	31.2	55.4	69.6
Health Insurance	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Yes	74	81.1	81.1	81.9	88.5	96.2
Not	25.9	18.9	18.8	18	11.4	3.7
Arrival period	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
More than 15 years old	88.1	86.8	83.9	-		
Less than 15 years old	11.9	13.2	16		-	
Occupation	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Executives and Professionals	1.5	6.4	44.4	4.1	12.3	62
Technicians	2.9	4.8	2	3.8	7.6	2.5
Protection service	0.00%	0.9	0.7	1.1	2.5	2.2
Food preparation	7.2	12.3	6.2	20.2	7.5	2
Domestic and personal care service	21.2	13	7.8	13.3	9	2.7

Continue

Table 1. *Continuation*

Sales, administration, and office	9.4	20.6	20	24.2	27.2	21.6
Agriculture	7.3	2.4	0.3	3.5	1.4	0.6
Construction and Mining	19.7	13.9	5.5	8.9	8.6	2.2
Installation, repair, and maintenance	2.65	3	1	2	4	1
Production	14.4	10	6	8	9	2
Transportation	13.8	12	6	11	10	2
Economic sector	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Primary	8.2	3.2	1.3	3.8	1.9	1.0
Secondary	37	25.6	14.6	18.5	19.2	10.5
Tertiary	54.8	71.2	84	77.5	78.7	88.4
	Mexicans			Native		
	unskilled	Semi-skilled	Skilled	unskilled	Semi-skilled	Skilled
Average annual income	31.492	36.645	52.228	20.043	42.135	78.776
Average hourly wage income	16.91	18.67	29.23	14.19	21.65	37.83
Average hours per week	40	39	40	30	38	40

Source: Own elaboration based on SCP 19 data.

More than ten years later, the Mexican population with citizenship has increased its educational level to high school with a diploma, obtaining an average of approximately 12 years of education.

In the following part of Table 1, the different characteristics of the population are aggregated and divided by education qualifications. In terms of gender, for both population groups, men dominate in proportion with a greater difference in the percentage of low and semi-skilled Mexicans. However, as education increases, so does the participation of women, and specifically, native women have a greater participation in the labor market. In terms of age, for Mexicans, there is a greater concentration in the medium and high levels of qualification, mainly between the ages of 30-44 and 45-65. For the natives, the age distribution is different compared to the Mexicans since,

in this case, the low-skilled natives are younger (mostly between 15-29 years old) and the rest is distributed among more adult ages. For the remaining levels, natives are concentrated in adult ages.

As for medical insurance, the American health system is based on private and public medical insurance that can be obtained through employment or family. Table 1 shows that from the total number of employed Mexicans, 74% participate in health insurance; and as education increases, participation increases by seven percentage points. In the case of the native population, there is greater variation among the results as unskilled and skilled individuals have a participation rate of 81 and 96 % respectively. Nevertheless, Mexican immigrants tend to have lower participation in health insurance because it depends on factors such as economic stability or work. This means that Mexican immigrants suffer from a greater lack of protection and are in vulnerable positions that do not allow them to access health care. (CONAPO, 2013).

Concerning the variable of years since arrival, Table 1 shows that for all three groups there is a greater proportion of immigrants who entered the country more than 15 years ago, that is, the great majority entered the country at the end of the 20th century or the beginning of the 21st century. However, the largest proportion of the immigrant population that has entered the country in the last 15 years tends to be skilled.

As for the economic sector, obtained from the variable of the type of industry in which immigrants are employed, Mexicans are mostly employed in the secondary and tertiary sectors. However, in the primary sector, the proportion of Mexicans respect to natives is greater.

The last section of Table 1 shows the average annual wage income, the estimated hourly wage, and the average hours worked by both groups. In this section, it is noted that low-skilled immigrants earn a higher annual salary and average hourly wage than natives, while for the other levels of educational qualification, both the annual salary and the hourly wage are lower for immigrants than for natives. Natives earn higher wages than those with middle and higher education.

Based on the area of occupation, a division of eleven categories was created, guided by the manual of occupations obtained from the IPUMS CPS platform (ref). These include occupations with high levels of qualification which are professionals, executives, athletes, education workers, art workers, officials, specialized personnel, and managing directors. Service occupations are related to protection workers, domestic service, street vendors, health care support, cleaning, maintenance, and personal services; the category of sales and administrative workers includes everything related to agents, sales and office workers, etc.; the category of construction, production and transportation workers includes everything related to extraction occupations, use of machinery, installation, repair and movement of materials; and finally, the category related to workers is dedicated to agriculture, fishing and hunting.

Within these occupations, Mexican workers with few qualifications are mainly found working in personal care services, cleaning, construction, transportation, and production, in addition to having large participation in agriculture. The same situation applies to the natives, only 4% of their population stands out in areas that require high qualification.

Mexicans have a high concentration of medium and semi-skilled workers in the same areas as low-skilled Mexicans except agriculture, where their participation has decreased. However, there is still a high concentration in the areas of services, installation and repair, technicians, and food preparation.

For the qualified Mexican population, there is a greater concentration of work in professional areas (teachers and related, engineers, mathematicians, athletes, scientists) in service areas, and in sales and food preparation. In the case of natives, they are more concentrated as professionals, and the remaining 38% are in sales and to a lesser extent in domestic services and personal care. The percentage of skilled Mexicans is much more distributed among professional categories. However, although their participation is mostly in low-skilled areas upon arrival to the United States, greater participation is observed in high-skilled areas as education increases.

The theory of the dual market/labor segmentation does not state a clear division between the low skilled and the semi-skilled. There is a polarization in the distribution of occupational participation of the qualified

Mexican compared to the native since the latter is more concentrated in high qualification areas. Qualified Mexicans are less concentrated in these types of occupations and have a greater distribution in lower and medium specialization occupations compared to natives. This may suggest that qualified Mexicans are overqualified to perform some productive activities, and therefore, this situation affects their wages. Another factor that may be related to this decrease in participation in highly specialized areas is that employers are looking for individuals or natives who have studied and are familiar with the American educational system (Aydemir & Borjas, 2006). Also, qualified Mexicans could work with a similar regulatory framework within occupations such as computer science, engineering, or administration; however, in occupations such as law, medicine, and architecture they need much more specific knowledge and human capital, making their entry much more difficult (Piñeiro & Ruiz, 2010).

For both groups, it was found that as education increases, they have greater participation, especially when they have health insurance, work in occupations that require more specialization, work the same amount of hours in average and get a higher salary. However, native and low-skilled Mexicans showed greater differences in participation in age, marital status, work hours, and salary. Low-skilled Mexicans are mostly middle-aged and married, while the low-skilled native population is young and mostly single. Between the two, Mexicans earn a higher salary, which means that due to their age and marital status, they may have to work several jobs with a greater amount of overtime because of the need for a higher salary to cover family expenses and possibly to send remittances.

Also, within the same occupation, the natives have greater participation in technical and professional occupations, which is even greater when education increases. For the rest of the occupations, their participation decreases as education increases although this does not happen with Mexicans, which may even be overqualified.

B. Decomposition of worker's wage difference by type of qualification

The methodology of Ñopo performs a salary decomposition to observe the differences that would be explained by observed and non-observed characteristics.

The analysis of the wage difference concerning low-skilled workers (Table 2) showed a total difference of -16.1%, between the Mexicans and the natives, indicating that the natives earn less than the low-skilled Mexicans. The percentage of the variations decreases or increases as the control characteristics are added.

Likewise, when adding occupation to the analysis, it is observed that the greatest differences are due to the observable characteristics and that these contribute 20% of said inequality, which means that there is a greater difference in the distribution of characteristics of natives vs. Mexicans due to the type of occupation where they work (they move away from the zero value where it would show the possibility that both distributions can be matched).

Another variable that was largely attributed to unobservable characteristics was “potential” work experience, that is, regardless of the individual's experience, one percent of the difference would be explained by unobservable characteristics. However, the explanation of the difference by observed characteristics becomes greater for characteristics that natives possess and Mexicans do not share.

The fact that Mexicans are better paid can be attributed to the “self-selected” characteristics. Tinley (2009) suggested that Latinos could increase their salary due to the effort of having multiple jobs and the willingness to work overtime. As seen in Table 1, the average number of hours worked by the unskilled Mexicans reaches approximately 40 hours per week, while for the native it is only 30 hours. In addition, low-skilled immigrants are mostly married and send highest level of remittances to their country of origin, which justifies the need to increase their salaries for different jobs and the application of overtime.

These results are in line with the arguments of Alarcón and Ramírez-García (2011), who argue that the concentration of Mexican immigrants in

low-skilled jobs is expressed in a wage differential with respect to natives and European and Asian immigrants. While nearly half (46 percent) of the native-born population received incomes above \$40 000 per year, 54 percent of Europeans were in the same income group, as were 48 percent of Asians. On the other hand, only 17 percent of Mexicans had that level of income. Among the latter, like the Central Americans, more than 60 percent receive earned income of less than US\$30 000 per year. Clearly, in economic terms, the wage gap between Mexicans and U.S. natives is so wide that it obscures their prospects for successful economic integration.

The total wage difference has a value of 15.9% among semi-skilled (Table 3) native workers compared to semi-skilled Mexican workers; that is, the total difference increases detrimentally for Mexicans as education increases. Semi-skilled native workers earn on average 16% more than Mexican workers. Occupation and demographic variables, in this case, have a positive effect on the unobservable component and a smaller positive effect on the observable component. The latter denotes that the component in the characteristics of the natives is smaller than in the previous case, which means that, by reducing this value for this qualification group, there is a greater possibility that the Mexicans will be matched with the natives. However, there are still differences in the distribution of native characteristics that Mexicans do not share. That is, even though the value is lower than in the previous section for DN (Characteristics that natives have), there are still differences in characteristics that Mexicans do not reach, and that can partly explain the wage difference. In DM (Characteristics that Mexicans have), if Mexicans achieve the same characteristics as the natives, their wages would be expected to increase. In other words, if the Mexican were to achieve the same distribution of characteristics as the native, in occupation plus demographic variables, he could have an increase in his remuneration of 2%.

These results can be explained by Borjas (1990), who mentions that wage differences may be due to variables: 1) level of schooling, 2) English language proficiency, 3) adoption of U.S. citizenship, 4) participation in the labor market, and 5) home ownership, which would facilitate the integration of Mexican immigrants to the United States.

Table 2. *Decomposition of the wage difference for Mexicans and non-qualified natives 2019*

	D (Total Diff)	D0 (Diff. Not Observable)	DN (Characteristic Native)	DM (Characteristic Mexican)	DX (Diff. Observable)	PercN%	PercM%	Std.error DO
Demographic variables GENDER; AGE; CIVIL STATUS; HEALTH INSUR- ANCE	-16.10%	0%	14%		-3%	63%	100%	0.03
Occupation	-16.10%	0%	-20%	1%	0%	36%	93%	0.03
Sector	-16.10%	0%	-14%	0%	-4%	56%	98%	0.05
Labour variable HRS. WORK	-16.10%	0%	-16%	1%	-3%	55%	99%	0.04
EXP LABOR	-16.10%	1%	-22%	8%	-3%	40%	53%	0.03
ALL VARIABLES	-16.10%	-0.19%	-15%	9%	-5%	17%	26%	0.04
Total sample		Mexicans	1619,20	Native	3049,70			

Note: Calculations elaborated in STATA 17.

Source: Own elaboration based on SCP 19 data.

Table 3. Decomposition of the wage difference for Mexicans and semi-skilled natives

	D (Total Diff.)	D0 (Diff. Not Observable)	DN (Characteristic Native)	DM (Characteristic Mexican)	DX (Diff. Observable)	PercN%	PercM%	Std.error	DO
Demographic variables	15.90%	20%	4%	0%	-1%	90%	100%	0.08	
GENDER; AGE; CIVIL STATUS; HEALTH INSURANCE									
OCCUPATION	15.90%	20%	-8%	1%	2%	55%	95%	0.05	
SECTOR	15.90%	21%	-5%	1%	-1%	82%	98%	0.08	
Labour variables	15.90%	22%	-6%	0%	-1%	82%	99%	0.1	
HRS. WORK									
EXP LABOR	15.90%	17%	-2%	0%	0%	69%	100%	0.03	
ALL VARIABLES	15.90%	12%	-1%	5%	1%	34%	78%	0	
Total sample		Mexicans	1613.30	Native	32700.60				

Note: Calculations elaborated in STATA 17.
Source: Own elaboration based on SCP 19 data.

For the third and last model with the Ñopo method (Table 4), a total difference of 29.4% was obtained, which means that the most qualified Mexicans are less affected since the average salary difference is less in favor of the native compared to the situation with the semi-qualified workers. Occupation is a variable that minimally reduces the effect of the difference due to unobserved characteristics. For this group, DN is lower than in the previous case, which shows the greatest possibilities that the component will equal zero and that both distributions of characteristics of the two groups will be matched; this is also observed in the common support of the distributions of both populations, where the only control characteristic that shows a greater difference in the common support is years of experience. However, qualified natives are paid more than Mexicans, which implies that there is a wage differential against the latter. This can be explained by differences in human capital mainly due to differences in training, formation, and work experience in addition to non-observable factors. Even though the distribution of natives and Mexicans has greater possibilities of being matched when a Mexican obtains a negative difference, they would be at greater risk of over-qualification and unemployment. From the perspective of Portes and Rumbaut (2001), schooling, as well as language skills in the receiving country, is considered one of the most important factors for the economic and social integration of immigrants.

According to Franco (2010), education is the variable that best reduces the unobservable component, and the gap can be explained by differences in education and not by unobservable. However, since this work delimits the effect of the wage difference by qualification, thus generating a much more specific effect for each educational group, the differences for the semi-skilled and skilled workers in this case would be explained by unobservable components and would even be greater than the total difference. As the author mention, it is evident that immigrants' salaries grow with increased education, but despite staying longer in the country or achieving citizenship, it is not enough to close the gap or, in this case, the salary difference. In this sense, for individuals with the same productive labor capacities, the unobservable component would be remunerated based on the group they belong to as foreigners, which, as Muñoz-Comet (2014) mentions, manages

Table 4. Decomposition of the wage difference for Mexicans and qualified natives 2019

	D (Total Diff)	D0 (Diff. Not Observable)	DN (Characteristic native)	DM (Characteristic Mexican)	DX (Diff. Observable)	PercN%	PercM%	Std.error	DO
Demographic variables	29.40%	32%	-2%	-1%	-1%	95%	100%	0.27	
GENDER; CIVIL STATUS; HEALTH INSURANCE									
OCCUPATION	29.40%	32%	-4%	3%	0%	64%	98%	0.31	
SECTOR	29.40%	34%	-3%	1%	-2%	90%	99%	0.28	
Labour variables	29.40%	33%	-3%		-2%	88%	100%	0.26	
HRS. WORK									
EXP LABOR	29.40%	31%	-2%	2%	-2%	50%	98%	0.2	
ALL VARIABLES	29.40%	16%	8%	10%	-2%	39.00%	81%	0.24	
Total sample		Mexicans	328.5	Native	22.941.40				

Note: Calculations elaborated in STATA 17.

Source: Own elaboration based on SCP 19 data.

to deduct their level of productivity. At the same time, this explains how they could be displaced to lower-paid sectors such as the secondary sector and the existence of a greater risk of unemployment and over-qualification.

The methodology used by Ñopo (2004) allowed for the decomposition of the four components of the wage difference by control characteristics. In the resulting models, Mexican immigrants suffer a greater impact due to characteristics that are not observable as observable for all levels. However, the introduction of occupation and years of experience contributed greatly to the explanation of the differences because greater changes were observed within the components of these variables.

It is worth noting that low-skilled natives earn less than Mexican citizens, and the components help to affirm that the observed characteristics of the low-skilled Mexican are better rewarded than those of the natives themselves. As the estimation results show, there were positive wage differences for natives, but for Mexicans, the negative effect was found in the last two skill levels. Both models are repeated in the results mechanics since the Mexicans had a negative wage difference and both the unobservable and observable components contributed to the wage difference. For these levels of qualification, the characteristics of the natives are better rewarded. Even though both groups share characteristics, the Mexican citizens do not reach the required characteristics that make the natives obtain a better salary. However, this difference in characteristics that natives possess decreases as education increases, which suggests great possibilities that Mexicans will achieve the characteristics of natives.

Nonetheless, the results manifest that the assimilation that immigrants develop as a result of obtaining citizenship, among other things, and the effect of education on human capital are not sufficient to resolve a reduction in the differences between Mexicans and the native population.

Conclusions

The analysis highlights the income of Mexican immigrants and their wage differences by qualification within a foreign labor market. The neoclassical

theory takes up the cost-benefit of migration, higher productivity, and the opportunity for higher wages given that this can continue to increase with education and work experience based on the concept of human capital. Also, another term that adds to the theory of human capital is assimilation, where the immigrant, as he resides longer in a country, will be able to obtain greater remuneration. This coincides with the results of Chiswick (1978), Chiswick and Miller (2005), Becker (1975), Portes and Rumbaut (2001), Caponi (2006), and Aldashev et al. (2008), which state that the longer one resides in the country and as human capital begins to increase, personal income will rise. This is coupled with the fact that the immigrant is a permanent citizen that has resided for more than five years within the country, at which time their salary may be even higher.

However, the neoclassical theory of human capital and the concept of assimilation cannot fully explain the wage difference between the immigrant and the native American obtained by the methodology of Ñopo (2004). With these results, our hypothesis is confirmed for the last two qualification levels in which the native is favored in terms of salary, while the Mexican citizen and immigrant obtained a negative difference. On the other hand, the results obtained in the less qualified group differ from the hypothesis since the Mexicans obtained a salary difference in their favor because of their better rewarded characteristics. As explained in Tinley (2009), Mexicans could achieve a higher economic return due to different reasons, such as the number of jobs, the amount of overtime, the compensation of family expenses, and the sending of remittances. Chiswick (1978) and Caponi (2006) relate a higher income of individuals with low qualifications because they possess self-selection characteristics that distinguish them from the rest and therefore are much more productive and ambitious.

A large part of the returns obtained by Mexican immigrants in the last two qualification levels are greatly conditioned by characteristics unexplainable from a statistical point of view and escapes modeling while being minimally explained by observable characteristics, which are themselves due to differences in human capital.

This difference in observed characteristics can be related to what is mentioned by Becker (1975), Caponi (2006), Aldashev et al. (2008), and Cruz and Ruiz (2010), who propose that the deficiency in human capital transfer could be found in differences in educational quality as well as the lack of recognition of degrees or certificates from the place of origin, displacing immigrants to sectors that do not require their specialization and thus becoming overqualified.

With our results, salary differences were obtained to a lesser extent due to observed characteristics and, to a greater extent, to unobserved characteristics related to salary discrimination. This is related to the theory of the dual market/segmentation and the different theories of “taste for discrimination” and statistical discrimination, which help to complement the reality within a segmented labor market where the neoclassical theory of human capital is limited. Phelps (1972) mentions that the labor market does not value the productive labor characteristics but that the economic return is based on the characteristics of the group to which the individual belongs based on the information available to them. As education increases, the salary disadvantages are greater in Mexicans compared to natives, which indicates greater participation of the unobservable component. As discussed by Phelps (1972) and Muñoz-Comet (2014), immigrants who are as productive as natives are paid differently based on certain stereotypes of “productivity”. Also, Arrow (1998), Carrión and Hualde (2013) mention that the generation of hiring and occupational entry barriers do not allow to achieve better positions due to this same discrimination. Canales (2009) attributes these social and economic mechanisms to the structure of the labor market in the United States, which continually generates inequalities relegating immigrants to an occupational and mainly wage situation.

As mentioned by Duvander (2001) and Støren and Wiers-Jensen (2010), immigrants show a much higher risk of unemployment, job rotation, and over-qualification. This suggests that, despite greater accumulation of human capital and more time residing in the country until obtaining citizenship, they remain in this position. In accordance, Mexican immigrants are more likely to be at such risks based on wage differences where there was greater participation due to unobservable characteristics than observable ones.

Another possible explanation is based on the labor succession theory or queuing theory, which is related to the segmented labor market theory and argues that immigrants take jobs that native workers no longer want, thus forming a ladder or queue for immigrants. Over time, native workers move to better occupations, leaving vacant jobs that are taken by newly arrived immigrants and giving rise to labor complementarity between immigrants and natives (Waldinger, 1987; Zabin et al., 1993).

The results of this research may be helpful to public policymakers who aim to contribute to equal rights in well-paid wages and position immigrants in better occupations. The main challenge is to ensure equal employment opportunities and wages for highly educated immigrants, both middle and high-skilled. According to Cruz and Ruiz (2010), policies should be focused on allowing Mexicans with middle and higher education to enter more specialized areas. Caicedo (2009) mentions the need to establish bilateral agreements between both countries that allow for greater ease in the accreditation and recognition of certifications or academic degrees within organizations and companies. Also, it is necessary to develop policies that focus on addressing demographic and labor characteristics, access to certain segments, and improving and providing immigrants with the necessary tools. Becker (1975) expresses the need to provide immigrants with greater training and accumulation of much more specific human capital such as language or certifications.

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