

**The Relationship between Hispanic Immigrants' Occupational
Clustering and Wages in the U.S**

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Introduction and Overview

A salient feature of the Hispanic immigrant labor force is its high degree of occupational clustering. Similar to Blacks in the U.S., Hispanic immigrants have strong occupation segregation relative to Whites. The more pronounced occupational asymmetry of Hispanic immigrants reflects the movement toward becoming more concentrated in low-skilled occupations. Over the 1990s and 2000s Hispanics experienced strong gains in the service sector, including food preparation and serving, cleaning and personal care, as well as in production, extraction and farming occupations, while non-Hispanic Whites' participation in those occupations declined and Blacks' occupation remained low (Toussaint-Comeau et al., 2005).

The concentration of Hispanic immigrants in low-skill occupations has catalyzed a research and policy debate about whether they substitute for natives in production. Does the concentration of Hispanic immigrants in low-wage occupations lead to the wage pressures experienced recently by low-skilled workers—particularly Black workers, who also have strong concentrations in low-skilled service and production sectors? Alternatively, does the pervasive pattern of concentration in specific occupational niches indicative of a trend whereby Hispanics would have filled jobs that were unappealing to natives, at least during the prosperous 1990s? Have the Hispanics been themselves impacted, positively or adversely, by their concentration in certain occupations with a strong prevalence of their own ethnic niche? That is, does such concentration carry an earnings advantage, or does it lead to wage compression, thus undermining Hispanic's own socioeconomic mobility in the U.S.? The growth of the Hispanic labor force, and its potential role as the locus of wage arbitration, suggests the need for research that provides a better understanding of the nature of the relation between the occupational composition of Hispanic immigrants and labor market outcomes.

A well established fact in the literature is that immigrants' wages are much lower than natives'—much of the disparity being attributed to differences in human capital. This paper contributes to this literature by investigating a much less researched aspect of the wage gap—the role of the occupation structure of one immigrant group in explaining wage variations relative to natives. The question this study addresses is how the occupational clustering of Hispanics influences wages in the U.S., in particular Black

wages. An econometric conceptual framework is proposed to model the relationship between occupation composition and wages while accounting for the non-randomness of occupation choice. As in previous studies, the Public Use Micro Statistics data from the U.S. Census (5% PUMS) is used because it contains information pertinent for the analysis, including occupations, wages, and immigrant status.

The main results are as follows: Based on the year 2000 PUMS, once a full set of personal characteristics, labor market characteristics and MSA area fixed effects are controlled for, wages are depressed as the share of the Mexican population in the local labor market increases. However, this effect depends on the degree of Hispanic concentration within a specific occupation group. In occupations with a strong concentration of Hispanic immigrants, there is no significant link with wages of Blacks. By contrast, in more integrated occupations there is some evidence of a stronger negative link between Hispanic immigrants and wages of Blacks.

This paper is organized as follows. The next section provides a summary discussion of the theoretical relationship between immigrant occupational segregation and natives' wages. An econometric specification of that relationship and a discussion of the results follow. The final section contains a summary of the paper and the potential policy implications of the study.

The Relationship between Occupational Segregation and Wages

Researchers agree on the existence of occupation segregation but neither on its causes nor on its impact. The clustering of Hispanics in distinct occupation niches arises from a host of circumstances, ranging from the tendency to concentrate spatially in neighborhoods or *ethnic enclaves* due to family-reunification migration motives, to the need to take advantage of network and language capital, or to historical migration legacy. A large literature (from the sociology field, especially) provides insights into the process of “ethnic niche” formation and suggests how immigrants become concentrated in certain occupation niches. An ethnic occupation niche may arise from practices of recruitment of new workers through the networks of current workers (Park, 2004; Waldinger and Der-Martirosian, 2001; Mouw, 2003). For example, the concentration of Mexicans in farming is partly a result of practices of recruitment of workers from the migrant labor pool (e.g.,

the Bracero Program) (Betancur et al., 1993). Similarly, it can rise from the process of “ethnic succession” in the job market. This process, which is partly a result of the dynamics of “residential segregation,” ensures that natives (e.g., non-whites) exit certain sectors as immigrants enter them, a phenomenon that has been documented in New York City between Whites and Cubans (Waldinger, 1996; Wright and Ellis, 1996). Occupational segregation is reinforced by the opportunity of taking advantage of shared information about employment opportunities through common language or self-reinforcing ethnic networks. This is evidenced by the fact that Hispanic immigrants tend to cluster in relatively limited number of occupations. In fact, it has been found that occupations tend to be heterogeneous in their use of language and that in occupations traditionally held by immigrants, employers are less likely to screen out those who have a lack of English knowledge (Kossouji, 1998). Segregation by language ability explain one third of overall Hispanic-white segregation in the workplace (Hellerstein and Neumark, 2004).

Regardless of the reasons that led to the process of formation and incorporation of immigrants into distinct ethnic occupation niches, occupational segregation, if pronounced enough, can result into a type of “segmented” labor market and complementarity in production, whereby native workers are insulated from any direct impact of immigrants. The finding in Hammermesh (1993) that the cross-elasticity between immigrants and natives (the degree of complementarity or substitution between immigrants in a set of occupations and natives in another) is in fact small is consistent with the hypothesis of a labor market divided along sector lines, defined by immigrant status.

Economic theory provides two explanations for segregation. A group may be disproportionately represented in occupations with low earnings due to market discrimination (as some studies have suggested, this may be the case for Blacks), or due to a self-sorting mechanism (as it may be the case for women with children). Either way, if employers exclude a group from better-pay occupations, or if the group self-selects into low-pay occupations, then the group could be crowded in low-pay occupations, compressing wages in those occupations furthermore.

A large economic literature models the formal theoretical relationship between an increase in the immigrant population and wages of natives (Borjas, 1999; Greenwood and Hunt 1995; Johnson, 1998; Ottaviano and Peri, 2005; Chiswick et al., 1992). The basic tenet is that, assuming constant capital, constant returns-to-scale production technology and perfect substitution between immigrants and natives, an increase in the supply of immigrants is expected to depress wages for natives. The degree to which natives and immigrants are substitutes for one another depends on their relative occupation or skill profile. Substitution between immigrants and natives is higher in low-skilled occupations than in high-skilled occupations. This is due to the fact that low-skilled occupations are more likely to have lower training costs, and require less institutional knowledge, while high-skilled professional occupations, in the health and legal fields, for instance, require licensing and other entry barriers, which lowers the degree of transferability of skills acquired by immigrants in their countries of origin (Friedberg, 2000; Duleep and Regets, 1999; Gallo and Bailey, 1996). These theories predict greater occupational clustering or segregation of immigrants into low-skilled occupations.

Alternatively, an increase in the supply of immigrants is predicted to lead to upward pressures on wages for natives if immigrants fulfill a complementary role in the production process, or if the labor supply of either natives or immigrants is elastic or mobile. If natives are mobile either because they move out of places where immigrants are concentrated (Frey, 1995), or they adjust their human capital and change occupations, the result would be a mitigation of any adverse wage effect arising from immigration (Chiswick, 1989). However, there is no consensus as to whether natives are mobile and respond to an influx of immigrants in one area by moving to other areas (Card, 2001; Kritz and Gurak, 2001). It has been argued that natives have more limited mobility because they incur costs that reduce their incentives to switch to other occupations. By contrast, immigrants may be more inclined to be geographically mobile due to self-selection or fewer ties in the host country, among other factors (Willis, 1986). There is evidence that immigrants tend to adjust their human capital. The longer immigrants live in the U.S., depending on the incentives they have and their efficiency in investing in U.S.-specific human capital, the more institutional knowledge and language capital they

acquire.¹ As a result, immigrants become more competitive with natives for jobs over time. Findings that immigrants experience a wage penalty when they first come in the U.S., and subsequently experience faster growth in their earnings, is consistent with this “assimilation” perspective (Duleep and Regets, 2002; Hu, 2000). This suggests that the effect of immigration on natives is a long-run phenomenon.

On the factor demand side, previous studies suggest that immigration can induce changes in production and industry structures that cushion its impact on natives’ wages. For example, firms may absorb an increase in the supply of immigrants and adapt their technology to the local supply of different types of labor. On the other hand, immigration can cause a change in the output mix of local labor markets, with labor-intensive industries expanding or moving to areas with large numbers of immigrants. Previous studies have found that upward pressures on wages have resulted from the increase by firms of their scale of production (and from the increase in their demand for factor labor) to meet the augmented demand for outputs by new immigrants (Altonji and Card, 1991; Hanson and Slaughter, 2002).

Moreover, immigrants can add to the capital stock by bringing savings when they migrate as well as over time after their migration. In response to an immigrant influx, capital may also move across industries and areas, since unskilled labor may be more likely to serve as a substitute for capital (Hammermesh, 1993). Since capital tends to be a complement to skilled labor and a substitute for unskilled labor, natives’ wages in the skilled sectors would likely rise as a result of an influx of low-skilled immigrants.²

The findings from previous studies are mixed. Most previous researches suggest that an increase in the supply of immigrants has a limited impact on the wages of natives, implying that there is limited substitution between immigrants and natives in immigrant-receiving metropolitan areas (Altonji and Card, 1991; Butcher and Card, 1991; LaLonde and Topel, 1991; Card, 2005). However, some recent studies that take into consideration differences in occupation and/or skill level differences suggest that an

¹ Immigrants have less efficiency in acquiring U.S.-specific skills the older they come to the U.S. (Chiswick and Miller, 1993).

² The empirical analysis of this study (due to data limitations) does not control for capital, a factor that may be important in determining the impact of immigrants on natives over time. The cross-sectional nature of the data also is not going to allow controlling for endogenous shifts in labor supply over time.

increase in the immigrant population has a negative impact on wages/employment of natives in low-skilled and low-waged occupations (Card, 2005; Orrenius and Zavodny, 2006).

Econometric Specification

We develop here a conceptual framework to evaluate the relation between the wage of workers and the intensity/concentration of a given group in various occupations. The model is adopted from models developed in gender occupation segregation studies (MacPherson and Hirsh, 1995; Baker and Fortin, 2001) with refinements to account for the endogeneity of occupational choice (Hansen and Wahlberg, 2000). Such model is appropriate for several reasons. Features of gender occupation segregation parallel ethnic/racial occupation segregation in the U.S. Notably, we have seen it, minority ethnic groups such as the Hispanic immigrants (and Blacks, for different reasons) tend to hold different jobs (like men and women do); minorities/Hispanics earn less in those jobs. In the gender wage gap literature, it has been found that the negative relation between wages and female proportion of an occupation is stronger among men than among women and that individual wages shift systematically with the gender composition of occupations. Some evidence suggests that such “wage penalty”, largely associated with immigrant and brown-collar occupations, may be experienced by Hispanics in some primary immigrant-receiving metropolitan areas (Catanzarite, 2003; Howell and Mueller, 2000; Tienda, 1998).

The relation between wages and occupation composition is modeled as follows:

$$\text{Ln}W_{ikh} = \sum \beta_{kh} X_{ikh} + \theta_h \text{HISP}_{ih} + (\phi_{kh} + \Phi_{ih}) \quad (1a)$$

$$\text{Ln}W_{ikn} = \sum \beta_{kn} X_{ikn} + \theta_n \text{HISP}_{in} + (\phi_{kn} + \Phi_{in}) \quad (1b)$$

Where h and n are subscripts indicating the foreign-born Hispanic and native (Black) individuals, respectively; $\text{Ln}W_{ik}$ is the log of yearly wages of individual i in occupation k; β_k are the coefficients of the variables in the vector X_{ik} . θ_h is the coefficient of the Hispanic concentration variable (to be explained further). The last two terms accounts for the error structure of the model. Unobserved occupational-specific effects on wages are assumed to be captured in ϕ_k , while Φ_i is an individual-specific disturbance term,

capturing the effects of unobservable variables that vary across individuals. ϕ_k is assumed to be normally distributed with mean zero and a homoscedastic variance. Φ_i is assumed to be a sequence over i that consists of normal i , i.i.d. random variables with mean zero and a constant variance.

X_{ik} , indexed by k occupations, is the intercept and a vector of observable socioeconomic and demographic individual characteristics, including indicator variables such as marital status, age, and educational attainment. This vector also includes location characteristics of the labor market, namely unemployment rate, population size and racial/ethnic composition.

$HISP_i$ is the Hispanic immigrant density in the worker i 's occupation. This variable can be interpreted as the degree of the "Hispanicness" of an occupation. It is assumed that the high degree of Hispanic occupational segregation distinguishes the Hispanic immigrant from the native's employment structure. As such, by estimating separate earning functions for Hispanic immigrants (h) and Black natives (n), the effects of the Hispanic composition of the occupation differ by the two groups.

The interesting feature in this model, for the purpose of examining the linkage between Hispanic occupation composition and relative earnings, is the relation between $HISP$ and wages of Hispanics and natives, respectively, captured via the coefficients θ_h and θ_n . The signs of these coefficients are theoretically ambiguous. The interpretation of the $HISP$ coefficients depends on the underlying causes for the occupational segregation of the two groups; it also depends on the ways $HISP$ and wages are related.

If $\theta_h < 0$, then Hispanic immigrant's wages would compress as the Hispanic proportion in an occupation rises due to occupational crowding, assuming that inter-occupational mobility is not enough to equalize wages.

If $\theta_h > 0$, then the model would be consistent with the neoclassical perspective, whereby people choose the occupation that provides them with the highest returns, given their skills. For example, the predominance that an ethnic group may come to enjoy in a sector may reflect the fact that the particular group has a comparative advantage in being in that sector. Such proposition is also consistent with the hypothesis of "ethnic hegemony", which suggests that the increase in the relative size of a given population in a workplace/occupation enhances the negotiating power of the group, leading to higher

returns (Jibou, 1988; Aldrich et al., 1985; Portes and Bach, 1985; Zhou, 1992).

If $\theta_n < 0$, then natives would obtain a sort of “wage penalty” for being in predominantly Hispanic occupations. We note that if natives do not confront barriers similar to what Hispanics face (e.g., language barriers, lack of knowledge of institutions, lower transferability of skills and education acquired abroad, etc.), there is no reason to believe that they should deliberately accept the lower wages that predominate in the Hispanic occupations, when other occupations with relatively lower wage pressures are available. Hence, if $\theta_n < 0$, one could expect natives to be less attracted by predominantly Hispanic occupations. If Hispanics face barriers that prevent them from being in better paying occupations, low-wage occupations would attract a disproportionately large number of them, as well as a small proportion of natives, resulting in an inverse relationship between HISP and the respective wages of Hispanics and natives.

Arguably, a negative sign on θ_n signals that the “Hispanicness” of an occupation is serving as a “quality sorting” mechanism for skilled natives. If Hispanic immigrants are concentrated in low-pay occupations due to certain barriers, and natives are not, over time, these occupations attract more low-skill natives (as they attract less skilled natives). As a result, all workers unskilled natives and Hispanics—in predominantly Hispanic occupations would have lower average wages.

If $\theta_n > 0$, this would indicate that natives are rewarded differently in predominantly Hispanic immigrant occupations. Such result would be consistent with the prediction of a model of employers’ tastes for discrimination. Over time, natives would be attracted to the Hispanic occupations, leading to lower average wages for everybody.

The potential non-randomness of the occupational distribution must be taken into consideration. As noted above, due to various factors, Hispanics are heavily concentrated in low-skilled occupations. Consequently, occupation choice may be endogenously determined. The endogeneity of the density of Hispanics in an occupation means that the variable HISP is correlated with the error term in the wage equation. This can occur due to several factors. If Hispanics and natives with higher unmeasured skills (captured in the error term in the wage equation) are more likely to be sorted into “native” jobs and those with lower skills into “Hispanic” jobs, then the exogeneity assumption would be violated. The error term also captures unobserved taste differences among workers. To illustrate,

some Hispanic workers may choose work that do not penalize them for low English proficiency or jobs where wage “penalty” for not speaking English is relatively low. Then we would observe a concentration of Hispanic workers in these types of jobs, which may also pay lower wages. This means that the assumption of no correlation between the density of Hispanics in an occupation and the error term would be violated.

To account for the fact that HISP may be endogenous, this study adopts a two-stage least squares estimation technique. The non-randomness of occupation selection is controlled for by estimating, in the first stage, a probit model of occupational choice. The parameters from the first stage probit model are then used to form a selection correction, similar to Heckman’s lambda procedure, which is added to the wage regression equation in the second stage. The formal model is given as follows:

Assuming that the choice of occupation is based on the degree of “Hispanicness” of the occupation, the probit approach captures threshold values as one moves through the occupational choice decision (Hispanic dominated = 1, not Hispanic dominated = 0).

$$HISP^*_{ij} = \gamma_j Z_{ij} + \eta_{ij}$$

$$HISP_{ij} = k \text{ if } \mu_{k-1} < HISP^*_{ij} < \mu_k$$

where $k = 0, 1 \dots$ and $\mu_{k-1} < \mu_k$ and lambda is given as follows:

$$\lambda_{ij} = \frac{\phi(\mu_{k-1} - \gamma_j Z_{ij}) - \phi(\mu_k - \gamma_j Z_{ij})}{\Phi(\mu_{k-1} - \gamma_j Z_{ij}) - \Phi(\mu_k - \gamma_j Z_{ij})} \quad (1)$$

then

$$\text{Ln}W_{ikj} = \theta_j + \beta_{kj} X_{ikj} + \delta_j \lambda_{ij} + \varepsilon_{ikj} \quad (2)$$

With $\varepsilon_{ikj} \text{ i.i.d.} \sim N(0, \sigma^2_\varepsilon)$

$$\eta_{ij} \text{ i.i.d.} \sim N(0, 1)$$

$$\text{Corr}[\varepsilon, \eta] = \rho_{kj}$$

Where index i denotes individuals, index k denotes occupation, and sub-index j denotes Hispanic immigrant/nativity— j = h (Hispanic immigrants) or j = n (native Further ϕ and Φ are the standard normal probability density and distribution functions, respectively. μ

are unknown parameters to be estimated jointly with the γ parameters. It is further assumed that ε and η are correlated with correlation coefficient ρ_{kj} .

Data and Sample Statistics

This paper uses the Census 2000, Public Use Micro Statistics data. Prior to reporting the empirical model and results from the model, it is instructive to analyze the sample statistics. We report results for Hispanic immigrants and natives, and divide natives by race—Blacks and Whites. Table 1 summarizes the means of variables on demographics and wages.

Hispanics tend to have lower wages than Whites, and slightly lower wages than Blacks, on average, and have completed less schooling than both Whites and Blacks. In fact, over 60 percent of Hispanics do not have a high school degree and over a quarter among them do not speak English well. By contrast, 20 percent of Blacks and only 9 percent of Whites do not have a high school diploma. Although not reported on the table, there are differences within the Hispanic immigrant groups by country of origin. Mexicans are relatively younger than Cubans, Puerto Ricans, and other Hispanics. Mexicans and Puerto Ricans have lower incomes, less education, and more English language deficiencies overall. More Puerto Ricans tend to be unemployed and unmarried. Cubans and other Hispanics tend to have incomes that are more similar to native non-Hispanics. Due to concerns for sample size, the sample of Hispanic immigrants is not disaggregated by country of origin in the analysis. Since the Mexican population makes up close to 60 percent of the Hispanic population, it is understood that the overall results for Hispanic immigrants are driven mostly by Mexicans. (For this reason, the empirical model will control for the share of Mexican immigrants specifically.)

Table 2 shows occupation concentration for the three groups in 23 main occupational categories. Occupation concentration is defined as the percent of Hispanics in the occupation over the percent of the total workforce in that occupation. A ratio of 1 means that Hispanics are equally represented in the occupation category relative to the whole population; a ratio of less than 1 means that they are underrepresented in the occupation, and a ratio of more than 1 means that they are overrepresented.

Hispanic males (especially the immigrants) are overrepresented in food

preparation and serving, and building and grounds cleaning. They are underrepresented in healthcare support, protective services and personal care. In addition, they are overrepresented in farming, fishing and forestry; in construction and extraction; production; and transportation and material moving occupations. By contrast, Hispanic immigrants are underrepresented in all the professional occupations. Non-Hispanic Whites have a less skewed occupation distribution.

Within the professional occupations, with the exception of community and social services, Blacks tend to be underrepresented in all the various subcategories. Like Hispanics, Blacks tend to be overrepresented in service occupations, although some differences exist within the subcategories of service. Blacks are strongly overrepresented in healthcare support service, and protective services, whereas Hispanic immigrants are underrepresented in these fields. Blacks and Hispanics are somewhat equally represented in professional occupations and in production, transportation and material moving occupation. The Duncan dissimilarity index (DI), a measure of occupation segregation, is also reported in table.³ It provides a rough indication of the degree of occupational segregation for Hispanics and Blacks, relative to Whites. Table 3 reports the average wages by occupations (grouped into 6 major categories). The table also reports the corresponding observed wage gaps by occupation group, measured as the ratio of Hispanics' average wages to the average wages of Whites and blacks, respectively. In farming and agriculture occupations, Hispanics earn much less for each dollar that Whites earn. In sales and office occupations, similar to Blacks, Hispanics also earn much less than a dollar for each dollar that Whites earn. This may be due to the fact that there are divergences within the subcategories or in the kinds of jobs performed. Hispanics have an observed "earnings advantage" over Blacks, in professional or higher skilled

³ The dissimilarity index, DI, utilized here is based on Duncan and Duncan (1955). Assuming two groups, n (non-Latinos) and l (Latinos), the dissimilarity index is defined as

$$DI = \frac{1}{2} \sum_{i=1}^k |p_i^n - p_i^l| \times 100$$

where for a given set of occupation categories, i , ranging from 1 to k , p_i^n is the proportion of all individuals of group n who are in occupation i , and p_i^l is the proportion of individuals of group l who are in occupation i . The values of this index range from 0 to 100. A proportional representation of group n and group l in all occupation categories would yield a value of 0; completely segregated categories would yield a value of 100. The value of the dissimilarity index, DI, conveys the fraction of group l (or n) that would have to change occupations to achieve proportional representation in all occupations.

occupations, suggesting that the monetary returns for Blacks in more skilled occupations may be lower than Hispanics. Or, the observed earning disadvantage may reflect the fact that the types of jobs Blacks and Hispanics perform in the professional management sector are different. We saw in Table 2 that Blacks were heavily overrepresented in the community and social service employment sector; although classified as professional jobs, they typically give lower wages.

Empirical Results

The population in the sample for the regression analyses presented here is limited to the male labor force, 23 to 59 years old, with positive earnings. Table 4, 5, and 6 report the OLS and 2SLS estimates for Blacks, Whites and Hispanic immigrants, respectively. These estimates are also presented by the level of Hispanic segregation of the occupations in Column 5 and 6 of each of these tables. Specifications with and without MSA fixed effects are shown. Including MSA fixed effects helps control for MSA-level determinants of earnings, such as variations in the cost of living, and helps control for endogeneity arising from non-random location choice of Hispanic immigrants. The 2SLS is an instrumental variable approach, which requires that we choose an instrument that is correlated with occupation attainment, but uncorrelated with unobserved factors that explain wages.⁴ The bottom panels of Tables 4 and 5 shows the 2SLS results.

The dependent variable is the log of year 1999 wages of individuals. Included in the model but not shown on these tables are indicators variables for education, experience, marital status, region of residence, and log of number of weeks worked. In addition, the model controls for occupation and industry categories, and metropolitan area labor market indicators, namely unemployment rate and size of the population. Consistent over all the specifications the independent effects of demographic characteristics are as expected. Higher educational attainment and longer labor market experience increase earnings. Married men have higher earnings than unmarried ones.

⁴ Finding a perfect instrument is difficult, we tentatively use age use as the instrument, following Hansen and Wahlberg, 2007, who suggest that once control for actual work experience is included in the wage equation, age is not predicted to be a determinant of wages in the human capital framework. The significance of the selection terms suggest that the instrument may be valid

Residing in the North corresponds to more earnings than if reside in the South. Residing in metropolitan areas with higher unemployment rate and a larger population (e.g., higher labor supply) reduces the wages earned by individuals. Number of weeks worked has an elasticity of between 0.8 and 1 indicating that a 1 percent increase in number of weeks worked leads some lower percentage increase or to an equal percentage in earnings, depending on the group.

Impacts on Wages

In Columns 1 of Tables 4 and 5, the results show a positive relationship between increased shares of Mexican immigrants in the metropolitan area and wages of Blacks and Whites, which could suggest that there is complementarity in the production process between natives and Mexican immigrants. However, in Columns 2, when we control for MSA fixed effects, the coefficient for Blacks becomes negative, but insignificant (Table 4), while, the coefficient for Whites become positive, but insignificant (Table 5).⁵ These results are consistent with previous findings that have found either a small positive or insignificant effect of Hispanic immigrants on wages at the metropolitan area levels. We propose to investigate further, below with a different approach, to control for the influence of Mexican immigrants in the labor market.

It is often assumed that the metropolitan area approximates best (as opposed to states) the labor market for immigrants and natives. Yet, within the metropolitan areas, the Hispanic population is densely populated in distinct neighborhoods or communities (ethnic enclaves). We therefore consider an alternative geographic dimension of the local labor market for Hispanic immigrants and natives, the PUMA, which allows us to still control for MSA fixed effects. In the 2000 Census, there were just over 2000 such areas identified. PUMAs are smaller than MSAs and are relatively numerous in densely populated metropolitan areas, where most Hispanics are.⁶ Hence in Column 3 onward, we control for the concentration of Mexican immigrants in the PUMA.

⁵ One reason for the lack of statistical significance of the share of Mexican immigrants in the metropolitan area on wages is the overspecification of the model with control for MSA fixed effects. We also tried a more parsimonious specification where we do not control for occupation and industry groupings and for ethnic/racial groups' density in an occupation, in none are the coefficients of Mexican shares in the metropolitan area statistically significant, once we control for MSA fixed effects.

⁶ The average population of a PUMA was roughly 150,000.

The results in Columns 3 and 4 show an inverse and statistically significant relationship between the share of Mexican immigrant populations in a local labor market (defined at the PUMA level) and the wages of natives, Blacks and Whites, which suggest that there is substitutions in the production process between natives and Mexican immigrants in local labor markets within metropolitan areas. The negative coefficients are dampened when we add MSA area fixed effects in the model in Columns 4. Thus not accounting for metropolitan area location fixed effects substantially overstates the negative association between wages of natives and shares of Hispanic populations in local labor markets within the metropolitan areas.

In Columns 5 and 6, we condition the model on occupation groups to test whether the impact of Mexican immigrants in the local labor market on wages of individuals varies depending on the type of occupation. We proceed as follows: There are 475 occupations in all in the 2000 PUMS. We classify them into two categories depending on whether they are Hispanic dominated occupations, or they are not Hispanic dominated occupations. This is an ad hoc measure whereby, if the concentration ratio of the Hispanic population over the total workforce in each of those occupations is over 1.3, then the occupation is classified as Hispanic-dominated, otherwise if it is less, it is considered intermediate Hispanic dominated or not at all Hispanic dominated.

In Table 4, once we control for occupation selection with the 2SLS estimation procedure and condition the model on whether the occupations in question are Hispanic dominated, there is a positive but insignificant link between the wages of Blacks and Hispanics in Hispanic-dominated occupations (Panel 2, column 6). In other words, an increase in Mexican immigrant shares of the PUMA in occupations characterized as being “Hispanics” has no significant bearing on the wages of Blacks. In Table 5, for Whites, an increase in the shares of Mexican immigrants in the PUMA in Hispanic occupation niches corresponds to a positive and significant increase in wages of Whites. By contrast, an increase in Hispanic immigrants in other occupations, non-Hispanic niches, does tend to significantly compress wages for both Blacks and Whites, and more so for the latter.

The models also control for the occupational composition or density of each of the three ethnic/racial groups, independent of the Mexican population shares of the local

labor market, to test for the impact of occupational clustering on wages. The main result is that for all three groups, wages compress as the proportion of Hispanics and Blacks, respectively, increases in an occupation. The overall tendency seems to point to, in effect, a greater “penalty” for natives in terms of wages or lower returns, associated with being in predominantly Black occupations, compared to being in predominantly Hispanic occupations. By contrast, there is a positive association between White occupation density and wages, suggesting that there are higher returns associated with occupations with a predominance of Whites.

As for the results for Hispanic immigrants, in Table 6, as expected, increases in the share of Mexican immigrants in a local labor market has a greater (negative) impact on wages of Hispanics immigrants for those in Hispanic occupation niche than for those in integrated occupations.

Conclusion

A look at the occupational distribution of Blacks and Hispanics suggest that within the low-skill occupation categories Blacks and Hispanics actually tend to occupy different occupation niche and or hold different jobs. Hispanics are heavily concentrated in building maintenance, building and ground cleaning, construction, and farming, whereas, Blacks are heavily concentrated in healthcare support services, protective services, and office administrative services. There are, however, occupations where Blacks and Hispanics are more or less equally represented. They include the production, transportation and material moving sectors. Moreover, although both underrepresented in the professional and managerial occupations, Blacks and Hispanics tend to have similar occupation distribution within these sectors, except for a strong Black niche in community and social service sectors.

Starting from these underlying occupational distribution profiles, we ask questions regarding the relationship between Mexican immigrants’ shares in the population, ethnic/racial occupation compositions, and wages of natives and Hispanic immigrants. Following the theoretical framework proposed, the underlying premise is: where the Hispanic immigrants-native occupation distributions are divergent the potential effect of the Hispanic labor market participation on wages of natives is likely to be mute.

We found some evidence tending to support this hypothesis. Overall, the impact of an increase in the share of Mexican immigrants in predominantly Hispanic occupations niches has no significant impact on wages of Blacks. As for Whites, the increase in the share of the Mexican population in a local labor markets in occupations that have become characterized as being “Hispanics” lead to higher wages, suggesting some complementarity in the production process. However, an increase either in the share of the Hispanic population in the local labor market or in Hispanic immigrants’ density in integrated, non-Hispanic niche occupations, corresponds with some wage compressions for natives. These suggest that, while there is some occupation segmentation in the market that likely dampens the impact of Hispanic immigrants, there remain potential substitutions over a certain range of other occupations, which could lead to wage pressures for natives in those occupations.

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Table 1: Socioeconomic and Demographic Characteristics			
	White Natives	Native Blacks	Hispanic Immigrants
Average years of schooling	12.4	11.73	7.78
Less than high school	9.1	19.4	58.9
High school	29.9	35.0	19.9
Some college	7.7	7.5	3.6
College graduate	43.3	34.1	15.3
Post Bachelor	9.9	3.9	3.2
Do not speak English fluently	--	--	0.42
Marital Status	0.67	0.50	0.66
Average Wages (1999\$)	46,337	29,817	25,075
Number of observations	2,068,962	235,925	228,580
Note: Sample population defined here as men 23 to 64 in the labor force, with positive income.			

Table 2: Occupation Concentration

	White ^a	Black ^a	Hispanic ^a	Hisp immig
Management, Professional, and Related	1.1	0.7	0.5	0.3
Management	1.2	0.6	0.5	0.5
Business and Financial Operations	1.1	0.8	0.5	0.3
Computer and Mathematical Science	1.0	0.6	0.4	0.3
Architecture and Engineering	1.1	0.4	0.4	0.5
Life, Physical, and Social Science	1.0	0.4	0.4	0.3
Community and Social Services	0.9	1.4	0.7	0.3
Legal	1.1	0.5	0.4	0.2
Education, Training, and Library	1.1	0.8	0.6	0.1
Arts, Design, Entertain., Sports, Media	1.1	0.5	0.6	0.4
Healthcare	1.1	0.9	0.4	0.2
Service	0.9	1.4	1.4	1.3
Healthcare Support	0.9	2.2	1.0	0.2
Protective Services	0.9	1.6	0.8	0.6
Food Preparation and Serving	0.9	1.1	1.4	1.6
Building and Grounds Cleaning	0.7	1.5	2.2	2.5
Personal Care and Service	1.0	1.2	1.0	0.3
Sales and Office	1.0	1.0	0.9	0.4
Sales	1.0	0.9	0.9	0.5
Office and Admin. Support	1.0	1.1	0.9	0.4
Farming, Fishing, and Forestry	0.7	0.6	3.4	5.6
Construction, Extraction, and Maintenance	1.0	0.8	1.3	2.5
Construction and Extraction	1.0	0.8	1.6	3.2
Installation, Maintenance, and Repair	1.1	0.8	1.0	1.6
Production, Transportation, and Material Moving	0.9	1.3	1.4	1.9
Production	0.9	1.2	1.5	1.9
Transportation and Material Moving	0.9	1.4	1.3	1.9
Dissimilarity Index (for males)		22.3	22.2	30.8

Note: ^a defined as both males and females in the labor force aged 16-64, reporting an occupation. Numbers do not add up to 100% because military occupations are not included in table.

Table 3: Average Earnings by Main Occupation Categories						
	White Natives	Native Blacks	Hisp. Immig.	ratio of wages black/white	ratio of wages Hisp./white	ratio of wages Hisp./black
Farming	26,124	21,682	17,769	0.83	0.68	0.82
Service	24,529	23,459	20,691	0.96	0.84	0.88
Production	25,214	25,297	21,841	1.00	0.87	0.86
Construction	23,964	23,853	22,998	1.00	0.96	0.96
Sales/ Office	50,051	26,495	27,707	0.53	0.55	1.05
Professional	63,110	40,392	51,089	0.64	0.81	1.26

Table 4: Estimates of the Relationship between Black Natives' Wages, Mexican Shares in the Local labor market, and Ethnic/Racial Occupation Density

Panel 1: OLS	(1)	(2)	(3)	(4)	(5)	(6)
	All Occup	All Occup	All Occup	All Occup	Integrated Occup	Hispanic Dominated Occup
<i>Mexican shares in the MSA</i>	0.005*** (0.0006)	-0.296 (54.84)	--	--	--	--
<i>Mexican shares in the PUMA</i>	--	--	-0.084*** (0.005)	-0.03*** (0.007)	-0.038*** (0.009)	-0.021* (0.012)
<i>Hispanic immig. occup. density</i>	-0.029*** (0.002)	-0.027*** (0.002)	-0.029*** (0.002)	-0.027*** (0.002)	-0.082*** (0.008)	-0.029*** (0.011)
<i>Black natives occup density</i>	-0.095*** (0.004)	-0.094*** (0.003)	-0.095*** (0.003)	-0.094*** (0.003)	-0.124*** (0.005)	-0.081*** (0.005)
<i>White native occup density</i>	0.186*** (0.004)	0.184*** (0.004)	0.186*** (0.003)	0.184*** (0.004)	0.263*** (0.005)	0.212*** (0.011)
<i>MSA fixed effects</i>	no	yes	no	yes	yes	yes
Panel 2: 2SLS	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mexican shares in the MSA</i>	0.005*** (0.0005)	-0.296 (54.82)	--	--	--	--
<i>Mexican shares in the PUMA</i>	--	--	-0.087*** (0.006)	-0.033*** (0.007)	-0.022* (0.009)	0.02 (-0.017)
<i>Hispanic immig. occup. density</i>	-0.015*** (0.002)	-0.013*** (0.002)	-0.014*** (0.002)	-0.013*** (0.002)	-0.083*** (0.008)	-0.029*** (-0.003)
<i>Black natives occup density</i>	-0.089*** (0.003)	-0.088*** (0.003)	-0.089*** (0.003)	-0.088*** (0.003)	-0.124*** (0.005)	-0.08*** (-0.005)
<i>White native occup density</i>	0.157*** (0.157)	0.155*** (0.004)	0.156*** (0.004)	0.155*** (0.004)	0.263*** (0.005)	0.212*** (0.011)
<i>lambda</i>	-0.023*** (0.002)	-0.023*** (0.002)	-0.025*** (0.002)	-0.024*** (0.001)	0.117*** (0.027)	0.184*** (0.05)
<i>MSA fixed effects</i>	no	yes	no	yes	yes	yes
Number of Observations	235,918	235,918	235,918	235,918	151,979	83,946

Note: Shown are estimated coefficients from OLS and 2SLS regressions of the natural log of annual wages of Blacks on the share of Mexican workers in the Metropolitan area, Public Use Micro Statistics area, and the density of Hispanic, Blacks and Whites, respectively in an occupation. In the 2SLS regressions, age is used as the instrument, explaining occupation choice, but not directly wages. The regressions also include controls for individuals 'characteristics, occupation and industry, and other variables as indicated (see text for details). Robust standard errors are in parentheses.

*P< .10; ** p<.05; *** p<.01

Table 5: Estimates of the Relationship between White Natives' Wages, Mexican Shares in the Local labor market, and Ethnic/Racial Occupation Density

Panel 1: OLS	(1)	(2)	(3)	(4)	(5)	(6)
	All Occup	All Occup	All Occup	All Occup	Integrated Occup	Hispanic Dominated Occup
<i>Mexican shares in the MSA</i>	0.014*** (0.0002)	0.365 (7.19)	--	--	--	--
<i>Mexican shares in the PUMA</i>	--	--	-0.121*** (0.001)	-0.070*** (0.002)	-0.076*** (0.002)	-0.053* (0.004)
<i>Hispanic immig. occup. density</i>	-0.039*** (0.0009)	-0.037*** (0.0008)	-0.038*** (0.0009)	-0.037*** (0.0008)	-0.010*** (0.003)	-0.027*** (0.001)
<i>Black natives occup density</i>	-0.117*** (0.001)	-0.113*** (0.001)	-0.117*** (0.001)	-0.113*** (0.001)	-0.206*** (0.002)	-0.048*** (0.001)
<i>White native occup density</i>	0.196*** (0.001)	-0.190*** (0.001)	0.197*** (0.001)	0.190*** (0.001)	0.273*** (0.001)	0.127*** (0.003)
<i>MSA fixed effects</i>	no	yes	no	yes	yes	yes
Panel 2: 2SLS	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mexican shares in the MSA</i>	0.014*** (0.0002)	0.365 (7.188)	--	--	--	--
<i>Mexican shares in the PUMA</i>	--	--	-0.125*** (0.001)	-0.074*** (0.002)	-0.084*** (0.002)	0.013** (-0.007)
<i>Hispanic immig. occup. density</i>	-0.020*** (0.0010)	-0.018*** (0.0010)	-0.018*** (0.0010)	-0.017*** (0.0001)	-0.010*** (0.002)	-0.027*** (-0.001)
<i>Black natives occup density</i>	-0.119*** (0.001)	-0.114*** (0.001)	-0.119*** (0.001)	-0.114*** (0.001)	-0.206*** (0.002)	-0.048*** (-0.001)
<i>White native occup density</i>	0.177*** (0.001)	0.170*** (0.001)	0.175*** (0.001)	0.169*** (0.001)	0.274*** (0.002)	0.128*** (0.003)
lambda	-0.023*** (0.0006)	-0.024*** (0.006)	-0.026*** (0.0006)	-0.025*** (0.0006)	0.074*** (0.009)	0.259*** (0.02)
<i>MSA fixed effects</i>	no	yes	no	yes	yes	yes
Number of Observations	2,068,914	2,068,914	2,068,914	2,068,914	1,659,206	409,756

Table 6: Estimates of the Relationship between Hispanic Immigrants' Wages, Mexican Shares in the Local labor market, and Ethnic/Racial Occupation Density

Panel 1: OLS	(1)	(2)	(3)	(4)	(5)	(6)
	All Occup	All Occup	All Occup	All Occup	Integrated Occup	Hispanic Dominated Occup
<i>Mexican shares in the MSA</i>	-0.006*** (0.0003)	-0.006 (0.019)	--	--	--	--
<i>Mexican shares in the PUMA</i>	--	--	-0.086*** (0.006)	-0.080*** (0.008)	-0.056*** (0.009)	-0.113*** (0.013)
<i>Hispanic immig. Occup. density</i>	-0.042*** (0.001)	-0.042*** (0.001)	-0.040*** (0.002)	-0.041*** (0.002)	-0.041*** (0.001)	-0.077*** (0.010)
<i>Black natives occup density</i>	-0.041*** (0.003)	-0.040*** (0.001)	-0.043*** (0.003)	-0.040*** (0.002)	-0.024*** (0.003)	-0.117*** (0.007)
<i>White native occup density</i>	0.152*** (0.003)	0.149*** (0.003)	0.152*** (0.003)	0.149*** (0.003)	0.151*** (0.006)	0.248*** (0.006)
<i>MSA fixed effects</i>	no	yes	no	yes	yes	yes
	228,580	228,580	228,580	228,580	134,478	94,102