# How Immigration Affects U.S. Cities

David Card
UC Berkeley

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ABSTRACT

*In the past 25 years immigration has re-emerged as a driving force in the size and composition of U.S. cities. This paper describes the effects of immigration on overall population growth and the skill composition of cities, focusing on the connection between immigrant inflows and the relative number of less-skilled workers in the local population. The labor market impacts of immigrant arrivals can be offset by outflows of natives and earlier generations of immigrants. Empirically, however, these offsetting flows are small, so most cities with higher rates of immigration have experienced overall population growth and a rising share of the less-skilled. These supply shifts are associated with a modest widening of the wage gap between more- and less-skilled natives, coupled with a positive effect on average native wages. Beyond the labor market, immigrant arrivals also affect rents and housing prices, government revenues and expenses, and the composition of neighborhoods and schools. The effect on rents is the same magnitude as the effect on average wages, implying that the average "rent burden" (the ratio of rents to incomes) is roughly constant. The local fiscal effects of increased immigration also appear to be relatively small. The neighborhood and school externalities posed by the presence of low-income and minority families may be larger, and may be a key factor in understanding native reactions to immigration.*

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The U.S. is once again becoming a country of immigrants. Immigrant arrivals – currently running about 1.25 million people per year – account for 40% of population growth nationally, and a much larger share in some regions.[1] The effects of these inflows are controversial, in part because of their sheer size and in part because of their composition. Something like 35-40% of new arrivals are undocumented immigrants from Mexico and Central America with low education and limited English skills (Passel, 2005). Although another quarter of immigrants – from countries like India and China – are highly skilled, critics of current immigration policy often emphasize the presumed negative effects of lower-skilled people in the overall economy (e.g., Rector, Kim and Watkins, 2007). Moreover, even the most highly skilled immigrants are predominately non-white, contributing to the growing presence of visible minorities in the U.S. population.

The size and composition of immigrant inflows is a special concern in the nation's largest metropolitan areas, where most immigrants live. To illustrate this point Table 1 presents data from the most recent Current Population Surveys on the 17 largest metropolitan areas (with populations of 2 million or more).[2] The average share of immigrants in these cities is nearly 27% – two times the level in the nation as a whole – although the fraction varies from a low of 8% in Philadelphia and Detroit to a high of 35% in Los Angeles and Miami. Large cities also have a disproportionate share of "second generation" Americans: people born in the U.S. with at

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[1]See U.S. Department of Commerce (2006).

[2]I use the term "cities" in this paper to refer to wider metropolitan areas rather than to specific political entities. As of 2003 the Federal government has defined a new set of metro areas – so-called Core Based Statistical Areas (CBSA's) – that are similar to the Metropolitan Statistical Areas (MSA's) and Consolidated Metropolitan Statistical Areas (CMSA's) used in the past two decades. For the largest metro areas – like New York – the CBSA is comparable to the older CMSA, though typically smaller.

least one foreign-born parent. This group represents about 20% of the population in the 17 largest cities (versus 11% in the nation as a whole), with a range between 8% (in Atlanta, Minneapolis, and Philadelphia) and 25% (in Los Angeles).

The final column of Table 1 shows the overall share of minorities (i.e., people who are either non-white or Hispanic) in each major city.[3] As illustrated in Figure 1, the fraction of minorities rises one-for-one with the share of Asian and Hispanic first- and second-generation immigrants. Thus, the "diversity" of a city's population is intimately related to the immigrant presence in a city.

This paper summarizes some of the main effects of immigration on major U.S. cities. I begin by examining the effect on overall population growth. Immigrants, like natives, are drawn to expanding cities, making it harder to draw inferences about the causal effect of immigrant inflows on population growth. Unlike natives, however, immigrants are particularly attracted to cities with historical enclaves of earlier immigrants. Exploiting this *immigrant-specific* "pull factor" I infer that immigrant arrivals increase the local population, with only limited outflows of other groups.

I then consider the effects of immigration on the composition of a city's workforce. Immigrants as a whole are less skilled than natives, so in the absence of selective outflows more immigrants tend to *reduce* the average skills of the local population. Although the native populations of certain high-immigrant cities – like San Francisco and Boston – are relatively skilled, I show that offsetting native population flows tend to be small, so on average cities with

[3]Appendix Table 1 presents a more detailed comparison between the racial/ethnic breakdown of the first and second generation immigrants in each city.

more immigration have a larger share of lower-skilled workers.

I then turn to the implications of this unbalanced population growth for local incomes and the structure of the local economy. Despite the impact of immigration on the skill composition of the local labor market, there is only a small effect on the structure of relative wages.[4] The wage gap between the lowest-skilled natives (who are in most direct competition with immigrants) and natives at the middle of the skill distribution is 3-5 percentage points wider in high immigrant cities like New York and Los Angeles than in low-immigrant cities. The gap between the wages of the highly-skilled natives and those in the middle is also somewhat wider in high-immigrant cities.

An equally important issue is the effect of immigration on average wages of native workers. Even after controlling for city size effects, human capital spillovers, and the possibility that immigrants are drawn to cities with stronger local economies, the evidence suggests a positive effect. Taken together with the rather small magnitude of the relative wage effects, it appears that immigration exerts a modestly positive effect on the labor market outcomes of most natives. This parallels the conclusion reached in simulations of the national impacts of immigration by Ottaviano and Peri (2006), and in a recent empirical study for California by Peri (2007).[5]

Immigrants also affect the well-being of urban residents through a variety of other non-

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[4]See Friedberg and Hunt (1995) for a survey of the literature up to the mid-1990s. More recent studies of local labor impacts include Card (2001), Orrenius and Zavodny (2006), Card and Lewis (2007), Dustmann, Fabbri, Preston, and Wadsworth (2003), and Glitz (2006).

[5]Ottavanio and Peri (2006) extend the model developed by Borjas (2003) to allow for imperfect substitution between immigrants and natives with similar age and education. In their simulations that allow for capital growth, wages of most natives are increased by immigration.

labor market channels. One mechanism is the housing market: research by Saiz (2003, 2006), Susin (2001), and Greulich, Quigley, and Raphael (2004) suggests that rents are higher in cities with increased immigration, although Greulich, Quigley, and Raphael (2004) find that the mean ratio of rent-to-income (the "rent burden") among natives is unaffected by immigrant inflows. In fact, the estimated impacts of immigration on average rents in the studies by Saiz (2006) and Greulich, Quigley, and Raphael (2004) are about the same magnitude as the estimated impacts on average native earnings. This parallel shift explains the absence of an effect on the average rent burden and suggests that net housing market effects on natives are small.

Another channel is through government revenues and expenditures. Simple "static" comparisons suggest that immigrants pay about $100 per capita less than natives in state, federal, and Social Security taxes, and receive about $600 per capita less in cash transfers. As has been recognized in a number of "inter-generational accounting" studies, such comparisons depend on the treatment of the native-born children of immigrants (who pay less taxes than other natives, and also receive more cash transfers). They also ignore the contributions of immigrants to local taxes (mainly property and sales taxes) and local expenditures (mainly on schools and other services). And perhaps most importantly, they ignore the general equilibrium effects of immigration on the earnings and program participation of the local native population.

To provide a broader perspective I consider the relationship between the fraction of immigrants in a city and various indicators of local fiscal conditions, including average earnings per capita (a simple measure of the "tax base") and school enrollment rates. This analysis suggests that cities with more or less immigrants have similar (or slightly higher) earnings per capita, and similar "demographic burdens".

Even apart from housing prices or fiscal concerns, immigrant families pose a potential externality on other urban residents through their impacts on school and neighborhood "peer groups." While the monetary value is hard to quantify, existing research suggests that people value neighborhoods and schools with better-educated, higher-income, and non-minority neighbors and schoolmates. Indeed, my reading is that these peer group externalities may be a first-order concern among many urban residents.

## II. Immigration and Population Growth

An important first question is how immigrant inflows affect population growth. Since the U.S.-born have very low emigration rates, at the national level each additional immigrant adds one person to the total population. At the local level, however, there are substantial movements of population that can potentially offset immigrant inflows.

To begin, note that the total population in a city at a point in time t, $P_t$, is the sum of the number of native-born people in the city at that time $N_t$, and the number of foreign-born, $M_t$: $P_t = N_t + M_t$. The proportional change in the population from period s to period t can then be written as:

$$(1) \qquad (P_t - P_s) / P_s = (N_t - N_s) / P_s + (M_t - M_s) / P_s$$

$$= [N_s/P_s] \times (N_t - N_s) / N_s + [M_s/P_s] (M_t - M_s) / M_s .$$

The first line decomposes the overall growth rate into the sum of the changes in the native and immigrant populations, each divided by the initial total population stock. The second line writes the overall growth rate as a weighted average of the group-specific growth rates, with weights equal to their initial (period s) population shares.

Table 2 shows the relative magnitudes of the terms in equation (1) for the 17 largest cities in the U.S. and for a broader sample of the 100 largest cities, using Decennial Census data for people age 16-65 from 1980, 1990, and 2000.[6] Average growth in the adult population of the nation's largest cities was about 9 percent in the 1980s (i.e., 0.9 percent per year) and 21 percent in the 1990s. In the U.S. as a whole the adult population rose by 9.1% over the 1980s and 12.8% over the 1990s. Thus, the largest cities kept pace with population growth elsewhere in the country during the 1980s, but grew faster than the rest of the country in the 1990s.

The average values for the two terms in the first line of equation (1) are displayed in the second and third columns of the table. During the 1980s, the native population of larger U.S. cities was essentially stagnant. Most urban population growth was attributable to immigrants, who experienced an average growth rate of 63%.[7] Growth of the native population in the country's larger cities resumed in the 1990s, but contributed only 40% of total population growth in the face of a nearly 150% average growth rate in the immigrant populations of these cities. As shown in the lower panel of Table 2, the trends were broadly similar in the 100 larger cities.

While informative, the simple decompositions in Table 2 do not address the key question of whether immigrant population growth *causes* overall population growth. To make some headway on this issue, consider a simple causal model for population growth between a base period s and some later period t:

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[6]In this table I am redefining the top cities to include only the primary city in the metro area (i.e., the main PMSA, in pre-2005 terminology). This is necessary to allow comparisons over time.

[7]This pattern of growth in the immigrant population, with little or no growth in the native population, is sometimes interpreted as evidence that immigrant arrivals "squeezed out" the native born from top cities in the 1980s (Frey, 1995).

$$(2) \qquad ( P_t - P_s ) / P_s = \alpha + \beta ( M_t - M_s ) / P_s + \gamma X + \epsilon .$$

where X represent a set of city characteristics and $\epsilon$ is an unexplained component. In this model the coefficient $\beta$ summarizes the *causal effect* of immigrant inflows on overall population growth. A value of $\beta=1$ means that each additional immigrant adds 1 to the total city population. A value of $\beta < 1$ means that for each additional 100 immigrants, a total of $100(1-\beta)$ native-born residents leave. In the extreme case, $\beta=0$ and immigrant inflows are completely offset by native outflows.

The obvious problem with this model is that the unobserved determinants of population growth (the factors represented in $\epsilon$) are likely to be correlated with immigrant inflows, leading to an upward-biased estimate of $\beta$. The conventional econometric solution is to find some characteristic or attribute of a city that induces more immigrants to move there, but is not directly related to the city's growth, and use this as an instrumental variable for the immigrant inflow rate. As noted in earlier work (Altonji and Card, 1991; Card, 2001), the tendency of immigrants to move to pre-existing enclaves provides an appealing instrument. Specifically, suppose that in the absence of particularly good or bad economic conditions in a given city, the fraction of all arriving immigrants who would choose to move to that city is equal to the share of earlier immigrants who resided there in the initial period s ($\lambda_s=M_s/M^{US}$). Then, if the total number of new immigrants to the country is $\Delta M^{US}$, the expected number of immigrants who would go to the city is $\lambda_s \Delta M^{US}$, and a plausible instrument for the immigrant inflow rate is $\lambda_s \Delta M^{US}/P_s = (M_s/P_s) \times \Delta M^{US}/M^{US}$, which is just a fixed multiple of the fraction of immigrants in the city in year s.[8]

The predictive power of this instrument is illustrated in Figure 2, which plots the immigrant inflow rate for each of the top 17 cities between 1980 and 2000 against the fraction of immigrants in the city in 1980. Although there is a lot of "noise", there is a clearly discernable correlation between the initial fraction of immigrants and the subsequent inflow rate, confirming the enclave effect.[9]

Table 3 presents estimation results for a simple specification of (2) that includes only one X variable, the log of the city's population in 1980.[10] I present OLS estimates for the sample of top cities in column 1, OLS estimates for the broader sample of 100 largest cities in column 2, and instrumental variables (IV) estimates for the latter sample in column 3.[11] The OLS results yield very large estimates of $\beta$, on the order of 2. Taken literally, an estimate of this magnitude implies that each newly arriving immigrant attracts one additional native-born worker to the same city. A more likely interpretation is that booming cities (like Riverside, California) attracted both immigrants and natives from elsewhere in the country over the 1980-2000 period. The instrumental variables estimates, though imprecise, are consistent with this interpretation,

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[8]This formula can be refined by dividing immigrants into origin groups, and constructing a group-specific inflow rate to each city. See e.g., Card (2001), Lewis (2004), and Saiz (2006).

[9]The correlation across the 17 top cities is 0.41. Across the 100 larger cities it is 0.50.

[10]As noted by Wright et al (1997) city growth rates are very strongly correlated with city size, and failure to control for city size effects can lead to misleading inferences about the relation between immigrant inflows and population growth. In the simple models presented in Table 3 the log of city size has a t-ratio of 5 or higher in models for overall city growth rates.

[11]To facilitate "adding up", the growth rates between 1990 and 2000 are expressed as a ratio of the 1980 population in a city. I use total population in 1980 as a weight in estimating the models over the broader 100 city sample.

and point to an estimate of β close to 1.0.[12]

The results in Table 3 are consistent with an earlier analyses of immigration inflows and native outflows between 1985 and 1990 (Card, 2001), which used a more sophisticated enclave instrument, and with models in Card and Dinardo (2000) that explored movements between 1980 and 1990, allowing for dynamic feedback between city-specific growth rates across decades.[13] While further work would be useful to refine these estimates, my interpretation of the available evidence is that immigrant inflows to specific cities lead to relatively modest offsetting responses, so that on average immigrant inflows drive up population nearly one-for-one.

## III. Immigration and the Skill Composition of the Local Population

I turn now to a second key question: how do immigrant arrivals affect the skill composition of the adult population in different cities? A necessary first step is to define skill groups. I use a simple approach, motivated by previous studies of the wage structure (e.g., Fortin and Lemieux, 1998), and the desire to develop an easily interpretable skill index. Specifically, I begin by fitting a set of ordered probit models for the probability that a given adult worker in the public use file of the 2000 Census would earn an hourly wage in each of four

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[12]The IV estimate in the bottom row of the table for the period 1990-2000 uses immigrant shares of the city in 1980 and 1990 as instruments. The use of the two shares leads to a substantial gain in precision.

[13]Borjas, Katz and Freeman (1997) argue that immigrant arrivals almost fully displace natives. Their preferred model of population growth (for states, rather than cities) expresses the change in the decadal growth rate of the native population as a function of the change in the decadal growth rate of the immigrant population (expressing growth rates relative to total population as in equation 2). Fitting their specification to the changes in city-specific native population growth rates (from 1980-1990 to 1990-2000) yields a coefficient of 1.56 (std. error=0.39) on the change in the immigrant growth rate, implying an estimate of β=2.56.

quartiles, using separate models for immigrants and native-born wage-earners. The model for natives includes a total of 25 covariates, formed from interactions between the individual's age, gender, education, and race/ethnicity. The model for immigrants is richer (a total of 82 covariates), and includes country-of-origin effects for each of the 40 largest sending countries, as well as region-of-origin interactions with age, gender, and years in the U.S. I then use the coefficients of these models to assign the *probabilities* that a given adult is classified in skill quartiles 1,2,3, or 4. (I define quartile 1 as the lowest wage group). This procedure explicitly models the uncertainty in assigning a person to a unique skill group, and uses a probabilistic rather than deterministic assignment.[14]

Using these "skill weights" it is straightforward to construct estimates of the labor market outcomes for different skill by taking an appropriately weighed average across the entire adult population. To calculate the mean wage of quartile 1 workers from a given city, for example, I form a weighted average of the observed wages for workers in that city, using as weights the probability each worker is assigned to quartile 1.

The characteristics of people assigned to the four quartiles are summarized in Appendix Table 2. Briefly, the lowest quartile group includes more women (59%), Hispanics (19.4%), and high school dropouts (40%) than the overall population, while the highest quartile group includes more men (62%) and college graduates (46%). The geometric mean wage earned in 1999 for workers in quartile 1 is \$9.50 per hour, while the corresponding averages for quartiles 2, 3 and 4 are \$11.75, \$13.71, and \$17.00 respectively.

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[14]Workers and non-workers are assigned probabilities from the same model. In principle the procedure could be modified to take account of unobserved skill characteristics that partially determine a person's skill quartile and his or her likelihood of working.

Although natives are (approximately) evenly distributed across the four quartiles, immigrants are over-represented in the lowest quartile, and under-represented in the top two.[15] The top row of Table 4 shows the skill distribution for all working age immigrants, while the remaining rows show the distributions for immigrants from the 20 most important source countries (ranked by the number of immigrants from each country). The skill distributions vary widely by country of origin, with relatively skilled immigrants coming from India, Canada, and Western Europe, and relatively unskilled immigrants from Mexico, El Salvador, and Guatemala.

The "unbalanced" skill distribution of the immigrants population has an important implication: other things equal, high-immigration cities will tend to have relatively more low-skilled people in their local population. To formalize this insight, let $\pi_j$ represent the fraction of residents in a given city in skill group j (for j=1,2,3,4), let $p_j$ represent the fraction of native residents in the city in skill group j, and let $q_j$ represent the fraction of foreign-born residents in the skill group. Letting f denote the fraction of immigrants in the local population, the local share of the overall population in skill group j is $\pi_j = f q_j + (1-f) p_j$. In the absence of immigration, or any differential sorting of the native population across cities, the local fraction of skill group j in each city would be $p_j^{US} \approx 0.25$. The deviation from this counterfactual can be written as the sum of three terms:

$$\pi_j - p_j^{US} = f ( q_j^{US} - p_j^{US} ) + f (q_j - q_j^{US} ) + (1-f) ( p_j - p_j^{US} ) . \tag{3}$$

The first term is the "pure composition" effect of higher immigration: since the national fraction of immigrants in skill group j ($q_j^{US}$) differs from the national fraction of natives ($p_j^{US}$), a city with

[15]The fractions of the native population in groups 1-4 are 25.4%, 24.9%, 26.2% and 23.5%, respectively. These differ from exactly 25% each because the quartile cutoffs were designed to divide workers in the 17 top cities into 4 groups.

more immigrants will tend to have a bigger deviation from the counterfactual share $p_j^{US}$. The second term represents the local selectivity of the immigrant population. To the extent that the immigrants in a given city are more or less skilled than the national immigrant pool, this term will be larger or smaller.[16] The third component of equation (3) is a parallel term representing the local selectivity of the native population.

The distortionary effect of an immigrant inflow depends on the selective responses of natives (and earlier immigrants) to the immigrant arrivals. If, for example, inflows of immigrants in the bottom skill group causes natives in that skill group to leave (or induces natives in other skill groups to move in) some of the distortionary effect will be mitigated. The magnitude of the net mitigation effect is captured by native selectivity term.

Tables 5a and 5b present city-specific estimates of the three terms in equation (3) for the lowest and highest skill quartiles, respectively. Focusing first on the lowest skill quartile, there are clearly big differences across major cities in the relative share of low-skilled people. Los Angeles and Miami, for example, have a much higher fraction of low skilled people than other cities (or the nation as a whole), whereas Seattle and Boston have a lower-than-average fraction. Most of the variation across cities in the presence of low-skill people is driven by the compositional effect associated with the presence of more immigrants in the city, although there is also some variation in the selectivity of the native population across cities. San Francisco, Seattle, Boston, and Washington D.C., for example, all have relatively few natives in skill

[16]In view of the results in Table 4, it is clear that immigrant selectivity is closely related to the source country composition of the immigrants in a given city. It would be interesting and useful to examine the role of historical enclaves in specific cities in determining the source country flows to each city. Card (2001) presents some data along these lines for the 1990s.

quartile 1, while Los Angeles, Miami and Riverside have relatively more.

The patterns in Table 5b are for the most part "mirror images" of those in Table 5a. New York, Los Angeles, and Miami all have a relative shortage of top quartile residents, whereas Boston, Seattle and San Francisco have a relative surplus. Again, most of the cross-city variation is associated with the compositional effect, though there is some positive selectivity in the native populations of San Francisco, Seattle, Boston, and Washington D.C. – the cities most closely associated with the "high tech" boom.

The decomposition in equation (3) shows that in the absence of selectivity effects, the fractions of local residents in different skill categories will vary linearly with the fraction of immigrants. The strength of this connection across the top cities in the country is illustrated in Figures 3a and 3b. The former shows a clear positive correlation between $\pi_1$ (the fraction of city residents in skill quartile 1) and f (the fraction of immigrants in the city) while the latter shows a negative correlation between $\pi_4$ (the fraction in the top skill quartile) and f. In contrast to these graphs, Figures 4a and 4b suggest that the selectivity of the local native population is not very strongly related to the local immigrant fraction. If anything, it appears that the native population tends to be relatively unskilled in cities with more immigrants. There is certainly no indication that unskilled natives move out of the large cities with more immigrants.

To examine the data more systematically, Table 6 presents estimates from models in which the various components of equation (3) for each of the four skill groups are regressed against the fraction of immigrants in the corresponding city (as measured in the 2000 Census). The models in the upper panel are fit to the small sample of only 17 top cities, while the models in the lower panel are fit to the broader sample of 100 larger cities. Note that since (3) holds identically, the coefficients in the three right hand columns (representing regressions of the composition effect, the immigrant selectivity term, and the native selectivity term on the fraction of immigrants in the city) sum up to the coefficient in the first column (representing regressions of the city-specific excess fraction of residents in the skill group on the fraction of immigrants in the city). Also note that the models for the compositional effect "fit perfectly", since by construction this term is a linear function of the fraction of immigrants in the city.

The results from these models are quite similar for the smaller top city sample and the larger 100-city sample, though the top city models show slightly stronger native selectivity effects that tend to reinforce the compositional effects. Overall, there is a strong positive relationship between the fraction of immigrants in a city and the fraction of residents in the lowest skill quartile, attributable mainly to the composition effect. Specifically, the model for the larger 100-city sample implies that each 10 percentage point increase in the local fraction of immigrants is associated with a 1.73 percentage point increase in the fraction of the adult population in skill quartile 1, of which 1.31 percentage points is attributable to the pure composition effect, 0.16 percentage points is attributable to the fact that the immigrant population tends to be less-skilled in high immigrant cities, and 0.26 percentage points is attributable to the fact that the native population is less-skilled in high immigrant cities. Likewise, for the top skill quartile there is a strong negative relationship with the fraction of immigrants, attributable mainly to the composition effect.

A potential concern with the OLS models in Table 6 is that the strong positive correlation between the fraction of immigrants in a city and the local fraction of low-skill natives is driven by city-specific demand shocks that attract both immigrants and low-skilled natives (such as a boom in residential construction). One way to address this is to fit the models in Table 6 by IV, using as an instrument the fraction of immigrants in the city some years earlier (e.g., in 1980). In principle this instrument isolates the immigrant-specific enclave effect and purges the estimates of demand conditions in the mid-to-late 1990s. IV estimates of the models in the lower panel of Table 6 using the immigrant fraction in 1980 are very similar to the simple OLS models. For example, the IV estimate of the coefficient for the overall effect on skill quartile 1 is 0.175 (versus the OLS estimate of 0.173), with a standard error of 0.018, while the IV estimate of the coefficient for the native selectivity effect for quartile 1 is 0.031 (versus the OLS estimate of 0.026), with a standard error of 0.012. These estimates do not point to an obvious endogeneity problem in interpreting the relationship between the relative skill composition of a city and the fraction of immigrants there.

The estimates in Table 6 confirm an important conclusion that has emerged in previous studies of city-specific labor markets (e.g., Card and DiNardo, 2000; Card, 2001; Card and Lewis, 2007). Inflows of immigrants are not associated with offsetting outflows of lower-skilled natives. On average, immigration inflows substantially raise the fraction of local residents in lower skill groups, and lower the fraction in higher skill groups.

## IV. The Effects of Immigration on Relative Wages

If immigration shifts the fractions of local residents in different skill groups, how do local labor market adjust to absorb the imbalances? One obvious mechanism is via relative wage changes. In particular, standard economic models of a closed local economy (with elastically supplied capital) suggest that increases in the relative supply of a particular skill group will lower the relative wages of that group, while raising average wages for workers as a whole. A useful framework for investigating the relative wage effect is a model of the form:

(4) $\log [ w_j / w_k ] = a + b \log [ \pi_j / \pi_k ] + cX + e$

where $\log w_j$ represents the mean log wage for workers in skill group j in a given local labor market, $\log w_k$ is the corresponding mean for skill group k, $\pi_j$ and $\pi_k$ are the shares of the groups in the local population, X represents a set of control variables, and e is an error component.[17] Since the workers in different skill groups are slightly different in different cities, I estimate this model using mean <u>residual</u> wages for people in each skill group, obtained from a linear regression model that includes the same covariates used in the skill quartile assignment model.

The correlation across top U.S. cities between relative supplies and relative wages for different skill groups is illustrated in Figures 5a and 5b.[18] Figure 5a shows that there is a lot of variation across large cities in the relative size of skill quartiles 1 and 2, but not much connection to the relative wage differential between workers in the two groups. There is an even larger range in the relative size of skill quartiles 4 and 2 (Figure 5b), but again the correlation with relative wages is weak.

Table 7 presents estimates from a series of models based on equation (4). The upper

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[17]See Card (2001) for a derivation of this reduced form equation from a supply-demand model. The underlying assumptions are that natives and immigrants in the same skill group are perfect substitutes, that the local production function is separable in labor and capital, and that local labor input is a CES-aggregate of the inputs of different skill groups with equal elasticities of substitution across all skill groups. It is also assumed that per-capita labor supply functions for the different skill groups have the same (constant) elasticity. If the elasticity of substitution across skill groups is $\sigma$, and the elasticity of per-capita labor supply is $\eta$, then $b = -1/(\sigma+\eta)$.

[18]For simplicity the relative wages plotted in Figures 5a and 5b are <u>not</u> adjusted for differences in the observable characteristics of workers in each skill group in different cities.

panel of the table shows estimated models for the wages of quartile 1 relative to quartile 2 (roughly comparable to the gap between high school dropouts and high school graduates), while the lower panel shows models for the wages of quartile 4 relative to quartile 2 (roughly comparable to the gap between college graduates and high school graduates). Each panel presents two rows: one containing estimates of the effect of relative supply on the relative wages of natives, and the other reporting parallel estimates for the relative wages of immigrants. The various columns present OLS and IV models, with and without a control for population size.

Looking first at the estimates for quartile 1 relative to 2, the OLS models show small effects of relative supply on relative wages of both natives and immigrants. The IV models show more systematic evidence of negative wage impacts, with an estimated value for the coefficient b of about −0.10. To interpret this magnitude, note from Figure 5a that the log relative supply of quartile 1 relative to quartile 2 ranges from approximately 0 in low-immigration cities like Philadelphia to 0.35 in Los Angeles and Miami. Assuming a -0.10 coefficient, the implied effect of the increased relative supply of lowest-quartile workers in Miami relative to Philadelphia is a 3.5% reduction in relative wages.[19]

The estimates of the effect of relative supply on the wages of quartile 4 relative to quartile 2 are comparable, though slightly less precise, with the IV estimates again centering around −0.10. As shown in Figure 5b, the log relative supply of quartile 4 relative to quartile 2

[19]The same coefficient would imply that the Mariel Boatlift, which increased the share of low-skill workers in Miami by about 7 percentage points, would have lowered wages for the lowest skill quartile by about 2.5 percentage points. Card (1990, Table 5) presents mean wages for workers in 4 skill groups in Miami over the 1979-85 period. The wage gap between the lowest group and the middle two shows no trend, but varies too much from year to year to make any precise inference.

ranges from approximately −0.4 in a high-immigration city like Miami to 0 in a low-immigration city like Philadelphia. Assuming a -0.10 coefficient, the implied effect of the relative shortage of top-quartile workers in Miami relative to Philadelphia is a 4.0% increase in relative wages.[20]

The results from this analysis closely parallel the findings from earlier studies of the relative wage effects of immigration on local labor markets (Card 2001, Orrenius and Zavodny, 2006, Card and Lewis, 2007). The presence of immigrants exerts a powerful and systematic effect on the relative supplies of different skill groups in different cities. These differences appear to shift the local wage structure in the expected direction, though the impacts are relatively modest. Comparing high immigration cities like Miami and Los Angeles to low-immigration cities like Philadelphia or Detroit, the relative wages of workers in the lowest skill group are about 3-4% lower, while relative wages for those in the highest skill group are 3-4% higher.

## V. The Effects of Immigration on Average Wages

A final issue in the analysis of labor markets is how immigration affects the average wages of native workers. This is potentially a more difficult question to answer than the effect on relative wages, in part because economic models give a clearer prediction for the effect of relative supply on relative wages, and in part because of the difficulty of controlling for city-specific factors that may lead to higher or lower wages for all the workers in a given city, but are

[20] I also estimated parallel models for the wage of quartile 4 relative to quartile 1. These models yield OLS and IV estimates that are very similar to those in Table 7. For example, the IV estimates of the effect of relative supply on the relative wages of native and immigrant workers, with no other controls, are -0.10 (standard error=0.03) and -0.12 (standard error 0.04) respectively.

"differenced out" of a relative wage comparison.[21]

Figure 6 shows the relationship between the mean of (regression-adjusted) log wages for all native workers in each of the 17 top cites and the fraction of immigrants in the city. Overall, the correlation appears to be positive but rather noisy. This is confirmed by the models in columns 1 and 2 of Table 8, which relate the adjusted wage measure for workers in the 17 top cities to the log of the fraction of immigrants in each city and two control variables: the log of city size, and the fraction of college-educated workers in the city.[22] The addition of the latter covariate is suggested by the Moretti's (2004) study of human capital spillovers, which finds a strong positive correlation between average wages and the fraction of college graduates in a city that could bias the observed relation between wages and the fraction of immigrants.[23] On the

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[21]Assuming a single output is produced in each city and sold at a fixed price, the impact of immigrant arrivals on mean wages of natives depends on how closely substitutable immigrants are for natives in the same skill group, on the elasticities of substitution between skill groups, on the relative skill distributions of immigrants and natives, on whether capital is supplied elastically or inelastically to a given city. See Ottavanio and Peri (2006) and Manacorda, Manning, and Wadsworth (2006) for discussions. If capital is elastically supplied and immigrants are perfect substitutes for natives then average wages of natives will increase whenever the skill distribution of new immigrants differs from the distribution of the existing workforce. If immigrants are imperfect substitutes for natives the positive effects on average wages of natives will be larger. More general (trade-theoretic) models allow for firms in different cities to produce different products, some of which are exported (with a potentially downward-sloping export demand function) and others of which are consumed locally. In these models the effect of immigrant inflows on average wages will tend to be less positive, and may be zero.

[22]I also tried specifications that included a more flexible control for city size (a third-order polynomial in log population) but found little change from the models in Table 8. Specifications that control for a polynomial in the average predicted wages of adults in a city also lead to similar estimates of the coefficient on the fraction of immigrants.

[23]Ciccone and Peri (2006) have argued that one should test for human capital spillovers by relating the mean of log wages, holding skill composition constant, to the share of highly educated workers. I constructed a fixed composition index by using a simple average of mean log residual wages for native workers in each of the four skill quartiles. Use of this variable

other hand, population size and the fraction of college workers are obviously affected by immigrant inflows, so one might prefer the models without the added controls.

Regardless of whether the controls are added or not, the relationship between the fraction of immigrants and mean wages is positive and highly significant in the broader sample of 100 large cities (columns 3-6 of Table 8). The implied effects in this sample are also economically important. The 0.06 coefficient from the IV model in column 6, for example, implies that the increase in the fraction of immigrants from Philadelphia (immigrant share=0.08) to Los Angeles (immigrant share=47%) raises average wages of natives about 10%. This effect is large enough to more than offset the 4-5% reduction in the relative wages of low-skilled workers in moving between a typical low-immigrant city (like Philadelphia) and a typical high immigrant city (like Los Angeles), and suggests that wages of native workers in the bottom skill quartile are about 5% higher in the latter than the former.

The inference that wages of low-skilled natives are actually higher in high-immigrant cities is confirmed by models that relate the mean of adjusted log wages for natives in skill quartile 1 to the fraction of immigrants in a city. OLS and IV versions of these models (available from the author) show a significant positive effect of the fraction of immigrants on the levels of wages for the lowest skill quartile, with a coefficient on the log fraction of immigrants in the range of 0.05-0.07. Thus, even though the relative wages of low-skilled natives are depressed in high-immigrant cities, the absolute level of their wages appears to be higher.

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leads to estimates that are very close to those in Table 8.

## VI. Immigration Effects Outside the Labor Market

### *a. Housing Market Effects*

Although most of the existing research on the economic impacts of immigration has focused on the labor market, immigrant inflows can have other effects on the quality of urban life. An important example is the housing market: immigrant arrivals might be expected to have some effect on rents and housing prices, leading to changes in the welfare of pre-existing residents. Saiz (2006), for example, presents a simple theoretical model in which an inflow of immigrants causes an initial increase in rents as families compete for a fixed stock of housing units. In the longer run, new housing units are built and some residents move to other cities, offsetting the initial rent increase. Consistent with this model, studies of the effect of the Mariel Boatlift by Saiz (2003) and Susin (2001) find a positive impact on rents in Miami following the arrival of the Marielitos. The evidence on longer-run impacts is less clear. Saiz (2006) argues that rents are substantially increased by immigrant inflows, while Gruelich, Quigley and Raphael (2004) find no effect of immigrant inflows on the ratio of rent-to-income among natives in a city.

These findings can be reconciled by noting that the magnitude of the immigrant impact on average rents estimated by Saiz (2006) is comparable to the magnitude of the impacts on average wages estimated in Table 8. For example, using Census data for 1970-2000, Saiz (2006, Table 5) estimates that a 10 percentage point immigrant inflow over a decade (expressed as a fraction of the initial population of an MSA) raises log median rents by 6.2%. Similarly, using 1980-2000 data, Gruelich, Quigley and Raphael (2004, Table 4) find that a 10 percentage point increase in the fraction of immigrants in a city raises mean rents for natives by 6.5%, although the effect is concentrated in the 1980s (19.4% impact) and statistically insignificant in the 1990s

(2.7% impact). The models in Table 8, by comparison, suggest that a 10 percentage point increase in the fraction of immigrants was associated with 4% higher native wages in 2000. The comparable reactions of wages and rents provides a simple explanation for the absence of any effect on the rent-to-income among natives.

Greulich, Quigley and Raphael (2004, Table 6) also find that the effects of increased immigration on rental prices are very similar for housing units with higher and lower probabilities of being rented by immigrants. As noted by Tracy (2004), this uniform effect across very different ends of the rental market is hard to reconcile with the housing competition model described by Saiz (2006), and points instead to a model in which immigrants raise the average productivity of natives, and rents respond to restore equilibrium across cities. While additional work is clearly warranted, my assessment of the existing evidence is that the increase in housing prices caused by immigration is small enough to be offset by the impacts on average earnings, at least in most cities with some elasticity in housing supply.[24]

*b. Fiscal Effects*

Another link between immigration and native well-being arises through the local tax and transfer system. If the quantity and quality of public services remain constant, the fiscal impact of increased immigration on the existing population can be assessed by measuring the "fiscal surplus" generated by the new immigrants (i.e., the gap between the taxes they pay and the cost

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[24]Gyourko, Mayer, and Sinai (2006) discuss the wide heterogeneity across cities in the extent to which housing supply and housing prices have risen in recent decades.

of the services they receive).[25] More generally, the effect has to be adjusted for changes in the quality or quantity of public services attributable to immigrant inflows (for example, congestion effects in local schools).

A number of early studies focused on the question of whether immigrants are more or less likely to receive welfare benefits or certain types of government transfers than natives (e.g., Blau, 1984, Jensen, 1989, and Borjas and Hilton, 1996). A few have extended this framework to look at the sum of benefits received *and* taxes paid by current immigrants versus natives, including Borjas (1994), Garvey and Espenshade (1998), and Clune (1998). Table 9 presents a simplified version of these analyses using information from the March 2005 and 2006 CPS. I show average per capita transfers and estimated taxes for the overall population (column 1) and for immigrants and natives separately (columns 2 and 3). I also present data in the fourth column of the table for the native-born children of immigrants, and for a pooled sample of immigrants and second-generation natives in column 5.

The CPS collects information on most of the major cash transfer programs, as well as recipiency rates for public/subsidized housing benefits and public health insurance (Medicare and Medicaid), and school enrollment data for individuals between the ages of 16 and 24.[26] On

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[25]See Inman (1997) for a concise derivation of this result. If incomes and the local services available to natives are held constant, the utility of a representative native varies with the net local tax bill of natives, which will fall or rise depending on whether immigrants contribute more or less to local tax revenues than to local expenditures. MaCurdy, Nechyba, and Bhattacharya (1998) develop a richer intertemporal framework which recognizes that although immigrants are typically young adults when they arrive, they eventually age and have children who also contribute to the fiscal surplus.

[26]Medicare is available to people over age 65 with at least 10 years of covered earnings, and is received by about 98% of the elderly population. It is also available to non-elderly recipients of federal Disability Insurance, and to people with end-stage renal disease. Medicaid

the tax side, the Census Bureau provides estimates of the Federal and state taxes paid by individuals in the survey (net of tax credits like the EITC). I have supplemented these data with estimates of the Social Security (FICA and Medicare) payroll taxes paid by individuals and their employers.

It is worth emphasizing that the tax and transfer information in Table 9 is incomplete. The CPS does not collect information on sales or property taxes, local payroll taxes, or the taxes used to finance Unemployment Insurance and Workers' Compensation. Nor does it include information on use of certain public services (like emergency rooms in County Hospitals). Morever, CPS respondents are believed to under-report government transfers by 10-25% (Ruser, Pilot and Nelson, 2004). Finally, the estimated tax calculations in Table 9 ignore non-compliance -- a particular concern for undocumented immigrants.

With these caveats in mind, a simple comparison of the transfer and tax amounts for immigrants and natives suggests that immigrants pay about about $80 per person less than natives in annual state, federal, and Social Security taxes, but receive about $600 less in cash transfers.[27] Immigrants are also less likely to participate in Medicare or Medicaid, or to be enrolled in school. A key factor in these comparisons is the age distribution of immigrants (row

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is a means-tested program available to children, some adults, and to low-income elderly people (including many nursing home residents).

[27]Federal welfare reform legislation passed in 1996 made immigrants ineligible for many forms of government aid (including cash assistance and Medicaid) for their first five years in the country, although some states, including California, offer limited benefits to all immigrants. Undocumented immigrants are ineligible for most transfers and services, but are allowed to enroll in public elementary and secondary school in most states.

1). Only 6% of immigrants are under the age of 16, versus 23% of natives.[28] Since children are eligible for transfers and government benefits, but do not work or pay taxes, the smaller fraction of immigrant children helps create a favorable fiscal balance for immigrants relative to natives.

This comparison, however, ignores the fact that many immigrants have non-immigrant (i.e., U.S.-born) children. Arguably the fiscal costs of these children should be allocated to immigrants (see e.g., Edmonston and Lee, 1996; Auerbach and Oreopoulos, 1999; Lee and Miller, 2000; and Storesletten, 2000). While a complete analysis is beyond the scope of this paper, I formed a simple "steady state" approximation by taking an average of immigrants and second-generation natives, reweighting the second generation to have the same fraction of Hispanics as the immigrant population.[29] The characteristics of this artificial population are summarized in the final column of the Table. Note that 64.2% of the pooled sample are between 16 and 65, very close to the average for natives as a whole. Average per capita transfers of the combined immigrant/second-generation sample are $1532 ($360 less than natives as a whole) while average per capita taxes are $5005 ($1122 less than natives as a whole). Thus, once their children are taken into account, immigrants appear to impose a fiscal burden on natives.

The simple comparisons in Table 9 have two key limitations. First, since the CPS lacks information on local payroll, sales, or property taxes, they do not shed much light on local fiscal impacts. Second, they fail to account for the effects of immigrants on the incomes and program

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[28]There are also relatively fewer immigrants than natives age 65 and older (10.9% versus 12.2%).

[29]The fraction of Hispanics among second-generation natives is 39%, whereas 48% of immigrants are Hispanic. Up-weighting the fraction of Hispanics in the second generation population makes the population more representative of the children who are or will be born to the current immigrant population, as suggested by Lee and Miller (2000).

participation of pre-existing residents i.e., the "general equilibrium" effects suggested by the analyses in Tables 7 and 8.

A potentially more informative way of assessing the local fiscal impacts of immigration is to compare measures of local spending and local tax revenue in cities with higher and lower fractions of immigrants.[30] In lieu of results from such an analysis, Table 10 presents a cross-city analysis of the relationship between the fraction of immigrants in a metro area and a set of "indicators" of local fiscal pressure. The first three indicators are the fraction of the population under 16, the fraction either under 16 or over 65 (i.e., the "dependency ratio") and the fraction enrolled in elementary or secondary schools. Higher values for any of these indicators would be expected to lead to a higher local tax burden on the working-age population. The fourth indicator is per capita earnings (i.e., total wages, salaries, and self-employment income per person, including children and retirees in the denominator). Cities with higher earnings per capita can set lower local tax rates and still achieve the same level of government services per capita.[31]

The table presents models relating these indicators to the fraction of immigrants in a metro area (or the log of the fraction of immigrants).[32] Two specifications are presented: simple univariate models, and models with a control for the skill characteristics of the native workforce

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[30]This method is suggested in Edmonston and Lee (1996) but to the best of my knowledge has not been used in the literature.

[31]If local taxes are proportional to earnings, the effect of immigration on the tax side of the fiscal burden equation can be summarized by examining the impact on per capita earnings.

[32]To retain comparability with earlier tables, I measure the fraction of immigrants among 16-65 year olds. Results using the fraction of immigrants in the entire population are similar.

in different cities.[33] Although native skill levels are potentially endogenous, the analysis in Section III shows little evidence of selective native mobility responses to immigrant inflows, and the addition of this control greatly improves the predictive power of the models. OLS models fit to the 17 largest metro areas are reported in columns 1-2, OLS models fit to the 100 largest cities are shown in columns 3-4, and IV models using the fraction of immigrants in 1980 as an instrument for the immigrant presence in 2000 are presented in columns 5-6.

The univariate models give no indication that the relative size of the dependent population is larger in cities with higher immigration, but suggest a small positive effect of immigration on local school enrollment rates. In the models that controlling for the average earnings potential of the native population, however, the school enrollment effect is smaller, and in the IV specification in column 6 is very close to 0. Overall, there is not much evidence that cities with more immigrants face a higher local tax burden due to the presence of more dependents, or more children in school.

The models for the log of earnings per capita, in the bottom rows of Table 10, likewise suggest little reason for concern that a greater fraction of immigrants in a city reduces the potential tax base of the city. Indeed, controlling for the skills of the local native population, the models fit to the sample of 100 larger metro areas show a small but significantly positive effect on per capita earnings. The 0.04 coefficient from the IV model in column 6, for example, implies that moving from a low immigrant city like Philadelphia to a high-immigrant city like Los Angeles raises per capita earnings by about 7%. These results, which closely mirror the

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[33]The prediction model was used in Section IV to develop "adjusted" wages for natives in each skill group. I use the predicted log wage for all working age adults

findings for average native wages in Table 8, suggest that immigration is if anything a positive stimulus to the local tax base.

*c. Peer Effects*

A third channel through which immigrant inflows may affect natives and earlier immigrants is through "peer group" or "neighborhood" effects. There is overwhelming evidence that homeowners and renters value the characteristics of other residents in a neighborhood (e.g., Duncan and Duncan, 1957; Taeuber and Taeuber, 1965; Farley et al., 1978) and that parents value the characteristics of the other students in a school (e.g., Black, 1999). Such preferences are thought to be a primary cause of the high levels of segregation (by race, ethnicity, and income) that characterize neighborhoods and schools throughout the U.S. (e.g., Schelling, 1971; Clark, 1991; Cutler, Glaeser and Vigdor, 1999; Card, Mas, and Rothstein, 2007).

New immigrants may be perceived as an undesirable peer group for at least two reasons. First, a majority of immigrants are either non-white or Hispanic. Existing research on the attitudes and mobility patterns of white non-Hispanics in the U.S. suggests that neighborhoods and schools with a higher fraction of either group are perceived as less attractive.[34] For example, Quillian (2002), South and Crowder (1998), and Bruch and Mare (2006) show that whites are more likely to leave neighborhoods with a higher fraction of non-white residents, while Easterly (2005) and Card, Mas, and Rothstein (2007) show that Census tracts with a higher fraction of

[34]Research on "social identity" suggests that immigrant groups with a different language, or different religious and cultural practices, will be perceived as particularly threatening. See Brown (1995, 2000), Monroe, Hankin, and Van Hecken (2000), and Stets and Burke (2000).

minority (nonwhite or Hispanic) residents tend to lose white residents. Clotfelter (1979, 2001), Welch and Light (1986), and Reber (2005) present similar findings for school districts. Estimates presented by Bayer and McMillan (2005) suggest that whites in the San Francisco-Oakland-San Jose consolidated metro area are willing to pay a premium for houses in neighborhoods with lower fractions of Asians, blacks, and Hispanics.

Second, immigrants tend to have less education and lower incomes than natives, making them potentially less desirable as neighbors and as parents of the children in local schools. Bajari and Kahn (2003) and Bayer and McMillan (2005) report significant estimates of the willingness to pay for homes in neighborhoods with more college-educated householders. Bayer and McMillan (2005) also find a premium for areas with higher-income neighbors (controlling for education). A number of studies have demonstrated that parents will pay more for houses with access to public schools with higher test scores (e.g., Black 1999; Kane, Staiger and Samms, 2003). Since parental income and education are powerful predictors of student test performance (Rothstein, 2004; Card and Rothstein, 2007), these preferences mean that native families view many immigrant children as "bad" peers.

Despite these findings, it is difficult to place an overall valuation on the cost of the peer group effects posed by immigrants, since the magnitude depends on the degree of segregation between recent immigrants and natives across the neighborhoods and schools in a city. In fact, white non-Hispanics in most large U.S. cities are relatively isolated from Hispanics – the largest group of low-income and poorly-educated immigrants. For example, the dissimilarity index of segregation between white non-Hispanics and Hispanics in public elementary schools in 2002-2003 has a value of 72% in New York and Los Angeles, 70% in Chicago and Philadelphia, and between 50% and 70% for most of the other top cities listed in Table 1.[35]

One piece of evidence that points toward a significant perceived cost of increased Hispanic immigration is the existence of "tipping points" in white out-migration rates. Card, Mas, and Rothstein (2007) find that neighborhoods in most larger U.S. cities have a critical minority threshold – typically around 5-15% – beyond which white families quickly leave the neighborhood. Importantly, the tipping point is based on the sum of the number of Hispanics and non-whites in the neighborhood. This behavior suggests that the arrival of substantial numbers of non-white or Hispanic immigrants into previously low-minority neighborhoods induces substantial moving costs for the white non-Hispanic residents of those neighborhoods.

*d. Diversity and Political Economy*

A final reason why natives may prefer fewer immigrants in their local area arises through the political process. A number of recent studies have argued that ethnic, linguistic, and cultural diversity pose an obstacle to effective governance and growth.[36] At least three mechanisms have been hypothesized for this effect. First, people from different ethnic groups may have different preferences over public goods, leading to difficulty in reaching political consensus and a lack of support for spending on public goods (Alesina, Baquir, and Easterly, 1999). Second,

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[35]These data are taken from the "diversitydata.org" site maintained by the Harvard School of Public Health (http://diversitydata.sph.harvard.edu), and based on data collected by the National Center for Education Statistics. The dissimilarity index (for Hispanics relative to white non-Hispanics) is the fraction of Hispanic students who would have to be relocated to other schools to achieve a uniform ratio of Hispanics to white non-Hispanics across all area schools.

[36]These include Mauro (1995), Easterly and Levine (1997), La Porta et al (1998), and Alesina, Baquir, and Easterly (1999). Although these studies are all at the cross-country level, the results may apply at the local level.

homogeneous societies may be able to enforce "good" behaviors (such as compliance with tax laws) through social sanctions that lose their effectiveness in more diverse settings (Miguel and Gugerty, 2005). Third, for whatever reason, people from different ethnic, linguistic, or cultural groups may have trouble interacting or getting along, leading to social tensions and weak/ineffective institutions.[37] All of these mechanisms raise a potential concern about the impact of increased immigration, particularly if it is expected to lead to a rise in ethnic, linguistic, or cultural diversity that diminishes the smooth functioning of local political systems (Alesina, Glaeser, and Sacerdote, 2001).

This line of reasoning suggests that higher levels of immigration lead to lower output per capita, lower native wages, and lower property values. If anything, however, the evidence suggests the opposite: cities with more immigrants tend to have higher native wages, higher rents, and higher income per capita. Indeed, many of the most vibrant cities in the U.S. – including New York, Los Angeles, and Chicago, have high rates of ethnic and racial diversity, attributable in large part to immigration. Thus, my reading of the cross-city evidence is that the political-economy costs of diversity in the U.S. context are relatively small, and not large enough to offset the more conventional economic benefits of immigration.

## VII. Summary and Conclusions

Immigration is changing the size and composition of major cities in the United States. Cities with larger immigrant inflows have experienced faster population growth, increased racial

[37]A possible model along these lines is developed by Lazear (1999), who hypothesizes that linguistic diversity presents a barrier to "trade" between people.

and ethnic diversity, and a rise in the share of lower-skilled workers. In many respects, these changes parallel the experiences of high-immigrant cities in the late 19th and early 20th Centuries (Perlmann, 2005). And, as in the earlier wave of immigration, they have led to extensive debates about the impacts on native labor market opportunities, housing prices, local government finances, and the overall quality of urban life.

This paper presents an overview of the evidence on the magnitudes of these effects. Building on the past two decades of labor economists' research on immigration, most of this evidence is based on cross-city comparisons. The variation in the fraction of immigrants across different U.S. cities is enormous, providing a powerful research design. A key limitation is that immigrants are drawn to cities with better job prospects, potentially obscuring the negative impacts of their presence. The main solution that has been devised is to use the "pull" of city-specific enclaves to isolate a component of immigrant inflows that is unaffected by local demand conditions. This approach has been supplemented in the literature by case studies of events like the Mariel Boatlift that provided large and arguably exogenous inflows to specific cities based on external political events.

More than two decades of research on the local labor market impacts of immigration has reached a near consensus that increased immigration has a small but discernable negative effect on the *relative* wages of low-skilled native workers (i.e., the ratio of low-skilled wages to wages in the middle of the skill distribution). Less is known about the impact on the average level of native wages, but theoretical reasoning, as well as the evidence presented here (and in a few other studies, mainly at the national level) suggests a small positive effect. Overall, I conclude that native wages are a little higher, on average, but a little more unequally distributed in a high-immigrant city like Los Angeles than in a low-immigrant city like Philadelphia.

Moving beyond the labor market, economists have recently investigated the impacts of immigration on housing markets and on government expenditures and revenues. My reading of the existing housing market studies is that increased immigration leads to somewhat higher rents, with an effect that is widely diffused across the market (i.e., across units that are more or less likely to be rented by new immigrants), and about the same size as the effect on average wages. So far, studies of the fiscal impacts of immigration have not used a cross-city research design. Simple comparisons of some key indicators of local fiscal impact – including the local share of the population who are of working age, and per capita earnings – suggest that local fiscal impacts are small, although these conclusions may be refined in subsequent work. Taken together with the labor market evidence, it seems that the direct economic impacts of immigration on existing native residents of major U.S. cities are relatively small, and may well be positive.

Nevertheless, there is strong evidence that many U.S. natives prefer to live in neighborhoods and school districts with fewer minorities and more high-income/highly-educated residents. Newly arriving immigrants pose a "peer group" effect that may partially offset or even completely reverse any positive labor market impacts. One clear indicator of a reaction to this effect is the rise in measures of school segregation between white non-Hispanics and Hispanics in many large cities over the 1990s. My view is that such "peer effects" – whether driven by genuine concern about spillovers from neighbors or schoolmates, or by perceived threats to social or group identity – may well be the most important cost of increased immigration in many natives' minds.

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Appendix Table 1: Immigrant Presence and Minority Shares - Detailed Composition

| | Composition of Overall Population: | | | | Asian | Hispanic | Asian | Hispanic | Excess Minority Share Attributable |
|---|---|---|---|---|---|---|---|---|---|
| | Minority | Black | Asian | Hispanic | Imm. | Imm. | 2nd Gen. | 2nd Gen. | to Imm. & 2nd Gen |
| All US | 33.1 | 13.1 | 4.6 | 14.5 | 2.7 | 5.8 | 1.4 | 4.1 | -- |
| Outside Top Cities | 26.1 | 11.5 | 2.7 | 10.3 | 1.5 | 3.3 | 0.9 | 2.7 | -5.8 |
| All Top Cities | 45.9 | 16.1 | 7.9 | 22.3 | 5.0 | 10.4 | 2.4 | 6.8 | 10.5 |
| By City (CBSA): | | | | | | | | | |
| New York | 47.2 | 20.3 | 8.9 | 20.7 | 5.8 | 9.4 | 2.7 | 4.8 | 8.6 |
| Los Angeles | 63.7 | 8.2 | 12.9 | 42.4 | 8.2 | 20.1 | 3.7 | 16.0 | 33.9 |
| Chicago | 40.1 | 18.0 | 5.8 | 16.1 | 3.4 | 6.8 | 2.1 | 5.6 | 3.8 |
| Dallas | 45.9 | 15.2 | 5.0 | 25.1 | 3.4 | 12.4 | 1.4 | 8.0 | 11.2 |
| Philadelphia | 31.0 | 21.9 | 3.5 | 5.9 | 2.6 | 1.6 | 0.7 | 1.0 | -8.1 |
| Houston | 57.2 | 19.9 | 4.5 | 32.9 | 3.1 | 13.4 | 1.3 | 9.1 | 12.8 |
| Miami | 59.5 | 21.1 | 2.2 | 37.0 | 1.6 | 23.6 | 0.5 | 9.4 | 21.0 |
| Washington DC | 46.6 | 25.7 | 8.3 | 12.8 | 5.5 | 8.6 | 2.5 | 3.1 | 5.6 |
| Atlanta | 44.1 | 30.2 | 3.8 | 10.0 | 2.6 | 6.0 | 1.0 | 2.8 | -1.6 |
| Detroit | 30.6 | 23.5 | 3.5 | 3.2 | 2.4 | 0.9 | 0.8 | 0.9 | -9.0 |
| Boston | 20.9 | 7.3 | 7.1 | 7.8 | 4.3 | 3.4 | 2.6 | 1.8 | -2.0 |
| San Francisco | 55.4 | 8.3 | 24.2 | 22.2 | 13.7 | 10.9 | 8.4 | 6.9 | 25.9 |
| Phoenix | 40.4 | 4.9 | 3.2 | 30.8 | 1.9 | 11.8 | 1.0 | 8.6 | 9.2 |
| Riverside | 59.6 | 9.9 | 4.6 | 44.2 | 2.9 | 15.2 | 1.4 | 15.7 | 21.1 |
| Seattle | 26.5 | 6.3 | 12.0 | 5.1 | 6.9 | 1.6 | 3.3 | 1.3 | -1.0 |
| Minneapolis | 19.0 | 7.2 | 6.9 | 4.6 | 4.1 | 2.4 | 2.5 | 1.1 | -4.1 |
| San Diego | 48.8 | 8.1 | 12.3 | 27.4 | 6.6 | 12.1 | 4.1 | 10.0 | 18.7 |

Notes: Minorities include non-whites and Hispanics of any Race. Black population include mixed race individuals with some black heritage. See notes to Table 1. Data derived from 2005 and 2006 March CPS. Entry in right hand column represents sum of population shares of Asian and Hispanic immigrants and second generation individuals, deviated from corresponding total for U.S. as a whole.

Appendix Table 2: Characteristics of Workers in Four Skill Quartiles

| | Quartile 1 | Quartile 2 | Quartile 3 | Quartile 4 |
|---|---|---|---|---|
| Percent Immigrants | 18.3 | 13.3 | 9.6 | 9.6 |
| Percent Female | 58.7 | 54.4 | 48.5 | 38.3 |
| Years Completed Schooling | 11.3 | 12.3 | 13.2 | 14.5 |
| Percent Hispanic | 19.4 | 12.5 | 8.4 | 5.4 |
| Percent Living in Top 17 Cities | 32.6 | 31.2 | 30.8 | 32.9 |
| Percent Worked Last Year | 71.1 | 78.0 | 81.6 | 85.4 |
| Mean Hours Last Year (Unconditional) | 1109 | 1397 | 1559 | 1734 |
| Mean Hours Last Year (Conditional on working) | 1560 | 1791 | 1911 | 2030 |
| Mean Hourly Wage Last Year | 12.73 | 15.54 | 18.16 | 22.95 |
| Mean Log Hourly Wage Last Year | 2.26 | 2.46 | 2.62 | 2.83 |

Notes: based on tabulations of 2000 Census. Means for each quartile are weighted means, using as a weight the estimated probability a given person would earn a wage in the respective quartile (if he or she worked).

Table 1: Immigrant and Minority Presence in Top U.S. Cities

| | Population (in thousands) | Share of US Pop. (percent) | Immigrant Presence: Immigrants (percent) | Immigrant Presence: Second Gen. (percent) | Overall Minority Share (percent) |
|---|---|---|---|---|---|
| All US | 299,398 | 100.0 | 12.1 | 10.6 | 33.1 |
| Outside Top Cities | 194,311 | 64.9 | 6.8 | 7.5 | 26.1 |
| Top Cities | 105,087 | 35.1 | 26.9 | 19.8 | 45.9 |
| By City (CBSA): | | | | | |
| New York | 18,819 | 6.3 | 26.9 | 18.8 | 47.2 |
| Los Angeles | 12,950 | 4.3 | 35.0 | 24.7 | 63.7 |
| Chicago | 9,506 | 3.2 | 15.0 | 14.4 | 40.1 |
| Dallas | 6,004 | 2.0 | 17.4 | 12.0 | 45.9 |
| Philadelphia | 5,827 | 1.9 | 7.9 | 8.2 | 31.0 |
| Houston | 5,540 | 1.9 | 19.8 | 13.3 | 57.2 |
| Miami | 5,464 | 1.8 | 36.0 | 21.3 | 59.5 |
| Washington DC | 5,290 | 1.8 | 21.3 | 12.2 | 46.6 |
| Atlanta | 5,138 | 1.7 | 13.5 | 8.0 | 44.1 |
| Detroit | 4,469 | 1.5 | 8.5 | 9.3 | 30.6 |
| Boston | 4,455 | 1.5 | 15.3 | 15.7 | 20.9 |
| San Francisco | 4,180 | 1.4 | 29.9 | 22.6 | 55.4 |
| Phoenix | 4,039 | 1.3 | 16.1 | 14.0 | 40.4 |
| Riverside | 4,026 | 1.3 | 20.7 | 21.5 | 59.6 |
| Seattle | 3,263 | 1.1 | 12.4 | 10.9 | 26.5 |
| Minneapolis | 3,175 | 1.1 | 9.7 | 8.0 | 19.0 |
| San Diego | 2,941 | 1.0 | 23.8 | 20.4 | 48.8 |

Notes: population counts are Census Bureau estimates for July 1, 2006. Immigrant, second generation, and minority fractions based on tabulations of 2005 and 2006 March CPS. Second generation are native-born individuals with at least one immigrant parent. Minorities include non-whites and Hispanics of any race.

Table 2: Contributions of Immigrants to Overall Population Growth

| | Overall | Δ Natives/ Population | Δ Imms./ Population | Growth Rates: Natives | Growth Rates: Imms. |
|---|---|---|---|---|---|
| Top (17 Largest) Cities: | | | | | |
| 1980-2000 | 30.1 | 10.1 | 20.0 | 9.7 | 209.5 |
| 1980-1990 | 9.0 | 1.2 | 7.8 | 0.5 | 62.9 |
| 1990-2000 | 21.1 | 8.8 | 12.2 | 9.2 | 146.7 |
| Largest 100 MSA's | | | | | |
| 1980-2000 | 36.9 | 20.5 | 16.3 | 21.6 | 203.5 |
| 1980-1990 | 15.3 | 9.3 | 6.0 | 9.8 | 56.0 |
| 1990-2000 | 21.5 | 11.2 | 10.3 | 11.7 | 147.5 |

Notes: based on tabulations of 1980, 1990, and 2000 Censuses. Population refers to people age 16-65 only. Top cities include only the primary PMSA included in the set of counties in a CBSA. Changes from 1990 to 2000 use a 1980 base to facilitate adding up.

Table 3. Models for Contribution of Immigrants to Overall Population Growth

| | Top Cities | Largest 100 MSA's OLS | Largest 100 MSA's IV |
|---|---|---|---|
| Period of Analysis: | | | |
| 1980-2000 | 2.0 | 2.0 | 1.0 |
| | (0.5) | (0.2) | (0.3) |
| 1980-1990 | 2.0 | 2.3 | 1.5 |
| | (0.6) | (0.3) | (0.4) |
| 1990-2000 | 2.4 | 1.8 | 0.2 |
| | (0.5) | (0.2) | (0.6) |
| 1990-2000* | -- | -- | 0.9 |
| | | | (0.3) |

Notes: Standard errors in parentheses. Entry is coefficient of the growth in the number of immigrants in the city over the period of analysis (relative to initial population of the city) in a model for the overall growth rate of the population of the city. All models also include log of city population in 1980 as a control. See Table 2 for city definitions. IV models use fraction of immigrants in the city in 1980 as an instrument, except as noted. Models weighted by population in 1980.

*IV estimate uses fractions of immigrants in city in 1980 and 1990 as instruments.

Table 4: Immigrant Characteristics by Country of Birth

| | Number of Adults (16-65) | Mean Years of Education | Mean Wage (geometric) | Distribution Across Skill Quartiles: Quartile 1 | Quartile 2 | Quartile 3 | Quartile 4 |
|---|---|---|---|---|---|---|---|
| All | 23,400,000 | 11.4 | 12.00 | 38.4 | 25.9 | 18.8 | 16.9 |
| Country of Birth: | | | | | | | |
| Mexico | 7,478,180 | 8.4 | 9.09 | 53.1 | 26.2 | 13.8 | 6.9 |
| Philippines | 1,077,560 | 13.9 | 14.63 | 24.9 | 25.8 | 23.8 | 25.4 |
| Vietnam | 806,100 | 11.5 | 12.24 | 36.9 | 27.4 | 19.9 | 15.8 |
| India | 801,260 | 15.4 | 18.30 | 18.5 | 22.7 | 24.3 | 34.5 |
| El Salvador | 695,180 | 8.8 | 9.66 | 51.7 | 26.5 | 14.4 | 7.4 |
| China | 687,140 | 13.3 | 13.32 | 33.5 | 26.2 | 20.8 | 19.5 |
| Cuba | 583,400 | 12.1 | 12.43 | 37.4 | 26.8 | 19.5 | 16.2 |
| Korea | 542,120 | 13.8 | 13.69 | 31.1 | 26.7 | 21.8 | 20.4 |
| Canada | 524,880 | 14.1 | 17.03 | 16.2 | 22.1 | 24.8 | 36.9 |
| Dominican Rep. | 511,020 | 10.6 | 10.40 | 46.2 | 27.1 | 16.5 | 10.2 |
| Germany | 462,800 | 13.7 | 15.10 | 20.0 | 24.1 | 24.4 | 31.5 |
| Jamaica | 407,300 | 12.5 | 13.41 | 28.0 | 27.1 | 23.0 | 21.9 |
| Guatemala | 395,060 | 8.7 | 9.37 | 53.5 | 25.8 | 13.7 | 7.0 |
| Columbia | 391,300 | 12.4 | 11.44 | 40.8 | 27.0 | 18.5 | 13.7 |
| Haiti | 319,920 | 11.6 | 11.07 | 40.9 | 27.3 | 18.4 | 13.3 |
| Poland | 297,080 | 13.2 | 13.85 | 28.2 | 26.5 | 22.5 | 22.8 |
| England | 291,900 | 14.2 | 17.53 | 14.8 | 21.5 | 24.8 | 39.0 |
| Taiwan | 279,360 | 15.3 | 17.67 | 21.7 | 23.6 | 23.8 | 30.9 |
| Italy | 267,900 | 11.7 | 16.28 | 18.4 | 24.5 | 25.3 | 31.9 |
| Japan | 251,140 | 14.3 | 17.55 | 21.2 | 24.8 | 24.5 | 29.5 |

Notes: based on tabulations from 2000 Census. Sample includes individuals 16-65 only.

Table 5a: Contribution of Immigrants to Fraction of Bottom Skill Quartile in Local Population

| | Population Share in Quartile 1 | Gap Relative to U.S. Natives | Decomposition of Gap: | | |
|---|---|---|---|---|---|
| | | | Excess Immigrants | Immigrant Selectivity | Native Selectivity |
| All US | 27.0 | 1.7 | 1.7 | 0.0 | 0.0 |
| Outside Top Cities | 26.7 | 1.3 | 1.1 | 0.0 | 0.2 |
| | | | | | |
| By City (Primary PMSA) | | | | | |
| New York | 30.2 | 4.9 | 5.4 | -1.0 | 0.5 |
| Los Angeles | 34.2 | 8.8 | 6.1 | 1.6 | 1.1 |
| Chicago | 27.0 | 1.6 | 2.7 | 0.0 | -1.1 |
| Dallas | 28.6 | 3.2 | 2.5 | 1.5 | -0.8 |
| Philadelphia | 24.8 | -0.6 | 1.1 | -0.7 | -0.9 |
| Houston | 30.9 | 5.5 | 3.3 | 1.5 | 0.7 |
| Miami | 36.4 | 11.0 | 7.9 | 1.0 | 2.1 |
| Washington DC | 24.1 | -1.3 | 2.6 | -1.0 | -3.0 |
| Atlanta | 25.9 | 0.5 | 1.6 | 0.1 | -1.1 |
| Detroit | 25.2 | -0.1 | 1.1 | -0.7 | -0.5 |
| Boston | 22.6 | -2.8 | 2.3 | -1.2 | -3.9 |
| San Francisco | 23.5 | -1.9 | 4.7 | -2.1 | -4.5 |
| Phoenix | 28.4 | 3.0 | 2.3 | 1.4 | -0.7 |
| Riverside | 32.2 | 6.9 | 3.3 | 1.3 | 2.3 |
| Seattle | 22.5 | -2.8 | 2.1 | -1.1 | -3.8 |
| Minneapolis | 23.0 | -2.4 | 1.0 | -0.1 | -3.3 |
| San Diego | 28.3 | 3.0 | 3.5 | 0.0 | -0.5 |

Note: see text. Share in top quartile is fraction of all adults in local area predicted to earn in bottom quartile of wages.

Table 5b: Contribution of Immigrants to Fraction of Top Skill Quartile in Local Population

| | Population Share in Quartile 4 | Gap Relative to U.S. Natives | Decomposition of Gap: Excess Immigrants | Immigrant Selectivity | Native Selectivity |
|---|---|---|---|---|---|
| All US | 22.7 | -0.9 | -0.9 | 0.0 | 0.0 |
| Outside Top Cities | 22.6 | -1.0 | -0.6 | 0.0 | -0.4 |
| By City (Primary PMSA) | | | | | |
| New York | 21.4 | -2.2 | -2.7 | 0.3 | 0.3 |
| Los Angeles | 19.1 | -4.4 | -3.1 | -1.3 | 0.0 |
| Chicago | 23.8 | 0.3 | -1.4 | 0.0 | 1.6 |
| Dallas | 22.5 | -1.0 | -1.3 | -0.9 | 1.2 |
| Philadelphia | 24.6 | 1.1 | -0.5 | 0.6 | 1.0 |
| Houston | 21.0 | -2.5 | -1.7 | -0.9 | 0.1 |
| Miami | 17.0 | -6.6 | -4.0 | -1.5 | -1.1 |
| Washington DC | 27.3 | 3.8 | -1.3 | 0.8 | 4.3 |
| Atlanta | 24.0 | 0.4 | -0.8 | 0.0 | 1.2 |
| Detroit | 23.4 | -0.1 | -0.6 | 0.6 | -0.1 |
| Boston | 28.2 | 4.7 | -1.2 | 0.9 | 5.0 |
| San Francisco | 28.3 | 4.8 | -2.4 | 1.5 | 5.7 |
| Phoenix | 22.4 | -1.1 | -1.2 | -0.8 | 0.9 |
| Riverside | 18.9 | -4.6 | -1.7 | -1.0 | -1.9 |
| Seattle | 27.7 | 4.2 | -1.1 | 0.8 | 4.4 |
| Minneapolis | 26.8 | 3.2 | -0.5 | 0.1 | 3.7 |
| San Diego | 23.1 | -0.5 | -1.8 | -0.1 | 1.4 |

Note: see text. Share in top quartile is fraction of all adults in local area predicted to earn in top quartile of wages.

Table 6: Models Relating Skill Shares (and Components) to Local Fraction of Immigrants

| | Excess Fraction of Skill Group in City | Composition Effect Due to Excess Immigrants | Selectivity Effects: Immigrants | Selectivity Effects: Natives |
|---|---|---|---|---|
| Top Cities | | | | |
| Share in Quintile 1 | 0.217 | 0.131 | 0.019 | 0.068 |
| | (0.049) | | (0.020) | (0.032) |
| Share in Quintile 2 | 0.026 | 0.010 | 0.01 | 0.006 |
| | (0.014) | | (0.010) | (0.013) |
| Share in Quintile 3 | -0.104 | -0.074 | -0.003 | -0.027 |
| | (0.013) | | (0.007) | (0.008) |
| Share in Quintile 4 | -0.139 | -0.067 | -0.026 | -0.046 |
| | (0.049) | | (0.014) | (0.037) |
| 100 Larger Cities | | | | |
| Share in Quintile 1 | 0.173 | 0.131 | 0.016 | 0.026 |
| | (0.017) | | (0.007) | (0.011) |
| Share in Quintile 2 | 0.004 | 0.010 | 0.006 | -0.012 |
| | (0.004) | | (0.001) | (0.004) |
| Share in Quintile 3 | -0.095 | -0.074 | -0.003 | -0.018 |
| | (0.005) | | (0.003) | (0.003) |
| Share in Quintile 4 | -0.082 | -0.067 | -0.019 | 0.003 |
| | (0.017) | | (0.005) | (0.013) |

Notes: standard errors in parentheses. Entries are regression coefficients from a regression of variable denoted by column heading for specific skill quartile on the local fraction of immigrants

Table 7: Estimated Models for Effect of Relative Supply on Relative Wages

| | OLS Models | | IV Models | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Models for Wage of Quartile 1 Relative to Wage for Quartile 2 | | | | |
| Natives | -0.03 | 0.00 | -0.10 | -0.07 |
| | (0.02) | (0.02) | (0.02) | (0.03) |
| Immigrants | -0.06 | -0.04 | -0.11 | -0.10 |
| | (0.02) | (0.02) | (0.02) | (0.03) |
| Models for Wage of Quartile 4 Relative to Wage for Quartile 2 | | | | |
| Natives | -0.02 | -0.02 | -0.09 | -0.03 |
| | (0.01) | (0.01) | (0.04) | (0.03) |
| Immigrants | 0.01 | 0.01 | -0.13 | -0.09 |
| | (0.02) | (0.02) | (0.06) | (0.06) |
| Controls for Log City Size | no | yes | no | yes |

Notes: Standard errors in parentheses. Entries are estimated coefficients from a regression of the city-specific gap in mean log wages between the skill groups indicated on the log of the ratio of the relative fraction of the skill groups in the local population. Mean log wages are adjusted for observable characteristics of samples in each quartile in each city.

Table 8: Models for Average Native Wages Across MSA's, 2000 Census

| | Top Cities (OLS) | | 100 Larger MSA's | | | |
|---|---|---|---|---|---|---|
| | | | OLS | | IV | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Log Fraction Immigrants | 0.02 | 0.02 | 0.08 | 0.06 | 0.08 | 0.06 |
| | (0.03) | (0.02) | (0.01) | (0.01) | (0.01) | (0.01) |
| Fraction College Grads. | | 0.61 | | 0.74 | | 0.73 |
| | | (0.15) | | (0.09) | | (0.09) |
| Log Population | | 0.05 | | 0.03 | | 0.02 |
| | | (0.02) | | (0.01) | | (0.01) |
| R-squared | 0.04 | 0.65 | 0.50 | 0.73 | 0.37 | 0.72 |

Notes: standard errors in parentheses. Dependent variable is mean of regression-adjusted log wage for each city. Models in columns 1-2 fit to 17 larger cities by OLS. Models in columns 3-6 fit to sample of larger MSA's by weighted OLS (columns 3-4) or weighted IV (columns 5-6). Instrument for log fraction of immigrants is fraction of immigrants in city in 1980.

Table 9: Average Per Capita Transfers and Taxes, 2004-2005

| | All | Immigrants | Natives | Second Generation | Immigrants & Second Generation |
|---|---|---|---|---|---|
| Percent Age 16-65 | 66.5 | 83.0 | 64.2 | 43.5 | 64.2 |
| Percent Working | 52.8 | 63.1 | 51.4 | 33.6 | 48.9 |
| Mean Annual Hours | 979 | 1,211 | 947 | 595 | 915 |
| Mean Annual Earnings | 20,390 | 22,486 | 20,101 | 13,161 | 17,757 |
| Value of: | | | | | |
| Food Stamps | 53 | 38 | 55 | 51 | 47 |
| Unemploy. Insurance | 82 | 83 | 82 | 51 | 67 |
| Workers Compen. | 44 | 43 | 44 | 22 | 33 |
| Social Security | 1,512 | 970 | 1,586 | 1,820 | 1,266 |
| Supplemental Sec. | 107 | 132 | 104 | 58 | 97 |
| Welfare | 21 | 30 | 20 | 12 | 22 |
| ***Total Transfers*** | **1,820** | **1,295** | **1,892** | **2,014** | **1,532** |
| Federal Taxes | 2,617 | 2,275 | 2,664 | 1,885 | 2,007 |
| State Taxes | 708 | 688 | 711 | 471 | 564 |
| FICA Taxes | 2,203 | 2,434 | 2,171 | 1,408 | 1,920 |
| Medicare Taxes | 588 | 650 | 580 | 380 | 514 |
| ***Total Taxes*** | **6,117** | **6,047** | **6,127** | **4,145** | **5,005** |
| In Kind Benefits: | | | | | |
| Public Housing[1] (%) | 3.7 | 3.5 | 3.7 | 3.6 | 3.6 |
| Medicare (%) | 13.6 | 10.9 | 14.0 | 16.7 | 12.8 |
| Medicaid (%) | 11.3 | 10.3 | 11.5 | 16.0 | 13.7 |
| Enrolled in K-12[2] (%) | 17.7 | 8.0 | 19.0 | 27.9 | 18.0 |
| Enrolled in College[2] (%) | 3.4 | 2.5 | 3.5 | 4.0 | 3.2 |

Notes: based on tabulations of March 2005 and 2006 CPS. Federal and state taxes are imputed by Census Bureau. FICA and Medicare taxes are imputed using total reported earnings. Dollar amounts in 2005 dollars. Sample of immigrants and second generation (column 5) reweights second generation to be 48% Hispanic.

[1]Includes residents of public housing units and residents of households that receive subsidized rent.

[2]Enrollment is assumed to be 0 for those over 24 or under 6. Children age 6-15 are assumed to be enrolled in K-12.

Table 10: Models for Effect of Immigration on Fiscal Indicators, 2000 Census

| | Top Cites (OLS) | | 100 Larger MSA's | | | |
|---|---|---|---|---|---|---|
| | | | OLS | | IV | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| A. Models for Fraction of Population Under 16 | | | | | | |
| Fraction of Immigrants | 0.00 | -0.06 | 0.03 | 0.02 | 0.01 | 0.00 |
| | (0.04) | (0.03) | (0.01) | (0.01) | (0.02) | (0.01) |
| Skill Index of Natives | | -0.35 | | -0.23 | | -0.24 |
| | | (0.08) | | (0.04) | | (0.04) |
| B. Models for Fraction of Population Under 16 or Over 65 | | | | | | |
| Fraction of Immigrants | 0.00 | -0.04 | -0.01 | -0.02 | 0.00 | -0.01 |
| | (0.03) | (0.03) | (0.01) | (0.01) | (0.02) | (0.01) |
| Skill Index of Natives | | -0.31 | | -0.18 | | -0.17 |
| | | (0.07) | | (0.04) | | (0.04) |
| C. Models for Fraction of Population Enrolled in Grades K-12 | | | | | | |
| Fraction of Immigrants | 0.03 | -0.02 | 0.03 | 0.02 | 0.03 | 0.01 |
| | (0.03) | (0.02) | (0.01) | (0.01) | (0.01) | (0.01) |
| Skill Index of Natives | | -0.29 | | -0.22 | | -0.22 |
| | | (0.06) | | (0.03) | | (0.03) |
| D. Models for Log of Per Capita Earnings | | | | | | |
| Log Fraction of Immigrants | -0.11 | 0.00 | 0.05 | 0.04 | 0.00 | 0.04 |
| | (0.06) | (0.03) | (0.02) | (0.01) | (0.03) | (0.01) |
| Skill Index of Natives | | 2.93 | | 3.21 | | 3.21 |
| | | (0.33) | | (0.19) | | (0.19) |

Notes: standard errors in parentheses. Models in columns 1-2 fit to sample of 17 largest cities. Models in columns 3-6 fit to sample of 100 larger MSA's, by weighted OLS in columns 3-4 and by weighted IV, using fraction of immigrants in city in 1980 as an instrument, in columns 5-6. Skill Index of Natives is mean log predicted wage for natives age 16-65 in city.

Figure 1: Immigrant/Second Generation Contribution to Minority Share

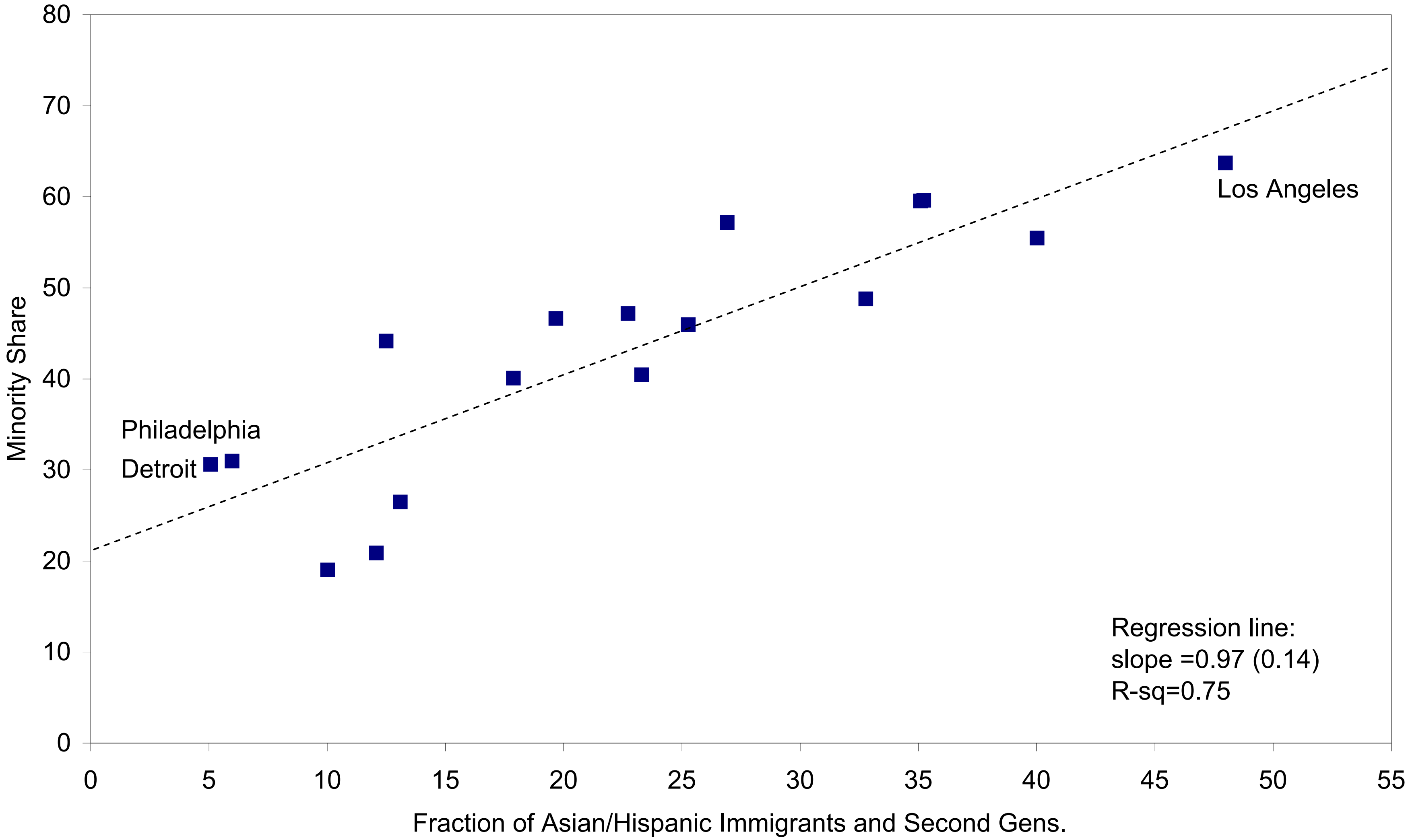

Figure 2: Immigrant Presence in 1980 and Growth of Immigrant Population

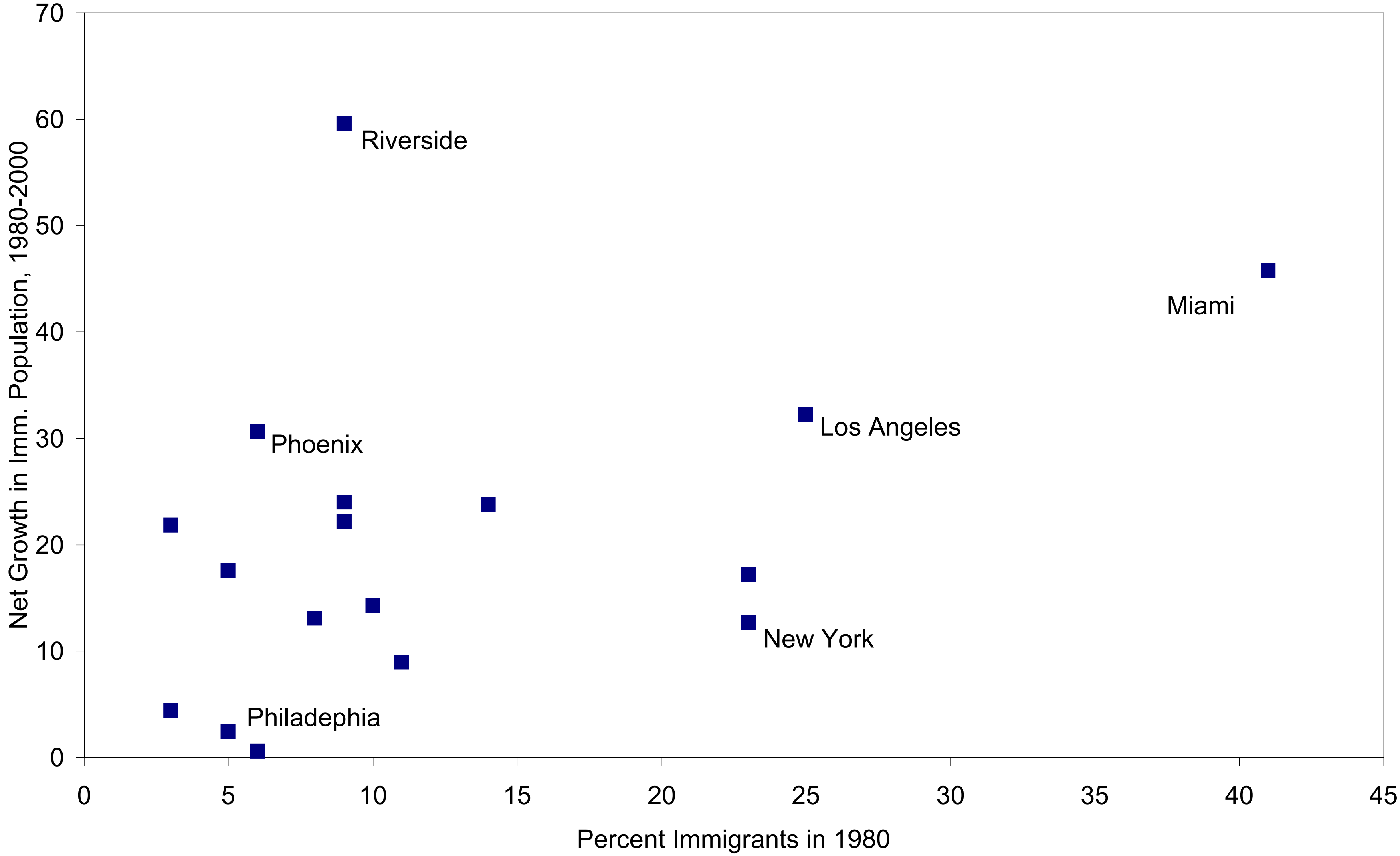

Figure 3a: Immigrant Presence and Fraction of Low Skilled in Local Population

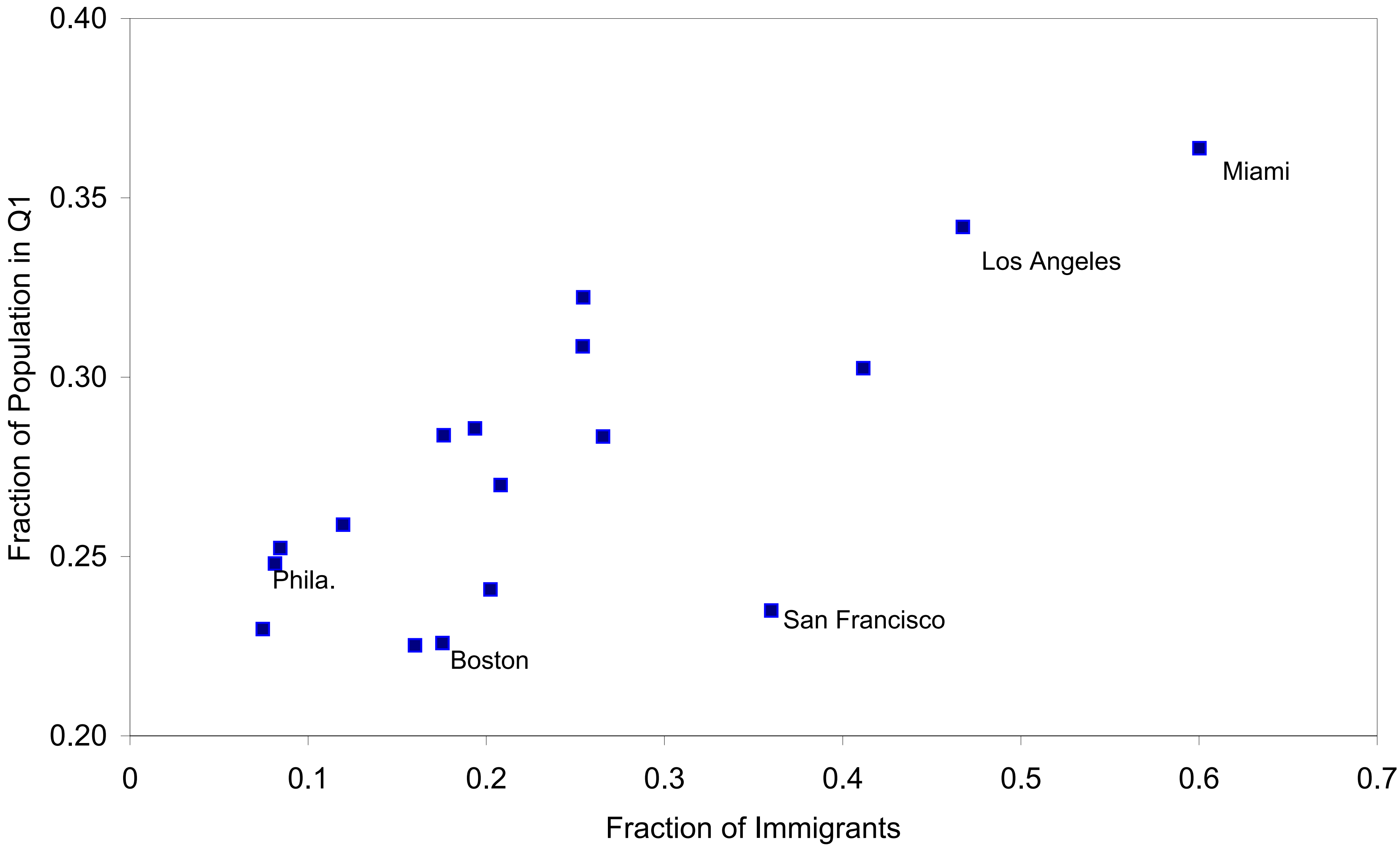

Figure 3b: Immigrant Presence and Fraction of High Skilled in Local Population

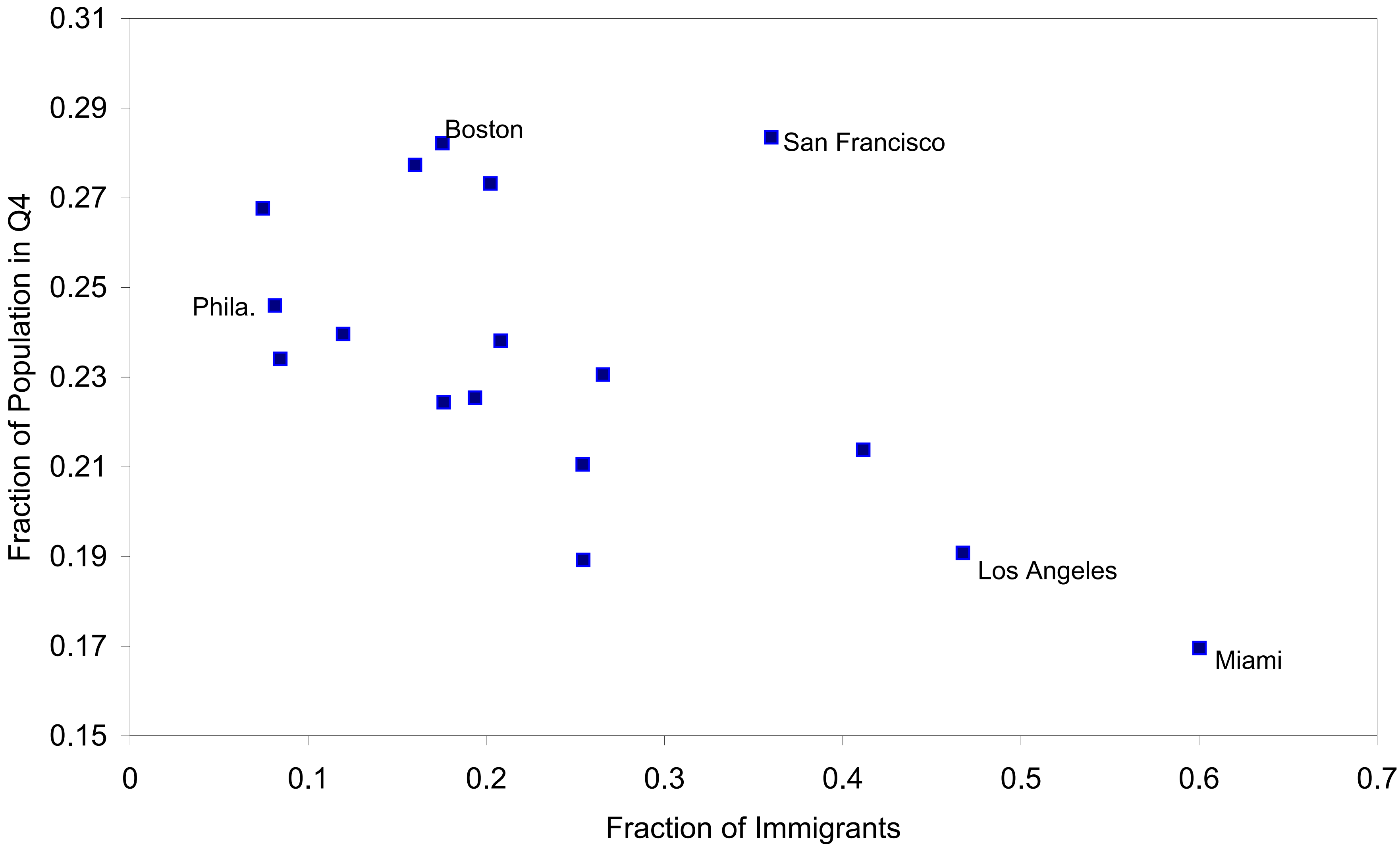

Figure 4a: Immigrant Presence and Relative Fraction of Natives in Skill Quartile 1

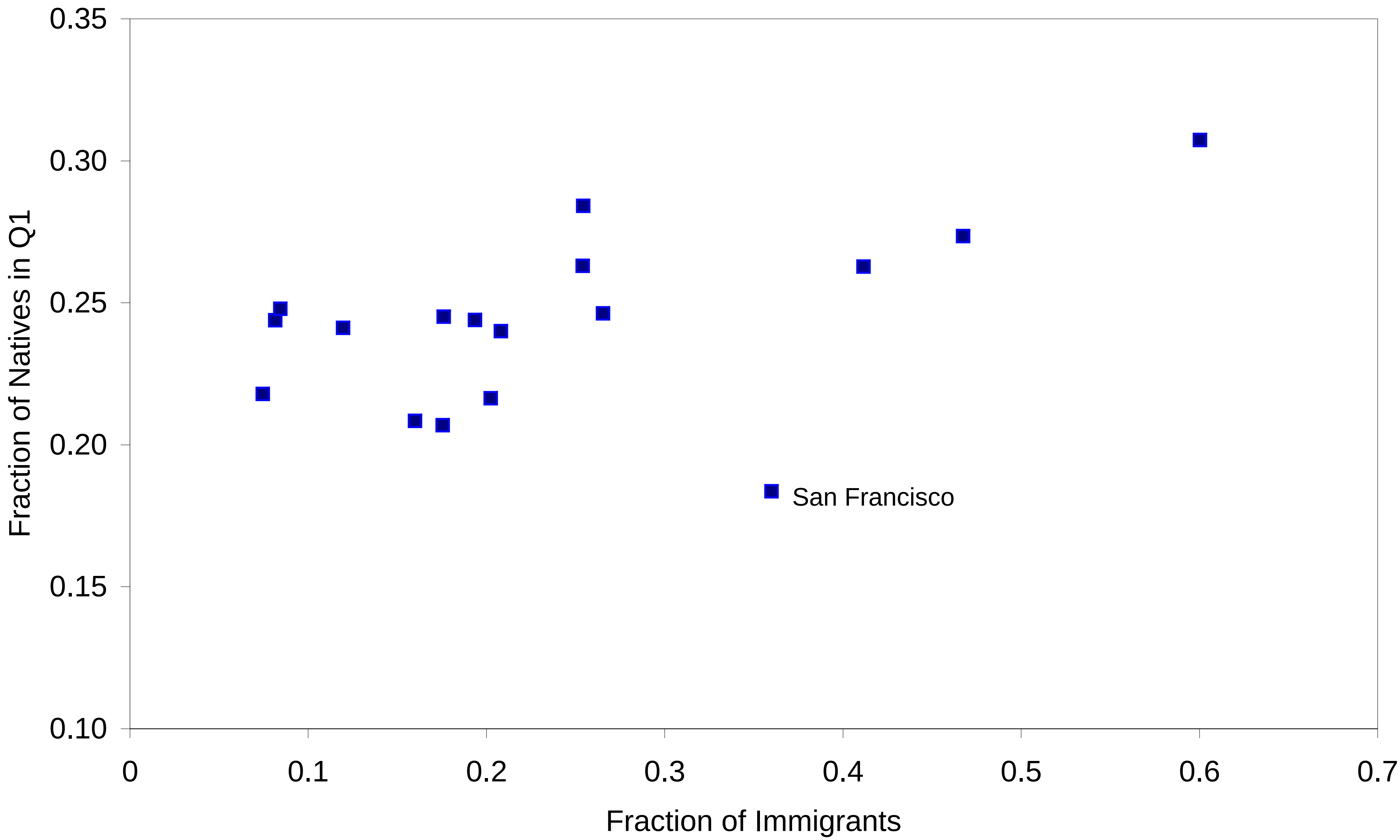

Figure 4b: Immigrant Presence and the Relative Fraction of Natives in Skill Quartile 4

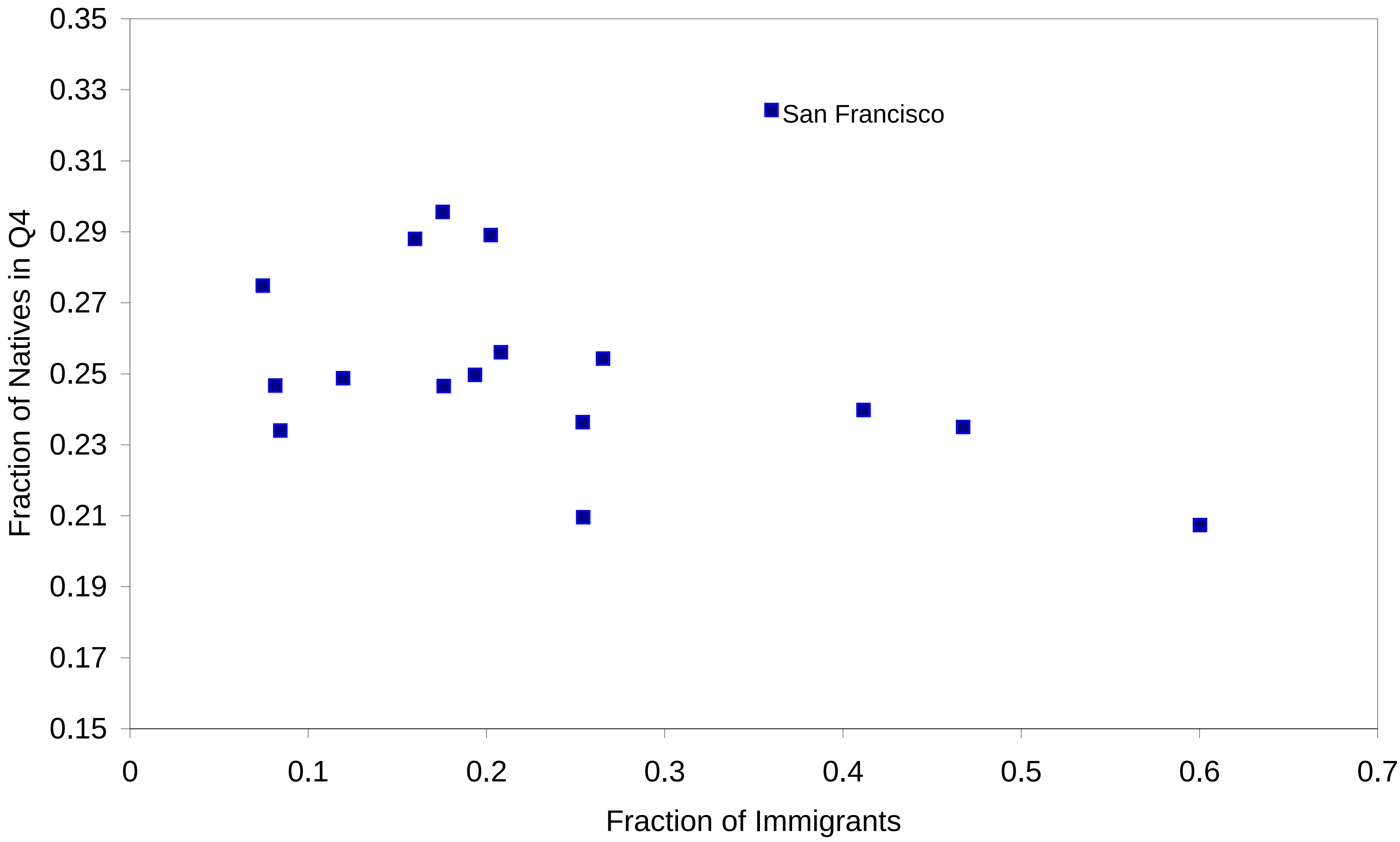

Figure 5a: Relative Supply and Relative Wages of Lowest Skill Quartile

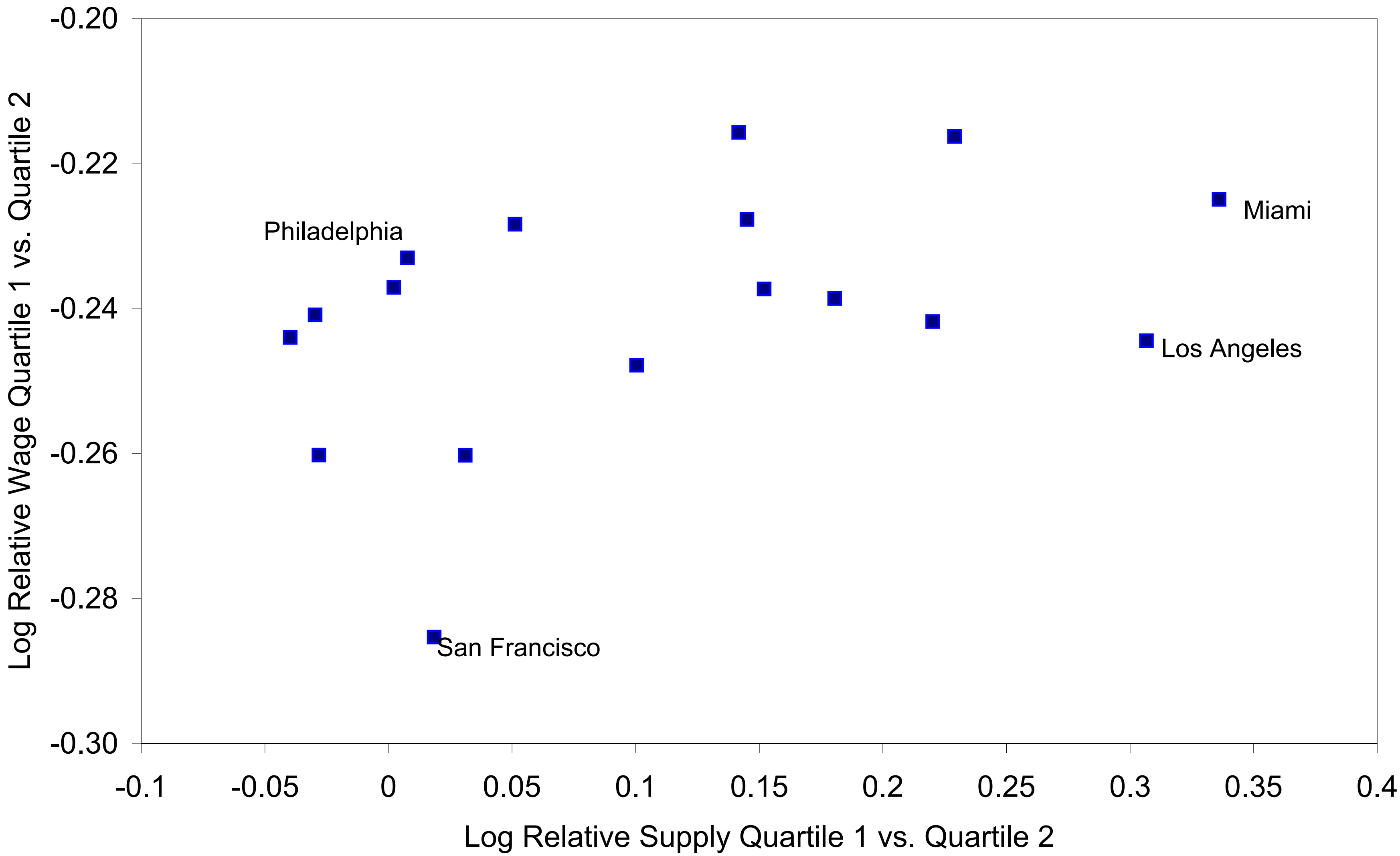

Figure 5b: Relative Supply and Relative Wages of Highest Skill Quartile

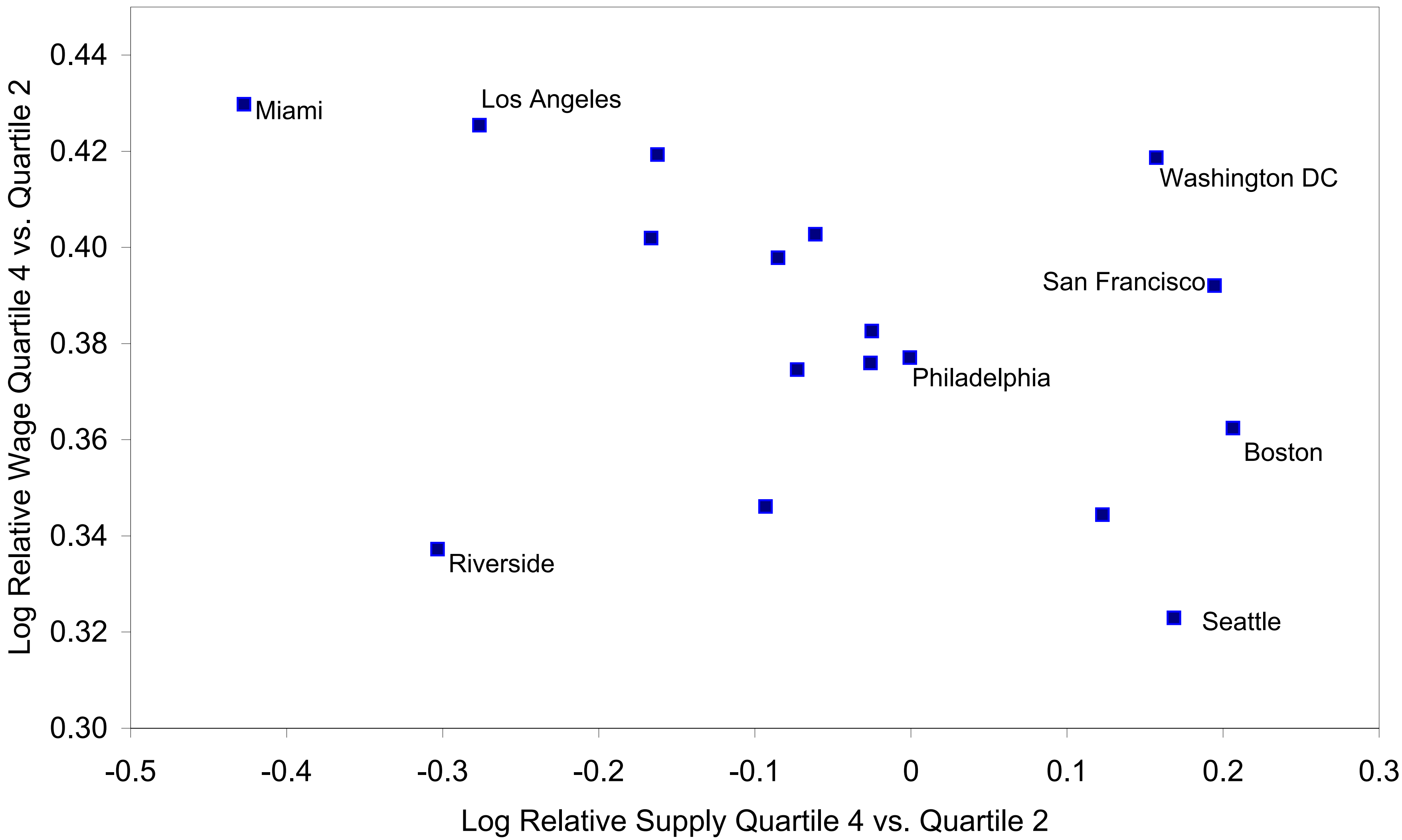

Figure 6: Immigrant Presence and Average Native Wages