The research program of the Center for Economic Studies (CES) produces a wide range of theoretical and empirical economic analyses that serve to improve the statistical programs of the U.S. Bureau of the Census. Many of these analyses take the form of CES research papers. The papers are intended to make the results of CES research available to economists and other interested parties in order to encourage discussion and obtain suggestions for revision before publication. The papers are unofficial and have not undergone the review accorded official Census Bureau publications. The opinions and conclusions expressed in the papers are those of the authors and do not necessarily represent those of the U.S. Bureau of the Census. Republication in whole or part must be cleared with the authors.

SPATIAL INFLUENCES ON THE EMPLOYMENT OF U.S. HISPANICS: SPATIAL MISMATCH, DISCRIMINATION, OR IMMIGRANT NETWORKS?

by

Judith K. Hellerstein *
University of Maryland and NBER

Melissa McInerney *
College of William and Mary

and

David Neumark *
University of California, Irvine and NBER

CES 09-03 January, 2009

All papers are screened to ensure that they do not disclose confidential information. Persons who wish to obtain a copy of the paper, submit comments about the paper, or obtain general information about the series should contact Sang V. Nguyen, Editor, Discussion Papers, Center for Economic Studies, Bureau of the Census, 4600 Silver Hill Road, 2K132F, Washington, DC 20233, (301-763-1882) or INTERNET address sang.v.nguyen@census.gov.

Abstract

Employment rates of Hispanic males in the United States are considerably lower than employment rates of whites. In the data used in this paper, the Hispanic male employment rate is 61 percent, compared with 83 percent for white men.1 The question of the employment disadvantage of Hispanic men likely has many parallels to the question of the employment disadvantage of black men, where factors including spatial mismatch, discrimination, and labor market networks have all received attention as contributing factors. However, the Hispanic disadvantage has been much less studied, and the goal of this paper is to bridge that gap. To that end, we present evidence that tries to assess which of the three factors listed above appears to contribute to the lower employment rate of Hispanic males. We focus in particular on immigrant Hispanics and Hispanics who do not speak English well.

***** This research was supported by NICHD grant R01HD042806. The research in this paper was conducted while McInerney was employed by the U.S. Census Bureau. This paper has undergone a Census Bureau review more limited in scope than that given to official Census Bureau publications. It has been screened to ensure that no confidential information is revealed. Research results and conclusions expressed are those of the authors and do not necessarily indicate concurrence by the Census.

Abstract

Employment rates of Hispanic males in the United States are considerably lower than employment rates of whites. In the data used in this paper, the Hispanic male employment rate is 61 percent, compared with 83 percent for white men.1 The question of the employment disadvantage of Hispanic men likely has many parallels to the question of the employment disadvantage of black men, where factors including spatial mismatch, discrimination, and labor market networks have all received attention as contributing factors. However, the Hispanic disadvantage has been much less studied, and the goal of this paper is to bridge that gap. To that end, we present evidence that tries to assess which of the three factors listed above appears to contribute to the lower employment rate of Hispanic males. We focus in particular on immigrant Hispanics and Hispanics who do not speak English well.

***** This research was supported by NICHD grant R01HD042806. The research in this paper was conducted while McInerney was employed by the U.S. Census Bureau. This paper has undergone a Census Bureau review more limited in scope than that given to official Census Bureau publications. It has been screened to ensure that no confidential information is revealed. Research results and conclusions expressed are those of the authors and do not necessarily indicate concurrence by the Census.

I. Introduction

Employment rates of Hispanic males in the United States are considerably lower than employment rates of whites. In the data used in this paper, the Hispanic male employment rate is 61 percent, compared with 83 percent for white men.[1] The question of the employment disadvantage of Hispanic men likely has many parallels to the question of the employment disadvantage of black men, where factors including spatial mismatch, discrimination, and labor market networks have all received attention as contributing factors. However, the Hispanic disadvantage has been much less studied, and the goal of this paper is to bridge that gap. To that end, we present evidence that tries to assess which of the three factors listed above appears to contribute to the lower employment rate of Hispanic males. We focus in particular on immigrant Hispanics and Hispanics who do not speak English well.

In addition to providing evidence for a less-studied minority group in the United States, we believe that evidence on Hispanic immigrants in the United States is more likely to be generalizable to immigrant populations in Western Europe. There appear to be more parallels between the situations of the Hispanic immigrant population in the United States and major immigrant populations in Western Europe than there are between the situations of blacks in the United States and immigrants in Europe, including: language differences in some cases, such as Turks in Germany (Hillman, 2002) and Asians in Sweden (Åslund et al., 2006); residence in ethnic enclaves (Schönwälder, 2007; Drever and Clark, 2006); continuing economic and political ties with the origin countries of the immigrants; and of course the absence of a history of slavery.[2] Naturally, though, any explicit conclusions about particular European countries and populations of interest would have to come from similar analyses of data covering those areas.

The spatial mismatch hypothesis is used primarily to try to help explain the employment gap between blacks and whites. The hypothesis argues that the lower employment rate of blacks is in part attributable to there being "fewer jobs per worker in or near black areas than white areas" (Ihlanfeldt and Sjoquist, 1998, p. 851), because of exogenous residential segregation by race attributable at least in part to

[1] The data are described in detail below; they cover urban residents in the 2000 Decennial Census of Population.
[2] For more general discussion, see, for example, Kastoryano and Harshav (2002) and Gobillon and Selod (2007).

discrimination in housing markets. Our recent research suggested, however, that spatial mismatch is not the mechanism by which residential segregation leads to poor economic outcomes for blacks (Hellerstein et al., 2008a). In particular, we find that poor employment outcomes for low-skilled blacks are not a function of a lack of jobs per se where blacks live, but rather that local blacks get these jobs only when employers are hiring other black workers—a phenomenon we termed "racial mismatch." We concluded that the effects could be due to discrimination or to networks, although we viewed the latter explanation as more likely because we found a similar relationship for whites—with whites' employment prospects boosted by higher employment of whites where they live, but not by higher employment of blacks. In subsequent research (Hellerstein et al., 2008b) we find additional evidence of network effects, in that workers employed by the same establishment are much more likely to live in the same neighborhood than would be expected to occur at random, even conditional on skill. Moreover, race plays an important role, in that networks appear to be stratified by race, which can explain why employment of blacks is boosted by high black job density where they live. Finally, in other work two of us have done, we find evidence of substantial workplace segregation by race, evidence that is also consistent with race-based labor market networks (Hellerstein and Neumark, 2008).

In this paper we ask similar questions about the determinants of Hispanic employment. To some extent we follow the analysis in Hellerstein et al. (2008a). However, we also present different kinds of evidence that more directly considers the situation of Hispanic immigrants or poor English speakers. For Hispanics overall, and in particular for these two subgroups of Hispanics, we find evidence paralleling the "racial mismatch results" for blacks; Hispanic employment is higher when Hispanic job density is higher, and this is particularly true for the subgroup of poor-English-speaking Hispanics when job density is defined for the same subgroup. In addition, we present new evidence testing—and, in our view, confirming—a network interpretation of these findings.

The implications of the alternative hypotheses are significant. If spatial mismatch is the principle reason why minority groups have lower employment rates, then their employment rates could be increased by improving minority access to areas with more jobs (at the appropriate skill level), without regard to the

racial or ethnic composition of employment in those jobs. This could be done by improved transportation—such as "Wheels to Work" and other programs to increase access of low-income workers to cars (Goldberg, 2001)—by explicit programs to move minorities away from areas with low concentrations of employment—such as "Moving to Opportunity" (Katz et al., 2001)—or by policies to encourage job growth in areas where minorities live—such as enterprise zones (Peters and Fisher, 2002). Interestingly, many evaluations of these programs suggest that they are relatively ineffective at increasing black employment. Some of these policies, such as enterprise zones, might still be helpful if discrimination is the culprit, whereas policies to redistribute minority residents or otherwise increase their access to jobs would likely not be. If networks are fundamental, however, then policies that aim to increase employment of minorities in neighborhoods further away from where they live are likely to prove ineffective and perhaps even counterproductive, by taking these individuals away from the labor market networks that provide them with information about jobs.

II. Relationship to Existing Research on Spatial Mismatch and Labor Market Networks

The classic early study of spatial mismatch was by Kain (1968), who drew three conclusions from data on Chicago and Detroit: (i) blacks were less likely to be employed in areas with lower shares of black residents (perhaps due to customer discrimination); (ii) black employment would be considerably higher if there were less racial segregation in housing; and (iii) jobs had moved from central city areas to suburban areas between 1950 and 1960, combining with segregation of blacks in central city areas to depress further black employment prospects.

Subsequent research largely follows Kain in studying spatial mismatch in the context of black employment. This research takes a number of different approaches. Some studies look at employment (or earnings) differences associated with urban (central city) residence versus suburban residence (e.g., Harrison, 1972; Vrooman and Greenfield, 1980; Price and Mills, 1985). Others try to incorporate more direct information on job access related to either travel time or the extent of nearby jobs within a metropolitan area (e.g., Ellwood, 1986; Ihlanfeldt and Sjoquist, 1990). This latter approach is more similar to what we do in our tests of spatial mismatch, although we incorporate a good deal more information on

the availability of jobs. Yet a third line of research uses across-city variation in the spatial distribution of jobs to test for spatial mismatch. This work is closer to ours in that it uses data from a large set of metropolitan areas (rather than a few). But it differs because of the level of aggregation; we simultaneously use data from metropolitan areas across the country, but do the analysis at a disaggregated level within cities. Each of these approaches, perhaps not surprising, is subject to some criticism, outlined in Hellerstein et al. (2008a). And of course all of them potentially suffer from the endogeneity of residential location.[3]

In contrast to nearly all of the existing work on spatial mismatch, in this paper we focus on Hispanics. Indeed, there are only a few previous examples of studies of spatial mismatch for Hispanics. Kain's (1992) review of the literature on spatial mismatch cites only one study of Hispanics (Farley, 1987). This is also the only study cited in Holzer's (1991) review. The more recent review of spatial mismatch by Ihlanfeldt and Sjoquist (1998), however, cites a few newer studies that present evidence that spatial mismatch also matters for employment of Hispanics (McLafferty and Preston, 1992 and 1996; Taylor and Ong, 1995; Thompson, 1997; and Blumenberg and Ong, 1998). And a recent example that considers both black and Hispanic workers is Fernandez (2008).

Our approach also differs from the existing work on spatial mismatch. Unlike the city-level analyses, we are interested in how the distribution of jobs across narrowly-defined local labor markets within cities affects employment, and hence we conduct a more disaggregated analysis, using measures of job access at a considerably more-detailed level, constructed from confidential Census information on place of work and place of residence. Because of the large sample and other features of our data, we are also able to construct job access measures by skill, which may provide a better characterization of spatial mismatch facing particular groups of individuals. Moreover, in the case of Hispanics (and in contrast to the existing,

[3] Some researchers have been willing to posit the existence of valid instruments for city-level analyses. For example, Weinberg (2004) uses as instruments the industrial composition of a city's employment, information on the housing stock, and historical black residential concentration. Cutler and Glaeser (1997) instrument for city-level racial segregation in housing with variables capturing the local structure of government and topographical features of the city. In these papers, accounting for endogeneity with instrumental variables estimation has little effect on the results. Ross (1998) also analyzes spatial mismatch at the MSA level, although he focuses on changes in jobs and residential location.

small literature), we focus especially on immigrants and poor English speakers.[4]

The more substantive departure from the previous literature, however, is that we do not only estimate the effects of job density on Hispanic employment. We also construct separate measures of job density by Hispanic/non-Hispanic ethnicity (and skill), and estimate whether Hispanic employment is more sensitive to the spatial distribution of jobs held by Hispanics (or Hispanics of the same skill group), than to job density measured without regard to ethnicity.[5] This particular test regarding the effects of job density on Hispanic employment is likely less prone to biases from endogenous residential location that may arise in research on spatial mismatch. In particular, the biases stemming from unobservable characteristics of workers are likely to bias the coefficients on ethnicity-specific job density measures similarly. Thus, there is much less concern that this source of bias generates a difference in the estimated effects of job density defined for Hispanics and non-Hispanics, which is the difference of central interest in this paper.

Evidence that it is the density of jobs held by Hispanics, in particular, that affects Hispanic employment, is not consistent with the spatial mismatch hypothesis, which emphasizes only the spatial location of jobs. What are the other possible explanations? Clearly, labor market discrimination could give rise to a finding that Hispanics tend to be employed when they live in areas where many other Hispanics hold jobs, but not when they live in areas where many non-Hispanics are employed. Like most empirical work on discrimination, we do not have a direct test for discrimination, but instead treat discrimination as a "residual" explanation to which we will appeal if other explanations cannot appear to account for our findings.

Network models of the labor market can also potentially explain our findings, and we assess new evidence on this explanation. Montgomery (1991) specifies a labor market in which firms with vacancies cannot observe the underlying ability of a potential worker, but firms can infer something about a potential

[4] These groups that overlap considerably of course. For example, in the data set studied in Hellerstein et al. (2008b), which is similar to the one we use in this paper, we find that a bit under half of the immigrant sample consists of poor English speakers, while the non-immigrant sample is nearly entirely good English speakers.

[5] The only study we have found that looks at job density by demographic group is by Ellis et al. (2007), who examine how the residential distribution of immigrant groups and the spatial distribution of employment in the industries in which immigrant groups work interact to determine, within one metropolitan area (Los Angeles), variation in the

worker's ability if (and only if) the firm currently employs individuals from that worker's social network, where social networks are at least partially stratified by ability. Hence, networks act at the establishment level to reduce employer search costs. In equilibrium, individuals are more likely to receive and accept wage offers from the firms that employ others in their social network, creating stratification across firms on the basis of social networks. In Montgomery's framework, if social networks are at least partially ethnic-based, perhaps due to residential segregation, then we would expect Hispanic employment to be higher in areas that are more dense with Hispanic employment.[6]

We take this idea one step further and implement a test for the network interpretation of the link between Hispanic job density and employment of Hispanic residents. Immigrants to the United States historically have tended to migrate to areas where previous immigrants from their home countries have settled (see, e.g., LaFortune, 2008). For Hispanic immigrants, traditional receiving areas have been metropolitan Los Angeles, South Texas, and South Florida. The persistence of the spatial distribution of immigration patterns clearly indicates the importance of immigrant enclaves in helping to secure economic stability. Strikingly, however, between 1990 and 2000, a period in which the Hispanic population of the United States doubled, Hispanics established sizable communities in cities that traditionally had small Hispanic populations, so that the Hispanic communities in these cities came to consist of new migrants to the United States and internal migrants from other parts of the country (especially Los Angeles).[7]

To provide an example, our tabulations from 1990 and 2000 Census data indicate that the Greensboro-Winston Salem-Highpoint metropolitan statistical area (MSA) had fewer than 1,000 non-U.S. born Hispanic adult males in 1990, but a decade later had over 20,000. Given the high transaction costs of migration, net migration of over 2,000 percent in a decade suggests that these new migrants had information that the returns to moving to the Greensboro area were high—or more specific information that

industries in which different immigrant groups are concentrated.

[6] Strictly speaking, we might expect Hispanic employment to be higher when more Hispanic *residents* are employed, if networks operate largely along residential lines. But network-related contacts may also flow among those employed in the same area even if they are not all co-resident.

[7] Card and Lewis (2007) study the diffusion of Mexican immigrants over the decade.

would make the returns high for them—exactly the kind of information that labor market networks might supply. Moreover, network contacts in these new communities may have been especially important in securing employment for new migrants, given that the local economies did not have long histories of Hispanic employment and given that employers in these areas did not have much experience with Hispanic workers. As a consequence, if the relationship between density of jobs for Hispanic immigrants and Hispanic employment of residents is particularly strong in the cities that experienced rapid recent growth of Hispanic immigrants, it is more likely that this relationship reflects network effects. Conversely, it is not likely that such a relationship would reflect discrimination, since we might reasonably expect more discrimination in the cities into which there has been recent and rapid migration.[8]

III. Data

We use the 2000 Sample Edited Detail File (SEDF), which contains all individual responses to the 2000 Decennial Census one-in-six Long Form, and detailed information on residential location and place of work. The SEDF includes the individual-level controls provided in the Census, allowing us to capture differences in skills and other characteristics across individuals that may affect employment. But the key feature that these data provide from the perspective of studying spatial mismatch is the ability to construct measures of job density for highly disaggregated geographic areas within MSAs using a very large sample. The job density measure on which we rely in most of our analyses is the number of jobs in the area relative to the population residing there, in the aggregate and for subsets of the population. In all cases, the density measures assigned to each Census respondent are calculated excluding that individual, to avoid a mechanical relationship between job density and an individual's employment. Job density parallels the concept of "job accessibility" that figures prominently in research on spatial mismatch, although it has been more common to measure this accessibility indirectly via commuting time.

The definition of these job density measures requires the specification of the relevant local labor market. The idea is to consider a geographic unit in which the availability of jobs has an important

[8] Indeed, Card's (1990) study of the labor market impacts of Cuban immigration resulting from the Mariel Boatlift was partially motivated by rioting of black residents that occurred in Miami following the massive influx of new

influence on residents of that geographic unit. A city (or MSA/PMSA) is likely much too large. On the other hand, single zip codes are likely too small.[9] We instead focus our attention on "zip code areas," defined by the zip code and all geographically contiguous zip codes. About a third of the employed individuals in our sample work in the "zip code area" in which they reside, compared with fewer than 15 percent working in the zip code in which they live, and over 90 percent in the same MSA/PMSA. These figures suggest that zip code areas capture a relatively compact geographic area in which many residents look for and find employment.[10]

Table 1 describes the construction of the sample of Hispanic males used in this paper. As shown in the top two rows, the full SEDF includes 42.6 million (non-institutionalized) observations, with over 2.3 million observations on Hispanic males. The following five rows indicate how many of these observations (on Hispanic men) would be excluded based on a number of criteria for exclusion from the sample; each criterion is considered separately, rather than specifying an arbitrary order for imposing them and the number of observations dropped at each step. Four of the exclusion criteria are very significant: living outside a metropolitan area, being outside the age range, current school enrollment (which is related to age), and having a work-limiting disability. Imposing all of these criteria jointly yields 865,354 observations on Hispanic men.

Subsequent rows address some particular problems that arise because we need to identify both where people live and where they work. First, a small number of observations report a zip code for either place of work or place of residence that is on the water, rather than on land. (For example, an oil rig would be a work location on the water.) These zip codes have very few residents or workers (and often only one or the other) and therefore have meaningless measures of job density, so we exclude them. There are a few

Hispanic workers into the labor market.

[9] Zip code areas contain numerous census blocks, but do not cover large areas of land. See Hellerstein et al. (2008a).

[10] Technically, the 2000 Decennial Census reports Zip Code Tabulation Areas (ZCTA's) rather than the more traditional postal zip codes, although there is a one-to-one mapping of the two definitions in most cases; we therefore simply refer to ZCTA's as zip codes. Some ZCTA's are actually disjoint sets of census blocks. In those (relatively rare) cases, we treat the disjoint sets as two separate zip codes. For each zip code, we use ArcView to map the zip codes contiguous to each zip code to form our "zip code areas." A single zip code therefore is likely to be part of multiple zip code areas in our data.

observations with unmatched information on place of work, which arises when one's place of work is in a zip code that does not get included in the file we use to create contiguous zip codes. Far more prevalent are cases where the place of work has been allocated rather than reported by the respondent, which occur about one-fourth of the time. Because we want to be sure to accurately measure place of work, and because our examination of the allocated cases suggested that allocated places of work are essentially chosen to be random places within metropolitan areas, we drop these cases. However, because the incidence of missing place of work information is non-random with respect to observable characteristics, we reweight to obtain a representative sample.[11] These weights are used in all descriptive statistics and regressions.

The final set of sample restrictions ensures that the job density measures are defined for the remaining observations. In particular, because the denominators of the density measures are the numbers of individuals with given characteristics living in the zip code area, these denominators occasionally can be zero. We drop from all of the regressions we estimate all data in zip code areas with undefined density measures, so that the various estimates can be compared across a consistent sample,[12] as well as observations with missing zip codes. The final number of SEDF observations on Hispanic men is 625,523.

IV. Empirical Approach

Test of Spatial Mismatch

The analysis of spatial mismatch uses the sample of Hispanic men in the SEDF living in MSAs. The first specification we estimate simply includes add an aggregate job density measure (*JD*) as well as a standard vector of controls, as in

(1) $E = \alpha + X\beta + \delta JD + \varepsilon$.[13]

[11] For the sample of employed workers, we estimated a linear probability model for unmatched or allocated place of work information as a function of all of the demographic controls used in the regressions described below. We then reweighted the employed observations based on the estimates from this model, weighting by the reciprocal of the predicted probability of having valid place of work data.

[12] The alternative would be to drop a different set of zip code areas depending on the density measures used in each regression. The differences in resulting sample sizes are minor.

[13] In most cases, because the data are clustered on zip code areas and the job density variables are defined at this level, we report standard errors that are robust to non-independence of observations within zip code areas, as well as heteroscedasticity. Estimated standard errors that are clustered at the MSA level are only slightly larger, and change none of the conclusions.

The spatial mismatch model implies that job density should be an important determinant of employment, predicting that δ is positive.[14] The variables in X include: age (linear and quadratic terms), marital status (a dummy variable for currently married), education (dummy variables for high school degree, some college, Associate's degree, Bachelor's degree, and advanced degree), English language proficiency (dummy variables for speaking English "not at all," "not well," "well," or "very well"), a dummy variable for immigrant status, MSA fixed effects, and residence in a central city, non-central city, or suburb. Given the sample size, equation (1) is estimated as a linear probability model.

Because the spatial mismatch model also predicts that the location of jobs is more relevant for less-skilled individuals, we augment the model to allow the effects of job density to vary with two important variables likely to be related to skill levels of Hispanics—immigrant status, and poor English-language abilities.[15] The specification therefore becomes

(2a) $$E = \alpha + X\beta + \delta_{IM}JD \cdot IM + \delta_{NI}JD \cdot (1-IM) + \varepsilon$$

or

(2b) $$E = \alpha + X\beta + \delta_{PE}JD \cdot PE + \delta_{GE}JD \cdot (1-PE) + \varepsilon,$$

where IM is a dummy variable for whether the individual is an immigrant, and PE is a dummy variable for poor English skills.

While equations (2a) and (2b) allow for different effects of overall job density depending on individuals' immigrant status or English skills, it may inaccurately capture the effects of job density on individuals in different skill groups because it uses an aggregate job density measure, rather than a measure of the density of jobs for workers with characteristics similar to those of the individual worker whose employment status we are modeling. We therefore construct job density measures for immigrants only, and for those who speak poor English only. When we construct these job density measures for narrower groups

[14] We should emphasize that our regressions are not plagued by the classic reflection problem (Manski, 1993) that would arise if we were regressing individual employment on the mean local employment rate of residents, because the numerator of the job density measures includes both residents and non-residents.

[15] We consider poor English speakers to be those whose self-reported response to the Census question on English language proficiency is either speaking English "not at all" or "not well."

of Hispanics, the restriction applies to both the numerator and the denominator; for example, the immigrant density measure is jobs held by immigrants divided by residents who are immigrants. Thus, equation (1) becomes

(3a) $E = \alpha + X\beta + \delta JD_{IM} + \varepsilon$

or

(3b) $E = \alpha + X\beta + \delta JD_{PE} + \varepsilon,$

and equations (2a) and (2b) become

(4a) $E = \alpha + X\beta + \delta_{IM} JD_{IM} \cdot IM + \delta_{NI} JD_{IM} \cdot (1 - IM) + \varepsilon$

and

(4b) $E = \alpha + X\beta + \delta_{PE} JD_{PE} \cdot PE + \delta_{GE} JD_{PE} \cdot (1 - PE) + \varepsilon,$

where the subscripts on *JD* in these four equations indicate that job density is defined just for immigrants (*IM*) or just for those who speak poor English (*PE*). The spatial mismatch hypothesis might lead us to expect to find the strongest evidence that it is the density of jobs held lower-skill immigrants or poor English speakers that affects the employment of immigrants or poor English speakers, both because for these low-skilled individuals commuting is a higher fraction of the net wage, and because these skill-specific job density measures more accurately capture jobs potentially available to them. Equations (4a) and (4b) capture these differences in both density measures and indicators of individual skills. In contrast, equations (3a) and (3b) simply capture the possibility that density measures defined for the less skilled are more significant determinants of employment at the local level.

The estimates of equations (1) through (4b) provide increasingly-detailed tests of whether the data are consistent with the spatial mismatch hypothesis. The overall results, and how they change with the specification, provide more compelling tests of the potential existence of spatial mismatch than has much of the previous literature. Of course all of this evidence for Hispanics is somewhat novel, as nearly all of the existing research on spatial mismatch in the United States focuses on blacks. Nearly none of it considers Hispanics, and none looks at the dimensions of spatial mismatch that we examine.

Incorporating Ethnic-Specific Job Densities

The specifications to this point do not distinguish job density by whether the jobs are held by Hispanics or by others. However, paralleling the evidence of "racial mismatch" that we found for blacks (Hellerstein et al., 2008a), we are interested in whether Hispanic employment is more sensitive to job density for Hispanics—in contrast to the simple spatial mismatch hypothesis. To study this question, we first go back to the simplest specification (equation (1)), but we modify it to distinguish job density by ethnicity, as in

(1') $E = \alpha + X\beta + \delta^{NH} JD^{NH} + \delta^{H} JD^{H} + \varepsilon$.

JD^{NH} is non-Hispanic jobs per Hispanic resident, and JD^{H} is Hispanic jobs per Hispanic resident. We actually use three alternative versions of these density measures: jobs held by non-Hispanics and jobs held by Hispanics, per Hispanic resident; jobs held by non-Hispanic men and jobs held by Hispanic men, per Hispanic male resident; and jobs held by white men and jobs held by Hispanic men, per Hispanic male resident. But as a short-hand the equation simply refers to Hispanic and non-Hispanic job density.[16] Because we define both densities relative to Hispanic residents, estimates of the two coefficients δ^{NH} and δ^{H} allow a comparison of the effect on Hispanic employment probabilities of an additional Hispanic job per Hispanic resident to the effect of an additional non-Hispanic job per Hispanic resident. If Hispanic job density is a more important determinant of Hispanic employment, then we should find that $\delta^{H} > \delta^{NH}$ (with the first expected to be positive). In contrast, pure spatial mismatch would predict no difference between δ^{H} and δ^{NH}.

We also estimate versions of equations (2a)-(4b) allowing for separate effects of job density by Hispanic ethnicity. As one example (the extension to the others is straightforward), equation (4b) becomes

(4b') $E = \alpha + X\beta + \delta_{PE}^{NH} JD_{PE}^{NH} \cdot PE + \delta_{PE}^{H} JD_{PE}^{H} \cdot PE$

$+ \delta_{GE}^{NH} JD_{PE}^{NH} \cdot (1-PE) + \delta_{GE}^{H} JD_{PE}^{H} \cdot (1-PE) + \varepsilon,$

[16] The tables always clarify which group we are studying, but in the text we often simply refer to Hispanics and non-Hispanics, or Hispanics and whites.

where JD_{PE}^{H}, for example, is jobs held by Hispanics who speak English poorly per poor-English-speaking Hispanic resident. Again, comparisons of the estimated δ's tell us whether the relationship between job density and employment—in equation (4b') based on language skills—is ethnicity specific.

V. Results

Descriptive Statistics

We begin with some descriptive statistics for Hispanic, non-Hispanic, and white men (a subset of non-Hispanic men), in Panel A of Table 2. The table shows that Hispanics are much more likely to live in central cities, and, naturally, are far more likely to be immigrants and to speak English poorly ("not at all" or "not well").

Next, we report on job density, in three consecutive panels. These are a bit complicated, because they vary across three dimensions. First, down the rows of each panel we report the densities constructed the three different ways noted earlier: for overall jobs per resident, male jobs per male resident, and Hispanic and white male jobs per Hispanic and white male resident. In each of these cases we report job densities for both whites and Hispanics. Second, as we move across the columns of each panel we vary the sample over which the mean densities are reported. And third, each panel uses a different sample of workers to construct the density—for example, all workers are used in constructing the statistics in Panel B but only immigrants are used in Panel C.[17]

What does the table show? In column (1) of Panel B, when we compute densities over all Hispanics and whites, we find that, for each of the density measures used, Hispanics and whites face quite similar job densities. In column (2), we vary the sample but use the same density measure, and we find that, for immigrants, job density is higher for Hispanics than for whites, but only by about .02 to .05.[18] In contrast, in column (3) we show that for those who speak poor English the pattern varies quite a bit with the

[17] To provide a few of concrete examples, then, the .72 number in the upper left-hand corner of Panel B is generated by calculating the mean over the entire Hispanic sample of the number of jobs per resident in each Hispanic individual's zip-code area. The .74 number in the upper right-hand corner of Panel B is the mean across only poor-English-speaking Hispanics of the same density measure. And the .71 number in the second row of the last column of Panel D is the mean of the number of jobs held by those who speak poor English divided by the number of residents who speak poor English, calculated over all whites who speak good English.

density measure. However, we do not regard these latter Hispanic-white comparisons as very meaningful, given the small numbers of whites who speak English poorly.

When we instead define job density only in terms of immigrants or poor English speakers, in Panels C and D, we find much sharper differences in jobs densities faced by Hispanics and whites, and in particular much lower densities faced by Hispanics. Moreover, the same holds true across the columns, when we restrict the sample over which the mean densities are computed. For immigrants, although the Hispanic-white differences are a bit smaller, the mean densities for Hispanics are similar to the full sample (Panel C, column (2) versus column (1)). In contrast, for poor English speakers the Hispanic-white differences are about the same across columns (1) and (2) of Panel D, although the mean densities are lower for poor English speakers.

Overall, these descriptive statistics imply that Hispanics, on average, live in places that are slightly less dense in jobs (Panel B, column (1)), and in particular in places in which there are fewer jobs held by immigrants or poor English speakers per immigrant or poor-English-speaking resident (Panels C and D, column (1)). Moreover, Hispanics who speak poor English are not concentrated in places dense in jobs held by poor English speakers; in fact the opposite is more the case, as they face lower job densities defined for poor English speakers (Panel D, columns (2) and (3)).

With reference to the spatial mismatch hypothesis, the figures in Panel B contradict its basic tenet—that Hispanics tend to live in areas less dense in jobs. However, this changes once we define job density by skill level, as Hispanics, who are more likely themselves to be low-skilled (in the sense of being immigrants or speaking English poorly), face lower ratios of low-skilled jobs to low-skilled residents than do whites.

Table 3 turns to evidence on ethnicity-specific job density measures. The structure of the three panels corresponds exactly to Panels B-D in Table 2 in terms of the samples and who is used to construct the density measures. However, now the densities are reported only for Hispanic men. Most important,

[18] Results were similar using all non-Hispanics, or just whites.

though, Table 3 breaks out the density measures by ethnicity, with various versions of non-Hispanic jobs per Hispanic resident and Hispanic jobs per Hispanic resident reported.

As we would expect given the small share of the Hispanic population, on average Hispanics are exposed to a much higher white or non-Hispanic job density than Hispanic job density. For example, in Panel A, the mean of overall non-Hispanic jobs per Hispanic resident is 5.18, versus a mean of Hispanic jobs per Hispanic resident of .59. The comparisons are similar for immigrants and poor English speakers. The high value of non-Hispanic or white job density for Hispanics indicates that whites often hold many jobs in areas where Hispanics live.

The much higher non-Hispanic job density does not necessarily imply, however, that there are many jobs available to all Hispanics, regardless of their skill level, in the areas in which they live, because many of the jobs may be held by non-immigrant Hispanics (about 42 percent of Hispanic men in our sample) or Hispanics who speak good English (72 percent of Hispanic men). It is of interest, then, to compare the ethnicity-specific job density measures constructed using only immigrants or only poor English speakers, which we do in Panels B and C of Table 3. The differences between non-Hispanic and Hispanic job density faced by Hispanics fall sharply, and are even reversed in some cases. This in fact is not surprising, since there are not that many immigrants or poor English speakers who are non-Hispanic or white. This is quite a bit different from the results for blacks reported in Hellerstein et al. (2008a), where we looked at job densities defined by education level, and still found that less-educated blacks live in areas where there are many more jobs held by less-educated whites than by less-educated blacks. Of course, education does less to separate blacks from whites than immigrant status and language skills do to separate Hispanics from non-Hispanics.

Regression Results

We now turn to the regression results, beginning with the simple spatial mismatch specifications in which we do not define job density based on ethnicity. We first report estimates of equations (1), (2a), (3a), and (4a), which include overall job density measures or these measures defined for immigrants, but without distinguishing the density measures by ethnicity. The top panel of Table 4 reports estimates of equation (1)

and (3a), using a single job density measure with no interactions with the individual's immigration or language status. If spatial mismatch is important, it suggests in particular that job density defined for lower skill levels—such as immigrants—should increase the probability of employment for Hispanics, who are themselves predominantly low skilled. The estimates in the top row of Table 4 are consistent with this. There is either an insignificant or at least very small effect of overall job density on Hispanic employment, as shown in each of the odd-numbered columns of the table. However, when we define job density by dividing immigrant jobs by immigrant residents only, as in the even-numbered columns, there is a much larger and statistically significant positive effect of job density.[19] The effect is not large, however. For example, the estimate of .020 in column (6) implies that a 0.1 (or 10 percentage point) increase in job density for immigrants raises the probability of employment by .002, or about 0.3 percent given the mean employment rate for Hispanic men of .61.

The bottom panel of Table 4 reports estimates of equations (2a) and (4a), where we estimate separate effects of job density for Hispanic immigrants and non-immigrants. The spatial mismatch hypothesis predicts that job density should matter more for immigrants, *and* that this should be particularly true when job density is measured for immigrants. The estimates largely confirm these expectations. In each of the even-numbered columns, where job density is defined based on immigrants, we find a positive effect of job density on employment, and this effect is always larger for immigrants (e.g., .023 versus .017 in column (6)).[20]

We next explore whether the ethnic composition of the jobs available to residents is important, as captured, for example, in equations (1') and (4b'). To begin, columns (1), (3), and (5) of the top panel of

[19] Most of our key results are strongly statistically significant, so in the ensuing discussion we often avoid continually referring to the statistical significance of the results.

[20] It is possible that because of endogenous sorting employment rates are higher in areas in which residents are more employable based on a set of unobserved person-specific characteristics, so that the relationship between job density and employment need not reflect spatial mismatch. While we obviously cannot control for all characteristics of workers, given that we are able to control for some key ones, we are more inclined to interpret the variation in job densities as reflecting some kind of spatial influences. In addition, the evidence of stronger effects of the spatial distribution of jobs for immigrants is an implication of the spatial mismatch model that does not derive nearly as naturally from the hypothesis of unobserved characteristics, given that there is no obvious reason that job density should serve as a stronger proxy for these unobservables for those with fewer skills relative to those with more skills.

Table 5 report estimates of equation (1'), where we simply use a measure of overall job density (not distinguished by immigrant status), although broken down by ethnicity.[21] The estimates in these three columns indicate very clearly that only job density for Hispanics is substantively related to the employment of Hispanics. In each case, the estimated coefficient on the Hispanic job density measure is much larger than that of the non-Hispanic job density measure, by a factor of about 20 (in columns (3) and (5)).

Next, we measure job density for immigrants. These estimates are reported in columns (2), (4), and (6). These results are even more striking. The estimated effects of non-Hispanic job density are small and insignificant, and negative in two of the three cases. In contrast to Table 4, the estimated effects of Hispanic job density—defined only for immigrants—remain about as large as the estimated effects of Hispanic job density defined for all Hispanics, perhaps because immigrant status, per se, is not a strong indicator of skill once one conditions on ethnicity.

In the bottom panel of Table 5, we present evidence on the impact of ethnicity-specific job density on the employment of Hispanic immigrants and non-immigrants separately, paralleling equation (4b'). As in the top panel, non-Hispanic job density has only a very small effect on Hispanic employment, and this is true whether or not we define the density measures for immigrants only. Once again, however, Hispanic job density has strong effects on employment. The magnitudes are similar for immigrants and non-immigrants, and, again, regardless of whether we use only immigrants to measure job density.

Tables 6 and 7 present evidence parallel to that in Tables 4 and 5, but distinguishing workers by English-language skills rather than immigrant status. As in Table 4, in Table 6 we use job density measures that do not distinguish by ethnicity. In the even-numbered columns, though, we do report results using job density defined only for poor English speakers, and we report the estimated coefficients of interactions between job density and language skills. Then, in Table 7 we also break up the job density measures by Hispanic ethnicity. This evidence can be summed up succinctly. The top panel of Table 6 shows that job

[21] Note that, relative to the job density measures in Table 4, these density measures utilize a different denominator defined only by Hispanic residents. We do this to isolate the role of job availability for Hispanic residents, rather than for all residents. As a result, the scale of the density measures in Table 5 is much larger than in Table 4 (see the summary statistics in Tables 2 and 3), which can affect the scale of the estimated regression coefficients in Table 5

density is an important determinant of Hispanic employment when it is defined for those with poor English skills, and this relationship is actually stronger than for job density defined for immigrants. In addition, this density measure is more important for those who speak English poorly, as shown in the bottom panel of Table 6. Breaking up the job density measures by ethnicity, in Table 7, it is principally Hispanic job density that matters for Hispanic employment, as shown in the top panel of the table. And finally, Hispanic job density is particularly important for the employment of Hispanics who speak English poorly, as the bottom panel of Table 7 reports. Moreover, these latter differences are considerably more pronounced than they were for immigrants versus non-immigrants in Table 5.

Interpretation: Networks?

The evidence thus far indicates that spatial mismatch alone is not a good characterization of the relationship between job density and Hispanic employment. It is true that the job density of lower-skilled groups—especially those who speak English poorly—matters more for the employment of Hispanics, and especially for the employment of less-skilled Hispanics; both of these results are implied by the usual spatial mismatch hypothesis. But in contrast to the predictions of the spatial mismatch hypothesis, and more consistent with our past finding of "racial mismatch" for blacks, we find that Hispanic employment is much more strongly tied to the density of jobs held by Hispanics (and in many specifications is unrelated to non-Hispanic job density).

The dependence of employment on own-ethnicity job density could be due to a number of factors, but one factor that we believe is likely to be important is labor market networks. Indeed, evidence that we describe in Hellerstein et al. (2008b) points quite strongly to the importance of labor market networks for Hispanics, and especially for Hispanic immigrants and Hispanics who speak English poorly. This should not be surprising. Immigrants may suffer from high search costs in the labor market, both because their limited understanding of U.S. labor markets and of English may make it hard for them to search widely in the labor market, and firm-side search frictions are likely to be important because employers may have a

relative to Table 4, irrespective of whether the effects of Hispanic job density and non-Hispanic job density differ.

difficult time inferring the ability of these workers. Finding employment through informal networks of other immigrants and those who speak one's native language may therefore be particularly important for these groups.

There is actually a fair amount of evidence consistent with this conjecture. First, survey evidence indicates that Hispanics use referrals in finding employment much more than do blacks or whites (Ioannides and Datcher Loury, 2004). There is also evidence of "enclave effects," such as the finding that Hispanics with poor English skills pay less of a penalty for those poor skills when they live in a county or MSA with a larger Hispanic population (McManus, 1990); this could reflect network effects, although it could also reflect higher productivity from a greater ability to work with Spanish speakers in the enclave.[22] Munshi (2003) presents a more-refined analysis of Mexican immigrants, tying labor market outcomes to a larger local population of immigrants from the same origin community. Patel and Vella (2007) find that new immigrants work disproportionately in occupations held by previous immigrants from the same country. And our previous work documents establishment-level segregation by English language skills, and segregation of Spanish-speaking from non-Spanish speaking poor English speakers (Hellerstein and Neumark, 2008). Finally, perhaps the most direct evidence of these types of networks for immigrants comes from the work of Massey et al. (1987), who document through both survey and case study evidence the importance of networks linking recent and earlier immigrants from the same communities in Mexico.

Our final analysis asks whether network effects likely underlie the type of evidence we have reported thus far. As argued earlier, cities in which there has been recent rapid growth of the Hispanic immigrant population are likely to be places in which networks are particularly important in securing employment. One might argue that networks will be more pervasive in areas that have long had a large Hispanic immigrant presence. No doubt, in absolute terms, there is some validity to this. But it seems likely that in Los Angeles, for example, a Mexican immigrant (perhaps with the exception of a new arrival) does not need to rely on a network to find a job. There are many, many jobs available, and Los Angeles

[22] For a similar type of evidence for Sweden, see Edin et al. (2003).

employers presumably know how to evaluate the abilities of these workers. In contrast, an employer in Greensboro who has hired only a few Hispanic immigrants may need to rely heavily on those employees to screen new Hispanic workers, and indeed to recruit them by spreading the word back in their countries of origin (or communities elsewhere in the United States) about the availability of jobs in Greensboro. We therefore report estimates for sets of these metropolitan areas, in particular, for the top 50, 30, and 10 metropolitan areas in terms of the growth of the non-native Hispanic working-age male population. These cities and their growth rates are displayed in Appendix Table A1.

In particular, we estimate the specification from column (1) of Table 7, which uses the job density measures defined for either all Hispanic or all non-Hispanic workers, including the specification in the lower panel of the table, where the effects of job density differ for those with poor English. We use the aggregate job density measure, rather than the measure defined for poor English speakers (or immigrants) alone, because we want to ask how the effect of overall Hispanic job density varies with the growth of the immigrant population, and presumably therefore with the importance of networks. We would expect the effect of Hispanic job density to be particularly pronounced for the poor English speakers for whom networks are likely to be most important, as we might expect a priori and as was suggested by the preceding evidence.

The evidence, reported in Table 8 turns out to be quite consistent with the network interpretation. Relative to the baseline estimates in column (1), which repeat the earlier estimates (Table 7, column (1)) for the full sample, in the top panel the effects of Hispanic job density are quite a bit larger for the metropolitan areas with the highest Hispanic immigrant growth—especially the narrowest set of such MSAs (the top 10). Similarly, in the bottom panel we find that the effects of Hispanic job density for those who speak poor English are much stronger in the MSAs with high Hispanic immigrant growth, again most markedly for the top 10 cities. Finally, since networks are likely most important for those with poor English skills, one might argue that the difference between the effects of Hispanic job density for those with poor and good English skills should be largest where networks are the most important. The estimates in the last column, for the 10 cities with the fastest-growing Hispanic immigrant population, are consistent with this, although the

estimates in the other columns are not.

An alternative to the network hypothesis in explaining why ethnic-specific job density matters for the employment of Hispanics is the existence of labor market discrimination, whereby Hispanic residents find jobs in larger numbers in areas where discrimination is low, as manifested in a lot of jobs being held by Hispanics. It is our sense that while the network hypothesis is consistent with the evidence in Table 8, the discrimination hypothesis is a less likely explanation, although we do not claim that this is a sharp test. It seems likely that MSAs that recently absorbed large numbers of new Hispanic immigrants relative to historic rates, especially small MSAs, are labor markets where Hispanics are likely to face more discrimination relative to MSAs with historically large Hispanic populations (such as Los Angeles).[23]

VI. Conclusions

There is little previous evidence on the importance of the location of job access for the employment prospects of Hispanics in the United States, and virtually no national evidence on the importance of very localized measures of job density. This is a particularly important issue given that Hispanic employment rates in the United States are below those of whites, and because Hispanics are the fastest-growing segment of the U.S. population.

We take advantage of confidential access to all respondents to the 2000 Decennial Census Long-Form to study the relationship between Hispanic employment and location-specific measures of the distribution of jobs, with special focus on Hispanic immigrants and Hispanics who speak English poorly. We find evidence consistent with a spatial mismatch hypothesis where local job density is skill-based. However, it turns out that it is only the density of jobs held by Hispanics that matters for Hispanic employment. We also find that measures of local job density defined for Hispanic immigrants or poor

[23] This is not entirely unambiguous. Thinking in terms of the Becker model (1971), when immigrants are a small share of the population, the marginal employer hiring Hispanics may not have strong discriminatory tastes. Or, more simply, when there are few Hispanic workers in an MSA it may only take a few non-discriminatory employers to employ most of them, and the new migrants may be residentially clustered near these employers. The dynamic we have in mind, though, is that in MSAs with established, large Hispanic immigrant communities, there are likely to be fewer discriminatory employers relative to the workforce, both because of the familiarity with immigrant workers, and because many immigrants are likely to have become employers. In this case, the marginal employer is likely to be less discriminatory in the cities with established, large Hispanic immigrant communities.

English speakers are strongly positively related to Hispanic employment for residents of those areas. Moreover, the measures of the density of jobs held by Hispanic immigrants and poor English speakers are more important for the employment of Hispanic immigrants and poor-English speaking immigrants, respectively, than for other Hispanic residents.

We have suggested that the evidence that overall job density has little effect on Hispanic employment, but ethnic-specific job density does matter, especially for immigrants and poor English speakers, is consistent with the labor market networks being an important influence on the employment of less-skilled Hispanics. To provide further evidence on whether networks are important, and, if so, to begin to understand the underlying mechanism for these results, we present results that disaggregate the effects of job density on Hispanic employment across metropolitan areas that have experienced differential rates of growth of the non-native Hispanic population over the decade of the 1990s. We find that in MSAs where the growth rates of the immigrant population have been highest, which are also MSAs with historically low Hispanic populations, localized job density for low-skilled jobs is even more important for Hispanic employment than in the full sample. We interpret these results as consistent with the importance of labor market networks, as strong labor market networks are likely to have been especially important in inducing Hispanics to migrate, and because of these networks employment in these "new immigrant" cities is then especially strongly tied to the local availability of jobs.

Finally, we return to the possible policy implications of our findings. The spatial mismatch hypothesis—whether applied to blacks and Hispanics in the United States or other ethnic or racial groups in Europe—implies that part of the solution to increasing employment of these groups involves better access to jobs, whether by moving people to jobs or by moving jobs to people. But the evidence we have presented in this paper and our other papers, for both Hispanics and blacks, suggests that labor market networks are quite important. Moreover, labor market networks may provide a better explanation of the positive relationship between the job density in a neighborhood and the employment rates of disadvantaged groups residing there—a relationship that, on the surface, might be viewed as supportive of the spatial mismatch hypothesis. The key policy implication is that if networks are important, then location-based policies—

moving disadvantaged residents to areas more dense in jobs, increasing their transportation access to those areas, or establishing incentives to create jobs in the areas where they currently live—are likely to prove less effective than would be suggested by the simple relationship between employment and job density. And policies like moving residents to other locations, which may sever network connections, may prove completely ineffective or even counterproductive.

References

Åslund, Olof, John Östh, and Yves Zenou. 2006. "How Important is Access to Jobs? Old Question – Improved Answer." IZA Discussion Paper No. 2051.

Becker, Gary S. 1971. The Economics of Discrimination, 2nd edition (Chicago: University of Chicago Press).

Blumenberg, Evelyn, and Paul Ong. 1998. "Job Accessibility and Welfare Usage: Evidence from Los Angeles." *Journal of Policy Analysis and Management*, Vol. 17, No. 4, pp. 639-57.

Card, David, 1990. "The Impact of the Mariel Boatlift on the Miami Labor Market." *Industrial and Labor Relations Review*, Vol. 43, No. 2, January, pp. 245-57.

Card, David and Ethan G. Lewis. 2007. "The Diffusion of Mexican Immigrants During the 1990s: Explanations and Impacts." In Mexican Immigration to the United States, ed. George J. Borjas (Chicago: University of Chicago Press), pp.193-227.

Cutler, David M., and Edward L. Glaeser. 1997. "Are Ghettos Good or Bad?" *Quarterly Journal of Economics*, Vol. 112, No. 3, August, pp. 827-72.

Drever, Anita I., and William A. V. Clark. 2006. "Mixed Neighborhoods, Parallel Lives? Residential Proximity and Inter-Ethnic Group Contact in German Neighborhoods." Unpublished paper, University of Tennessee.

Edin, Pers-Anders, Peter Fredriksson, and Olof Åslund. 2003. "Ethnic Enclaves and the Economic Success of Immigrants—Evidence from a Natural Experiment." *Quarterly Journal of Economics*, Vol. 118, No. 1, February, pp. 329-57.

Ellis, Mark, Richard Wright, and Virginia Parks. 2007. "Geography and the Immigrant Division of Labor." *Economic Geography*, Vol. 83, No. 3, pp. 255-82.

Ellwood, David. 1986. "The Spatial Mismatch Hypothesis: Are There Jobs Missing in the Ghetto?" In The Black Youth Employment Crisis, eds. Freeman and Holzer (Chicago: University of Chicago Press), pp. 147-85.

Farley, John. 1987. "Disproportionate Black and Hispanic Unemployment in US Metropolitan Areas." *American Journal of Economics and Sociology*, Vol. 46, No. 2, pp. 129-50.

Fernandez, Roberto M. 2008. "Race, Spatial Mismatch, and Job Accessibility: Evidence from a Plant Relocation." *Social Science Research*, Vol. 37, No. 3, pp. 953-75.

Gobillon, Laurent, and Harris Selod. 2007. "The Effects of Segregation and Spatial Mismatch on Unemployment: Evidence from France." INRA Laboratoire d'Economie Appliquee Working Paper 0702.

Goldberg, Heidi. 2001. "State and County Supported Car Ownership Programs Can Help Low-Income Families Secure and Keep Jobs." Center on Budget and Policy Priorities, November 28, available at http://www.cbpp.org/11-8-01wel.htm (as of October 28, 2005).

Harrison, Bennett. 1972. "The Intrametropolitan Distribution of Minority Economic Welfare." *Journal of Regional Science*, Vol. 12, No. 1, pp. 23-43.

Hellerstein, Judith K., and David Neumark. 2008. "Workplace Segregation in the United States: Race, Ethnicity, and Skill." *Review of Economics and Statistics*, Vol. 90, No. 3, pp. 459-77.

Hellerstein, Judith K., David Neumark, and Melissa McInerney. 2008a. "Spatial Mismatch vs. Racial Mismatch?" *Journal of Urban Economics*, Vol. 64, No. 2, pp. 467-79.

Hellerstein, Judith K., David Neumark, and Melissa McInerney. 2008b. "Measuring the Importance of Labor Market Networks." NBER Working Paper No. 14201.

Hillman, Felicitas. 2002. "A Look at the 'Hidden Side': Turkish Women in Berlin's Ethnic Labour Market." *International Journal of Urban and Regional Research*, Vol. 23, No. 2, pp. 267-82.

Holzer, Harry J. 1991. "The Spatial Mismatch Hypothesis: What Has the Evidence Shown?" *Urban Studies*, Vol. 28, No. 1, February, pp. 105-22.

Ihlanfeldt, Keith R. 1992. Job Accessibility and the Employment and School Enrollment of Teenagers (Kalamazoo, MI: W. E. Upjohn Institute for Employment Research).

Ihlanfeldt, Keith R., and David Sjoquist. 1990. "Job Accessibility and Racial Differences in Youth Employment Rates." *American Economic Review*, Vol. 80, No. 1, pp. 267-76.

Ihlanfeldt, Keith R., and David Sjoquist. 1998. "The Spatial Mismatch Hypothesis: A Review of Recent Studies and Their Implications for Welfare Reform." *Housing Policy Debate*, Vol. 8, No. 4, pp. 849-92.

Ioannides, Yannis M., and Linda Datcher Loury. 2004. "Job Information, Networks, Neighborhood Effects, and Inequality." *Journal of Economic Literature*, Vol. 42, No. 4, pp. 1056-93.

Kain, John. 1992. "The Spatial Mismatch Hypothesis: Three Decades Later." *Housing Policy Debate*, Vol. 3, No. 2, pp. 371-92.

Kain, John. 1968. "Housing Segregation, Negro Employment, and Metropolitan Decentralization." *Quarterly Journal of Economics*, Vol. 82, No. 2, pp. 175-97.

Kastoryano, Riva, and Barbara Harshav. 2002. Negotiating Identities (Princeton, NJ: Princeton University Press).

Katz, Lawrence F., Jeffrey R. Kling, and Jeffrey B. Liebman. 2001. "Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment." *Quarterly Journal of Economics*, Vol. 116, No. 2, pp. 607-54.

LaFortune, Jeanne. 2008. "Making Yourself Attractive: Pre-Marital Investments and the Returns to Education in the Marriage Market." Unpublished paper, University of Maryland.

Manski, Charles. 1993. "Identification of Endogenous Social Effects: The Reflection Problem." *Review of Economic Studies*, Vol. 60, No. 3, pp. 531-42.

Massey, Douglas, Rafael Alarcón, Jorge Durand, and Humberto González. 1987. Return to Aztlan: The Social Process of International Migration from Western Mexico (Berkeley, CA: UC Berkeley Press).

McLafferty, Sara, and Valerie Preston. 1996. "Spatial Mismatch and Employment in a Decade of Restructuring." *Professional Geographer*, Vol. 48, No. 4, pp. 417-67.

McLafferty, Sara, and Valerie Preston. 1992. “Spatial Mismatch and Labor Market Segmentation for African American and Latina Women.” *Economic Geography*, Vol. 68, No. 4, pp. 406-31.

McManus, Walter S. 1990. “Labor Market Effects of Language Enclaves: Hispanic Men in the United States.” *Journal of Human Resources*, Vol. 25, No. 2, pp. 228-52.

Montgomery, James D. 1991. “Social Networks and Labor-Market Outcomes: Toward an Economic Analysis.” *American Economic Review*, Vol. 81, No. 5, pp. 1408-18.

Munshi, Kaivan. 2003. “Networks in the Modern Economy: Mexican Migrants in the U.S. Labor Market.” *Quarterly Journal of Economics*, Vol. 118, No. 2, pp. 549-99.

Patel, Krishna, and Francis Vella. 2007. “Immigrant Networks and Their Implication for Occupational Choices and Wages.” IZA Working Paper No. 3217.

Peters, Alan H., and Peter S. Fisher. 2002. State Enterprise Zone Programs: Have They Worked? (Kalamazoo, MI: W. E. Upjohn Institute for Employment Research).

Price, Richard, and Edwin Mills. 1985. “Race and Residence in Earnings Determination.” *Journal of Urban Economics*, Vol. 17, No. 1, pp. 1-18.

Ross, Stephen L. 1998. “Racial Differences in Residential and Job Mobility: Evidence Concerning the Spatial Mismatch Hypothesis.” *Journal of Urban Economics*, Vol. 43, No. 1, pp. 112-35.

Schönwälder, Karen, ed. 2007. “Residential Segregation and the Integration of Immigrants: Britain, the Netherlands and Sweden.” WZB Discussion Paper No. SP IV 2007-602.

Taylor, D. Brian, and Paul M. Ong. 1995. “Spatial Mismatch or Automobile Mismatch? An Examination of Race, Residence and Commuting in U.S. Metropolitan Areas.” *Urban Studies*, Vol. 32, No. 9, pp. 1453-73.

Thompson, Mark A. 1997. “The Impact of Spatial Mismatch on Female Labor Force Participation.” *Economic Development Quarterly*, Vol. 11, No. 2, pp. 138-45.

Vrooman, John, and Stuart Greenfield. 1980. “Are Blacks Making It in the Suburbs? Some New Evidence on Intrametropolitan Spatial Segmentation.” *Journal of Urban Economics*, Vol. 7, No. 2, pp. 155-67.

Weinberg, Bruce. 2004. “Testing the Spatial Mismatch Hypothesis Using Inter-City Variations in Industrial Composition.” *Regional Science and Urban Economics*, Vol. 34, No. 5, pp. 505-32.

Table 1: SEDF Sample

	(1)	(2)
	Total	Hispanic males
Full SEDF (not institutionalized)	42,583,178	...
Restrict to men	20,713,501	2,329,920
Exclusion criteria (total cases):		
Not in CMSA/MSA	...	285,876
Not in age range 16-64	...	862,899
In military	...	6,872
Enrolled in school	...	907,490
Work limiting disability	...	300,266
SEDF observations retained	…	**865,354**
Live in water zip	…	4,484
Work in water zip	…	2,783
Observations with unmatched or allocated place of work location	...	227,266
Total observations remaining for calculation of densities	…	631,027
Observations dropped because of missing densities, insufficient population size, or missing zip code	...	5,504
Final sample	…	**625,523**

SEDF: Sample Edited Detail File of all Long-Form Census respondents. The exclusion criteria are not mutually exclusive, so many observations show up in multiple rows.

Table 2: Comparisons of Individual Characteristics and Overall Job Density Measures by Ethnicity

	(1)	(2)	(3)
A. Individual characteristics (means):	Hispanic men	Non-Hispanic	White men
Employment	.61	.79	.83
Individual characteristics:			
Central city	.50	.23	.29
Immigrant	.58	.10	.05
Speak English not at all	.098	.002	.001
Speak English not well	.182	.014	.007
Speak English well	.190	.025	.012
Speak English very well	.531	.960	.981
		Sample	
B. Job density constructed using all jobs and all residents	*All*	*Immigrants*	*Poor English*
Jobs/residents			
Hispanics	.72 (.41)	.72 (.41)	.74 (.41)
Whites	.75 (.41)	.67 (.39)	.71 (.57)
Male jobs/male resident			
Hispanics	.81 (.46)	.83 (.45)	.84 (.46)
Whites	.82 (.46)	.81 (.47)	.94 (.87)
Hispanic and white male jobs/Hispanic and white male			
Hispanics	.85 (.53)	.86 (.52)	.88 (.54)
Whites	.85 (.54)	.82 (.47)	1.01 (1.08)
C. Job density constructed using immigrants	*All*	*Immigrants*	*Non-Immigrants*
Jobs/residents			
Hispanics	.58 (.33)	.57 (.31)	.59 (.35)
Whites	.80 (.53)	.71 (.55)	.72 (.79)
Male jobs/male resident			
Hispanics	.70 (.38)	.68 (.36)	.71 (.41)
Whites	.89 (.60)	.83 (.63)	.97 (1.16)
Hispanic and white male jobs/Hispanic and white male			
Hispanics	.69 (.39)	.67 (.36)	.72 (.42)
Whites	.92 (.64)	.84 (.58)	1.08 (1.46)
D. Job density constructed using poor English speakers	*All*	*Poor English*	*Good English*
Jobs/residents			
Hispanics	.50 (.39)	.47 (.28)	.51 (.42)
Whites	.75 (.40)	.67 (.38)	.71 (.56)
Male jobs/male resident			
Hispanics	.67 (.56)	.61 (.39)	.69 (.61)
Whites	.82 (.45)	.80 (.46)	.93 (.85)
Hispanic and white male jobs/Hispanic and white male			
Hispanics	.69 (.68)	.62 (.44)	.72 (.75)
Whites	.84 (.53)	.82 (.46)	1.01 (1.06)

Standard deviations (SD) of continuous variables are reported in parentheses in Panels B through D. All estimates are weighted to account for differences in the probability of having valid place of work data. "Poor English" refers to the bottom two categories, and "Good English" to the other two.

Table 3: Ethnicity-Specific Job Density Measures for Hispanic Men

	(1)	(2)	(3)
		Sample	
	All	*Immigrants*	*Poor English*
A. Job density measures constructed for all			
Non-Hispanic jobs/Hispanic residents	5.18 (11.86)	4.68 (10.83)	4.45 (9.86)
Non-Hispanic male jobs/Hispanic male residents	5.32 (12.16)	4.73 (10.78)	4.45 (9.54)
White male jobs/Hispanic male residents	4.54 (10.78)	3.98 (9.42)	3.75 (8.30)
Hispanic jobs/Hispanic residents	.59 (.40)	.58 (.38)	.56 (.32)
Hispanic male jobs/Hispanic male residents	.69 (.47)	.68 (.44)	.66 (.37)
B. Job density measures constructed using immigrants			
Non-Hispanic jobs/Hispanic residents	.94 (2.35)	.75 (1.77)	.69 (1.48)
Non-Hispanic male jobs/Hispanic male residents	.99 (2.79)	.79 (2.17)	.72 (1.67)
White male jobs/Hispanic male residents	.46 (1.50)	.35 (1.12)	.32 (.94)
Hispanic jobs/Hispanic residents	.57 (.46)	.55 (.41)	.53 (.33)
Hispanic male jobs/Hispanic male residents	.71 (.63)	.68 (.55)	.65 (.42)
C. Job density measures constructed using poor English speakers			
Non-Hispanic jobs/Hispanic residents	.35 (2.12)	.26 (1.25)	.20 (.73)
Non-Hispanic male jobs/Hispanic male residents	.39 (2.45)	.28 (1.48)	.21 (.90)
White male jobs/Hispanic male residents	.15 (.79)	.11 (.58)	.09 (.36)
Hispanic jobs/Hispanic residents	.55 (.73)	.51 (.60)	.48 (.40)
Hispanic male jobs/Hispanic male residents	.75 (1.27)	.69 (1.05)	.63 (.66)
N	625,523	360,453	175,019

There are 625,523 observations. Standard deviations (SD) of continuous variables are reported in parentheses . All estimates are weighted to account for differences in the probability of having valid place of work data.

Table 4: Employment Regressions for Hispanic Men, Alternative Aggregate Density Measures, With and Without Immigrant Status Interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Job density measure:	Jobs/resident		Male jobs/male resident		Hispanic or white male jobs/Hispanic or white male resident	
Job density defined for:	All	Immigrant	All	Immigrant	All	Immigrant
Job density	.002	.020**	-.002	.017**	-.007**	.020**
	(.004)	(.004)	(.004)	(.004)	(.003)	(.005)
R^2	.057	.058	.057	.058	.057	.058
Jobs/resident × immigrant	.004	.024**	.001	.020**	-.003	.023**
	(.004)	(.005)	(.004)	(.005)	(.004)	(.006)
Jobs/resident × non-immigrant	-.002	.016**	-.006	.014**	-.012**	.017**
	(.005)	(.004)	(.005)	(.004)	(.004)	(.006)
R^2	.057	.058	.057	.058	.057	.058

There are 625,523 observations on Hispanics. Regression estimates are from linear probability models, with standard errors in parentheses. All specifications include controls for age (linear and quadratic terms), marital status (a dummy variable for currently married), highest education (six categories including less than high school, high school degree, some college, Associate's degree, Bachelor's degree, and advanced degree), four controls for English proficiency, residence in the central city, non-central city, and suburban residence, a dummy variable for immigrant status, and MSA fixed effects. All estimates are weighted to account for differences in the probability of having valid place of work data. All standard errors are robust to non-independence of observations within zip code areas heteroscedasticity. ** indicates statistical significance at the 5-percent level, and * at the 10-percent level. See also notes to Table 2.

Table 5: Employment Regressions for Hispanic Men, Alternative Ethnicity-Specific Density Measures, With and Without Immigrant Status Interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Job density measure:	Non-Hispanic jobs or Hispanic jobs/Hispanic resident		Male non-Hispanic jobs or Hispanic jobs/Hispanic male resident		Male white jobs or male Hispanic jobs/Hispanic male resident	
Job density defined for:	All	Immigrant	All	Immigrant	All	Immigrant
Non-Hispanic or white job density	.002**	-.0001	.001**	-.001	.001**	.001
	(.0003)	(.0013)	(.0002)	(.001)	(.0003)	(.001)
Hispanic job density	.022**	.028**	.020**	.020**	.019**	.017**
	(.006)	(.005)	(.005)	(.003)	(.005)	(.004)
R^2	.058	.058	.058	.058	.058	.058
Non-Hispanic jobs/ Hispanic resident × immigrant	.001**	.001	.001**	.0004	.001**	.002
	(.0003)	(.001)	(.0003)	(.0010)	(.0003)	(.002)
Hispanic jobs/ Hispanic resident × immigrant	.018**	.024**	.016**	.017**	.015**	.016**
	(.006)	(.008)	(.005)	(.005)	(.005)	(.005)
Non-Hispanic jobs/ Hispanic resident × non-immigrant	.001**	-.001	.001**	-.001	.001**	.0001
	(.000)	(.002)	(.0002)	(.001)	(.0003)	(.0013)
Hispanic jobs/ Hispanic resident × non-immigrant	.028**	.030**	.024**	.021**	.023**	.018**
	(.007)	(.005)	(.006)	(.003)	(.006)	(.004)
R^2	.058	.058	.058	.058	.058	.058

See notes to Tables 2 and 4.

Table 6: Employment Regressions for Hispanic Men, Alternative Aggregate Density Measures, With and Without English Proficiency Interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Job density measure:	Jobs/resident		Male jobs/male resident		Hispanic or white male jobs/Hispanic or white male resident	
Job density defined for:	All	Poor English	All	Poor English	All	Poor English
Job density	.002	.036**	-.002	.024**	-.007**	.018**
	(.004)	(.008)	(.004)	(.005)	(.003)	(.004)
R^2	.057	.058	.057	.058	.057	.058
Jobs/resident × poor English	.010*	.061**	.007	.038**	-.0002	.030**
	(.005)	(.011)	(.005)	(.007)	(.004)	(.006)
Jobs/resident × good English	-.002	.031**	-.006	.021**	-.010**	.017**
	(.004)	(.007)	(.004)	(.004)	(.004)	(.004)
R^2	.057	.058	.057	.058	.057	.058

See notes to Tables 2 and 4.

Table 7: Employment Regressions for Hispanic Men, Alternative Ethnicity-Specific Density Measures, With and Without English Proficiency Interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Job density measure:	Non-Hispanic jobs or Hispanic jobs/Hispanic resident		Male non-Hispanic jobs or Hispanic jobs/Hispanic male resident		Male white jobs or male Hispanic jobs/Hispanic male resident	
Job density defined for:	All	Poor English	All	Poor English	All	Poor English
Non-Hispanic or white job density	.001** (.0003)	.0003 (.0007)	.001** (.0002)	.001** (.0004)	.001** (.0003)	.003** (.002)
Hispanic job density	.022** (.006)	.016** (.003)	.020** (.005)	.007** (.001)	.018** (.005)	.007** (.001)
R^2	.058	.058	.058	.058	.058	.058
Non-Hispanic jobs/ Hispanic resident × poor English	.001** (.0003)	-.004 (.004)	.0008** (.0003)	-.001 (.002)	.001** (.0004)	-.006 (.005)
Hispanic jobs/ Hispanic resident × poor English	.028** (.008)	.040** (.006)	.026** (.007)	.016** (.004)	.024** (.007)	.016** (.004)
Non-Hispanic jobs/ Hispanic resident × good English	.001** (.0003)	.001 (.001)	.0005** (.0002)	.001** (.0005)	.001** (.0003)	.004** (.002)
Hispanic jobs/ Hispanic resident × good English	.021** (.006)	.013** (.002)	.018** (.005)	.006** (.001)	.017** (.004)	.005** (.001)
R^2	.058	.058	.058	.058	.058	.058

See notes to Tables 2 and 4.

Table 8: Employment Regressions for Hispanic Men, Ethnicity-Specific Job Density Measures, With and Without English Proficiency Interactions, Cities with High Growth Rates of Non-U.S. Born Hispanics (1990-2000)

	(1)	(2)	(3)	(4)
Growth rate of non-U.S. born Hispanics in MSA/PMSA:	All	Top 50	Top 30	Top 10
Non-Hispanic job density	.001**	-.0001	-.0002	-.001
	(.0003)	(.0003)	(.0002)	(.0008)
Hispanic job density	.022**	.040**	.037**	.088**
	(.006)	(.009)	(.012)	(.028)
R^2	.058	.045	.044	.033
Non-Hispanic jobs/ Hispanic resident × poor English	.001**	.0003	-.00003	-.001
	(.0003)	(.0003)	(.0004)	(.001)
Hispanic jobs/ Hispanic resident × poor English	.028**	.043**	.049**	.131**
	(.008)	(.011)	(.024)	(.032)
Non-Hispanic jobs/ Hispanic resident × good English	.001**	-.0002	-.003	-.001
	(.0003)	(.0003)	(.002)	(.001)
Hispanic jobs/ Hispanic resident × good English	.021**	.040**	.034**	.076**
	(.006)	(.009)	(.010)	(.029)
R^2	.058	.045	.044	.033
N	625,523	179,880	71,228	15,794

See notes to Tables 2 and 4. The specification corresponds to column (1), Table 7.

Appendix Table A1: Top 50 Metropolitan Areas by Percentage Growth in Non-U.S. Born Hispanic Males, 1990 to 2000

	Metropolitan area	1990	2000	% Change		Metropolitan area	1990	2000	% Change
1	Boise City, ID	80	6,404	7905.0%	26	Providence-Fall River-Pawtucket, MA/RI	5,772	21,014	264.1%
2	Nashville, TN	480	15,292	3085.8%	27	Milwaukee-Waukesha, WI	6,120	22,065	260.5%
3	Greensboro-Winston Salem-High Point, NC	795	21,347	2585.2%	28	Louisville, KY/IN	996	3,539	255.3%
4	Omaha, NE/IA	588	11,073	1783.2%	29	Baton Rouge, LA	660	2,166	228.2%
5	Indianapolis, IN	832	13,049	1468.4%	30	Cincinnati OH/KY/IN	852	2,611	206.5%
6	Spokane, WA	75	651	768.0%	31	Fort Worth-Arlington, TX	21,420	61,753	188.3%
7	Atlanta, GA	12,460	101,271	712.8%	32	Dallas, TX	73,290	209,709	186.1%
8	Grand Rapids, MI	1,748	13,473	670.8%	33	Orlando, FL	24,840	71,050	186.0%
9	Tacoma, WA	930	5,865	530.6%	34	Austin, TX	15,190	43,276	184.9%
10	Salt Lake City-Ogden, UT	4,896	30,537	523.7%	35	Fort Lauderdale, FL	27,948	79,555	184.7%
11	Raleigh-Durham-Chapel Hill, NC	2,220	13,829	523.0%	36	West Palm Beach-Boca Raton-Delray Beach, FL	17,736	48,286	172.2%
12	Columbus, OH	1,104	6,141	456.3%	37	Pensacola, FL	696	1,832	163.2%
13	Charlotte-Gastonia-Rock Hill, SC	2,955	16,291	451.3%	38	Vallejo-Fairfield-Napa, CA	8,125	21,112	159.8%
14	Colorado Springs, CO	990	5,119	417.1%	39	Wichita, KS	2,358	6,051	156.6%
15	Denver-Boulder-Longmont, CO	15,000	74,387	395.9%	40	Detroit, MI	8,607	19,968	132.0%
16	Minneapolis-St. Paul, MN	4,784	23,687	395.1%	41	Monmouth-Ocean, NJ	6,825	15,678	129.7%
17	Lakeland-Winterhaven, FL	2,856	13,774	382.3%	42	Washington, DC/MD/VA	61,866	141,329	128.4%
18	Portland-Vancouver, OR	6,832	32,240	371.9%	43	Stockton, CA	13,975	30,748	120.0%
19	Fort Wayne, IN	704	3,089	338.8%	44	St. Louis, MO-IL	2,515	5,520	119.5%
20	Las Vegas, NV	17,186	71,557	316.4%	45	Oklahoma City, OK	6,137	13,339	117.4%
21	Jacksonville, FL	1,968	8,169	315.1%	46	Boston, MA	30,290	65,430	116.0%
22	Kansas City, MO-KS	3,180	12,900	305.7%	47	Houston-Brazoria, TX	131,642	282,265	114.4%
23	Phoenix, AZ	38,025	149,672	293.6%	48	Tampa-St. Petersburg-Clearwater, FL	25,644	54,748	113.5%
24	Seattle-Bellevue-Everett, WA	7,230	28,228	290.4%	49	Oakland, CA	46,163	98,211	112.7%
25	Tulsa, OK	2,125	7,879	270.8%	50	Columbia, SC	1,095	2,328	112.6%

The numbers in this table are calculations from IPUMS. The variable "METAREA-detailed" was used to identify metropolitan areas. The total numbers of immigrant Hispanic males are weighted.