DEPARTMENT OF ECONOMICS WORKING PAPER SERIES

Does Latino Population Induce White Flight? Evidence from Los Angeles County

Ying Pan
Louisiana State University

Working Paper 2011-06
http://bus.lsu.edu/McMillin/Working_Papers/pap11_06.pdf

Department of Economics
Louisiana State University
Baton Rouge, LA 70803-6306
http://www.bus.lsu.edu/economics/

Does Latino Population Induce White Flight? Evidence from Los Angeles County

Ying Pan*

Louisiana State University

May, 2010

Abstract

Whether local minority population induces white flight to suburbs or private schools is a question of interest to many researchers. However, empirically identifying the causality is difficult due to residential sorting. Relying on a residential sorting model, I assume that people live in the same neighborhood are homogenous. I identify the effect of local Latino population on white flight by using the cohort-to-cohort change in the ethnic composition within each neighborhood, which is a credibly idiosyncratic variation. Using Los Angeles Family and Neighborhood Survey, I find that for every 10 percentage points increase in the share of Latinos in a white child's cohort and neighborhood, she is more likely to attend private school by 3 percentage points, or her household is more likely to move to a less Latino neighborhood in the next two years by 6-8 percentage points. Estimates imply that 88% of decrease in public school enrollment rate in California during 1990-2000 can be explained by white flight from Latinos.

* I thank Vernon Henderson, Nathaniel Baum-Snow, Anna Aizer and Naci Mocan for all their insightful suggestions. I thank the participants of the presentation at Tulane University and PAA 2010. All errors are mine.

1. Introduction

Latino population in the U.S. has been rapidly increasing in the past 30 years. Latinos accounted for 6.4% of U.S. population in 1980, but 15% in 2008. Latinos not only increase numerically but also spread geographically. Beside the several traditional Latino-concentrated states (e.g. CA, TX, FL), there has been an increasing movement of Latinos, since 1990, to "nontraditional" states such as NC, GA and IW. As millions of Latinos flow into communities all over this country, one may wonder whether non-Hispanic white households would try to avoid contact with Latinos by sending children to private schools or moving to less Hispanic neighborhoods. Appendix Table 1 presents some evidence in California state, the state that has largest Latino population in the U.S.. Between 1990 and 2000, as Hispanic population increased by 3.41 million, non-Hispanic white population reduced by 1.32 million. Moreover, the public school enrollment rate of white children decreased by 2.4 percent, while the rate for Hispanic children increases by 1.3 percent. Considering that the Latino population in the U.S. is still growing and dispersing, investigating white flight induced by Latinos can help to predict further segregation by ethnicity and to understand one of the obstacles to assimilation for Latino immigrants.

While many studies find evidence that white flight from public schools is related to the share of local population that is black, e.g. Colon and Kimenyi (1991) Lakeford, Lee and Wyckoff (1995), and Fairlie and Resch (2001), white flight from Latinos does not receive as much attention from scholars. Two papers, which study the impact of immigrant population on neighborhood and school choice dynamics, are related to this study, since Latino is the largest ethnicity in US foreign-born population. Betts and Fairlie (2001) find that the more immigrants a metropolitan area received from 1980 to 1990, the greater the increase in private school enrollment of that metropolitan area. However, one criticism to their study is that some metro areas could be experiencing an economic boom and consequently the residents in those metro areas could have more income and become more able to afford private schools. In addition, the authors themselves state that future research using more narrowly defined geographic areas is urgent, because whites can also flee to other neighborhoods within the same metro area. Saiz (2006) finds that within metropolitan areas, inflow of immigrants to some census tracts causes

housing prices in those census tracts to grow slower than in other neighborhoods, which provides evidence of native flight. Saiz attributes the reason for such native flight to immigrants' race and relatively low education.

This paper emphasizes that one of the reasons why non-Hispanic white households flee from Latinos could be that white parents fear a potential negative peer effect from Latino children on their children's schooling outcome. My empirical strategy is as follows. Based on residential sorting theory, I assume that households live in the same neighborhood (defined as a census tract in this paper) have very similar observed and unobserved characteristics. However, within one census tract, the share of Latino population could vary by cohorts, which is a plausible idiosyncratic variation.[1] Then my strategy is to use a census tract fixed effect model to test whether parents of a child in a more Latino cohort in a certain census tract are more likely to send their child to private school or to plan to move away than parents who live in the same census tract with smaller share Latinos in their child's cohort. This census tract fixed effect model comparing different cohorts within one neighborhood is free of the bias that can be caused by residential sorting or school supply side. To further eliminate time trend in the share of Latino population, in children's private school attendance and in their intention to move, I also put in children's age dummies as control variables.[2]

My empirical analysis using the data of the Los Angeles Family and Neighborhood Survey derives the following results: for every 10 percentage points increase in the share of Latinos in a white child's cohort and neighborhood, she is more likely to attend private school by 3 percentage points, or her household is more likely to move in the next two years by 8 percentage points. The result of my falsification test is interesting. A white parent's school choice and intention to move does not respond to the share of Latinos in a cohort that is older or younger than her own child's cohort. This falsification test provides strong evidence that white households' aversion to Latinos arises from white parents' eagerness to ensure that their

[1] Hoxby (2000) uses the cohort variation in gender and race composition within a school to identify peer effect on students' test scores. Similar identification strategy can also be seen in Bayer, Ross and Topa (2008), in which the authors examine the impact of neighbors in the same census block on an individual's labor market outcome after controlling for the individual's presence in a broader neighborhood (i.e. census tract).

[2] One has to be aware here that the cohort in a census tract may not be a good proxy of the same grade peers at school, since a school attendance area boundary does not necessarily correspond to a census tract boundary. To obtain a more precise measure of ethnic composition of a child's peers at school, one needs data at school attendance area level.

children's education is not affected by disadvantaged minority peers. However, this study cannot distinguish whether white households' flight from children's Latino peers is based on real experience of negative peer effects from Latino children, or simply due to racial prejudice or cultural differences. For example, a white child could be upset that he wants to play baseball with peers but his many Latino classmates are only interested in playing soccer.

I want to be clear about what peer effects include. The negative impact can take place through the following channels: (1) Latinos account for the largest proportion of Limited English Proficient (LEP) students (Chapa 1990). A teacher of a class with some Latino LEP students may have to slow her lecture to make sure everyone keeps pace. Hence, non-Hispanic white children's potential may not be met. (2) Racial tension in the classroom may interfere with learning (Hoxby 2000). (3) About 14% (1.8 million) of Latino children are unauthorized immigrants themselves (Passel 2006). These children can't go to U.S. public colleges with in-state tuitions.[3] This situation may discourage them from working hard to achieve good school performance. Poor attitude toward study can be contagious to other students. The peer effect in this paper refers to the total effect arising through multiple channels.

The other findings of this paper include the followings. First, for a multi-child white household, its intention of moving responds to the Latino share in the eldest child's cohort and also responds to the maximum Latino share among all children. Other children are less influential. Second, white parents with different education backgrounds have different responses to excessive Latino shares in their child's cohort. Parents with no more than 12 years of schooling do not respond by sending their children to private schools. They would rather consider a moving. Parents with more than 12 years of schooling react by sending their children to private schools. While they also consider moving, their moving tendency is not as large as their less educated counterparts. Note that parents' intention to move reflects their regret about their previous location choice. When parents choose where to live, they only have an overall impression about how each neighborhood is ethnically mixed. But they are lack of information about the ethnic composition of each cohort within a neighborhood.

The remainder of this paper is composed of five sections: Section 2 provides a spatial model

[3] Starting from 2001, Texas, California and several other states enacted the law allowing undocumented immigrant students to attend state university with in-state tuition.

to explain the causal links between the influx of Latino population and the dynamics of white families' school and neighborhood choices. Section 3 introduces the empirical model and the data used. Section 4 presents results. Section 5 provides empirical support to the spatial equilibrium that is predicted by the theory model. Lastly, section 6 concludes.

2. Theory

In this section, I present a spatial model to interpret why inflow of Latinos could induce white households to move or switch to private schools. This model is based on Baum-Snow and Lutz (2008) and Hanusheck and Yilmaz (2007)

2.1 A White Only City

First, consider a city in which only white households exist. Each household, comprised of one adult and one child, lives in one unit of housing. The adult of a household works in the Central Business District (CBD) and has income y. The distribution of y is $F_W(y)$. Assume that the adults' ability distribution is $G_W(b)$. The distribution of ability is orthogonal to the distribution of income. Each child has the same ability as her parent. The returns to education increase in a child's ability. Therefore, high ability adults have more incentive than low ability adults to invest in their children's schooling. There are two types of school: public and private. Public school is free, whereas private schools charge tuition T. School quality depends on the mean of its students. $s^k = s(\overline{b^k}), \forall k \in (\text{public}, \text{private})$. Private schools are produced with a CRS technology. They are located where there is demand and can accommodate any number of students who demand them.

The preferences of the adults are expressed as a utility function $U(x, s^k, A(d))$, where x is the numeraire consumption good, and A is exogenous local amenities. Suppose that A increases in d, the distance to the CBD. The marginal utility of the local amenities increases in income ($u_{3y} > 0$) but decreases in ability ($u_{3b} < 0$). The marginal utility of school quality increases in income ($u_{2y} > 0$) and ability ($u_{2b} > 0$). These assumptions can be summarized to

the following single-crossing conditions: $u_{12} > 0$, $u_{13} > 0$, and $u_{23} < 0$.

The choice problem of each adult can be represented by

$$\text{(1)} \qquad \begin{aligned} &\underset{x,k,d}{\text{Max}}\ U(x, s^k, A(d)) \\ &s.t.\ \ y - \tau \cdot d = x + R(d) + T \cdot 1(k = \text{private}) \end{aligned},$$

where τ represents the cost that the adult spends on traveling every unit of distance between work and home, and $R(d)$ is the equilibrium rental rate of a unit of land at distance d.

$\Psi^{y,k}(d,u)$ is defined as the bid-rent function of the household of income y, choosing school type k and having utility u. The bid-rent function shows the household's willingness to pay for a unit of space at distance d from the CBD. Differentiating the constrained utility function yields:

$$\text{(2)} \qquad \Psi_d^{y,k}(d, u^{y,k}) = \frac{u_3}{u_1} \cdot A_d - \tau,$$

which represents the slope of a household's bid-rent function. As the CBD distance increases, the maximum rent that households are willing to pay increases because of better amenities but decreases because of higher commuting costs. I assume that the benefit from amenities is small, meaning the bid-rent curve is downward sloping. For any given location, the market price of a unit of space is determined by the highest bid, meaning the household with the steepest bid-rent function lives closer to the CBD. Therefore, by comparing the slopes at intersection points of bid-rent functions, one can understand the spatial ordering of different types of households.

First, consider that two households of the same income, choosing the same type of school, but having different abilities are bidding for the location d, which is the intersection point of the two households' bid-rent functions. Because $u_{3b} < 0$, the slope of high-ability household is larger than the slope of low-ability household. Hence, conditional on income and within a school, the spatial ordering of households is from high-ability households to low-ability households as CBD distance increases.

Second, consider a marginal household (i) whose ability level (b_i) makes it indifferent between a private school and a public school. Any household of the same income but having higher ability than i attends the private school. Likewise, any household of the same income

but having lower ability than i attends the public school. I assume that no matter which school the household i chooses, the quality of either type of school is not affected. b_i satisfies that $U(y-\tau\cdot d-R, s^{\text{public}}, A)=U(y-\tau\cdot d-R-T, s^{\text{private}}, A)$, or $u_2^i=\dfrac{T\cdot u_1}{s^{\text{private}}-s^{\text{public}}}$. Comparing the bid-rent function if the household i attends the private school with that if i attends the public school, one can find that the slope of the bid-rent function in the former case is larger. The reason is that private schools require tuition T. Hence, $x^{\text{private}}<x^{\text{public}}$ and $u_1^{\text{private}}>u_1^{\text{public}}$, which gives that $\Psi_{d_i}^{i,\text{private}}<\Psi_{d_i}^{i,\text{public}}$. In addition, any household of the same income but having higher ability than i has a steeper bid-rent function than i. Vice versa, any household of the same income but having lower ability than i has a flatter bid-rent function than i. Therefore, conditional on income, private school goers outbid public school goers to live close to the CBD.

Third, consider two households of the same ability but different incomes are bidding for the location d, which is the intersection point of the two households' bid-rent functions. Since the rent at the intersection point is fixed, the richer household has larger x. Then, $u_1^{\text{rich}}<u_1^{\text{poor}}$. And $u_3^{\text{rich}}>u_3^{\text{poor}}$, because $u_{13}>0$. Therefore, $\Psi_d^{\text{rich},k}>\Psi_d^{\text{poor},k}$, meaning rich households' bid-rent function is flatter than that poor households. Conditional on school type, the rich outbid the poor to live farther from the CBD and enjoy better amenities.

Putting the above analysis together, one finds that the poorest households who attend private schools live the most inside of the city. The richest households who attend public schools live the most outside of the city. The order between the richer and private school households and the poorer and public school households is not clear yet. Income effect pushes the richer and private households outside, whereas the substitution between commuting cost and school quality pulls this type of household inside. I assume that the income effect dominates the commuting cost and school quality effect. Hence, the richer and private school households live outside of the poorer and public school households. Figure 1a depicts the spatial ordering of households in the case that there are only two types of income (rich and poor). The ordering starting from CBD is poor and private, poor and public, rich and private, and rich and public. Note that since

private school requires tuition, the proportion of poor that attends private schools is much lower than that of rich. Essentially, this model shows that the result of residential sorting is that people living in one community are very similar in terms of income and ability.

2.2 A Latino-White Mixed City

Then consider that some Latinos migrate to this city, which is an exogenous shock to the original white residents. Latinos are poorer than whites. For all y, the distribution of Latinos' income $F_L(y)$ is larger than the distribution of whites' income $F_W(y)$. Since the rich live farther from the CBD than the poor, one would observe that a greater proportion of Latinos than white live close to the CBD. I assume that the ability distribution of Latinos $G_L(b)$ is the same as the ability distribution of whites $G_W(b)$. School quality declines as Latinos come in because of the negative peer effect that I explained in section 1. The school quality function becomes $s^{\mathrm{k}} = s(\overline{b^{\mathrm{k}}}, l)$, where l indicates the share of Latinos in the school. $s_l^{\mathrm{k}} < 0$ means school quality decreases in Latino shares. Latinos and whites are assumed to agree on school quality function. Given the income and ability level, a Latino household has the same choice problem as a white household. Hence, we can have mixed neighborhoods in all parts of a city.

Though the public schools and private schools both decline in qualities, the extent of change is different. Since Latinos are poorer than whites, the tuition payment forces them to sort into public schools at higher rates. Therefore, public schools' quality declines more than private schools. This can induce white public school goers flee either to private schools or to less Latino areas. I first analyze the school switchers. Remember that the ability level of the marginal household i, who is indifferent between private schools and public schools, satisfies that $u_2^i = \dfrac{T \cdot u_1}{s^{\text{private}} - s^{\text{public}}}$. As s^{public} reduces more than s^{private}, u_2^i drops, which implies that the ability level of the marginal household i also drops. Therefore, more households switch from public schools to private schools.

Moreover, everyone's bid-rent function becomes flatter, which suggests that people move

away from the central city. The racial composition (l) of a community depends on the income level of that community. Given school type, the income level of a community increases in d, the distance from CBD. Therefore, the school quality function can be rewritten as $s^{k} = s(\overline{b^{k}}, d)$ and $s_d^{k} > 0$. The individual choice problem now becomes:

$$\begin{aligned} &\underset{x,d}{\text{Max}}\ U(x, s(\overline{b^{k}}, d), A(d)) \\ &s.t.\ \ y - \tau \cdot d = x + R(d) \end{aligned} \quad . \tag{3}$$

Differentiating the constrained utility function yields:

$$\Psi_d^{y,k}(d, u^{y,k}) = \frac{u_2}{u_1} \cdot s_d + \frac{u_3}{u_1} \cdot A_d - \tau \,. \tag{4}$$

Comparing (2) and (4), one can see that, besides amenities, school quality becomes an additional issue to induce households to live farther from CBD. Figure 1b shows the change in the rent-bid curves after Latinos move in. As the figure indicates, some public school households outbid the original residents in suburban area to live there. In suburban area, they attend public schools with less Latinos and enjoy better amenities, but have to pay more commuting cost.

I use the Los Angeles Family and Neighborhood Survey (LAFANS) data to examine the ordering of households that generated by this theory model. This data provides information about the distance between an adult's workplace and her home. The distance is broken into four categories: less than 2 miles, 2-5 miles, 5-10 miles and more than 10 miles. I set the rich/poor households break at $30,000.[4] White households sampled in Los Angeles County are defined as one of four types: poor and private, poor and public, rich and private, and rich and public. The shares of such households in Los Angeles County are respectively 2.11%, 19.83%, 23.21%, and 54.85%. Figure 2 presents the histogram of white adults' employment distance by the household types. Comparing the top row to the bottom row, one sees that, conditional on school type, rich people live farther from their work place than poor people. Compares the left column to the right column, one finds that, conditional on income group, private school households are more likely than public school households to live close to work. This is particularly clear when one looks at the rich group, which has larger sample size than the poor group.

[4] The reason that I use $30,000 as the divides is as follows. LAFANS data categorizes neighborhoods (census tracts) into three categories: very poor, poor and not poor, based on the percent of tract population in poverty. The median household income of the not poor stratum is $30,000.

In summary, the theory model predicts the following things: a) In residential equilibrium, people living in the same community are very similar to each other; b) An inflow of Latinos to a white city induces some white households switch from public schools to private schools; c) An inflow of Latinos also induces white public school households to move to less Latino area.

3. The Data and The Empirical Model

3.1 The Data

Before I present the empirical model, I briefly introduce the data that is in use. I use Census 2000 data and the Los Angeles Family and Neighborhood Survey (LAFANS) data. Fieldwork of this survey was conducted between 2000 and 2001. LAFANS is based on a stratified random sample of 65 census tracts[5] in Los Angeles County. Stratification was adopted in order to over-sample poor census tracts. Within each census tract, 50 households were selected at random. In each household, one randomly selected child (RSC) and the RSC's mother, who was designated the Primary Care Giver (PCG), were interviewed. In a multi-child household, one of the siblings (SIB) of the RSC was also selected at random as a respondent. Two variables are used to measure white flight. First is whether one child attends a private school rather than a public school. About 25% of white children in Los Angeles County attend private schools. Second is whether one household is sure that they will move in the next two years. This is an indicator produced by interaction of two binary variables. One is whether a household plans to move in the next two years. The other is whether a household is sure that they are going to move in the following two years. About 16% of white households planned to move. Roughly half of them said they were very sure that they would move. The other half were either moderately sure or not at all sure. Hence, about 8% of white households are very sure that they are going to move in the next two years.

In this paper I use census tract as the unit of community. After I present the empirical

[5] The 65 census tracts are defined using Census 1990 boundary maps. However, the boundaries of some tracts are changed in Census 2000. According to Census 2000 boundary map, the 65 tracts in 1990 were split into 90 tracts in 2000. LAFANS provides both 1990 and 2000 census tract identifiers to each household. In this paper, I used 2000 census tract identifier to define the community for each household, because this survey is actually conducted between 2000 and 2001. Therefore, there are actually 90 communities in my sample.

model, I will comment about the unit of community that I use. And I will also discuss about the relation between an intention to move and the sorting.

3.2 The Empirical Model

The theory model predicts that when a white neighborhood receives a sudden "injection" of Latino population, white residents would respond by sending children to private schools or by moving to less Latino neighborhoods. However, it is not easy to empirically test this hypothesis. Simple empirical model that associates the variation in white households' school choice with the variation in local Latino population across neighborhoods cannot establish the causality between the two events. The concern is mainly due to residential sorting. Households self-select into different neighborhoods based on elements like parents' income, job location, residential preference and educational preference, which potentially determine school choice as well. For example, white parents who live in affluent suburban neighborhoods on average may have higher unobservable abilities than white parents who have to live with many Latinos in dilapidated downtown neighborhoods. Meanwhile, high ability parents may believe that their children are smarter than average and that investment in their children's human capital is very worthy. Therefore, one may observe that suburban white residents are more likely to send their children to private schools than downtown white residents. In this case, the relation between neighborhood Latino population and white households' private school attendance can be biased toward zero. Another concern is that the simple empirical model cannot disentangle the supply from the demand of private school across neighborhoods. Specifically, roughly 70 percent of Latinos are Catholic. Hence, there might be quite a few Catholic schools in Latino concentrated neighborhoods. This would also induce white families who live in such a neighborhood to choose private schools. In this case, the relation between Latino population and white flight can be biased away from zero. Therefore, to identify whether Latino population induces white flight, one needs a source of variation in Latino population that is exogenous to sorting and other neighborhood characteristics.

Relying on endogenous sorting, I assume that households living in a small community (e.g. a census tract) are homogenous in both observed and unobserved attributes. However, within a community, white children of different ages can face different numbers of Latino peers, which is

a plausible exogenous variation. Therefore, the strategy of this paper is to link the school choices and intentions to move of households who locate in the same neighborhood but whose children are of different ages to the Latino shares of those children's cohort. Using Census 2000 Summary File 4, I compute the share of Latinos by children's ages for each census tract in Los Angeles County. Due to confidentiality reason, I cannot show the statistics for LAFANS surveyed area. Instead in Figure 3, I present the same statistics of four census tracts in Orange County, CA. One can see in Figure 3 that tracts 86201 and 99202 are more Latino than tracts 01101 and 32020. More importantly, the Latino shares vary greatly across cohorts within each tract. Take tract 01101 as an example, Latino children account for more than 60% of 9-year-old children, but only 30% of 10-year-old children.

The key identifying assumption is that the cohort variation in Latino shares within a census tract is exogenous. Using a tract fixed effect model, I test whether the parents whose children has a large number of Latino peers are different in observed characteristics from the parents living in the same census tract but whose children has a small number of Latino peers.

$$(5) \qquad (\text{share of Latinos})_{aj} = \beta_0 + \beta_1 \cdot x_{iaj} + \gamma_j + \varepsilon_{iaj}, \quad (\mathrm{H_o}: \beta_1 = 0)$$

where subscription i indicates a child-parent pair. Subscription a indicates the child's age. Subscription j indicates census tract. x represents various white parents' and children's characteristics. γ_j is the census tract fixed effect. The hypothesis, $\beta_1 = 0$, means the share of Latinos is exogenous to x. The results are presented in Column I of Table 1.[6] The results show that except children's age, there is no significant correlation within each census tract between households' characteristics and the share of Latino population in their children's cohort. I will address the correlation with children's age later on. With this exception, within a census tract, the households whose children have many Latino peers do not differ in any observed aspect from the households whose children have few Latino peers. As a contrast, in Column II of Table 1, I present the correlation between households characteristics and $(\text{Latino share})_{aj}$ without census tract fixed effect. The results in Column II are completely to the opposite of those in Column I. Without putting fixed effect, all households' characteristics, except child's age, are

[6] Table 1 shows that the missing household income causes about 20% reduce in sample size. I will address this problem in Section 5.

correlated with (Latino share)$_{aj}$. The reason is that, when fixed effect is absent, households are compared across communities. Hence, the results in column II indicate that, compared to their counterparts in white neighborhoods, households living in Latino neighborhoods are poorer, less educated, less likely to be a full family and with larger number of children. This is an evidence of sorting across neighborhood. However, all these correlations disappear when households are compared within each census tract. Therefore, within census tract, there is no evidence of self-selection based on children's cohort.

Table 1 shows that the share of Latino peer population decreases with children's age within a census tract. This finding raises a trend issue that I should address. Figure 4a presents the LA white children's private school enrollment rate by age. Figure 4b presents the mean of (Latino share)$_{aj}$ by age. Both trends are downward sloping. As Mexico and Latin American immigrants flow into the US, Latino immigrants may gradually take over some area where used to be white neighborhoods. Hence, in those areas the share of Latino population may increase as the cohort become more recent. However, the trend in white children's public school attendance is not necessarily caused by the trend of Latino population. For instance, the total capacity of magnet high schools and that of middle schools in Los Angeles County is, respectively, about three and two times as much as the total capacity of magnet primary schools. Therefore, among those children who are looking for high quality education, older children are more likely than younger children to go to magnet schools rather than private schools. If the trend issue is ignored, one may naively attribute the upward trend of public school enrollment to increasing Latino population. In order to avoid this mistake, I control for children's age dummies to detrend both the public school enrollment and the share of Latino population.

The empirical model is expressed as follows:

(6) $$\Pr(\text{private school}=1)_{iaj} = \beta_1(\text{share of Latinos})_{aj} + X_{iaj}\cdot\beta_2 + \alpha_a + \gamma_j + \varepsilon_{iaj}$$

(7) $$\Pr(\text{sure to move}=1)_{iaj} = \beta_1(\text{share of Latinos})_{aj} + X_{iaj}\cdot\beta_2 + \alpha_a + \gamma_j + \varepsilon_{iaj},$$

where the subscriptions represent child i of age a in census tract j, X is a vector of child i's and her parent's characteristics, α_a is the cohort fixed effect, and γ_j is the census tract fixed effect. Lastly, because LAFANS over-sampled poor neighborhoods, all regressions use

sampling weights. In addition, standard errors are clustered by tract-age group.

Since this empirical model compares households within a census tract, I need to have enough variation in Latino shares by cohort within each census tract. LAFANS data only sampled 50 households per census tract. Some households may not have children at all. And many households are Latinos. Hence, after dropping missing data, there may be only 2-3 white school-aged children in some tracts. If these children come from a tract with very even race distribution by cohort, these observations will be differenced out from the regression. Therefore, the identification of β_1 is mainly from those tracts with a big variation in Latino shares by cohort. If the tracts with a large cohort variation are different than the tracts with a very small cohort variation in some aspects, the estimated β_1 only reflects the treatment effect in the tracts with a large cohort variation, but may not reflect the treatment effect in the tracts with small cohort variation. I examine the correlation between observed census tract characteristics and the standard deviation of Latino shares by cohorts within tract. The result is presented in Table 2. The sample is composed of the 37 (out of the total of 90) census tracts that have more than two white households surveyed. Table 2 shows that the standard deviation in Latino shares by cohorts within a census tract negatively correlates with the share of total tract population that is Latino and positively correlates with the share of adults that with college education. This means that β_1 is identified from white and better-educated neighborhoods. But this is not a problem. First, due to sorting, 80% of white households in LAFANS live in a neighborhood in which the share of Latinos is no more than 30%. Therefore, β_1 estimated from white neighborhoods can actually represent the impact for the majority of white households. Second, remember from the theory model that people of different income and preference are sorted into different neighborhoods. Hence, one cannot expect a white parent who chooses to live in Latino neighborhood in the first place would react to the excessive Latino population in her child's cohort in the same way as a white parent who chooses to live in a white neighborhood in the first place. I, therefore, will test in the next section how the treatment effect varies by parents' educational background.

4. Results

Table 3a presents a summary of the data and provides a basic picture of white households living in LA County. White children in LA County on average live with a peer group comprised of 26% Latino children. One in four white children attends a private school. 8% households are very sure they are going to move in the next year or two. The mean household income of white families in LA County is about $57,000. A typical white mother has a college education and has two children. And 76.5% of households are full families with the father's presence.

Table 3b presents the mean of several important variables by children's cohort. It is noticeable that cohort age six is a little abnormal. The private school enrollment of six-year-olds' is significantly larger than that of cohorts of age at least seven. Perhaps the six-year-olds include some private kindergarten goers. The six-year-olds also has the least likelihood of being very sure to move among all cohorts, though the mean of intention to move for the six-years-old are not significantly different from the mean of other cohorts. On the other hand, the explanatory variables including Latino share in peers, household income, and mother's education do not vary much between the six-years-old and other cohorts. For this reason, I drop children aged six. I use children at least seven years old for the school choice model, and children aged 3-17, except the six-year-olds, for the moving choice model. A few regression results in this section would be a little different if I had included the six-year-old cohort.[7]

4.1 White Flight

Table 4 presents the empirical result of the impact of Latino peer population on white children's private school enrollment. To emphasize the importance of the census tract fixed effect, I present the regression results with no census fixed effect in the first two columns. The results in Columns 1 and 2 show that the share of Latino population in a child's cohort and neighborhood has no impact on her private school attendance probability. However, in a model with no census tract fixed effect, households are compared across neighborhoods. β_1 is biased

[7] For example, the impact of $(\text{Latino share})_{aj}$ on school choice is larger if including the six-years-old. And the impact of $(\text{Latino share})_{aj}$ on intention of moving is insignificant from zero if including the six-years-old. However, the magnitudes estimated with and without six-year-old are not significantly different from each other.

due to residential sorting. One can see that the point estimations of β_1 in Columns 1 and 2 are very different, though neither of them is significantly different from zero. This indicates that, in the non-fixed-effect model, the $(\text{Latino share})_{aj}$ is correlated with households' observed characteristics and thus may be correlated with the unobservables as well.

Columns 3 and 4 use the census tract fixed effect model. The estimated β_1 becomes significantly positive. After using the tract fixed effect, households are only compared with their neighbors, who are supposed to have very similar abilities and preferences in human capital investment. The unobservable abilities that simultaneously determines neighborhood and school choice are differenced out between neighbors. Hence, β_1 is unbiased. One can see that the values in Columns 3 and 4 are very close, which further confirms that within a census tract, the cohort variation in ethnicity composition is an exogenous variable. The result of the tract fixed effect model indicates that for every 10 percentage points increase in Latinos as the share of in local peers, white children's private school enrollment rate increases by three percentage points.

Next, I study the impact of Latino population on white households' intention of moving (or their regret about previous location choice). The empirical model is presented by equation (8). One thing that complicates the analysis of the intention of moving is that households may have multiple children facing different shares of Latinos in their cohorts. But one household only has one intention of moving. It is possible that a multiple-child household makes moving plan based on the eldest child or the child having the largest number of Latino peers. I will test these two possibilities later on. For now let me simply use single child households. In this type of household, there is no question that parents' intention of moving depends on the size of Latino peers that this single child faces. Table 5 presents the empirical results. The sample is composed of all households whose single child is 3 years old or older, except that six years old children have been dropped. Columns 1 and 2 do not use the census tract fixed effect while Columns 3 and 4 do. Column 4 indicates that if the share of Latinos in a child's local peers increases by 10 percentage points, her parent is more likely to be sure to move in the next two years by eight percentage points. However, results in Columns 1 and 2 do not indicate that local Latino peers would induce white households to move, which implies that the unobservable

characteristics common to residents in one neighborhood can prevent them from moving. For example, compared to white households in affluent neighborhoods, those white households who live with many Latinos may have less financing capability to facilitate a move.

I now examine which child in a multi-child household is responsible for parents' intention of moving. All multi-child households have only two children sampled. I use these households and put both children's Latino share variables on the right hand side. The results are presented in Table 6. In Column 1, I rank the two Latino shares by their value and name the two variables "maximum Latino share" and "minimum Latino share". The result in Column 1 indicates that a parent's intention of moving responds to the larger Latino share of the two sampled children. In Column 4, I rank the two Latino shares by children's age and name the two variables "old Latino share" and "young Latino share". The result in Column 4 indicates that parents' moving decision responds to the older one of the two children.

Though the LAFANS only interviewed two children in a multi-child household, some households in the survey actually had three or even more children. Among the 116 white households with two sampled children, 75 (65%) households have only two children, whereas 41 households had three or more children. Hence, the observed maximum or minimum Latino shares are not the true ones for the 41 households. Further, the older or younger child is not necessarily the eldest or youngest child in the family. In households with at least three children, the observed children perhaps are not the most influential ones, since the intention of moving may actually be induced by an unobserved child. I test this hypothesis in Columns 2 and 4. I interact the two observed Latino shares with a binary variable which indicates whether a household has more than two children or not. The coefficients of the two observed Latino share variables represent the impact on the intention to move of only-two-children households. The coefficients of the two observed Latino shares plus the coefficients of the two interaction terms represent the impact of observed Latino shares on the intention to move of more-than-two-children households. Column 2 indicates that for only-two-children households, the true maximum Latino share has a significant impact on inducing the households to move away. For every 10 percentage points increase in the maximum Latino share, the intention to move of a white household increases by 7.5 percentage points. However, for more-than-two-children households, the influence of the observed maximum Latino share drops by 4.6 percentage points,

though this decline is not precisely measured with only 41 households. It is very likely that the influence of the observed maximum Latino share diminishes if an unobserved child faces even larger numbers of Latino peers. Column 4 indicates that for only-two-children households, the Latino share of the peers of the eldest child has a significant impact on inducing them to move. For every 10 percentage points increase in the Latino share that eldest child faces, the intention to move of a white household increases by six percentage points. For households with more than two children, the influence of the older sampled child drops by 1.7 percentage points. But this drop is not statistically significant from zero.

I have shown that Latino population induces white households to move. But it remains to show whether the white households are moving to the area that their children will have less Latino peers. Though LAFANS does not provide data to directly answer the question, it has the record of which census tract each household lived two years before. One can use census data to track the share of Latinos in each mover's old neighborhood and in each child's cohort. This information can help us to investigate the direction in which white households' are moving. Figure 5a presents the distribution of the local Latino share in white children's cohorts and in their old neighborhoods. The solid blue curve is the distribution of all white households. The dashed red curve is the distribution of all movers. If the movers were a random draw from total white households, the two distributions would have been in the same shape. However, the distinction between the two distributions is quite clear. While the distribution of all white households is heavily skewed toward low (less than 20%) Latino cohort-tracts, the movers' distribution has a peak in high Latino cohort-tracts. For about half of movers, at least 40% of their children local peers in the original tracts were Latinos. This finding is consistent with previous regression results that movers are not a random draw. The more Latino peers live in one tract, the more likely whites in that cohort-tract are to leave. Figure 5b compares the distribution of Latino shares between old and current cohort-tracts for movers. The post-move distribution is obviously less Latino than the pre-move distribution, which suggests that white households move from high Latino cohort-tracts to less Latino cohort-tracts.

4.2. Attending Public School Vs. Moving Out

White households flee from Latino households either by sending children to private schools

or by moving to less Latino neighborhoods, or by doing both. The next question is what type of households chooses each option. The theory model in Section 2 suggests that high ability households will send their children to private schools. Since education level and ability is positively correlated, adults' educational background might play an important role in determining in which way a household will flee from Latinos. I test the following two hypotheses. In response to a large local Latino peer population, white parents with a high education background are more likely than white parents with a low education to send children to private schools. White parents with a low education background are more likely than their highly educated counterparts to move away.

To test the above hypotheses, I allow the impact of local Latino population on white flight to vary by white parents' educational background. I categorize adults' education into two groups: years of school are no less than 12 and years of school are more than 12. About 20% of sampled white mothers are in the low education category. The empirical models are written as:

(8)

$$\Pr(\text{private school}=1)_{iaj} = \beta_1(\text{share of Latinos})_{aj} + \beta_2(\text{share of Latinos})_{aj} \times (\text{high education})_{iaj} + X_{iaj}\cdot\beta_3 + \alpha_a + \gamma_j + \varepsilon_{iaj}$$

(9)

$$\Pr(\text{sure to move}=1)_{iaj} = \beta_1(\text{share of Latinos})_{aj} + \beta_2(\text{share of Latinos})_{aj} \times (\text{high education})_{iaj} + X_{iaj}\cdot\beta_3 + \alpha_a + \gamma_j + \varepsilon_{iaj}$$

In both models, β_1 is the impact of Latinos on white flight for less educated parents, $\beta_1+\beta_2$ is the impact of Latinos on white flight for highly educated parents, and β_2 represents the difference in the impact of Latinos on white flight across education groups. Here, β_2 is hypothesized to be positive in model (8) and negative in model (9).

The regression results are presented in Table 7. Column 1 shows that the impact of the local Latino peer population on white households' school choice varies by adults' educational backgrounds. For white parents with no more than 12 years of schooling, there is no significant impact on parents' school choice from Latino share in children's local cohort. However, for white parents with at least 13 years of schooling, the impact is significantly larger. For every 10 percentage point increase in Latino share in children's local cohort, highly educated white parents

are more likely to send their children to private school by 3.3 percentage points.

As to parents' intention to move, I use two samples. Column 2 uses a sample composed of single child households and the older children from multi-child households. Column 3 uses a sample composed of single child households and the children with the larger Latino shares from multi-child households. Both samples generate very close results. The results indicate that the impact of local Latino population on white households' intention to move varies by adults' education background. The intention to moving of both less educated white parents and highly educated parents are positively affected by local Latino share. However, the magnitude of such an impact is significantly different between the two types of parents. Take Column 2 as an example. For every 10 percentage points increase in Latino share that the single child or the older child faces, white parents with a low education ground are more likely to move by 10 percentage points, whereas white parents with a high education background are more likely to move by 6.4 percentage points. For the same change in Latino share, the impact for highly education white parents is about two-thirds of the impact for less educated parents, and the difference in magnitude is significantly different from zero. Combining the result in Columns 1 and 2, one can see that white adults with different educational background respond to the Latino share of children's peers in different ways. Adults with no more than a high school education will move to less Latino neighborhoods so that their children can go to better quality public schools. Adults with more that a high school graduation will not only move but also send their children to private schools.

5. Discussion

5.1 About Moving

The identification of the tract fixed effect model relies on endogenous sorting, meaning similar people live in the same tract at equilibrium. The observed residence location of each household can be regarded as their optimal choice. If this is true, one may wonder why some of them still plan to move. Two possible cases may reconcile this paradox. First, when people choose where to live, they have an impression about the overall ethnic mix of the objective neighborhoods. However, they may not realize there can be a cohort variation within a

neighborhood or a local public school. If the parents later find that their children have many more Latino peers than they originally thought, they will regret their previous decision and consider moving again. However, when the parents start a new search of residence location, there still might be chances that the actual Latino share in their children's cohort is not what they aim to. In this case, the intention of moving used in this paper just reflects white household's regret about previous location choice and their reaction to unluckiness, but does not imply that they are different from other household in the same neighborhood.

A second explanation is that local ethnic composition can change over time. Between a household who has lived in one neighborhood for a long time and another household who just moved to the neighborhood, the current characteristics of the neighborhood should better fit the preference of the new arrival. The long-time residents who don't like the change in the neighborhood would consider a move. Hence, one would expect that the Latino share in local cohort should have stronger push effect on long-time white residents than new arrivals. I run the regressions of school choice and moving intension (equations (6) and (7)) separately for white households who have lived in current neighborhood for at least two years and for those who have lived for less than two years. In the private school choice model, the coefficient of $(\text{share of Latinos})_{aj}$ is 0.42 (p-value=0.01) for residents living for at least two years and -0.427 (p-value=0.46) for residents living for less than two years. In the moving intention model[8], the coefficient of $(\text{share of Latinos})_{aj}$ is 0.376 (p-value=0.07) for residents living for at least two years and -0.309 (p-value=0.86) for residents living for less than two years. The above results show that the Latino share predicts old residents' behavior better than new residents' behavior.

5.2 A Falsification Test

The mechanism that I propose to explain the causal link between local Latino peers and white flight is that white parents are concerned that Latino peers in their children's class possibly reduce the quality of the education in the class. In order to demonstrate this argument, I provide the following falsification test. I replace the local Latino share in each child's cohort by the

[8] I use the sample composed of single child households and the children with the larger Latino shares from multi-child households.

local Latino share in other cohorts. For example, I use the local Latino share of the cohort that is two years younger, or two years older, than that of a child's actual age. The model is represented as follows:

(10) $$\Pr(\text{private school}=1)_{iaj} = \beta_1(\text{share of Latinos})_{(a\pm2)j} + X_{iaj}\cdot\beta_2 + \alpha_a + \gamma_j + \varepsilon_{iaj}$$

(11) $$\Pr(\text{sure to move}=1)_{iaj} = \beta_1(\text{share of Latinos})_{(a\pm2)j} + X_{iaj}\cdot\beta_2 + \alpha_a + \gamma_j + \varepsilon_{iaj}.$$

β_1 is hypothesized to be zero. Because Latino children of other cohorts would not affect child i's class at school, child i's parents should not react to the Latino populations of other cohorts. Note that a zero β_1 does not mean that white parents are not expected to care about Latino children of other cohorts. Since this is a tract fixed effect model, the preference of white parents over the total number of Latino children in the neighborhood is differenced out. The falsification test is to verify that, conditioning on the neighborhood ethnic composition, the shock of the number of Latino children in the same cohort have a stronger influence than the shock from other cohorts on a white household's school choice and moving decision.

The falsification test results are presented in Table 8. Columns 1 and 2 are for the school choice model. The first and the second column, respectively, use the cohort that is two years younger and two years older than child i' cohort. These two columns show that school choice is unrelated to ethnic composition of other cohorts. Columns 3-8 are for the intention to move model. Columns 3 and 4 use single child households. Columns 5 and 6 use the children with the larger Latino share in multi-child households. Columns 7 and 8 use the children with the smaller Latino share in multi-child households. Columns 3-7 show that there is no impact from the false Latino share on households' intention to move. The only exception happens in Column 8 when replacing the true Latino share by the Latino share of the two years older cohort for the child who originally had smaller Latino share in her household. Only in this case does the false Latino share appear to impact the households' intention to move. This is in fact interesting. Remember that the false cohort is two years older than the true cohort. It is likely that I replace the true Latino share by the child's elder sibling's Latino share. In addition, the child originally has smaller Latino share than her sibling. Therefore, I actually replace the younger and "minimum" kid by the older and "maximum" kid. In this case, the true Latino share is replaced

by the more influential sibling's Latino share. Therefore, the impact of Latino share on the white households' intention to move shows up. This case in fact confirms my previous result that the older and "maximum" kid is the key kid to influence a household's moving decision. Other than this special case, the mechanism through peer effect is supported everywhere else.

5.3 The Impact from Language

In section 2, I proposed that one aspect of potential negative peer effect from Latino children is due to their limited English proficiency. If this is true, the negative impact not only works on non-Hispanic white children but also on Latino children who speak English well. One would expect that English-speaking Latino households may also flee from other Latinos. I therefore use Latino households and separate them into two groups by mother's language preference, and test whether the two groups have different preference on staying with people of the same ethnicity. One group is composed of Latino households in which the mother did the LAFANS survey in English. The other group is composed of Latino households in which the mother did the survey in Spanish. In the moving intention model (equation (7))[9], the coefficient of $(\text{share of Latinos})_{aj}$ is negative and statistically significant for Spanish-speaking Latino households, indicating that they prefer living with other Latinos. However, the coefficient is positive but statistically insignificant for English-speaking Latino households, indicating that they do not prefer living with other Latinos. These results show that, for English-speaking Latino mothers, the preference of living with people of the same ethnicity can be off-set by their potential concern about their children's learning environment.

5.4 Census Tracts Vs. School Attendance Zones

In this paper, I use ethnic composition in each census tract to approximate the ethnic composition that a white child faces at school. Measurement errors can arise for several reasons. First, one school attendance zone is larger than a census tract in most cases. In 2000, Los Angeles County has 2,028 census tracts, about 1,600 elementary schools, 800 junior high schools and 400 high schools. Since the size of a census tract is close to the size of an elementary

[9] The regressions using equation (6) do not show that the two groups behave differently in choosing private schools. This is not surprising since Latino families tend to have income constrain to sending children to private schools.

school attendance zone, using census tracts approximation may not be too bad for children younger than 13[10]. But for older children, one school attendance zone is as large as 2.5-5 census tracts. Using tract level data, I perhaps exaggerate the variation in ethnicity composition by cohorts. Mismeasurement may downward bias the estimation. However, my empirical test does not show that the impact of $(\text{share of Latinos})_{aj}$ is significantly different between children younger than 13 and older children. Yet, future work using variation by grade within each school is needed to examine the results in this paper.

Second, some arrangements in the public school system can reduce the probability that white children sit in the same classroom as a Latino children even if they live in one neighborhood, for example, magnet schools, gifted programs, and the flexibility that allows parents to send children to a non-neighborhood public school. However, all these factors would only bias my estimations toward zero. Therefore, the estimates presented in this paper can be regarded as the lower bound of the impact of local Latino population on white flight.

6. Conclusion

This paper studies the impact of Latino population on white flight. I use a census tract fixed effect model to examine whether the white households whose children face a large share of Latinos in their cohorts are more likely to flee than the white households who live in the same census tract but whose children face a small share of Latinos in their cohorts. Based on the residential sorting theory, the households living in one neighborhood are supposed to be homogenous people. Hence, the cohort-to-cohort variation in racial composition within a neighborhood, which is an idiosyncratic shock, can be used to establish the causal impact from local Latino population on white households' school and neighborhood choice. Using the Los Angeles Family and Neighborhood Survey, I find that for every 10 percentage points increase in the share of Latinos in a white child's cohort and neighborhood, she is more likely to attend private school by three percentage points, or her household is more likely to move to a less Latino neighborhood in the next two years by 6-8 percentage points. Census data indicates that, during

[10] There are still measurement errors, because school district boundaries do not perfectly overlap with census tract boundaries,

1990-2000, the Latino share in California total population increased by seven percentage points and the public school enrollment rate of non-Hispanic white children reduced by 2.4 percentage points. If the estimated impact of Latino shares on white flight from Los Angeles county applies to the whole state of California, white flight from Latinos can explain 88% percentage of the change in public school enrollment rate of white children.

The falsification test shows that, conditioning on the neighborhood choice, non-Hispanic white households react particularly to the size of Latino population of their children's cohort, but not to other cohorts. This provides evidence that white flight from Latinos probably is due to white parents' concern about the negative peer effect from Latino children in classrooms at local public schools. The negative peer effect can arise from Latino children's English inproficiency. Empirical analysis in this paper shows that Latino households who speak English well do not prefer to live with other Latinos. Therefore, one policy that can reduce ethnic segregation is to promote Latino children's English proficiency.

Reference

Betts, Julian R. and Robert W. Fairlie, "Does Immigration Induce 'Native Flight' from Public Schools into Private Schools," Journal of Public Economics, 87 (2003), 987-1012.

Baum-Snow Nathaniel and Byron Luz, "School Desegregation, School Choice and Urban Population Decentralization," working paper (2008).

Bayer, Patrick, Steve Ross, and Giorgio Topa, "Place of Work and Place of Residence: Informal Hiring Networks and Labor Market Outcomes", Journal of Political Economy, forthcoming.

Chapa, Jorge, "Population Estimates of School Age Language Minorities and Limited English Proficiency Children of the United States, 1979-1988", Proceedings of the First Research Symposium on Limited English Proficient Student Issues. OBEMLA, (1990).

Conlon, J.R. and Samson Kimenyi, Attitudes towards race and poverty in the demand for private education: the case of Mississippi. Review of Black Political Economy 20 (1991), 5–22.

Fairlie, R.W., Resch, A.M., 2001. Is there 'white flight' into private schools? Evidence from the National Educational Longitudinal Survey. Review of Economics and Statistics, 84(1) (2002): 21–33.

Hanushek Eric and Kuzey Yilmaz, "The Complementarity of Tiebout and Alonso," Journal of Housing Economics 16 (2007), 243-261.

Hoxby, Caroline, "Peer Effects in the Classroom: Learning from Gender and Race Variation," NBER working paper 7867, (2000).

Lankford, Hamilton, E. S. Lee, and James Wyckoff, "An Analysis of Elementary and Secondary School Choice," Journal of Urban Economics 38:2 (1995), 236–251.

Lankford, Hamilton and James Wyckoff, "The effect of School Choice and Residential Location on the Racial Segregation of Students," working paper (2000).

Nechyba, Thomas, "Income and Peer Quality Sorting in Public and Private Schools," Handbook of Economics of Education, Volume 2, chapter 22 (2006), 1328-1368.

Passel, Jeffrey, "The Size and Characteristics of the Unauthorized Migrant Population in the U.S." Research report of The Pew Hispanic Center, (2006).

Van Hook, Jennifer and Jason Snyder, "Immigration, Ethnicity, and the Loss of White Students from California Public Schools, 1990-2000," Population Research and Policy Review, 26 (2007), 259-277.

Williams, Todd, "Imputing Person Age for the 2000 Census Short Form: A Model-Based Approach," Bureau of the Census Statistical Research Division, Statistical Research Report Series No. RR98/07. Retrieved from http://www.census.gov/srd/papers/pdf/rr98-07.pdf

Figure 1. Equilibrium of Residential Location Pattern

Figure 1a. A White-only City

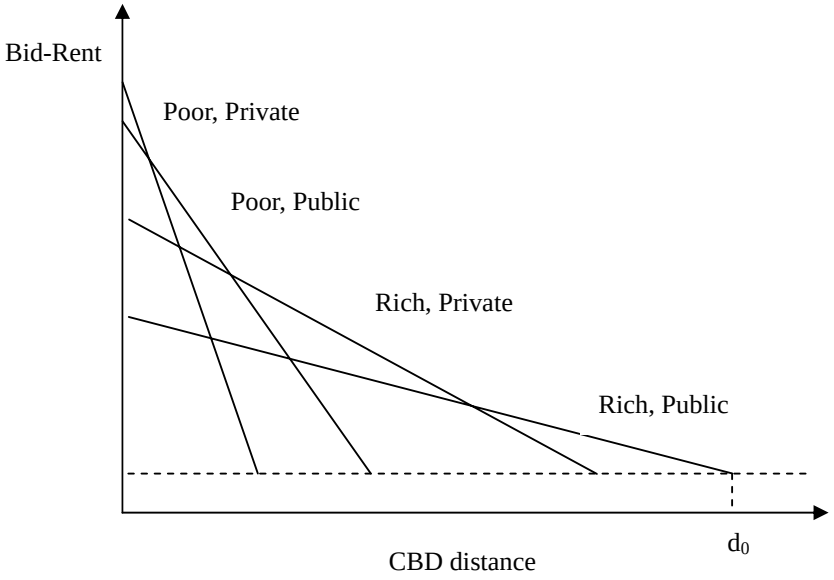


Figure 1b. A Latino-White Mixed City

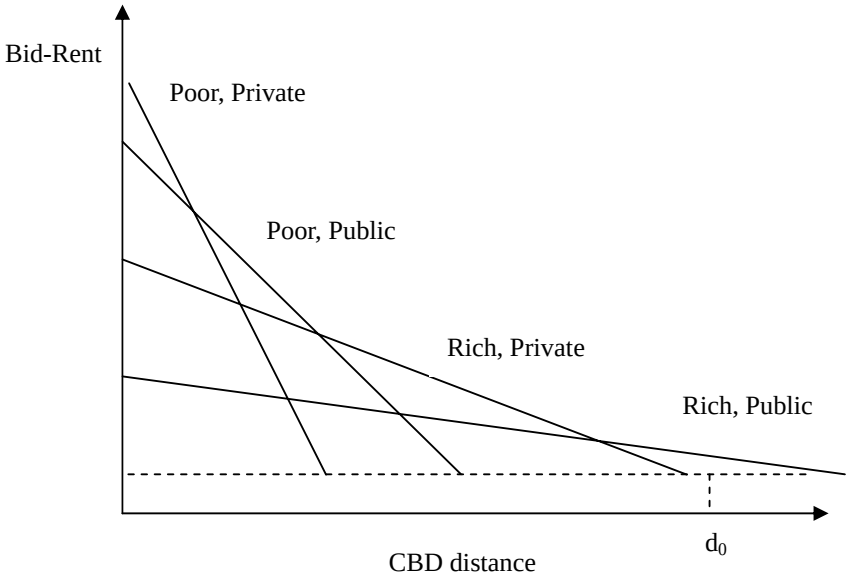
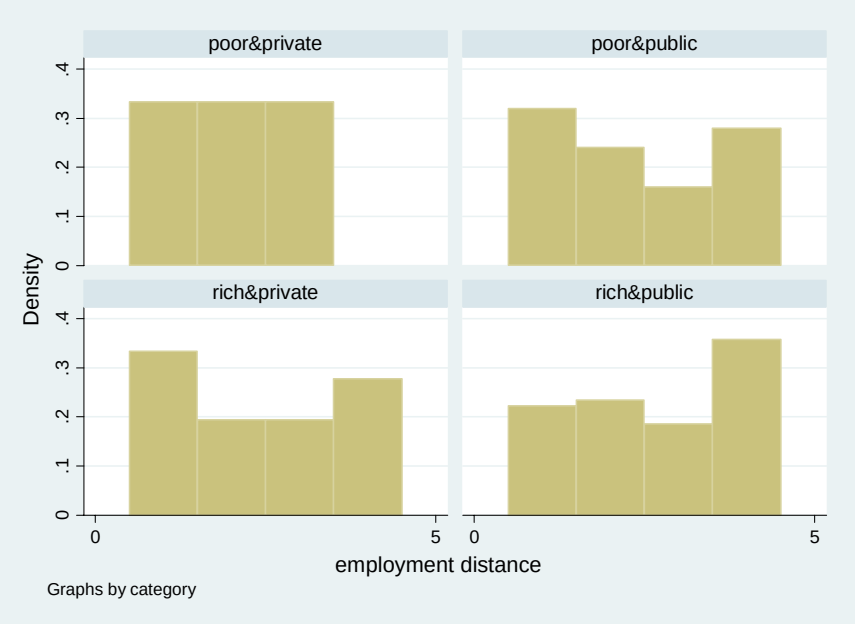


Figure 2. Residential Location Pattern by Income Level by School Choice



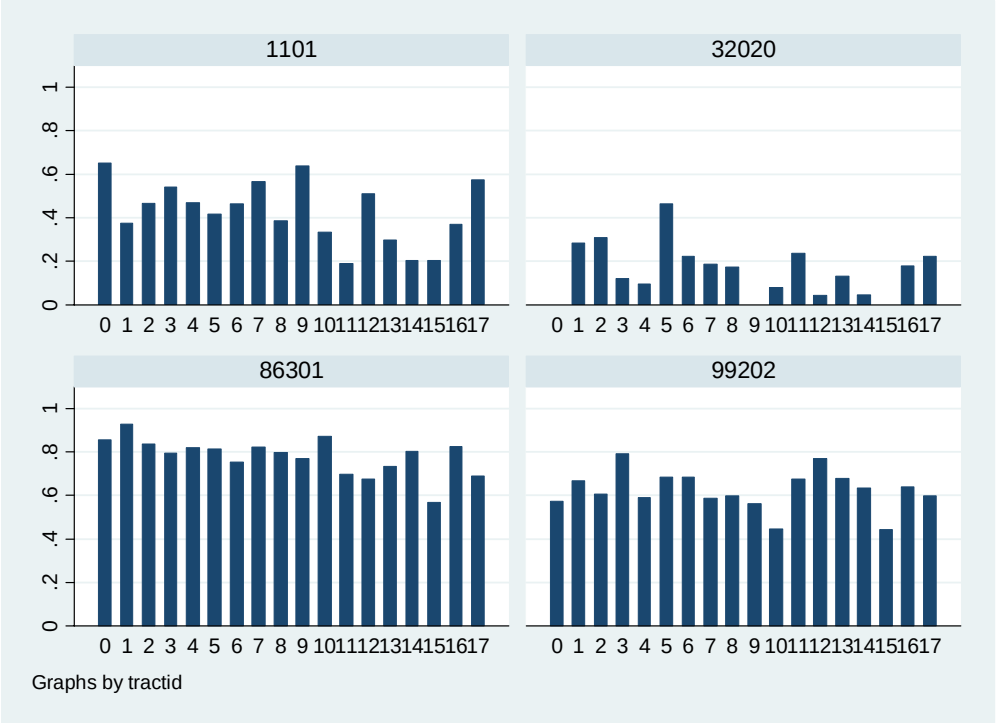
Source: Los Angeles Family and Neighborhood Survey

Notes:

The four categories of employment distance from home are less than 2 miles, 2-5 miles, 5-10 miles and more than 10 miles.

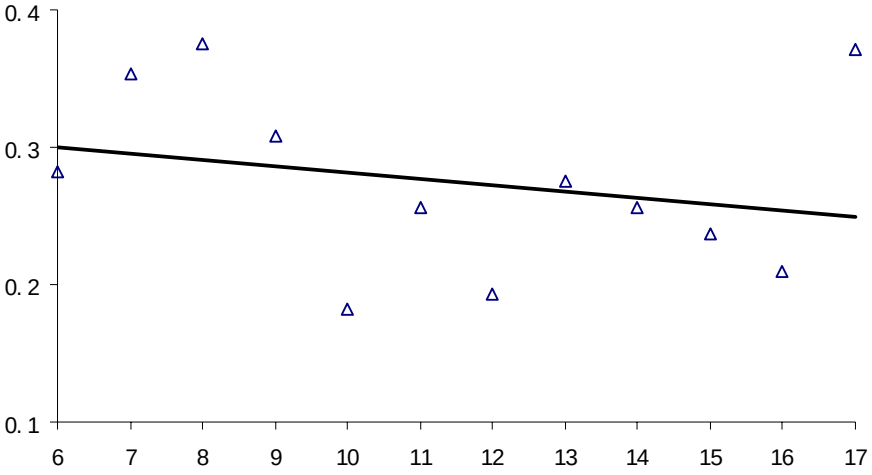
Rich households' income is more than 30k and poor households' income is less than 30k.

Figure 3. Share of Latinos by Cohort by Census Tract in Orange County, CA



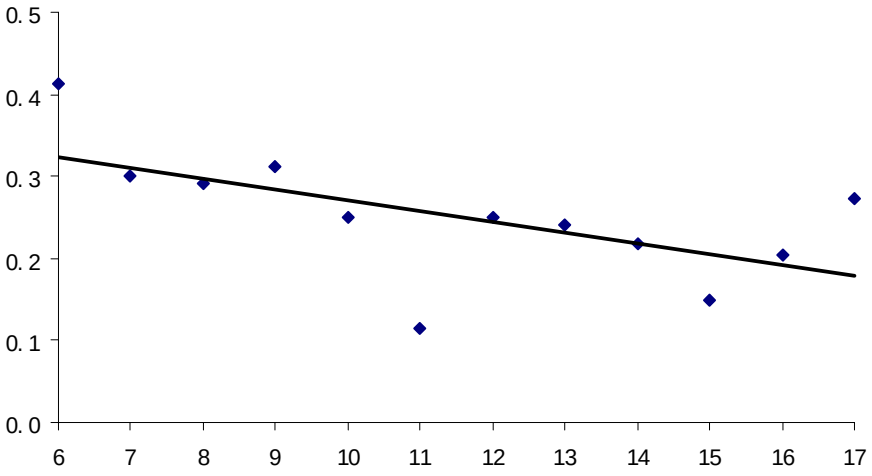
Source: Census 2000 summary file 4.

Figure 4a. Trend in Share of Latino Population



Source: Census 2000 Summary File 4

Figure 4b. Trend in White Children's Public School Enrollment



Source: LAFANS

Figure 5a. Who is Moving?

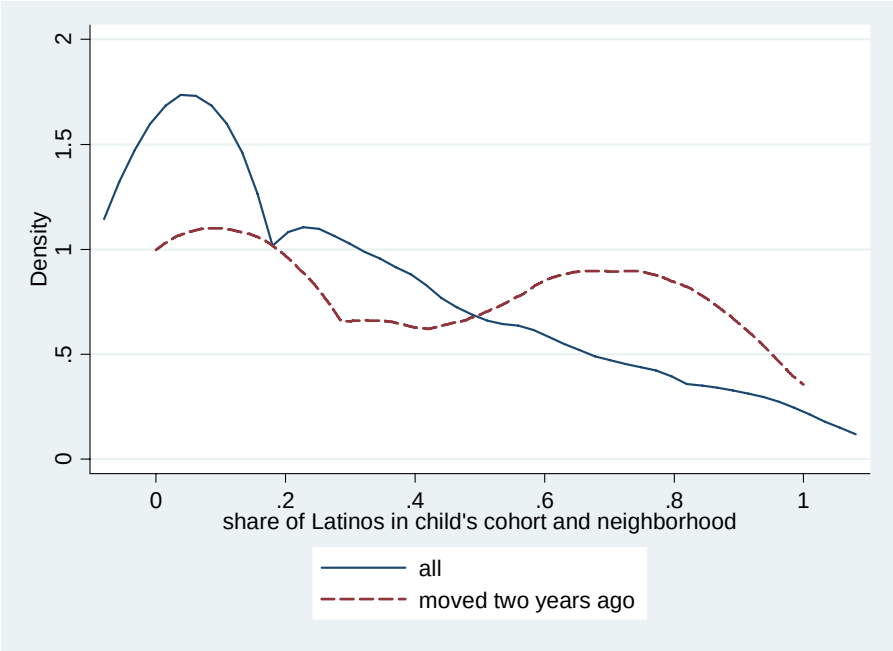
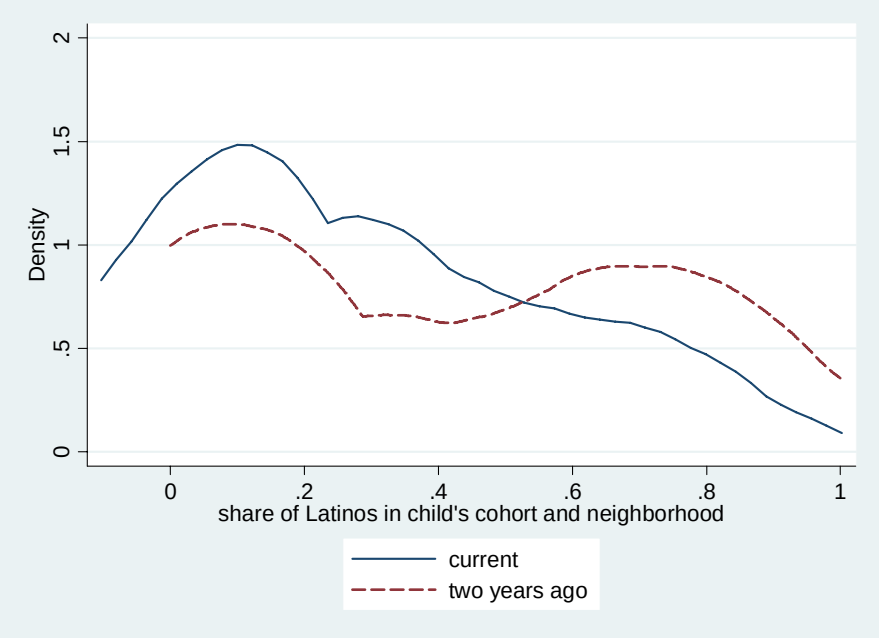


Figure 5b. Where to Move?



Source: LAFANS data

Table 1. Pair-wise Correlation between White Households' Characteristics And Share of Latinos by Cohort by neighborhood

Dependent: $(\text{share of Latinos})_{aj}$				
		I	II	observations
(1)	ln(household income)	-0.0087	-0.0704***	399
		[0.0093]	[0.0081]	
(2)	welfare use	0.004	0.1026***	473
		[0.0212]	[0.0296]	
(3)	mom's education	0.0038	-0.0273***	507
		[0.0037]	[0.0049]	
(4)	mom's age	-0.0015	-0.0056***	505
		[0.0011]	[0.0020]	
(5)	dad in hh	0.0062	-0.0561*	507
		[0.0195]	[0.0324]	
(6)	# of children	-0.0069	0.0276**	506
		[0.0068]	[0.0133]	
(7)	child's age	-0.0050***	0.0003	507
		[0.0016]	[0.0033]	
	tract fixed effect	Y	N	

Note:
$(\text{share of Latino children})_{aj}$ is computed using census summary file 4. Other variables are from LAFANS data.
All correlations in column I are estimated using census tract fixed effect model. See Equation (5) in text. All correlations in column II do not use census tract fixed effect.
Regressions are weighted by the LAFANS sampling weights for children.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 2. Pair-wise Correlation between S.D. of Latino Shares and Characteristics of Census Tract

Dependent: SD of (Latino Children)$_{aj}$ in tract j	
(1) (share of Latino in total population)$_j$	-0.0574*
	[0.0295]
(2) ln(median hh income)	-0.0114
	[0.0208]
(3) ln(income per cap)	0.0177
	[0.0159]
(4) poverty rate	-0.074
	[0.0744]
(5) welfare use rate	0.0269
	[0.1324]
(6) unemployment rate	0.092
	[0.1039]
(7) college education	0.0694*
	[0.0358]
Observations	37

Source: Census Summary File 4

Table 3a. Summary of The Data

Variable	Observation	Mean	Std. Dev.
child			
private school	294	0.257	0.438
$(\text{share of Latinos})_{aj}$	333	0.262	0.273
household			
sure to move in 2 yrs	238	0.080	0.272
ln(household income)	238	10.951	1.287
mom's age	238	41.735	8.054
mom's years of schooling	238	15.849	2.421
dad in household	238	0.765	0.423
# of children	238	2.008	1.055

Table 3b. Summary of the Data by Age

age	number of observation	$(\text{share of Latinos})_{aj}$	Private School Enrollment	sure to move in two years	ln(household income)	mother's year of schooling
3	24	0.163		0.182	11.460	16.167
4	21	0.260		0.056	11.605	16.667
5	18	0.347		0.154	10.875	15.389
6	29	0.283	**0.414**	**0.038**	11.308	16.207
7	20	0.353	0.300	0.059	11.021	15.800
8	24	0.376	0.292	0.053	10.936	14.958
9	33	0.308	0.313	0.074	10.901	15.212
10	24	0.182	0.250	0.105	10.966	16.375
11	27	0.257	0.115	0.160	10.758	15.852
12	20	0.193	0.250	0.067	11.162	15.500
13	29	0.276	0.241	0.048	11.087	16.207
14	33	0.256	0.219	0.071	11.113	16.182
15	29	0.238	0.148	0.125	10.364	15.000
16	36	0.209	0.205	0.139	10.569	15.537
17	27	0.372	0.273	0.043	10.416	15.556

Notes:

$(\text{share of Latinos})_{aj}$ is computed using census summary file 4. Other variables are from LAFANS data.

Table 4. The Impact of Latino Population on White Households' School Choice

Dependent: Private School =1				
	(1)	(2)	(3)	(4)
(Latino Share)$_{aj}$	-0.0012	0.1015	**0.3310****	**0.2710****
	[0.1051]	[0.1140]	[0.1404]	[0.1354]
ln(household income)		0.0322*		0.0552**
		[0.0188]		[0.0214]
mom age		0.0169		0.0167
		[0.0201]		[0.0201]
mom age squared		-0.0002		-0.0001
		[0.0002]		[0.0002]
mom years of schooling		0.0329***		0.0039
		[0.0085]		[0.0075]
dad in household		-0.1382**		-0.1408**
		[0.0667]		[0.0623]
# of children		0.0443**		0.0264
		[0.0220]		[0.0210]
catholic		0.1245**		0.0795
		[0.0574]		[0.0537]
(total population)$_{aj}$		-0.0001		0.0007
		[0.0003]		[0.0005]
Constant	0.1693***	-1.0696**	0.0755*	-0.9657*
	[0.0398]	[0.4890]	[0.0424]	[0.4933]
child's age dummies	N	Y	N	Y
census tract fix effect	N	N	Y	Y
Observations	294	294	294	294
R-squared	0	0.16	0.44	0.51

Notes:
Regressions are weighted by the LAFANS sampling weights for children.
Standard errors are clustered by tract-age groups. Robust stand errors are in brackets.
*** p<0.01, ** p<0.05, * p<0.1

Table 5. The Impact of Latino Population on White Households' Moving Decision (Single Child Households)

Dependent: Very Sure to Move in Two Years =1				
	(1)	(2)	(3)	(4)
(Latino Share)$_{aj}$	0.0623	0.024	0.5959	**0.8063****
	[0.0831]	[0.1173]	[0.5560]	[0.3746]
ln(household income)		0.0137		0.0205
		[0.0145]		[0.0272]
mom age		-0.0337*		-0.0845**
		[0.0192]		[0.0379]
mom age squared		0.0003		0.0008**
		[0.0002]		[0.0004]
mom years of schooling		-0.0062		0.0015
		[0.0088]		[0.0165]
dad in household		0.0095		0.0203
		[0.0341]		[0.0657]
# of children		0.0432*		0.0711
		[0.0237]		[0.0430]
(total population)$_{aj}$		0.0002		0.0006
		[0.0002]		[0.0011]
Constant	0.0368	0.7894	-0.0863	1.2122
	[0.0313]	[0.6077]	[0.1030]	[1.1010]
child's age dummies	N	Y	N	Y
census tract fix effect	N	N	Y	Y
Observations	96	96	96	96
R-squared	0	0.41	0.25	0.65

Notes:

Regressions are weighted by the LAFANS sampling weights for children. Standard errors are clustered by tract-age groups. Robust stand errors are in brackets.

*** p<0.01, ** p<0.05, * p<0.1

Table 6. The Impact of Latino Population on White Households' Moving Decision

(Multi-Child Households)

Dependent: Very Sure to Move in Two Years =1				
	(1)	(2)	(3)	(4)
max(Latino Share)$_{aj}$	**0.5535***	**0.7505****		
	[0.3204]	[0.3549]		
min(Latino Share)$_{aj}$	-0.1816	-0.3131		
	[0.2978]	[0.3610]		
max(Latino Share)$_{aj}$		-0.4566		
* (=1 if >2 children)		[0.4134]		
min(Latino Share)$_{aj}$		0.3908		
* (=1 if >2 children)		[0.5447]		
old(Latino Share)$_{aj}$			**0.5025****	**0.6103***
			[0.2462]	[0.3347]
young(Latino Share)$_{aj}$			0.0894	0.1416
			[0.2293]	[0.2836]
old(Latino Share)$_{aj}$				-0.1695
* (=1 if >2 children)				[0.3659]
young(Latino Share)$_{aj}$				-0.1526
* (=1 if >2 children)				[0.3125]
other controls	Y	Y	Y	Y
child's age dummies	Y	Y	Y	Y
census tract fix effect	Y	Y	Y	Y
Observations	115	115	115	115
R-squared	0.66	0.61	0.67	0.61

Notes:

Regressions are weighted by the LAFANS sampling weights for children.

Standard errors are clustered by tract-age groups. Robust stand errors are in brackets.

*** p<0.01, ** p<0.05, * p<0.1

Table 7. The Role of Adults' Education in Determining the Way of Fleeing

Dependent Variable	private school	very sure to move in 2 yrs	
		single+older kid	single+max kid
	(1)	(2)	(3)
β_1 (the impact for households	0.0325	1.0368***	1.1934***
whose years of schooling <=12)	[0.1570]	[0.2910]	[0.3007]
$\beta_1 + \beta_2$ (the impact for households	0.3360**	0.6446***	0.7159***
whose years of schooling >12)	[0.1456]	[0.2331]	[0.2694]
β_2 (difference)	0.3035*	-0.3791*	-0.4346*
	[0.1698]	[0.2238]	[0.2228]
other controls	Y	Y	Y
child's age dummies	Y	Y	Y
census tract fix effect	Y	Y	Y
Observations	294	211	211

Notes:

Column 1 uses all children. Column 2 uses single child plus the older sampled child from multi-child households. Column 3 uses single child plus the sampled child who is from multi-child households and have larger $(\text{Latino share})_{aj}$ than the other sampled child of the same household.

Regressions are weighted by the LAFANS sampling weights for children.

Standard errors are clustered by tract-age groups. Robust stand errors are in brackets.

*** p<0.01, ** p<0.05, * p<0.1

Table 8. Falsification Test

Dependent	private school		very sure to move in 2 yrs					
			single child		Max Latino share child		Min Latino share child	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$(\text{Latino share})_{a-2,j}$	-0.0775		-0.264		-0.0617		0.0624	
	[0.1326]		[0.2369]		[0.2960]		[0.1545]	
$(\text{Latino share})_{a+2,j}$		0.0677		0.0802		-0.0636		0.3668*
		[0.1493]		[0.3435]		[0.2715]		[0.2032]
other controls	Y	Y	Y	Y	Y	Y	Y	Y
age dummies	Y	Y	Y	Y	Y	Y	Y	Y
tract fixed effect	Y	Y	Y	Y	Y	Y	Y	Y
Observations	293	293	96	96	115	115	115	115

Notes:

Columns 1 and 2 use all children. Columns 3 and 4 use single child. Columns 5 and 6 use the sampled child who is from multi-child households and have larger $(\text{Latino share})_{aj}$ than the other sampled child of the same household. Columns 7 and 8 use the sampled child who is from multi-child households and have larger $(\text{Latino share})_{aj}$ than the other sampled child of the same household.

Regressions are weighted by the LAFANS sampling weights for children.

Standard errors are clustered by tract-age groups. Robust stand errors are in brackets.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1

Population and Public School Enrollment by race in CA (1990-2000)

	1990	2000	change
population (million)			
Hispanic	7.558	10.969	3.412
Non-Hispanic White	17.094	15.771	-1.323
Non-Hispanic Black	2.111	2.148	0.037
Non-Hispanic Asian	2.748	3.643	0.895
Total	29.760	33.872	4.112
public school enrollment rate			
Hispanic	0.936	0.949	0.013***
Non-Hispanic White	0.88	0.856	-0.024***
Non-Hispanic Black	0.913	0.914	0.001
Non-Hispanic Asian	0.901	0.889	-0.012***

Sources: Census and IPUMS 5%, 1990 and 2000