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To Ghetto or Not to Ghetto: Ethnicity and Residential Segregation*

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This paper analyzes the link between ethnicity and the choice of residing in ethnically segregated neighborhoods. Data drawn from the National Longitudinal Surveys of Youth show that there exist strong human capital externalities both within and across ethnic groups. As a result, the segregation choices made by particular households depend both on the household's economic opportunities and on aggregate characteristics of the ethnic groups. The evidence suggests that highly skilled persons who belong to disadvantaged groups have lower probabilities of ethnic residential segregation—relative to the choices made by the most skilled persons in the most skilled groups. © 1998 Academic Press

I. INTRODUCTION

There is growing appreciation for the prospect that our social and economic environment has a potentially large impact on socioeconomic outcomes. The existence of social capital and other forms of neighborhood effects has crucial implications for a wide array of policy issues, ranging from the creation and growth of a social underclass to the study of how other languages and cultures persist in the United States [15, 21].

For the most part, the existing literature analyzes two distinct issues. Some studies measure the segregation faced by particular groups by counting the number of persons who reside in particular geographic areas and calculating various segregation indices from these counts [1, 18, 19]. Other studies examine the implications of this "ghettoization," and the evidence typically suggests that neighborhood effects have a significant impact on outcomes [5, 8, 9]. There is, however, a debate over whether the measured impacts reflect a spurious correlation, induced by the possibility that the same unobserved factors that lead to particular location choices also lead to particular socioeconomic outcomes [12, 14, 17].

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For the most part, the empirical literature does not address the question of how persons choose the neighborhoods where they wish to reside. There exists a related (but mainly theoretical) literature that models neighborhood choice, and uses these models to analyze the determinants of local schooling expenditures, taxes, and segregation by income levels [2, 11, 13]. The typical study presents a general equilibrium model with a number of different groups and different neighborhoods, and describes the optimal sorting of persons among neighborhoods.

This paper builds on the existing work to provide both a conceptual and empirical study of the link between ethnicity and the choice of residing in ethnically segregated neighborhoods. Following Borjas [3, 4], the operational hypothesis of the study is that there are ethnic spillovers in the human capital accumulation process both within and across ethnic groups. These spillovers help determine the optimal sorting of ethnic groups across neighborhoods.

The empirical analysis uses a version of the National Longitudinal Surveys of Youth (NLSY) that identifies the zip code of residence. The study generates a number of interesting results. First, there exist strong ethnic externalities both within and across ethnic groups. As a result, persons in the least skilled groups wish to move to neighborhoods where they can benefit from contact with highly skilled groups, while persons in the most skilled groups want to segregate themselves in wealthier enclaves. Second, skills and economic opportunities affect the segregation choices made by particular households. For example, highly skilled persons who belong to disadvantaged ethnic groups tend to have lower probabilities of ethnic residential segregation—relative to the choices made by the most skilled persons in the most skilled groups. Finally, there is a great deal of intergenerational persistence in ethnic segregation.

II. THEORY

I begin by describing how utility-maximizing households jointly determine the ethnic composition of a neighborhood when there are ethnic spillovers that influence the human capital accumulation process. The model presented here has its direct antecedents in the work of Cooper [7], Fernandez and Rogerson [13], Westhoff [20], and particularly de Bartolome [10]. In this family of models, there are various types of neighborhoods and various types of persons, and the model is used to describe the sorting that occurs between neighborhoods and persons.

In my initial work on ethnic externalities, a utility-maximizing household faced a trade-off between current consumption and investments in the human capital of its children [3]. The ethnic externality was introduced by assuming that the human capital production function depends not only on parental inputs (such as time and the parent's human capital), but also on

''ethnic capital,'' the average human capital of the ethnic group in the parent's generation.[1] This definition implies that ethnic capital is exogenous to the household. The household cannot choose its ethnicity nor does it choose the frequency of contact between the children and other ethnic groups. A straightforward generalization of the framework would consider the concept of ''effective'' ethnic capital, which could be roughly defined as a weighted average of the ethnic capital of the various groups that live in the neighborhood.

Suppose the household's separable utility function is given by

$$\text{utility} = U(C) + V(I; k) + \log(\bar{h}), \tag{1}$$

where C denotes consumption of goods, I gives the dollar expenditure that parents make on the human capital of their children, k is the level of parental capital, which may potentially influence the utility yield of parental expenditures on children, and $\bar{h}$ is the level of effective ethnic capital. The functions U and V are concave and twice differentiable.

There are two ethnic groups in the economy, indexed by 1 and 2. The ethnic capital of group j is $\bar{k}_j$, with $\bar{k}_2 > \bar{k}_1$. I will refer to type-1 persons as ''less skilled'' and type-2 persons as ''highly skilled.'' There are also two neighborhoods: a good neighborhood (indexed by g) and a bad neighborhood (b). The population of the good neighborhood is n_g, while the population of the bad neighborhood is n_b. The size of the neighborhoods is exogenously determined. Neighborhood g is good in the sense that a majority of persons living there belong to the highly skilled ethnic group. Let π_l be the fraction of the population in neighborhood l ($l = \text{b}, \text{g}$) that is composed of highly skilled workers. By assumption, $\pi_{\text{g}} > 0.5$ and $\pi_{\text{b}} < 0.5$.[2]

Suppose that skills are homogeneous within an ethnic group. The parental level of human capital is given by k_j for all type-j persons, with $k_2 > k_1$.[3] We also assume that the utility yield of an investment of I dollars in children's education is greater for more skilled households, perhaps because these investments are more productive when they are complemented by a higher level of human capital in the household sector. The household's utility function is then given by

$$\text{utility} = U(C) + k_j\, V(I) + \log \bar{h}, \tag{2}$$

[1] This measure of ethnic capital is a human capital externality of the type investigated by Coleman [6] in his work on social capital and by Lucas [16] in his study of economic development.

[2] The exogenous size of the neighborhoods and of the ethnic groups are defined so that this particular sorting is feasible.

[3] This assumption implies that $k_j = \bar{k}_j$. It is useful to maintain the fiction implied by the notation in order to isolate the effects of parental capital from the effects of ethnic spillovers.

All households want to expose their children to the higher levels of effective ethnic capital available in neighborhood g. Because persons are willing to pay to live in the better neighborhood, the competition for the fixed housing space generates differences in housing costs between the neighborhoods. Following de Bartolome [10], I introduce these housing costs by assuming that persons in neighborhood l pay a rent of r_l dollars, that the government is the sole landlord, and that the government redistributes the rent revenues on a per-capita lump-sum basis. The per-capita rent collected by the government equals

$$R = \frac{n_g r_g + n_b r_b}{n_g + n_b}, \tag{3}$$

and the *net* rents paid by residents in the two neighborhoods are given by

$$r = r_g - R = \frac{n_b(r_g - r_b)}{n_g + n_b}, \tag{4}$$

$$r_b - R = -\frac{n_g}{n_b} r. \tag{5}$$

It is convenient to interpret I as investments in public school. All persons who live in neighborhood l must then incur a cost of I_l to pay for their children's schooling. The level of I_l chosen by the neighborhood is determined by majority voting. By definition, type-1 persons form a majority in b and type-2 persons form a majority in g. The level of I chosen in each neighborhood is then given by the solution to the maximization problems:

$$\underset{I_b}{\text{Max}}\ U\left(w_1 - I_b + \left(n_g/n_b\right)r\right) + k_1\, V(I_b) + \log \bar{h}. \tag{6}$$

$$\underset{I_g}{\text{Max}}\ U\left(w_2 - I_g - r\right) + k_2\, V\left(I_g\right) + \log \bar{h}, \tag{7}$$

where w_j is the income of type-j persons (assumed to be the same for all persons in that group). The typical voter in each neighborhood takes housing costs and the ethnic composition of their neighborhood as given.

There are several ways to define the effective level of ethnic capital, which I denote as $\bar{h}_{jl}$ for the effective ethnic capital facing type-j parents in neighborhood l. Consider the effective ethnic capital faced by a type-2 person residing in neighborhood g. The frequency of type-1 persons in this neighborhood equals (1-π_g). There may exist social or economic barriers that hinder the likelihood of exchanges between members of the two groups (e.g., the two groups might attend different churches). As a result,

the probability of an exchange with a type-1 person equals only $(1-\pi_g)\ \delta$, where δ measures the impact of these social conventions on the possibility that a type-2 person has an encounter with a type-1 person.

Suppose that a fixed number of encounters occur per time period. The relative number of encounters that a type-2 person will have with other type-2 persons equals $(1 - (1 - \pi_g)\ \delta)$, and the effective level of ethnic capital can be calculated as $\bar{h}_{2g} = (1 - (1 - \pi_g)\ \delta)\ \bar{k}_2 + (1 - \pi_g)\ \delta\ \bar{k}_1$. In general, we can define

$$\bar{h}_{1b} = (1 - \pi_b \gamma)\ \bar{k}_1 + \pi_b \gamma \bar{k}_2, \tag{8a}$$

$$\bar{h}_{1g} = (1 - \pi_g \gamma)\ \bar{k}_1 + \pi_g \gamma \bar{k}_2, \tag{8b}$$

$$\bar{h}_{2b} = (1 - (1 - \pi_b)\ \delta)\ \bar{k}_2 + (1 - \pi_b)\ \delta \bar{k}_1, \tag{8c}$$

$$\bar{h}_{2g} = (1 - (1 - \pi_g)\ \delta)\ \bar{k}_2 + (1 - \pi_g)\ \delta \bar{k}_1. \tag{8d}$$

As noted above, the parameter δ measures the impact of social barriers on the probability that a type-2 person encounters a type-1 person. The parameter γ measures the impact of the barriers on the probability that a type-1 person has an encounter with a type-2 person. If social barriers completely obstruct exchanges between the two groups, then $\gamma = \delta = 0$, and the measures of effective ethnic capital $\bar{h}$ collapse to own-group ethnic capital. If, at the other extreme, no such barriers exist and all exchanges are random, then $\gamma = \delta = 1$, and the effective level of ethnic capital is a weighted average of the ethnic capital of the population in the neighborhood.

It is well known that these types of models generate multiple equilibria. Some equilibria are characterized by complete segregation of at least one of the groups, while others exhibit some mixing. Instead of describing the nature of all possible equilibria, I begin by considering an equilibrium where the neighborhoods are mixed. The parameter values in this equilibrium satisfy $0.5 < \pi_g < 1$ and $0 < \pi_b < 0.5$. These values ensure that expenditures in public schools in g are determined by the preferences of the skilled ethnic group, while expenditures in b are determined by the preferences of the less skilled group. From this baseline case, one can illustrate how segregation responds to changes in the economic environment.

There are no incentives to migrate across neighborhoods if the mixed equilibrium exists. In particular, type-*j* persons who live in neighborhood b are indifferent between living there and moving to neighborhood g. We

can write these iso-utility equilibrium conditions as

$$U\left[w_1 - I_b + (n_g/n_b)r\right] + k_1 V(I_b) + \log \bar{h}_{1b} = U\left[w_1 - I_g - r\right] + k_1 V(I_g) + \log \bar{h}_{1g}, \tag{9}$$

$$U\left[w_2 - I_b + (n_g/n_b)r\right] + k_2 V(I_b) + \log \bar{h}_{2b} = U\left[w_2 - I_g - r\right] + k_2 V(I_g) + \log \bar{h}_{2g}. \tag{10}$$

For a given level of π_g, each of these conditions defines the net rent r that makes the neighborhoods equally attractive for a particular group. These conditions can be used to derive bid curves giving the net rent that persons are willing to pay to live in the better neighborhood as a function of π_g. The bid curves are illustrated in Figure 1 and have a number of important properties. First, they are upward sloping: workers are willing to pay a higher rent to live in the better neighborhood as the fraction of highly skilled persons in the neighborhood's population increases. In

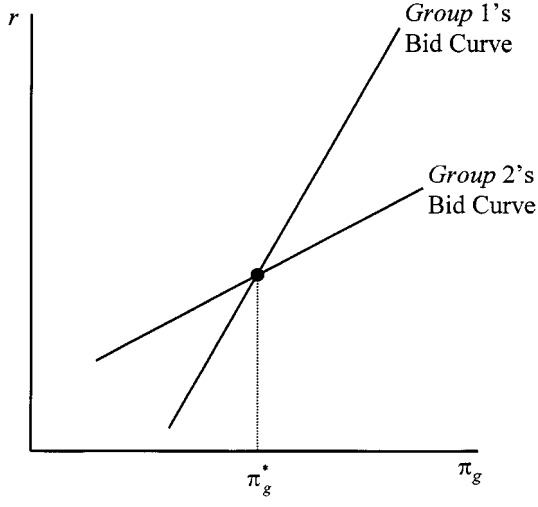

FIG. 1. A mixed equilibrium.

addition, the bid curve for type-1 workers is steeper if:[4]

$$\bar{k}_2\gamma(1-\delta) > \bar{k}_1(1-\gamma)\delta. \tag{11}$$

A sufficient condition for (11) to hold is that $\gamma \geq \delta$ or that social conventions lower the probability of encounters between the two groups more for type-2 than for type-1 persons. This restriction is *not* necessary to generate a mixed equilibrium if $(\bar{k}_2 - \bar{k}_1)$ is sufficiently large (thus generating incentives for the less skilled group to move to the better neighborhood even if it is difficult to make contact with more skilled persons). I assume that Eq. (11) holds.

Because both groups pay the same rent in each of the neighborhoods, the equilibrium values of r and π_g are given by the intersection of the two bid curves in Figure 1. For values of π_g below π_g^*, workers in the skilled ethnic group are willing to pay more to live in the good neighborhood, and π_g increases. For values of π_g above π_g^*, workers in the less skilled group are willing to pay more to live in the good neighborhood, and segregation declines.

This framework suggests that any change in the economic environment that shifts the bid curve of type-1 workers upward (so that they are willing to pay more to live in the better neighborhood) reduces π_g and there is less ethnic segregation. Conversely, any change in the environment that shifts the bid curve of type-2 workers upward (so that they too are willing to pay more to live in the better neighborhood) raises π_g and increases segregation.

We can conduct comparative-static exercises by examining how bid curves shift in response to changes in parameter values. The change in the bid curve is obtained by differentiating the iso-utility conditions in (9) and (10) with respect to the parameter of interest, while holding constant the net rent r. Consider an increase in the income of the groups:

$$\left.\frac{\partial \pi_g}{\partial w_1}\right|_{1,r} = \frac{U'(C_{1b}) - U'(C_{1g})}{\gamma\left(\bar{k}_2 - \bar{k}_1\right)\left[\bar{h}_{1g}^{-1} + (n_g/n_b)\bar{h}_{1b}^{-1}\right]} < 0, \tag{12a}$$

[4]The bid curves are derived by differentiating Eqs. (9) and (10) with respect to r, and imposing the first-order conditions from Eqs. (6) and (7). It is easy derive the slope properties of the bid curves if there are no income differences in the population ($w_1 = w_2$). If there are "large" income differences, the bid curve for type-1 workers may be flatter than the bid curve for type-2 workers, and a mixed equilibrium may not exist. I assume that even if income differences exist, these differences are not sufficiently strong to reverse the ranking of the slopes. The mixed equilibrium also requires that there are sufficient numbers of persons in each ethnic group to make the solution feasible.

$$\left.\frac{\partial \pi_g}{\partial w_2}\right|_{2,r} = \frac{U'(C_{2b}) - U'(C_{2g})}{\delta\left(\bar{k}_2 - \bar{k}_1\right)\left[\bar{h}_{2g}^{-1} + \left(n_g/n_b\right)\bar{h}_{2b}^{-1}\right]} < 0, \qquad (12b)$$

where C_{jl} gives the consumption of a type-j person living in neighborhood l. The concavity of $U(\cdot)$ in the household's utility function ensures that an increase in w_1 shifts the bid curve for type-1 workers upward, thus reducing the amount of ethnic segregation in the labor market, and that an increase in w_2 also shifts the bid curve for type-2 workers upward, thus increasing ethnic segregation.[5] The greater the dispersion in incomes across the groups, therefore, the more likely that the market will be segregated even if we initially start from a mixed equilibrium. Analogously, an increase in the gap in parental human capital $(k_2 - k_1)$ raises segregation, holding constant the ethnic capital of the group and the group's income.

Consider next the impact of changes in the level of ethnic capital. It is useful to initially conduct this exercise by holding incomes constant at $w_1 = w_2 = w$. An increase in $\bar{k}_2$ leads to an upward shift in the bid curve of *both* groups. In particular,

$$\left.\frac{\partial \pi_g}{\partial \bar{k}_2}\right|_{1,r} = \frac{-\bar{k}_1(\pi_g - \pi_b)}{\left(\bar{k}_2 - \bar{k}_1\right)\left[\bar{h}_{1b} + \left(n_g/n_b\right)\bar{h}_{1g}\right]} < 0, \qquad (13a)$$

$$\left.\frac{\partial \pi_g}{\partial \bar{k}_2}\right|_{2,r} = \frac{-\bar{k}_1(\pi_g - \pi_b)}{\left(\bar{k}_2 - \bar{k}_1\right)\left[\bar{h}_{2b} + \left(n_g/n_b\right)\bar{h}_{2g}\right]} < 0. \qquad (13b)$$

A comparison of (13a) and (13b) indicates that the change in the bid curve is larger (i.e., more negative) for persons belonging to the less skilled ethnic group. In effect, less skilled workers gain more from residing next to persons who belong to the highly skilled ethnic group than highly skilled workers do (and hence are willing to pay more to live in the better neighborhood). Figure 2(a) illustrates the result: the extent of segregation *falls* the larger is the ethnic capital of the highly skilled group.

[5]It is easy to show that $C_{jb} > C_{jg}\ \forall j$. It is important to note that the sign of the derivative in Eqs. (12) indicates how the bid curve shifts, *holding r constant*. The fact that the derivatives are negative implies that the bid curves shift upward because, for given r, the household is demanding a lower π_g.

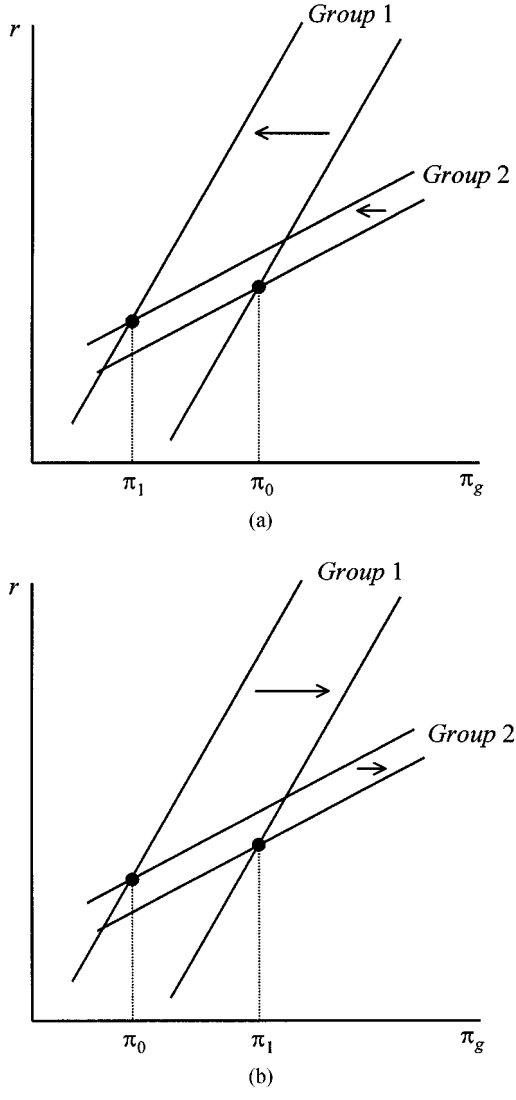

FIG. 2. The impact of a change in ethnic capital on residential segregation. (a) An increase in the ethnic capital of the highly skilled group, $\bar{k}_2$. (b) An increase in the ethnic capital of the less skilled group, $\bar{k}_1$.

An increase in $\bar{k}_1$ (assuming that $\bar{k}_2 > \bar{k}_1$) leads to a downward shift in the bid curve for both ethnic groups. In particular:

$$\left.\frac{\partial \pi_g}{\partial \bar{k}_1}\right|_{1,r} = \frac{\bar{k}_2(\pi_g - \pi_b)}{(\bar{k}_2 - \bar{k}_1)\left[\bar{h}_{1b} + (n_g/n_b)\bar{h}_{1g}\right]} > 0, \tag{14a}$$

$$\left.\frac{\partial \pi_g}{\partial \bar{k}_1}\right|_{2,r} = \frac{\bar{k}_2(\pi_g - \pi_b)}{(\bar{k}_2 - \bar{k}_1)\left[\bar{h}_{2b} + (n_g/n_b)\bar{h}_{2g}\right]} > 0. \tag{14b}$$

If the less skilled group becomes relatively more skilled, the incentives to live in the better neighborhood decline for all persons. However, the shift in the bid curve for the less skilled group is larger than the shift for the more skilled group. The equilibrium outcome is illustrated in Figure 2(b), and shows that residential segregation *increases* when $\bar{k}_1$ rises.

These conclusions depend strongly on the assumption that the two groups have the same income. Type-1 persons probably also have the lowest incomes, and cannot afford to buy into the better neighborhood. In contrast, type-2 persons probably have the highest incomes, and can buy the environment provided by the better neighborhood. If these income effects are relatively strong (or if household income is measured imperfectly in the empirical analysis), we would expect to find a positive correlation between segregation and the level of ethnic capital.

Finally, consider the impact of a change in the social barriers that hamper contacts between the two groups, as measured by γ and δ:

$$\left.\frac{\partial \pi_g}{\partial \gamma}\right|_{1,r} = \frac{-\bar{k}_1(\pi_g - \pi_b)}{\gamma\left[\bar{h}_{1b} + (n_g/n_b)\bar{h}_{1g}\right]} < 0, \tag{15a}$$

$$\left.\frac{\partial \pi_g}{\partial \delta}\right|_{2,r} = \frac{-\bar{k}_2(\pi_g - \pi_b)}{\delta\left[\bar{h}_{2b} + (n_g/n_b)\bar{h}_{2g}\right]} < 0. \tag{15b}$$

Type-1 workers are willing to pay more to live in the better neighborhood if it is easier to interact with type-2 workers (since they can then benefit from beneficial human capital externalities). At the same time, however, type-2 workers are also willing to pay more to live in the better neighborhood if they can easily interact with type-1 workers (so that they can segregate themselves and avoid the negative spillovers). The change in the observed level of segregation, therefore, depends on which group is willing to pay more to live in the better neighborhood as social barriers break down. Suppose $\gamma = \delta$. The comparison of (15a) and (15b) indicates that the upward shift in the bid curve is larger for group 2 than for group 1, so

that there is more segregation in equilibrium. As a result, attempts to increase the amount of interaction between the two groups might increase segregation because the behavioral response of type-2 workers is more than sufficient to neutralize the imposed change.

In sum, the analysis suggests a number of questions that can guide empirical research. If ethnic spillovers exist both within and across ethnic groups, the analysis suggests that persons who belong to the least skilled ethnic groups will want to ''invade'' the neighborhoods where highly skilled groups reside, while persons in the highly skilled groups will want to segregate themselves. A particular household's choice of location, of course, will depend on the household's economic resources. As a result, the most skilled persons belonging to disadvantaged ethnic groups will move out of the ethnic enclave, while the most skilled persons belonging to the most advantaged ethnic groups will choose to remain segregated.

III. DATA

Initially, the analysis uses the 1979 wave of the NLSY, when the respondents were 14–22 years old. I use a version of the NLSY that identifies the subset of persons who resided in the same zip code in 1979.[6] Note that because over 80% of the respondents lived with their parents in 1979 (at the time the NLSY survey began), the residential location choices in 1979 were, for the most part, made by the parents.

The household's ethnicity is determined from the response to the question: ''What is your origin or descent?'' Although most persons in the NLSY gave only one response to the question, about one third of the respondents gave multiple answers. In these cases, I used the main ethnic background (as identified by the respondent) to classify people into ethnic categories.

For each person in the data, I calculated the probability that other NLSY respondents in the same zip code had the same ethnic background. The NLSY, however, surveyed other persons in the family unit who were in the ''correct'' age range (i.e., 14–22 in 1979). As a result, 46% of the NLSY respondents have at least one sibling in the data. To avoid the bias introduced by this sampling scheme, I calculated the residential segregation measures on the sample of nonrelated persons who reside outside the household unit. Because the NLSY oversampled blacks and other selected groups, I also used the sampling weights in the calculations.

[6] To maintain confidentiality, the numbering system used to identify zip codes in the NLSY file differs from that used by the Postal Service. Although the data indicate which subset of NLSY respondents live in the same postal area, it is impossible to locate the zip code within a particular metropolitan area.

The calculated probabilities are reported in Table 1 for the 24 ethnic groups identifiable in the NLSY.[7] There is strong evidence of ethnic residential segregation. The average black lived in a neighborhood that was 63.6% black, even though blacks form only 14.9% of the population in this age group. Similarly, the average Mexican lived in a neighborhood that was 50.3% Mexican, even though Mexicans form only 4.2% of the population.

By comparing the fraction of the neighborhood's population that shares the same ethnic background as the respondent to the fraction we would have expected if the ethnic groups were distributed randomly across neighborhoods, we can construct a segregation measure for each person in the NLSY. The individual-level measure of segregation used in the analysis below is a dummy variable set to unity when the fraction of the neighborhood's population that belongs to the respondent's ethnic group is at least twice as large as would have been expected if the ethnic group was randomly allocated to the neighborhood.[8] Table 1 also reports the mean of the individual-level measure of segregation for the various ethnic groups in the 1979 data, and shows significant dispersion in the extent of residential segregation across groups. By this definition, 49.1% of blacks and 83.8% of Mexicans live in ethnically segregated neighborhoods, as compared to only 28.4% of Germans.

The NLSY data also report the zip code of residence in the 1992 wave, when the NLSY respondents are 27–35 years old. I conducted a parallel set of calculations in the 1992 wave, calculating both the fraction of the neighborhood's population that belonged to the same ethnic group as the respondent, as well as the individual-level measure of segregation. Table 1 also reports the summary statistics for these variables. As with the 1979 data, there are sizable differences in ethnic residential segregation across ethnic groups in 1992. The intertemporal correlation in the residential segregation measure is discussed below.

For the most part, the empirical analysis uses a person's educational attainment as the measure of skills. To obtain the measure of ethnic capital for each group, I used the 1/100 1980 U.S. Census to calculate the mean educational attainment for each of the ethnic groups in the parents'

[7] These statistics should be interpreted with some caution. There are fewer than 100 observations for 10 of the 24 ethic groups. The Vietnamese ethnic group is also identified in the NLSY. The 1992 wave (used below), however, did not contain valid information for any persons of Vietnamese ancestry.

[8] Consider person i who belongs to ethnic group j and resides in neighborhood l. The variable p_{ijl} gives the fraction of persons who share person i's ethnic background and live in neighborhood l. Let p_j be the fraction of the total population that belongs to group j. Person i lives in a segregated neighborhood if $p_{ijl} > 2p_j$. I replicated the analysis using alternative measures of segregation and obtained qualitatively similar results.

TABLE 1

Descriptive Statistics

Ethnic group	% of Group in population	1979		1992		Ethnic capital (educational attainment)	1979 Sample size
		% of Population in zip code with same ethnicity	Measure of segregation	% of Population in zip code with same ethnicity	Measure of segregation		
American	7.6	18.2	49.1	10.4	12.1	11.2	743
American Indian	5.9	12.9	45.7	7.8	10.7	11.2	624
Asian Indian	0.2	2.0	13.6	0.0	0.0	16.7	22
Black	14.9	63.6	79.4	51.9	85.2	11.0	3055
Chinese	0.2	3.5	15.4	0.0	0.0	13.8	26
Cuban	0.4	33.3	66.7	19.3	70.9	11.3	117
English	18.9	23.9	22.1	14.4	11.0	12.9	1587
Filipino	0.4	5.0	20.5	0.0	0.0	13.8	44
French	3.5	5.6	19.9	5.0	8.2	11.7	316
German	17.4	25.7	28.4	16.2	13.2	12.9	1420
Greek	0.4	7.2	25.8	0.8	71.0	12.8	31
Hawaiian	0.1	0.2	25.0	0.0	0.0	12.1	20
Irish	11.0	14.3	18.7	7.4	6.1	12.8	956
Italian	6.2	16.3	49.6	11.5	10.2	12.6	498
Japanese	0.2	0.0	0.0	0.0	0.0	14.1	20
Korean	0.1	0.0	0.0	0.0	0.0	14.9	6
Mexican	4.2	50.3	83.8	42.5	84.8	9.0	1174
Other Hispanic	0.9	9.3	52.3	8.3	59.8	11.4	214
Polish	3.1	12.8	43.0	6.1	7.0	13.0	242
Portuguese	0.6	19.7	66.0	0.3	2.1	10.5	97
Puerto Rican	1.2	29.8	80.2	22.0	73.8	9.6	328
Russian	0.6	0.3	10.6	0.0	0.0	15.3	47
Scottish	1.5	4.6	35.2	0.3	2.5	13.8	122
Welsh	0.5	1.9	42.9	3.4	77.1	13.8	35

generation. The Census data report the ancestral background of U.S.-born residents (obtained from questions resembling the self-reported ethnic background in the NLSY). To increase the probability that the average skills of the ethnic milieu corresponded to that in which the NLSY respondents were raised, I restricted the 1980 Census sample to men aged 35–64. Table 1 also reports the calculated measure of ethnic capital for each of the groups.

IV. SPILLOVERS WITHIN AND ACROSS ETHNIC GROUPS

The theoretical discussion presented earlier provides a useful way of thinking about ethnic residential segregation only if ethnic spillovers within *and* across groups affect human capital accumulation. In earlier work, I documented that ethnic capital, as measured by the average skill level of the ethnic group in the parent's generation, has an important effect on the human capital of children, above and beyond parental inputs [3, 4]. I now show that there also exist ethnic spillovers across ethnic groups.

The simplest specification of the regression model used in the empirical analysis is

$$y_{ij} = \beta_1 k_{ij} + \beta_2 \bar{k}_j + \beta_3 \bar{k}_\tau + \varepsilon_{ij}, \tag{16}$$

where y_{ij} is the human capital of child i in ethnic group j, k_{ij} is the human capital of the father, $\bar{k}_j$ is the ethnic capital of the group in the parental generation, and $\bar{k}_\tau$ is the ethnic capital of group τ, the ''other'' ethnic group in the neighborhood where the child grew up. The dependent variable in the regression is the educational attainment of the NLSY respondent as of 1990; k_{ij} is defined to be the educational attainment of the father, and the ethnic capital variable $\bar{k}_j$ is the mean educational attainment of the ethnic group in the father's generation.

The regression analysis uses two definitions for the ''other'' ethnic group. The first defines τ as the group with the largest relative frequency in the neighborhood of residence in 1979—apart from the respondent's own ethnic group. Let m (for $m \neq j$) be the ethnic group with the largest fraction of the population in the neighborhood. The other group's ethnic capital is then given by the ethnic capital of the modal group in the neighborhood, or $\bar{k}_\tau = \bar{k}_m$.

Alternatively, one can also calculate the mean ethnic capital over all ''other'' group in the 1979 neighborhood. In particular, let p_s be the fraction of the neighborhood's population that belongs to group s ($s \neq j$)

TABLE 2

Spillover Effects Across Ethnic Groups[a]

Variable	Baseline	Other group = modal group (1)	Other group = modal group (2)	Other group = modal group (3)	Other group = mean group (1)	Other group = mean group (2)	Other group = mean group (3)
Father's education	0.2366 (0.0065)	0.2340 (0.0065)	0.2340 (0.0065)	0.1690 (0.0069)	0.2334 (0.0065)	0.2331 (0.0065)	0.1708 (0.0070)
Ethnic capital of own group	0.2304 (0.0764)	0.2175 (0.0757)	0.2247 (0.0752)	0.1098 (0.0329)	0.2170 (0.0752)	0.2409 (0.0771)	0.0335 (0.0440)
Ethnic capital of other group	—	0.1243 (0.0215)	—	—	0.1731 (0.0269)	—	—
Interactions of ethnic capital of other group with							
Own group is more skilled	—	—	0.0353 (0.0462)	−0.1746 (0.0628)	—	0.2046 (0.0542)	0.0216 (0.0851)
Own group is less skilled	—	—	0.1495 (0.0313)	0.0994 (0.0362)	—	0.1252 (0.0358)	0.1332 (0.0480)
Includes neighborhood fixed effects	No	No	No	Yes	No	No	Yes

[a]Standard errors are reported in parentheses. The regressions use a random-effects estimator that allows for a group-specific component in the error term and have 7894 observations. The regressions control for the respondent's age, sex, immigration status (set to unity if either parent was foreign born), and a dummy variable indicating if the respondent was still enrolled in school in 1990. The regressions reported in columns 2 and 3 also include dummy variables indicating if the own group is more or less skilled than the ''other'' group in the neighborhood.

and let $\bar{k}_s$ be the ethnic capital of that group. Then define

$$\bar{k}_\tau = \frac{\sum_{s \neq j} p_s \bar{k}_s}{\sum_{s \neq j} p_s}. \tag{17}$$

Table 2 reports the estimates of the ethnic capital model that incorporate the cross-effects among ethnic groups. All the regressions use random-effects estimators that allow for an ethnic group-specific component in the stochastic disturbance of Eq. (16).[9]

[9]Parents choose the ethnic composition of the neighborhood where they want their children raised. The presence of an ethnic group-specific component in the error term suggests that the other ethnic capital variable in (16) might be endogenous even though the regression model is lagged (relating children's outcomes to parental choices). It is difficult to address this endogeneity problem unless we know much more about how parents choose the ethnic mix of the neighborhood (both in terms of the fraction of persons who belong to the same ethnic group and the optimal mix of ''other'' ethnic groups).

The baseline regression does not allow for any cross-group spillover effects. Both the parental and the ethnic capital coefficient are about 0.2. In column 1, the specification adds the ethnic capital variable for the other group ($\bar{k}_\tau$) to the baseline specification. Regardless of how we define the other group's ethnic capital, there are significant cross-group spillovers in the human capital accumulation process. The magnitude of the cross-group effect is surprisingly strong; the coefficient of the other group's ethnic capital is between 0.12 and 0.17, or at least half the size of the own-group effect.

The theoretical discussion raised the possibility that the spillovers going from highly skilled to less skilled groups might have a different magnitude than the spillovers going from less skilled groups to highly skilled groups. We investigate the existence of these differential spillovers by expanding the specification in Eq. (16) to incorporate information on the sign of the difference between $\bar{k}_j$ and $\bar{k}_\tau$. In particular, let d be a dummy variable set to unity if own-group ethnic capital exceeds the ethnic capital of the other group in the neighborhood (i.e., $d = 1$ if $\bar{k}_j > \bar{k}_\tau$). We can then determine if there are differential spillover effects between highly and less skilled ethnic groups by estimating

$$y_{ij} = \beta_1 k_{ij} + \beta_2 \bar{k}_j + \beta_3 d\bar{k}_\tau + \beta_4 (1 - d)\bar{k}_\tau + \beta_5 d + \varepsilon_{ij}. \quad (18)$$

The coefficient β_3 measures the impact of the cross-group effect when the other group is more skilled than the respondent's ethnic group, while the coefficient β_4 measures the cross-group spillover effect when the other group is less skilled.

As seen in column 2 of Table 2, the empirical evidence on differential spillover effects is mixed. When $\bar{k}_\tau$ is defined in terms of the ethnic capital of the modal group in the neighborhood, the regression indicates that the spillover effect is much stronger in the direction going from less skilled to highly skilled groups. When $\bar{k}_\tau$ is defined in terms of the mean of the other groups in the neighborhood, the ranking of the coefficients reverses.

Finally, it is of interest to determine if the various ethnic capital effects remain even when we look within a particular neighborhood. The evidence reported in Borjas [4] indicates that much of the impact of own-group ethnic capital on the human capital of children disappears once we control for variables measuring neighborhood effects that are common to *all* persons living in the neighborhood, regardless of ethnic background. Column 3 in Table 2 adds a vector of neighborhood fixed effects. The inclusion of these fixed effects reduces the impact of own-group ethnic capital substantially, but has a less clear impact on the cross-group spillover effects. The only finding that seems to be robust across specifications is that there is a significant spillover effect going in the direction

from less skilled to highly skilled ethnic groups, even within a particular neighborhood of residence.

The theoretical discussion suggested that the cross-group spillover effects depend on the relative frequency of the various groups in the neighborhood. This hypothesis is investigated in Table 3. In particular, the measures of parental capital, own-group ethnic capital, and the other

TABLE 3

Relationship Between Cross-Group Spillovers and Ethnic Composition of Neighborhood[a]

	Other group = modal group		Other group = mean group	
Variable	(1)	(2)	(1)	(2)
Interactions between father's education and proportion of neighborhood's population that has the same ethnicity				
0%of population has same ethnicity	0.2609	0.1895	0.2593	0.1874
	(0.0131)	(0.0139)	(0.0130)	(0.0139)
Between 0 and 77%	0.2407	0.1803	0.2399	0.1827
	(0.0098)	(0.0093)	(0.0098)	(0.0093)
Greater than 77%	0.1204	0.1124	0.1196	0.1129
	(0.0199)	(0.0138)	(0.0198)	(0.0138)
Interactions between own-group ethnic capital and proportion of neighborhood's population that has the same ethnicity				
0% of population has same ethnicity	0.1058	0.0792	0.1023	0.1034
	(0.0698)	(0.0390)	(0.0694)	(0.436)
Between 0 and 77%	0.2459	0.1037	0.2437	0.1298
	(0.0721)	(0.0397)	(0.0716)	(0.0461)
Greater than 77%	0.3122	0.1344	0.3161	0.2302
	(0.1094)	(0.1354)	(0.1090)	(0.1431)
Interactions between other group's ethnic capital and proportion of neighborhood's population that has the same ethnicity				
0% of population has same ethnicity	0.1412	0.0712	0.2228	0.2079
	(0.0410)	(0.0563)	(0.0503)	(0.0866)
Between 0 and 77%	0.1416	0.0636	0.2037	0.0820
	(0.0311)	(0.0460)	(0.0428)	(0.0832)
Greater than 77%	0.0618	0.0572	0.0913	0.0829
	(0.0412)	(0.0567)	(0.0457)	(0.0595)
Includes neighborhood fixed effects	No	Yes	No	Yes

[a]Standard errors are reported in parentheses. The regressions use a random-effects estimator that allows for a group-specific component in the error term and have 7894 observations. The regressions control for the respondent's age, sex, immigration status (set to unity if either parent was foreign born), and a dummy variable indicating if the respondent was still enrolled in school in 1990. All regressions also include the dummy variables which indicated the extent of residential segregation in the neighborhood.

group's ethnic capital are interacted with dummy variables indicating the relative frequency of the own ethnic group in the neighborhood of residence in 1979.

I defined three dummy variables indicating the relative size of the ethnic group in the 1979 neighborhood. The first dummy variable is set to unity if no one else in the neighborhood had the same ethnicity as the NLSY respondent; the second dummy variable is set to unity if the fraction of the population that belonged to the same ethnic group was between 0 and 77% and the last dummy variable is set to unity if over 77% of the population belonged to the same ethnic group.[10] I then interacted each of the three dummy variables with the observed measures of parental capital, own-group ethnic capital, and other group's ethnic capital (as well as included the dummy variables in the regressions to allow for different intercepts among the groups).

Table 3 reveals a strong relationship between the impact of the ethnic capital variables and the relative size of the ethnic groups in the neighborhood. In particular, the own-group spillover effect is much stronger when the neighborhood contains a relatively large number of persons belonging to the same ethnic group as the NLSY respondent. In particular, the coefficient of the own ethnic capital variable rises from 0.11 to 0.31 as we move from neighborhoods where no other persons shared the same ethnic background to neighborhoods where almost all persons shared the same ethnic background.

The regressions also indicate that the cross-group spillover becomes weaker as we shift to neighborhoods where the own ethnic group plays a larger role. The coefficient of the other ethnic capital variable declines from 0.14 to 0.06 as we move from neighborhoods where no other persons share the respondent's ethnic background to neighborhoods where almost all persons share the same ethnic background.

The findings reported in this section suggest that the human capital accumulation process is affected not only by the relative frequency and skill level of a person's own ethnic background, but also by the frequency and skill levels of the other ethnic groups in the neighborhood of residence. These spillover effects justify the analysis of residential segregation decisions in the context of a model where parents choose the pattern of ethnic segregation that is most beneficial.

[10] This categorization generates large samples for each of the three groups: 23% of the persons are in the first category, 46% in the second, and 31% in the third. The model could be generalized to include dummy variables indicating the fraction of the neighborhood's population that belongs to group τ. On average, however, over three quarters of the population belong to one of two ethnic groups, so that the variable giving the fraction of the population that has the same ethnicity as the respondent contains most of the information available.

V. DETERMINANTS OF RESIDENTIAL SEGREGATION

The theoretical analysis implies that there should exist systematic differences both within and across ethnic groups in the extent to which households choose to reside in ethnically segregated neighborhoods. The individual-level measure of segregation is a dummy variable set to unity when the fraction of the neighborhood's population that belongs to the respondent's ethnic group is at least twice as large as would have been expected if the ethnic group was randomly allocated to the neighborhood. Table 4 reports the main set of regressions that relate the 1979 measure of segregation to various skill and demographic variables, while Table 5 reports similar regressions for the 1992 measure of segregation.

Because NLSY respondents were aged 14–22 in 1979, the neighborhood of residence at that time was determined mainly by the respondent's parents. To emphasize this distinction, the regressions reported in Table 4 are estimated in the subsample of persons who lived with their parents in 1979. The skill variables included on the right-hand side then refer to the skills of the parents, as measured by the father's schooling or the father's wage (defined as the mean log wage of the father's occupation). By 1992, practically all respondents had moved outside the parental household and the regressors indicate the skills of the NLSY respondent, as measured by educational attainment or the log wage.

The two sets of regressions, therefore, examine the extent of ethnic residential segregation chosen by two distinct generations. Despite the 13-year difference in the measures of segregation (as well as the fact that the residential decisions are made by different persons), the data reveal a striking result: the determinants of ethnic residential segregation seem to be stable across generations.

The first column of each table reveals a strong negative correlation between ethnic residential segregation and the educational attainment of the person making the location decision, as well as a strong negative correlation between ethnic segregation and ethnic capital. An additional year of schooling for the decision-maker lowers the probability of residing in an ethnically segregated neighborhood by slightly less than 1 percentage point, while an increase of one year in the average educational attainment of the ethnic group lowers the probability of residing in a segregated neighborhood by 15–20 percentage points.

The theoretical discussion suggested that the relation between residential segregation and ethnic capital might be nonlinear. Column 2 explores this possibility by including dummy variables indicating if the educational attainment of the respondent's ethnic group is in the lower or upper quartiles of the education distribution. The data show that ethnic residential segregation is most concentrated among the least skilled groups, and

TABLE 4

Determinants of Ethnic Residential Segregation, 1979[a]

Variable	Regression (1)	(2)	(3)	(4)	(5)	(6)
Father's education	−0.0057	−0.0070	—	—	—	—
	(0.0018)	(0.0021)				
Father's log wage	—	—	—	−0.1012	−0.0901	—
				(0.0313)	(0.0347)	
Ethnic capital	−0.1587	—	—	−0.1530	—	—
	(0.0286)			(0.0266)		
Group is in lower quartile	—	0.4289	0.4468	—	0.4284	0.5815
		(0.0661)	(0.0704)		(0.0753)	(0.0838)
Group is in upper quartile	—	−0.0125	0.0350	—	−0.0187	0.0173
		(0.0818)	(0.1782)		(0.0888)	(0.2829)
Interactions between father's education and						
Group is in lower quartile	—	—	−0.0077	—	—	—
			(0.0039)			
Group is in 25–75th percentile	—	—	−0.0060	—	—	—
			(0.0033)			
Group is in upper quartile	—	—	−0.0099	—	—	—
			(0.0083)			
Interactions between father's log wage and						
Group is in lower quartile	—	—	—		—	−0.1644
						(0.0783)
Group is in 25–75th percentile	—	—	—		—	−0.0372
						(0.0322)
Group is in upper quartile	—	—	—		—	0.0650
						(0.1520)
Male	0.0156	0.0169	0.0170	0.0096	0.0091	0.0085
	(0.0101)	(0.0106)	(0.0105)	(0.0137)	(0.0143)	(0.0144)
Immigrant	−0.0576	0.0608	0.0597	−0.0523	0.0625	0.0573
	(0.0693)	(0.0451)	(0.0443)	(0.0759)	(0.0516)	(0.0496)
Age	0.0007	0.0003	0.0003	0.0011	0.0012	0.0011
	(0.0012)	(0.0013)	(0.0013)	(0.0020)	(0.0020)	(0.0020)
R-squared	0.190	0.207	0.207	0.186	0.199	0.200
Sample size	6747	6747	6747	4597	4597	4597

[a]Standard errors are reported in parentheses. The regressions use the linear probability model. The immigrant dummy variable is set to unity if either parent was foreign born.

that the difference in residential segregation between the most skilled groups and the ''typical'' groups (i.e., groups with an educational attainment between the 25th and 75th percentile) is quite small.

The theory also suggested that the endogenous sorting of persons across neighborhoods would lead to a nonmonotonic relationship between a

TABLE 5

Determinants of Ethnic Residential Segregation, 1992[a]

	Regression					
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Respondent's education	−0.0078	−0.0092	—	—	—	—
	(0.0032)	(0.0028)				
Respondent's log wage	—	—	—	−0.0330	−0.0208	—
				(0.0113)	(0.0068)	
Ethnic capital	−0.1876	—	—	−0.1817	—	—
	(0.0355)			(0.0348)		
Group is in lower quartile	—	0.5365	0.5778	—	0.5215	0.5391
		(0.0819)	(0.1080)		(0.0856)	(0.0989)
Group is in upper quartile	—	−0.0956	−0.0819	—	−0.1014	−0.1694
		(0.0487)	(0.1374)		(0.0506)	(0.0711)
Interactions between respondent's education and						
Group is in lower quartile	—	—	−0.0110	—	—	—
			(0.0028)			
Group is in 25–75th percentile	—	—	−0.0078	—	—	—
			(0.0048)			
Group is in upper quartile	—	—	−0.0088	—	—	—
			(0.0094)			
Interactions between respondent's log wage and						
Group is in lower quartile	—	—	—	—	—	−0.0276
						(0.0073)
Group is in 25–75th percentile	—	—	—	—	—	−0.0194
						(0.0109)
Group is in upper quartile	—	—	—	—	—	0.0086
						(0.0171)
Male	0.0064	0.0061	0.0059	0.0138	0.0161	0.0158
	(0.0105)	(0.0106)	(0.0107)	(0.0121)	(0.0114)	(0.0116)
Immigrant	0.0460	0.1096	0.1093	−0.0215	0.1320	0.1316
	(0.0959)	(0.0579)	(0.0597)	(0.0960)	(0.0616)	(0.0616)
Age	−0.0007	−0.0004	−0.0004	−0.0010	0.0002	0.0003
	(0.0025)	(0.0023)	(0.0023)	(0.0025)	(0.0024)	(0.0024)
R-squared	0.258	0.320	0.320	0.248	0.304	0.304
Sample size	6837	6837	6837	5363	5363	5363

[a]Standard errors are reported in parentheses. The regressions use the linear probability model. The immigrant dummy variable is set to unity if either parent was foreign born.

person's human capital and ethnic segregation. In particular, an increase in a person's human capital would lead to less segregation if that person belonged to one of the least skilled ethnic groups, but would lead to more segregation if the person belonged to one of the highly skilled groups. The regressions reported in column 3 of Tables 3 and 4 interact the person's

educational attainment with the dummy variables indicating the skill level of the group. There exists a strong negative correlation between the person's educational attainment and residential segregation among the least skilled groups, but an insignificant (though still negative) relationship between educational attainment and residential segregation for the most skilled groups.

The last three columns of the tables replicate the analysis using a different measure of a person's skills—the log wage of the parent (Table 3) or the NLSY respondent (Table 4). The impact of the log wage on residential segregation is similar to that of educational attainment: higher wages are associated with less segregation. As with the education–ethnic capital interactions, the wage–ethnic capital interactions reveal a much stronger negative correlation between wages and segregation for the least–skilled groups. In fact, the impact of the log wage is positive (though insignificant) for workers in the most skilled groups.

Overall, the empirical evidence does not provide a ringing endorsement of particular implications of the theory presented earlier (this would be quite difficult even in the best of circumstances because the model generates a large number of possible equilibria). Nevertheless, the data do indicate that the negative correlation between a person's skills and ethnic residential segregation weakens considerably for workers belonging to highly skilled ethnic groups. Interestingly, these skilled workers are the ones who have both the economic incentives and the financial resources to segregate themselves and benefit from the positive externalities that can arise from ethnic clustering.

VI. ETHNIC SEGREGATION ACROSS GENERATIONS

The previous section analyzed the determinants of ethnic residential segregation in 1979 and 1992 separately. I now use these data to determine if there is intergenerational persistence in ethnic segregation. The generic regression model is given by

$$S_i(t) = X_i\alpha + \beta S_i(t-1) + \varepsilon_i, \tag{19}$$

where $S_i(t)$ is the measure of segregation for household i in generation t, and X_i is a vector of standardizing variables. Table 6 summarizes the coefficient β obtained from various alternative specifications.[11]

The empirical evidence reveals a strong intergenerational link in ethnic residential segregation. The simplest specification reported in the first row of Table 6 shows that the probability that the NLSY respondent lived in an

[11] The analysis is restricted to NLSY respondents who resided with their parents in 1979 and who have valid measures of segregation in both 1979 and 1992.

TABLE 6

Intergenerational Correlation in Ethnic Residential Segregation[a]

Sample:	Column (1)	(2)	(3)	(4)
All persons ($N = 3737$)	0.4954	0.4944	0.3321	0.3309
	(0.0146)	(0.0146)	(0.0161)	(0.0161)
Nonblack persons ($N = 2533$)	0.4249	0.4085	0.3093	0.3083
	(0.0174)	(0.0176)	(0.0191)	(0.0191)
Did not live in same zip code in 1979 and 1992 ($N = 2289$)	0.3399	0.3382	0.1705	0.1687
	(0.0197)	(0.0197)	(0.0216)	(0.0216)
Lived in same zip code in 1979 and 1992 ($N = 1448$)	0.7298	0.7285	0.5958	0.5958
	(0.0184)	(0.0184)	(0.0208)	(0.0208)
Includes age and immigration status	No	Yes	Yes	Yes
Includes ethnic fixed effects	No	No	Yes	Yes
Includes respondent's 1992 educational attainment	No	No	No	Yes

[a]Standard errors are reported in parentheses. The regressions use the linear probability model.

ethnically segregated neighborhood in 1992 is 49.5 percentage points higher if the parents also lived in an ethnically segregated neighborhood in 1979. This correlation remains strong even when we add various standardizing variables, including the NLSY respondent's age, immigration status, education, and a vector of ethnic fixed effects. Column 4 of the table reports that even within ethnic groups, the probability of living in a segregated neighborhood in 1992 rises by 33.1 percentage points if the parents also lived in a segregated neighborhood in 1979.

The remaining rows of Table 6 examine the sensitivity of this intergenerational correlation to a variety of sample restrictions. For instance, the coefficient β in the nonblack sample is 0.31 (even after extensive controls). Therefore, ethnic segregation tends to persist across generations even among white ethnic groups.

The analysis reported in Table 6 is restricted to the sample of NLSY respondents who lived with their parents in 1979. As a result, part of the intergenerational correlation measured by β may be attributable to the fact that the household (i.e., the parents in 1979 and the child in 1992) lived in *exactly* the same zip code in both years. In fact, about 39% of the sample resided in the same zip code in 1979 and 1992. If the ethnic composition of the neighborhood changes slowly over time and there are high mobility costs, the intergenerational correlation arises simply because of the inertia in the residential location decision.

It turns out, however, that the intergenerational correlation remains strong, both numerically and statistically, even when we consider households that lived in different zip codes in the two years (so that the parents made a particular residential choice in 1979 and the NLSY children made a different choice in 1992). The third row of the table shows that the probability of living in an ethnically segregated neighborhood in 1992 is 34.0 percentage points higher if the parents lived in an ethnically (and different) segregated neighborhood. The empirical evidence thus suggests that the children who moved out of the parental neighborhood tend to choose a new neighborhood that is not all that different from the old neighborhood in at least one key characteristic, the ethnic composition of the neighborhood's population.

VII. SUMMARY

This paper provided a theoretical and empirical analysis of the factors that determine ethnic residential segregation. There exists a great deal of dispersion, both within and across ethnic groups, in the probability that persons live in ethnically segregated neighborhoods. Ethnic residential segregation, however, does not arise randomly. Persons choose the types of people with whom they wish to reside. This paper takes a first step toward a more general study of both the determinants and consequences of ethnic residential segregation.

The theoretical discussion suggested that such factors as income, parental skills, and ethnic capital determine the ethnic mix of the neighborhoods where persons choose to live. The model, in fact, suggests that greater income inequality among the groups will generate more segregation. Holding income constant, however, larger skill differentials among the groups could reduce segregation, as the less skilled groups attempt to move into the better neighborhoods to capture some of the beneficial externalities dispensed by the more skilled groups.

The empirical analysis generated a number of interesting findings. First, there are ethnic spillovers across ethnic groups. Second, the family's income and human capital—and the group's ethnic capital—have an important effect on the extent of residential segregation chosen by the household. Generally, high income or highly educated households, or households belonging to ethnic groups with high levels of ethnic capital, choose to live in less segregated neighborhoods. Finally, there is a strong positive correlation in ethnic residential segregation across generations.

Although this paper attempts to provide a more general analysis of ethnic segregation than is currently available, a number of important issues remain unexplored. For example, the analysis takes as given the skill level of the ''other'' ethnic group that lives in the neighborhood. If there are more than two groups in the population (and also more than two

neighborhoods), certain ethnic coalitions might arise as particular groups are willing to pay to live near some groups and are willing to pay *not* to live near others. Second, the analysis did not explore the link between ethnicity, skills, and the cost of housing in particular localities. Finally, the study did not consider how the residential choices made by households affect the rate of skill convergence among ethnic groups. In the end, the study of why households choose to segregate should help us understand how ethnic segregation influences economic and social assimilation, as well as provide a menu of policy remedies that might be available if one wishes to influence the observed outcomes.

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