

# Ghettos and the Transmission of Ethnic Capital

David M. Cutler  
Edward L. Glaeser

Harvard University and NBER

Jacob L. Vigdor\*

Duke University

May 7, 2002

\*Corresponding Author: Terry Sanford Institute of Public Policy, Box 90245, Durham, NC 27708. Email: [jvigdor@pps.duke.edu](mailto:jvigdor@pps.duke.edu). George Galster, Robert Margo and seminar participants at the NBER Summer Institute and the Boston University Institute on Race and Social Division provided helpful comments on earlier versions of this research. Joe Geraci and Susan Dunn provided outstanding research assistance. We thank Kerwin Charles and the editors for invaluable comments, and the National Science Foundation for research support. Remaining errors are the authors' responsibility.

## 1. Introduction

African-Americans have experienced high levels of residential segregation from the racial majority for at least a century (Massey and Denton, 1993; Cutler et al., 1999). Over the same time period, black socioeconomic outcomes have persistently lagged behind those of the majority, even as other initially disadvantaged ethnic and racial groups have experienced convergence (see Figures 1 and 2). Social scientists have developed and tested two causal explanations linking the former trend with the latter. First, the spatial mismatch hypothesis, proposed by John Kain in 1968, posits that residential segregation introduces a physical separation between blacks and centers of employment, which in turn adversely affects black outcomes. Empirical tests of this hypothesis (see Kain, 1992; Ihlandfeldt and Sjoquist 1998 for recent reviews) have provided varying degrees of support for the hypothesis. Second, recent literature emphasizing the importance of neighborhood effects, peer groups, and social interactions proposes that segregation negatively affects blacks by separating them from positive role models, high-quality local public goods, or other important inputs into the human capital production function (Wilson, 1987; Case and Katz 1993; Cutler and Glaeser 1997).<sup>1</sup>

A natural question to ask upon examining this previous research is whether residential segregation *per se* has negative effects on socioeconomic outcomes, or whether the relationship between segregation and outcomes depends on specific factors, such as the proximity of ghettos to employment centers or the collective human capital of the segregated group.<sup>2</sup> Are inhabitants of an isolated ethnic enclave consistently harmed by their isolation, even in cases where they can productively trade with one another and count many positive role models among their group? This chapter investigates the relationship between segregation, characteristics of the segregated group, and subsequent outcomes for group members, expanding on the groundwork laid by Borjas' (1995) investigation of ethnicity, neighborhoods, and human capital.

The focus of this study, and to some degree its motivation, is the experience of blacks and white immigrant groups in the early part of the twentieth century.<sup>3</sup> In this chapter we introduce

ethnic group segregation measures derived from Census data beginning in 1910. These indices measure the degree to which foreign-born individuals are isolated within enclaves composed of persons of their nationality. In 1910, as Figure 1 illustrates, some white ethnic groups – Russians and Italians – were actually more segregated, on average, than blacks in cities across the United States. Similar to blacks, these immigrant groups had socioeconomic outcomes that lagged behind those of native whites. This can be seen in Figure 2, which plots an occupation-based measure of income over time for each group.

Since 1910, blacks and these immigrant groups have traveled widely divergent paths. Immigrant segregation essentially dissipated within one generation, while immigrant outcomes rapidly converged to native white levels. Black segregation, by contrast, skyrocketed between 1910 and 1970, and black outcomes continue to lag behind those of native whites. There are some obvious hypotheses to explain this striking divergence. Race was undoubtedly a significant barrier to assimilation. Continued migration of blacks from rural to urban settings weighed down average group characteristics well after the flow of immigrants from Europe had stopped.

At first glance, it might appear that elevated initial segregation levels could not have played a strong role in subsequent black outcome disparities – after all, many other groups with similarly high segregation in 1910 converged rapidly to native white means. If the effects of segregation differ systematically across ethnic groups, however, the potential for a causal relationship persists. This potential relationship motivates an interesting hypothetical question. How much of the black trend in outcomes since 1910 can be explained by their persistently high residential segregation? Had blacks experienced residential integration as immigrants did, what would their socioeconomic relationship to native whites look like today?

The central hypothesis we test, that the effects of segregation depend on the characteristics of the segregated, has an alternative, equivalent interpretation. We hypothesize that the rate of

intergenerational *ethnic capital* transmission increases as ethnic group members experience greater exposure to one another within neighborhoods. Ethnic capital can be thought of as the set of individual attributes, cultural norms, and group-specific institutions that contribute to an ethnic group's economic productivity.<sup>4</sup> The transmission of ethnic capital across generations might occur for several reasons – the inheritance or emulation of parent-generation characteristics, internalization of norms and values, or cross-generational partnership in networks or institutions (Borjas 1992; see also Zhou, this volume). Each of these avenues of transmission might theoretically depend on the degree of within-group exposure at the neighborhood level.

The transmission of ethnic capital between generations should generate a correlation in socioeconomic outcomes between generation, even after controlling for correlations between individual parents and their children. Thus, to empirically evaluate our hypothesis, we test to see whether average ethnic group outcomes are more highly correlated across generations in segregated environments. To accomplish this, we match racial and ethnic segregation indices to individual socioeconomic characteristics reported in the Census Integrated Public Use Microdata Samples (IPUMS).<sup>5</sup>

The results, based on cross-sectional samples of the urban population in 1910 and 1940, reveal some striking patterns. We find consistent evidence that the effect of segregation on subsequent outcomes for white ethnic groups depends on the ethnic capital of the group in question. This pattern does not, however, extrapolate to blacks, whose ethnic capital values in 1910 were substantially below those of any white ethnic group. Thus, we find evidence to suggest that segregation affects the transmission of ethnic capital between generations, at least for some ethnic groups. Since blacks do not fit into this pattern, however, we cannot say that low initial human capital coupled with high initial segregation contributed to consistently low black outcomes, at least in the early part of the twentieth century.

## 2. Data and Methods

Our measures of ethnic segregation utilize data from the decennial Censuses beginning in 1910. In that year, the Census Bureau began reporting the distribution of foreign born persons by country of birth at the ward level for cities with at least 50,000 inhabitants.<sup>6</sup> Similar reports are available from the 1920 Census. There are no ward-level country of birth reports for any cities after 1920. In 1940 and 1950, country of birth is reported at the census tract level for a relatively small sample of cities.<sup>7</sup> This series is replaced by reports of “country of origin” for persons of foreign stock – foreign born individuals (first generation immigrants) and their native-born children (second generation immigrants) – in 1960. Finally, the 1970 Census reports the census tract-level distribution of country of origin for both first and second generation immigrants separately.<sup>8</sup>

Segregation can be measured along many dimensions (Massey and Denton, 1988). In this paper, we will be focusing on ethnic and racial *isolation*. To understand the definition of isolation, first consider a relatively simple measure, which we’ll call the *exposure index*:

$$(1) \text{ Exposure Index} \equiv E = \sum_{i=1}^N \frac{\text{group}_i}{\text{group}_{total}} \times \frac{\text{group}_i}{\text{persons}_i},$$

where  $i$  indexes one of  $N$  neighborhoods (wards or tracts) in a city,  $\text{group}_i$  indicates the number of racial or ethnic group members present in neighborhood  $i$ ,  $\text{persons}_i$  the total population of  $i$ , and  $\text{group}_{total}$  the total number of group members across all neighborhoods in the city. The exposure index simply measures the ethnic group’s share of population in the average group member’s neighborhood.

The exposure index will always increase when group members form a larger share of the overall population. The isolation index attempts to purge this source of variation by subtracting off the overall citywide ethnic group share of population. Thus, when a group is evenly distributed across neighborhoods, the isolation index will always equal zero. To give the index a maximum of one, we divide by the theoretical maximum value. The end result is the following formula:

$$(2) \text{ Isolation Index} = \frac{E - \left( \frac{group_{total}}{person_{Stotal}} \right)}{\min \left( \frac{group_{total}}{person_{Si}}, 1 \right) - \left( \frac{group_{total}}{person_{Stotal}} \right)},$$

where  $person_{Si}$  represents the total population of the ward or tract with minimum population.<sup>9</sup> The isolation index thus measures the degree to which a group's exposure exceeds the level that would result from an even distribution of members across wards or tracts.

To determine how segregation levels in a city relate to individual outcomes, we will match our segregation data to the Integrated Public Use Microdata Samples (IPUMS), which provide detailed demographic and economic information for a 1% sample of the US population in each Census year.

### 3. Modeling Segregation, Ethnicity, and Outcomes

Previous research has sought to illuminate the relationship between ethnic group characteristics and individual outcomes (Borjas, 1992) and between neighborhood characteristics and individual outcomes (Case and Katz, 1993; Cutler and Glaeser 1997; see Ellen and Turner 1997 for a recent review). Borjas (1995) unites the two strands of literature, finding evidence to support the hypothesis that the intergenerational correlation of economic outcomes is strongest in neighborhoods where groups are highly concentrated.

The potential avenues of causality between segregation, ethnic group outcomes in the parent generation, and group outcomes in the child generation are diagrammed in Figure 3. Potential causal relationships of one factor on another are indicated by arrows linking cause to effect. Underlying most of these arrows is the supposition that an individual's human capital is determined in part through their interactions with others. Both an individual's long range goals, such as career paths, and short-term decisions, such as whether to commit a crime, are presumably influenced by interpersonal contact, as well as shared values, networks, institutions, and role models. Interpersonal

contact occurs most frequently between physically proximate individuals. Potential role models are quite plausibly drawn from the ranks of an individual's neighbors and fellow ethnic group members. Each of the potential avenues of causality depicted in Figure 3 merits discussion here.

Segregation might have an impact on outcomes completely independent of the characteristics of the segregated group. The effects posited by the spatial mismatch hypothesis, for example, have little to do with the inherent characteristics of ghetto residents. According to the spatial mismatch argument, any group housed at great distance from employment centers will have difficulties in the labor market. Even if ghettos are not located far from employment centers, segregation might predict worse (or better) outcomes to the extent that regular interaction with a diverse group of people enhances (or detracts from) human capital accumulation. Aside from effects on human capital accumulation, segregation may positively impact groups by yielding opportunities for within-group trade. In the diagram, these potential general effects of ghettoization are referred to as "general neighborhood effects."

As segregation may have independent effects on outcomes, ethnic groups might display correlations in outcomes across generations regardless of their degree of neighborhood concentration. One reason for this link is the well-documented correlation between parent and child outcomes (Becker and Tomes, 1986; Solon, 1992). Above and beyond this within-family correlation, the transmission of ethnic capital simply might not operate through frequent interaction with members of one's own group. A child's interaction with his or her own parents, or with a small number of individuals of the same ethnicity, might be sufficient to impart the shared norms or characteristics that create intergenerational outcome correlations. We refer to ethnic capital that can be transmitted without extensive within-group contact as "general ethnic capital."

While both segregation and parent-generation characteristics might have independent effects on child-generation outcomes, it is quite reasonable to suspect that the two purported causes are

linked with one another. From one perspective, it is reasonable to expect that the influence of ethnic group characteristics (from the parent generation) on individual (child-generation) outcomes depends on the individual's degree of exposure to other group members. From another perspective, it is equally reasonable to expect the effects of high ethnic exposure to depend on the average characteristics of the ethnic group in question. Growing up in a poverty-stricken ethnic enclave should have different effects from growing up in a community of highly educated, skilled immigrants.

Since this interacted effect of ethnic capital and segregation has two equivalent interpretations, it is described with two names in Figure 3. The interacted effect represents the component of ethnic capital transmission between generations that depends on the degree of ethnic exposure. Equivalently, this effect can be described as the effect of segregation on outcomes that depends on the characteristics of the segregated group.

It is important to note that some components of ethnic capital might work to reduce, rather than increase, the intergenerational correlation of economic outcomes. Some ethnic groups, for example, might gravitate towards low-paying occupations in the first generation, but create social institutions and norms that encourage higher achievement in the second generation. From this perspective, the effect of ethnic isolation on outcomes might vary across ethnic groups, but in a way not directly related to the socioeconomic outcomes of the parent generation. Embedded in our hypothesis, then, is the supposition that transmittable ethnic capital is, at least in the aggregate, positively correlated with measurable outcomes in the parent generation.<sup>10</sup>

There is one remaining, and potentially troubling, arrow in the diagram. There may be a reverse-causal relationship between outcomes and segregation levels. More broadly, there may be some factor omitted from this diagram that directly affects both outcomes and segregation, creating a correlation between the two when (potentially) no causal relationship exists. Any study of the

relationship between segregation and outcomes is hampered by the fact that researchers, under most circumstances, cannot randomly assign treatment subjects to neighborhoods with varying characteristics.<sup>11</sup>

Our strategy for circumventing this potential endogeneity problem relies on the cross-generational nature of the study.<sup>12</sup> In our empirical analysis, we will examine the impact of segregation, as measured in the *parent* generation, on outcomes in the *child* generation. Since we consider an individual's outcomes to be a function of various factors influencing that person's development, it is quite natural to use past rather than present values of variables such as segregation in our empirical work. Use of this strategy clearly limits our ability to measure spatial mismatch effects, and other hypothesized links between current segregation and current outcomes. Since our primary purpose here is to quantify the role of segregation in ethnic capital transmission, and not to identify all the effects of segregation on outcomes, we are comfortable with this limitation.

If causality runs only from outcomes to segregation, we might still observe a spurious relationship with this strategy if the outcomes that determine segregation levels, or omitted factors that determine both outcomes and segregation levels, are correlated across generations. Any such problematic relationship will be greatly reduced, if not eliminated, by controlling for outcomes in the preceding generation. We discuss this strategy in greater detail in the following section.

We focus on one outcome in particular: educational attainment, as reported for the "child" generation of blacks and second-generation immigrants in the 1940 IPUMS.<sup>13</sup> Having defined our segregation measures in Section 2 above, we'll devote some attention here to our measure of ethnic capital, as well as the other control variables that appear in our regression models.

To measure ethnic capital of the "parent" generation, we will use one of the few socioeconomic indicators available from the 1910 Census, the occupation score. This measure, available for all Census years in the IPUMS dataset, maps individuals' occupations into standardized

1950 classifications, and then into average annual earnings for individuals working in those occupations in 1950. Persons working in more remunerative occupations, then, are assigned higher occupation score values. We transform individual occupation scores to have mean zero and standard deviation one, then find the average value for all ethnic group members in the 1910 IPUMS sample.<sup>14</sup> Table 1 presents the ethnic capital measures for the set of ethnic groups included in our analysis.<sup>15</sup> Several immigrant groups, as well as native whites, have mean occupation scores above the national average. Most of the “new” immigrant groups, though, lag behind native whites, as documented in Figure 2 above. Blacks display the lowest ethnic capital score, by a fairly wide margin.

In addition to ethnic capital and segregation measures, our regressions include a number of control variables to separate out various factors that influence individual outcomes. Some of these factors, such as gender and age, are individual-specific.

As we alluded to in our discussion of the possible endogeneity of segregation levels above, selective migration might lead to systematic differences between children of a particular ethnic group who grew up in a segregated environment and children of the same ethnic group who grew up in an integrated environment. That is to say, parents choosing to reside in a ghetto might differ in important respects from parents who choose not to. To mitigate the potential selection bias associated with these parental differences, we include a set of control variables measuring characteristics of an individual’s ethnic group members who lived in the same city in 1910. These characteristics include the average standardized occupation score of employed males, literacy rates, the fraction of English-speakers, the average number of years since arrival in the U.S. for first-generation immigrants, and the proportion of married males with spouses belonging to a different ethnic group.<sup>16</sup> This set of parent-generation characteristics is clearly not exhaustive, however we

feel it provides a reasonable check against the potential omitted variable bias associated with selective migration.

To ensure that our estimates of the effects of segregation for different groups do not simply reflect the impact of residing in different cities, we include city fixed-effects in our regression models. This restricts our analysis to comparisons of ethnic groups within cities – we will determine whether ethnic groups that are more segregated than others in their city have different outcomes than less segregated groups in the same city.

The sample in each regression consists of individuals between 19 and 48 years old in 1940 who were born in their state of residence. The age restriction ensures that no individuals used to calculate parent-generation statistics in 1910 are included in our child-generation sample. The birthplace restriction limits the sample to include only those individuals most likely to have actually grown up in their 1940 city of residence.<sup>17</sup> For these individuals, the characteristics of the city as of 1910 are sure to be more relevant than to others who migrated later in life. The regressions include both second-generation immigrants and native whites; most parent-generation statistics, except for the occupation-score based measures, are set to zero for natives.

#### **4. Results**

Table 2 presents the results of probit regressions investigating the determinants of individual educational attainment in 1940. The dependent variable takes on a value of one for individuals who graduated from high school, and zero for all others. The first column presents coefficients from a regression model including controls for age and gender, as well as city fixed effects, but omitting city/ethnic group specific parent-generation characteristics. The sample includes second-generation immigrants and native whites, but omits blacks. The first three rows of the table report the coefficients on the isolation index, ethnic capital measure, and interaction of isolation with ethnic capital, respectively. The pattern of results is consistent with the model of ghettos as conduits for

ethnic capital transmission described above. For a group with an ethnic capital measure equal to zero, higher degrees of segregation in 1910 actually predict higher high school graduation rates in 1940. For groups with average standardized occupation scores of -0.1, however, the positive effect of segregation disappears. As ethnic capital descends below this level, the effect of segregation becomes more negative.

These results also indicate that residentially integrated groups display little, if any, intergenerational correlation in outcomes. As the degree of isolation increases, however, the correlation between generations becomes more clearly positive. According to these results, exposure to members of one's ethnic group at the neighborhood level plays a strong role in the transmission of ethnic capital.

As discussed above, there is some reason to be concerned that these results reflect selective migration – that outcomes for some groups were worse in segregated cities because individuals more disposed to poor outcomes settled there in the first place.<sup>18</sup> Adding controls for the parent-generation characteristics of ethnic groups by city, as in the second column of Table 2, we see evidence that selective migration might indeed explain some part of our results. The ethnic capital-isolation interaction coefficient retains statistical significance in this model, but the estimated magnitude falls by roughly one-third. The point estimates now suggest that segregation has negative effects for those groups with ethnic capital values below -0.2. As in the first regression, the rate of ethnic capital transmission appears to be essentially zero in cities where groups are fully integrated into the population.

Neither of the first two regression specifications in Table 2 incorporate data on blacks. Since blacks have a mean standardized occupation score substantially below that of any immigrant group in 1910, and the results presented to this point suggest that the effects of segregation on outcomes are more negative for groups with this characteristic, one might predict that the correlation between

segregation and outcomes in the black population would be strongly negative. In fact, this is not the case. The third regression reported in Table 2 introduces blacks to the sample, adding an indicator variable to the specification to mark the added black observations. Expansion of the sample results in a substantial seventy-five percent reduction in the ethnic capital-isolation interaction coefficient – suggesting that the relationship between segregation, ethnic capital and outcomes noted in the immigrant population does not extrapolate well to the black population. The coefficient on the black indicator variable is statistically significant and negative, suggesting that black high school graduation rates were lower than one would predict on the basis of other observable characteristics.

The Table's final regression verifies this impression, adding a new interaction effect that allows the effect of segregation on outcomes to stray from the model generated with immigrant group data. The interaction of the black indicator variable with the isolation index measures the extent of black deviation from the immigrant-based model. As we would expect, the first three coefficients reported are essentially the same as their counterparts in the table's second regression. For immigrants, the effect of segregation on outcomes is negative for groups with ethnic capital measures below -0.2.

For blacks, we calculate the effect of segregation by summing the main isolation effect, the black-isolation interaction term, and the ethnic capital interaction effect multiplied by -0.7 (the black ethnic capital value). Putting these terms together yields 1.4, a value statistically indistinguishable from zero. In 1940, black high school graduation rates, although universally lower than one would otherwise predict, were essentially independent of blacks' relative segregation in the preceding generation.<sup>19</sup>

The results presented here tell a somewhat complicated story. First, there is evidence to suggest that the effects of immigrant segregation depend on the characteristics of the segregated group. Ethnic isolation tends to perpetuate differences between ethnic groups – leading to better

outcomes for relatively advantaged groups, and worse outcomes for disadvantaged groups. The relationship does not extrapolate to the black population. Parent-generation segregation levels carried few implications for urban blacks in 1940.

## **5. Discussion and Conclusions**

At one time, blacks and white immigrant groups experienced roughly equivalent rates of segregation in American cities. Simultaneously, both black and immigrant economic outcomes lagged behind those of native whites. Since that time, most of the white ethnic groups have witnessed near complete integration and a gradual convergence in outcomes. African-Americans, by contrast, saw an escalation of segregation to unprecedented levels, and continue to face a gap in outcomes.

These observations provoked a hypothesis, that perhaps the post-1910 divergence between black and immigrant segregation levels and outcomes can be explained by differential effects of segregation that depend on the initial characteristics of the segregated group. Our empirical investigation found evidence to support this hypothesis, but only in the sample of white ethnic groups. Among immigrant groups, residence in a segregated city predicts poor outcomes only for groups with low initial levels of ethnic capital, as measured by mean standardized occupation scores. As this measure of average group skills increases, the negative relationship evaporates. Extrapolating this result from the immigrant sample to the black population, one would expect higher segregation levels to predict significantly worse outcomes. As our results show, this is in fact not the case. Elevated 1910 segregation levels predict neither higher nor lower black outcomes in 1940.

How might we explain this intriguing discrepancy? While a full explanation is beyond the scope of this chapter, several facts and arguments made in existing literature suggest that our findings are really not all that surprising.

The social forces underlying black and European immigrant segregation were not entirely the same. In the early twentieth century, black segregation was enforced by a number of official and quasi-official barriers. While some white immigrant groups faced similar barriers, it is difficult to argue that external restrictions on their residential choices were more severe than those facing blacks. Segregation in 1910 was more a matter of individual choice for immigrants than blacks.

The benefits of exiting a ghetto were most likely limited for blacks, especially Southern blacks, by the extent of legal segregation outside the residential sphere. Whereas an immigrant family living in a ghetto in 1910 might wish to move in order to place their children in higher-quality public schools, a black family in the South faced no such incentive.

The option to exit the ghetto was probably most valuable to upwardly mobile members of an ethnic group – individuals who experienced success in economic and social assimilation. White immigrants were able to exercise this option to a greater extent than their black counterparts. The relatively high degree of class integration within black ghettos in the early decades of the twentieth century has been extensively documented (Wilson, 1987). Quite possibly, black ghettos distinguished themselves from enclaves of similarly disadvantaged ethnic groups because of their greater degree of class integration. This distinction would not be captured by the measure of ethnic capital that we use in this chapter. Class integration within a ghetto permits the development of neighborhood culture, social networks and institutions that would factor into a more comprehensive measure of ethnic capital.

Our results here conflict with earlier research documenting a negative relationship between segregation and socioeconomic outcomes in the black population in 1990 (Cutler and Glaeser,

1997). Recent research has confirmed, however, that this relationship was not in evidence in earlier Census years (Vigdor, 2002; Collins and Margo, 2000). The changing significance of segregation for black outcomes mirrors a change in the socioeconomic composition of black ghettos (Wilson, 1987). As economic advancement, Federal laws against housing discrimination, and changing white attitudes have enabled some black families to exit the ghetto, the selected group left behind has suffered a loss of ethnic capital. While it is interesting to note that the pre-1940 black experience does not fit neatly into the immigrant-based model in the results we present here, it is perhaps more interesting to note that recent black experiences do appear to resonate with the immigrant model.

This chapter ends with an answer posed to its initial question – how much of the black trend in outcomes since 1910 can be explained by their persistently high residential segregation. The answer, at least covering the period between 1910 and 1940, is very little, if any. With this answer comes a new question – why were the implications of segregation so different for low ethnic-capital immigrant groups and blacks? As we begin a new century, with even newer “new” immigrant groups striving to assimilate in many developed nations, the answer to this question is of great importance.

## **List of References**

Becker, G.S. 1964, *Human Capital; A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: National Bureau of Economic Research.

Borjas, G.J. 1995, “Ethnicity, Neighborhoods, and Human Capital Externalities.” *American Economic Review* v.85 pp. 365-90.

Borjas, G.J. 1992, “Ethnic Capital and Intergenerational Mobility.” *Quarterly Journal of Economics* v.107 pp.123-150.

Case, A. and L. Katz. 1991, “The Company You Keep: The Effect of Family and Neighborhood on Disadvantaged Youth.” NBER Working Paper #3705.

Collins, W. and R.A. Margo 2000, “Residential Segregation and Socioeconomic Outcomes: When Did Ghettos Go Bad?” Forthcoming, *Economics Letters*.

- Cutler, D.M. and E.L. Glaeser 1997, "Are Ghettos Good or Bad?" *Quarterly Journal of Economics* v.112 pp.827-72.
- Cutler, D., E. Glaeser, and J. Vigdor 1999, "The Rise and Decline of The American Ghetto." *Journal of Political Economy* v.107 pp.455-506.
- Ellen, I.G. and M.A. Turner 1997, "Does Neighborhood Matter? Assessing Recent Evidence." *Housing Policy Debate* v. 8 pp.
- Farley, R. and W. Frey 1994, "Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps toward a More Racially Integrated Society." *American Sociological Review* v.59 pp.23-45.
- Galster, G.C. 1987, "Residential Segregation and Interracial Economic Disparities: A Simultaneous-Equations Approach." *Journal of Urban Economics* v.21 pp.22-44.
- Ihlandfeldt, K.R. and D.L. Sjoquist 1998, "The Spatial Mismatch Hypothesis: A Review of Recent Studies and Their Implications for Welfare Reform." *Housing Policy Debate* v.9 pp. 849-892.
- Kain, J.F. 1992, "The Spatial Mismatch Hypothesis: Three Decades Later." *Housing Policy Debate* v.3 pp.371-460.
- Kain, J.F. 1968, "Housing Segregation, Negro Employment, and Metropolitan Decentralization." *Quarterly Journal of Economics* v.82 pp.175-97.
- Katz, L.F., J.R. Kling and J.B. Liebman 1999, "Moving to Opportunity in Boston: Early Impacts of a Housing Mobility Program." Harvard University mimeo.
- Ladd, H.F. and J. Ludwig 1998, "The Effects of MTO on Educational Opportunities in Baltimore: Early Evidence." Joint Center for Poverty Research working paper.
- Liebertson, S. 1963, *Ethnic Patterns in American Cities*. New York: The Free Press of Glencoe.
- Margo, R.A. 1990, *Race and Schooling in the South, 1880-1950: An Economic History*. Chicago: University of Chicago Press.
- Massey, D. and N. Denton 1993, *American Apartheid: Segregation and the Making of the Underclass*. Cambridge: Harvard Univ. Press.
- Massey, D. and N. Denton. 1988, "The Dimensions of Residential Segregation." *Social Forces* v.67 pp.281-315.
- Myrdal, G. 1944, *An American Dilemma: The Negro Problem and Modern Democracy*. New York: Harper and brothers.
- Schnare, A. 1977, "Residential Segregation by Race in U.S. Metropolitan Areas." Washington, DC: Urban Institute.

Taeuber, K.E. and A.F. Taeuber. 1964, "The Negro as an Immigrant Group: Recent Trends in Racial and Ethnic Segregation in Chicago." *American Journal of Sociology*, v.69 pp.374-382.

Vigdor, J.L. 2000, "The Pursuit of Opportunity: The Extent and Impact of Selective Black Migration." Duke University mimeo.

Vigdor, J.L. 1999, "Locations, Outcomes and Selective Migration." Duke University mimeo.

Wilson, W.J. 1987, *The Truly Disadvantaged*. Chicago: The University of Chicago Press.

Table 1: Ethnic Capital Measures	
Group	Mean Standardized Occupation Score, 1910
Native Whites	0.168
Blacks	-0.715
Canadians	0.077
English	0.123
Scottish	0.170
Irish	0.002
Greek	-0.386
Italian	-0.326
Austrian	-0.248
German	0.042
Hungarian	-0.336
Romanian	0.189
Russian	-0.015
Note: Occupation scores are standardized to mean zero and standard deviation one.	

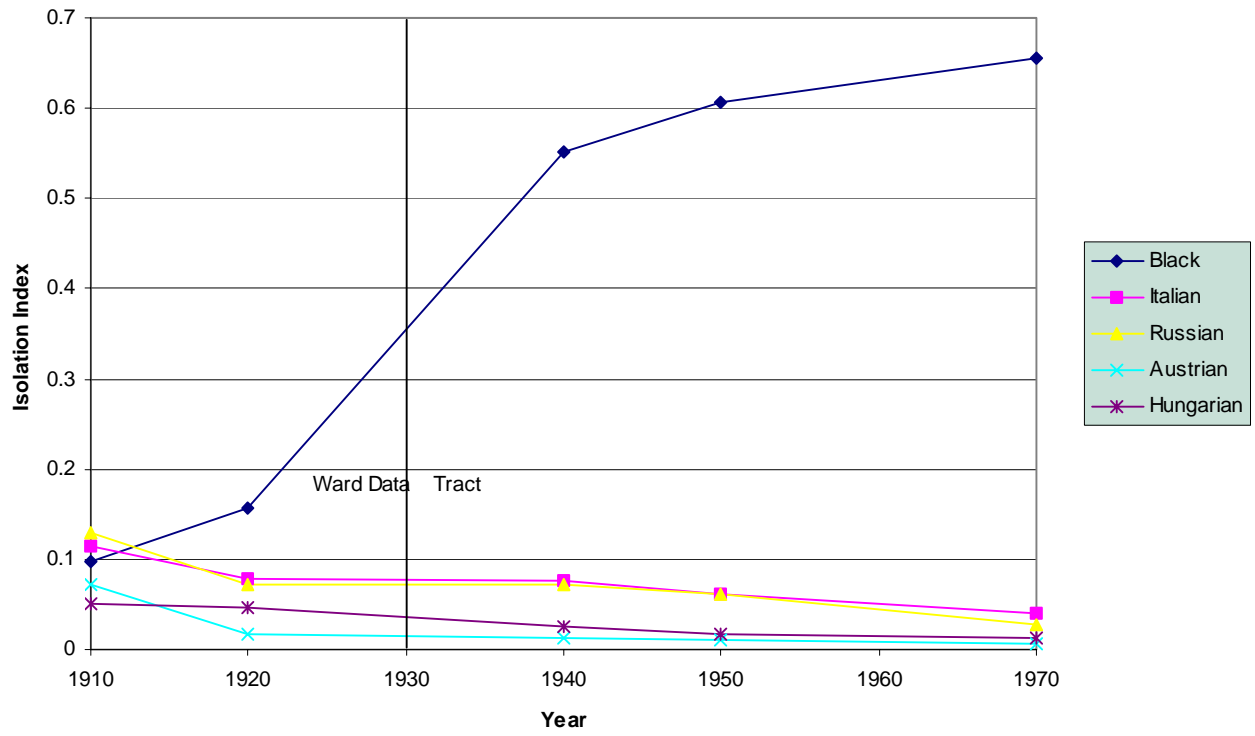
Table 2: Ethnic Capital, Segregation, and Educational Attainment, 1940

Independent Variable	Dependent Variable: High School Graduate Indicator			
Group Isolation Index (1910)	3.435** (0.392)	4.074** (1.706)	3.227* (1.674)	4.169** (1.709)
Ethnic capital (1910)	-0.815 (1.185)	-1.699 (1.263)	-0.426 (1.115)	-1.729 (1.246)
Ethnic capital (1910)* Isolation Index	32.17** (11.32)	20.98** (5.526)	5.829* (2.988)	20.40** (5.384)
Black group indicator	—	—	-1.268** (0.473)	-2.128** (0.570)
Black*Isolation Index (1910)	—	—	—	11.47** (3.019)
Individual characteristic controls	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes
Ethnic group-city level characteristics (1910)	No	Yes	Yes	Yes
Pseudo-R <sup>2</sup>	0.070	0.074	0.076	0.076
N	23,397	23,397	25,265	25,265

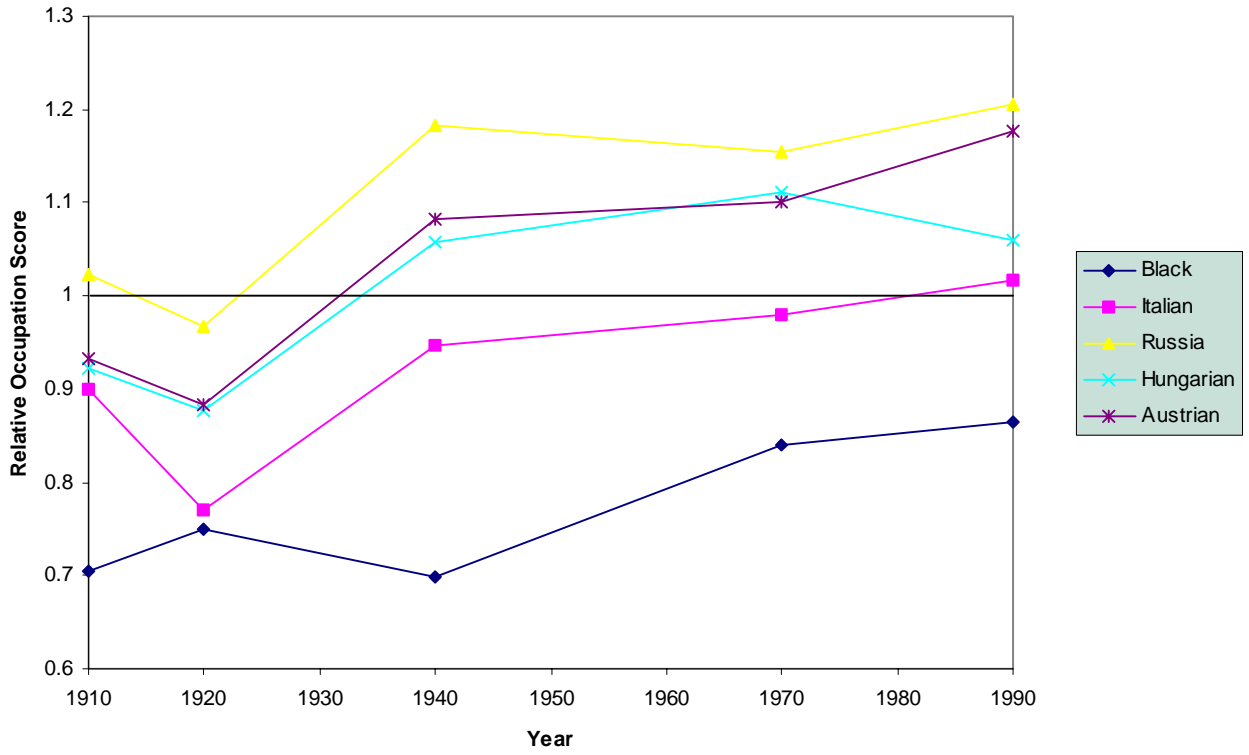
Note: Entries in the table are coefficients from maximum likelihood probit estimation. Standard errors, corrected for grouped observations, in parentheses. Ethnic capital is measured by the standardized group mean occupation score in 1910. Observations are weighted by square root of sample size used to calculate mean group occupation score in city (1910). Sample consists of all individuals age 19-48. Individual characteristic controls include categorical age dummies and sex. Ethnic group-city level characteristics include intermarriage rate, literacy rate, English-speaking rate, average standardized occupation score, and average years since immigration for first-generation immigrants. Native whites, included in all regressions, have the following variables set to zero: isolation index (1910), English-speaking rate (1910), literacy rate (1910), intermarriage rate (1910), and average years since immigration (1910). The regression contains a dummy variable to identify native whites.

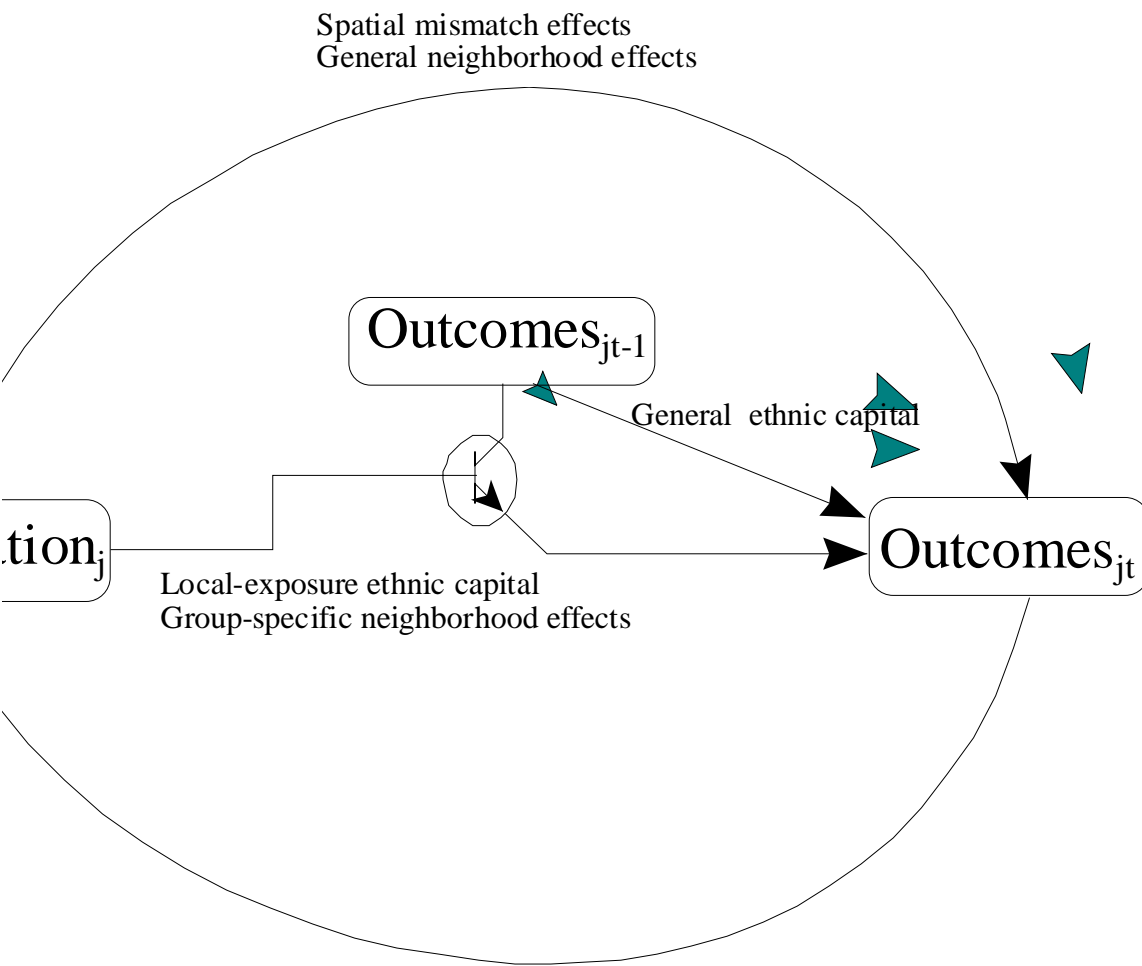
\*\* denotes a coefficient significant at the 5 percent level, \* the 10 percent level.

**Figure 1: Isolation of Blacks and New Immigrant Groups**  
Average weighted by group population for a constant set of cities.



**Figure 2: Occupation Scores Relative to Native Whites**  
For males in the labor force, constant set of cities for each ethnic group





**Figure 3:** Causality in the Relationship between Segregation and Outcomes (  $j$ =group;  $t$ =generation )

## Endnotes

1. Our conceptualization of *human capital* follows from the traditional labor economics literature (Becker, 1964), and can be thought of as the stock of knowledge, skills, and abilities that determine an individual's productivity.
2. In this chapter, we use the term "ghetto" to refer to any ethnically concentrated neighborhood. A ghetto, by our construction, need not be socioeconomically disadvantaged.
3. Lieberman (1963) and Taeuber and Taeuber (1964) compare the segregation patterns of blacks and immigrant groups over a similar time period. Lieberman, in his analysis of ten Northern cities, observes the same patterns evidenced in our Figure 1. Taeuber and Taeuber, who focus on ethnic and racial groups in Chicago, note patterns similar to our Figures 1 and 2.
4. For sake of brevity, the term "ethnic group" will be used in this paper to refer to groups identified by either ethnicity or race.
5. The IPUMS represents a 1% sample of the US population in each Census year. Individual observations are not linked across years.
6. Wards are political divisions of cities that vary substantially in size and shape. For this reason, there are some difficulties associated with comparing segregation levels across cities (see Cutler et al., 1999 for a discussion). Since we are able to construct segregation measures for multiple groups per city, in our empirical work we will employ city fixed effects in order to focus on the within-city variation in segregation levels.
7. Census tracts are geographically contiguous areas, delimited by major streets, railways, or other natural features, each containing approximately 4,000 residents. Tracts are in many ways more useful approximations of neighborhoods than are wards, since they are defined in a way that makes them comparable across cities and over time.
8. In 1970, we use metropolitan statistical area (MSA) level data rather than city level. Previous analysis (reported in Cutler et al., 1999) shows that there is a strong degree of correlation between city- and MSA-based segregation indices. When using the term "city" for the years 1970 and later, we are referring to MSAs.
9. See Cutler et al. (1999) for additional discussion and analysis of the Isolation index.
10. The failure of this supposition to hold might explain some of the results we describe in section 4 below.
11. The recent Moving To Opportunity (MTO) programs undertaken in several American cities provide an exception to this. Several researchers have used MTO programs, which randomly assign central city households to neighborhoods with varying characteristics, to make inferences about the effects of neighborhoods (Katz, Kling and Liebman, 1999; Ladd and Ludwig, 1998).
12. Galster (1987) identifies this simultaneous equation problem and uses an instrumental variable strategy to surmount it.

13. We obtained qualitatively similar results using the logarithm of earned income as an outcome measure.

14. The averages are calculated using only males who reported being in the labor force in 1910.

15. As discussed in an earlier note, many individuals classified as Russian, German or Austrian in the 1910 IPUMS data would be categorized as Poles in later census years. The ethnic capital measures for these groups, in particular the German and Russian values, are effectively measured with error. Thus, we would expect a lower correlation between ethnic capital, as we measure it, and subsequent outcomes for these ethnic groups. As both the German and Russian estimates are relatively close to zero, we do not expect this measurement issue to have much impact on our results. First- and second-generation Polish immigrants, and members of other immigrant groups for which we have no segregation data in 1910, are deleted from the 1940 sample used in our empirical work.

16. These city/ethnic group characteristics are based on 1910 IPUMS data, a 1% sample of the entire population. Consequently, these measures will be subject to sampling error. Since sample sizes vary by ethnic group and city, this introduces heteroskedasticity problems. We combat these problems by estimating weighted regressions. Weights are equal to the square root of the sample size used to calculate the mean standardized occupation score.

17. This is an especially important restriction for our analysis of outcomes in the black population, since a considerable amount of black migration from rural areas to cities took place between 1910 and 1940. Even with this restriction, it is possible that we may include some individuals who grew up outside their 1940 city of residence. For example, we include blacks born in rural Georgia who had moved to Atlanta by 1940. We expect this “contamination” of our sample to reduce our estimates of intergenerational outcome correlation, especially within the black population.

18. Bear in mind that for the results in the first column of Table 1 to reflect selection bias, it must be true that both (1) unobservably *worse-off* members of low ethnic capital groups disproportionately choose to reside in ghettos, and (2) unobservably *better-off* members of high ethnic capital groups disproportionately choose to reside in ghettos. If worse-off members of all groups choose to reside in ghettos, we would predict the overall (non-interacted) effect of isolation to be negative, but it is not clear that we would make any prediction regarding the interaction term.

19. This finding corroborates some existing research. Both Vigdor (1999) and Collins and Margo (2000) report that the negative correlation between black segregation and black outcomes, documented in 1990 by Cutler and Glaeser (1997), is not present in earlier data. This correlation may reflect selective migration: more educated blacks migrated disproportionately to highly segregated cities before 1940 (Vigdor 2000).