HOUSEHOLD LOCATION AND RACE: A 20-YEAR RETROSPECTIVE*

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ABSTRACT. In research conducted some 20 years ago, we elucidated the starkly lower suburbanization propensities of black households in the Washington, D.C. metropolitan area. The paper showed that simulated closure of large socio-economic gaps between blacks and whites did little to diminish prevailing high levels of residential segregation or otherwise enhance moves by black households to areas of educational, employment, and housing opportunity. Some two decades later and in the wake of significant urban evolution, this paper assesses anew racial variations in residential location choice. Results of the multinomial logit (MNL) analysis indicate large, persistent racial differentials in intrametropolitan residential location choice. While black location choice in 2000 was relatively more dispersed than in 1980, it remained remarkably concentrated in D.C. and Prince George's County. As in our prior analysis, results showed that large simulated gains in black economic and educational status had little effect on prevailing racial segregation. These findings underscore the ongoing, limited access of black households to schooling, employment, and homeownership opportunities available outside traditional areas of settlement. In marked contrast, the locational choices of Latino and immigrant households bore greater similarity to those of whites and were more sensitive to improvements in socio-economic status.

1. INTRODUCTION

In research conducted some 20 years ago, we elucidated the damped suburbanization propensities of black households (Gabriel and Rosenthal, 1989). The starkly lower rates of minority suburbanization served to reinforce long-standing racial segregation in urban housing markets, (see, for example, Streitwieser and Goodman, 1983; Kain, 1984; Zhang, 2011). The lower rate of suburban moves by blacks adversely affected not only their housing consumption, but also their employment and educational opportunities (see, for example Kain, 1968; Galster, 1987; and Holzer, 1991).

Our earlier analysis was undertaken via estimation and simulation of a MNL model of household location choice. The paper sought to distinguish among competing hypotheses regarding persistent urban racial segregation of white and minority households. Specifically, segregation outcomes could arise from some combination of socio-economic, racial bias, and preference-related factors. The prior paper sought to assess the extent to which intrametropolitan directional moves by black and white households were predicated on socio-economic or other factors. Model simulation evaluated whether elevation of black socio-economic status would help to (a) alleviate racial segregation in housing and (b) foster black moves to areas of employment and housing opportunity.

Our analyses focused on the Washington, D.C. metropolitan area. Data for 1975–1980 indicated that the vast majority of black intrametropolitan moves were to D.C. or Prince George's County. Indeed, unlike whites, relatively few black moves were evidenced to other ring suburbs of Maryland and Virginia. Model simulation indicated that even full closure of large gaps in socio-economic status between blacks and whites would do little to change the prevailing racial pattern of intraurban moves. Indeed, research findings suggested that educational, job training, or other policies aimed at raising black socio-economic status would be insufficient to encourage black suburbanization or to alleviate housing market racial segregation.

The intervening decades witnessed elevated rates of job growth among many Capital Beltway communities.[1] Further, the public school systems in Fairfax and Montgomery Counties remained dominant in the metro area and among the best in the nation. Indeed, some two decades later, low rates of movement by black households to growth areas outside the District of Columbia likely adversely affected their housing, schooling, and job opportunities (see, for example, Orfield and Lee, 2005; Boustan and Margo, 2009). As before, the limited residential mobility of blacks likely translated into damped economic mobility.

In this paper, we replicate our earlier analysis using PUMS data for the year 2000. We also estimate and simulate the effects of socio-economic status on homeownership tenure choice among minority and immigrant households in the D.C. area. Over the intervening decades, the intrametropolitan residential location choices of Latino and immigrant movers came to more closely resemble those of whites. Further, moves by those groups to Montgomery and Fairfax Counties were more sensitive to simulated elevated in socio-economic status.[2] In marked contrast, the pattern of black household moves remained much the same. Two decades later, 67 rather than 85 percent of black households chose to locate in D.C. and Prince George's County. Further, simulated closure of large gaps in socio-economic status between blacks and whites did little to affect that pattern. Although minority homeownership choice did appear sensitive to simulated reductions in socio-economic disparities, movement to homeownership among D.C. minorities remained substantially depressed in the wake of ongoing, sizable income gaps. In that regard, on average, no gain in the relative socio-economic status of D.C. area blacks was evidenced over the decades of the 1980s and 1990s.[3]

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[1]Recent decades have witnessed the creation of major subregional employment centers in Tysons Corner, the Dulles Corridor, Reston, the I-270 corridor, and other outlying areas. Immigrant populations are diverse in the D.C. metropolitan area.

[2]Over the past decade, two other studies (see Deng, Ross, and Wachter, 2003; Bayer, McMillan, and Rueben, 2004) have applied the MNL framework in assessment of African-American residential location choice. In contrast to our focus on location choice among recent movers, those papers assess equilibrium patterns in estimation of the choice models. Notably, similar to our work, both those papers find that demographic factors have substantially less effect on the locational outcomes of blacks relative to whites. Also, consistent with our approach, both of those papers estimate fully racially stratified models of intrametropolitan household location.

[3]Indeed, the ratio of black to white real household income remained remarkably stable over the two decades at about two-thirds (authors calculations using Census PUMS data for 1980–2000). However, the aggregate metro area-wide ratio masks marked within-D.C. heterogeneity therein. A few areas, including Charles, Frederick, and Prince George's Counties, witnessed modest increases in the relative income status of blacks relative to whites. Other places, notably including Arlington and Montgomery Counties, saw marked declines in average household income of blacks relative to whites.

2. DATA AND ANALYSIS

As in our prior paper, we applied a MNL model to assess household location choice in the Washington, D.C. metro area. However, the residential choice set was expanded beyond the five original locations (Washington, D.C., Prince George's, Montgomery, Arlington, and Fairfax Counties) to account for rapid growth over intervening years in Alexandria and Prince William County.[4] Additionally, analyses were stratified among white, black, Latino, and immigrant households so as to allow the slopes of the choice likelihood variables to vary explicitly by race and immigrant status. As discussed in Painter and Yu (2008; 2010), recent decades have witnessed substantial migration of Latino and immigrant groups to and within Washington D.C. and other large U.S. cities.

The data set used to estimate the model was the PUMS 2000 Washington, D.C. metropolitan area file. The data included detailed information on the socioeconomic and demographic characteristics of survey respondents. The sample was composed of households who moved into their homes during the 1995–2000 period. The estimation sample consisted of 31,474, of which 8,327 were African Americans, 2,629 were Latinos, and 5,798 were immigrants. Explanatory variables included a full set of household economic, demographic, and other characteristics.

Household income was represented by controls for wage income and wage income squared, investment income, and other income. The latter term includes transfer payments and the like.[5] In addition, a variety of categorical demographic variables were included in the analysis. The AGE variables included controls for household heads between 25–34, 35–44, 45–54, and 55–64, with 18–24 as the omitted category. We also specify controls for single male head and single female head with married as the omitted category. The number of children under 18 living at home is represented by a continuous variable (number of kids), which reflects in part family concerns about the quality of local public schools. Prior research (Apgar and Pollakowski, 1986; Gabriel and Painter, 2003, 2008) has indicated that household location choice varies importantly over the life cycle, as proxied by household marital status, age, and the presence of children.

Also included are categorical variables for educational attainment, including less than high school and high school diploma, with college and above as the omitted category. Household demands for differentiated baskets of local public goods (e.g., public schools, access to employment, and other locational amenities) are proxied in part by household educational attainment. The model also controls for homeowner tenure status. Further, as discussed below, we also estimate and simulate homeownership choice by race and immigrant status for each of the seven Washington, D.C. locations.

Conditioned on socio-economic status, household race may importantly affect residential location choice due either to systematic differences among racial groups in preferences

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[4]The probability of choosing location j is given by $P_j = exp(X'\beta_j)D$, $j = 1,2,\ldots, m - 1$ and $P_m = 1jD$ where $D = 1 + \sum j = 1$ through $m - 1$ $exp(X'\beta_j)$, $(j = 1, 2,\ldots, m)$ are the different alternatives, P_j is the probability of choosing location j, X is a vector of characteristics, and βj is the vector of coefficients pertaining to location j. As with the simple bivariate logit model, the coefficients of the MNL are estimated only up to a scale factor, while the coefficients for the reference choice (β_m) are set equal to zero. The MNL model is attractive because the probability function is of a simple form and is strictly concave; hence, the β vector has a unique solution which is easily estimable using standard maximum likelihood techniques.

[5]In a simple monocentric bid-rent model of urban spatial structure, higher income households demanding more housing services will tend to locate in outlying areas; alternatively, when such a model is modified to account for commuting time, higher income households with a higher value of time may exhibit a greater preference to live in the central city. *A priori*, it is not clear what sign the income coefficients will take or how those effects will vary across race, ethnicity, and immigrant status

TABLE 1: Summary Statistics for the Mover Sample

Racial/Ethnic Group	White Mean	Black Mean	Latino Mean	Immigrant Mean
Moved from—District of Columbia	0.064	0.271	0.107	0.092
Frederick County	0.038	0.007	0.006	0.005
Prince George's County	0.137	0.104	0.183	0.214
Montgomery County	0.040	0.279	0.094	0.106
Arlington County	0.045	0.016	0.087	0.067
Alexandria County	0.030	0.028	0.047	0.043
Fairfax County	0.174	0.068	0.182	0.215
Prince William County	0.049	0.031	0.042	0.026
Loudon County	0.043	0.009	0.012	0.014
Other parts of the U.S.	0.379	0.187	0.240	0.220
Education—less than high school	0.031	0.122	0.396	0.228
High school diploma	0.270	0.525	0.334	0.292
College	0.699	0.353	0.270	0.481
Age cohort—18–24	0.079	0.074	0.101	0.053
25–34	0.347	0.320	0.398	0.335
35–44	0.314	0.332	0.314	0.358
45–54	0.183	0.196	0.143	0.184
55–64	0.078	0.079	0.044	0.070
Marital status—Single male head	0.231	0.210	0.199	0.186
Single female head	0.269	0.458	0.212	0.207
Married	0.500	0.332	0.589	0.607
Number of children	0.647	0.935	1.274	1.065
Wage income	80.07	48.39	55.21	60.81
Wage income squared	11100	4114	5493	6713
Investment income	4.402	0.803	1.002	1.693
Other income	7.407	4.213	4.210	5.696
Homeowner	0.550	0.370	0.374	0.437
Immigrant	0.064	0.131	0.747	1.000
Migrated to U.S. less than 5 years ago	0.005	0.011	0.053	0.069
Migrated to U.S. 5–10 years ago	0.017	0.039	0.189	0.278
Migrated to U.S. 10–15 years ago	0.012	0.028	0.248	0.250
Migrated to U.S. 15–20 years ago	0.008	0.025	0.142	0.174
Migrated to U.S. 20–30 years ago	0.013	0.022	0.081	0.166
Migrated to U.S. 30 + years ago	0.008	0.007	0.038	0.064

for neighborhood attributes or to the presence of racial bias or discrimination. Our prior analyses (Gabriel and Rosenthal, 1989; Gabriel and Painter 2003, 2008) revealed significant racial differences in the effects of household characteristics on intrametropolitan residential location choice.

Finally, our analysis includes a categorical variable for immigrant status. We also enter a series of dummy variables indicating years in the United States for immigrant households. As indicated below, recent decades have witnessed the migration of substantial immigrant populations beyond simply U.S. gateway cities. Immigrants tend to reside in communities of like population, often in center cities and in inner-ring areas, and then disperse to outlying areas only with some lag from arrival date. In the below analysis, we seek to identify the timeframe and intrametropolitan destinations of immigrant moves (Painter et al., 2001).

Table 1 presents the means of the independent variables for the white, black, Latino, and immigrant subsamples. As is evident, there exist systematic differences in mover

origins among the different groups. Among all groups, few metropolitan movers emanate from outlying Frederick, Prince William, or Loudon Counties. Among whites, Latinos, and immigrants, sizable mover shares originate from Fairfax County.[6] Most black movers come from Prince George's and Montgomery Counties, whereas relatively few derive from the Virginia suburbs. In the empirical analysis, we control for mover origin location in determination of intrametropolitan location choice. Those fixed effects proxy for origin-specific attributes, including population socio-economic and racial characteristics, access to employment, quality of local public schools, and the like.[7]

The table further indicates that sampled white movers were characterized by much higher levels of wage income, educational attainment, and homeownership status, relative to their minority and immigrant counterparts.[8] While the age profile of movers appears roughly similar across groups, Latino households were characterized by a higher proportion of younger movers in the 25–44 age groups. Number of children was especially elevated among Latino and immigrant movers, relative to their white and black counterparts. Also, at about 45 percent, the proportion of single female-headed mover households was especially elevated among blacks. Almost three-fourths of the Latino population is foreign born. About half of all immigrants have been in the United States from 5 to 15 years.

3. ESTIMATION RESULTS

Results of estimation of the unified MNL model of household location choice are contained in Appendix Table A1.[9] As indicated, the estimated MNL coefficients reflect the effect of population socio-economic and locational controls on the likelihood of moving to location j relative to D.C. As evidenced in Appendix Table 1, there exists substantial variability in the role of socioeconomic and demographic characteristics in choice of Washington, D.C. residential location. Further, all things equal, the analyses reveal the importance of race to household location choice. While black household status is associated

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[6]Similarly, large portions of those movers derive from outside the D.C. area.

[7]As regards broad characterization of study locations, note that substantially elevated shares of the D.C. and Prince George's County populations are composed of black households, whereas high proportions of white households are evidenced in Fairfax, Montgomery, and outlying counties. Elevated shares of immigrant population are evidenced in D.C., inner-ring suburbs of Arlington and Alexandria, and Fairfax County. In contrast, Latino population shares in the D.C. area are small and widely disbursed. Further, some two-thirds or more of the households in Fairfax, Montgomery, Arlington, and Alexandria had attained a college degree; in marked contrast, less than 40 percent of Prince George's County households were college graduates. About one-third of the households in Prince George's, Arlington, and Alexandria were headed by females, relative to about one-fifth in other areas. As would be anticipated, the District of Columbia was dominated by black, lower income, single-headed households, and renters (although there exists large enclaves of white, higher income owner-occupiers in the northwest quadrant of the District). Whereas Arlington County has a significant concentration of white, single, and educated families who rent, Prince George's County is more heavily represented by black, middle-income, married families with children, and owner-occupiers. Fairfax County and Montgomery County are both characterized by high concentrations of white, higher income, married, owner and educated families with children.

[8]Further, while some level of investment income is evidenced for white movers, little investment income is apparent for the other groups.

[9]The key disadvantage with estimating a MNL model is that the model relies on an assumption of the independence of irrelevant alternatives. We found that this assumption was violated in the sample of African-American households used in the simulations. An alternative is to instead estimate a multinomial probit model, which does not rely on the same assumption. When we did this, we found that the simulated results only differed in the third digit. Because these differences were so small, we decided to use results of the MNL model in paper write-up, so as to facilitate comparison with the 1980 results.

TABLE 2: Simulated Probability Shares of Household Location in the Washington, D.C. Metropolitan Area

| | Black | | | | White | | | |
| | 1981 | | 2000 | | 1981 | | 2000 | |
	Actual	Simulated	Actual	Simulated	Actual	Simulated	Actual	Simulated
D.C.	0.64	0.54	0.28	0.23	0.23	0.15	0.13	0.09
Montgomery County	0.06	0.11	0.14	0.16	0.18	0.14	0.24	0.24
Prince George's County	0.21	0.24	0.37	0.41	0.12	0.13	0.07	0.10
Arlington County	0.04	0.03	0.02	0.02	0.13	0.10	0.09	0.06
Fairfax County	0.05	0.08	0.09	0.10	0.34	0.48	0.30	0.32
Alexandria County			0.04	0.03			0.07	0.04
Prince William County			0.06	0.05			0.10	0.14

with statistically elevated propensities to move to Prince George's County, statistically depressed likelihoods are associated with moves by black households to all other places. Latino households similarly demonstrate a statistically elevated propensity to move to Prince George's County. In marked contrast, Asian and immigrant households statistically avoid moves to Prince George's County and instead favor other areas.

4. MODEL SIMULATION

Given model estimates, we sought to quantitatively evaluate the extent to which elevation in minority household socio-economic status would (a) alleviate racial segregation in housing, and (b) increase movement of minority households to areas of economic and housing opportunity beyond the urban core. To explore these questions, we conduct two simulations based on results of separately estimated MNL regressions for the different racial/ethnic and immigrant groups.[10] In the first exercise, the probability shares for each white household were calculated based on individual characteristics of white households and MNL coefficients for black, Latino, and immigrant groups. Results of that simulation are presented in the columns labeled "Black" in Table 2 and "Latino" and "Immigrant" in Table 3. Because the MNL coefficients of minority and immigrant households embody the locational preferences and constraints pertinent to those groups, this exercise simulates the effect of raising the socioeconomic status of minorities and immigrants to that of whites. In a second simulation, probability shares were calculated based on the white MNL coefficients and the black household data. This simulation shows how black household location choice would be affected to the extent the group in question had similar housing preferences and opportunities to that of whites. Results of that simulation are presented in the columns labeled "White" in Table 2.

Simulation results for white and black households are presented in Table 2. The table contains results from our current and prior (Gabriel and Rosenthal, 1989) analyses to enable comparison over intervening decades. In Table 2, note that in 1980, intrametropolitan moves by black households were highly skewed in the direction of D.C. and Prince George's County. The two destinations comprised a full 85 percent of black moves; only about 5 percent of black movers chose to locate in Montgomery, Fairfax, or Arlington Counties,

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[10]Results of those analyses are available from the authors upon request. The largest differences across the coefficient vectors concern a greater sensitivity of income for minority households to move outside of Washington, D.C. In addition, minority households with low education levels are much less likely to live outside of Washington, D.C.

TABLE 3: Simulated Probability Shares of Household Location in the Washington, D.C. Metropolitan Area, 2000

	Latino		Immigrant	
	Actual	Simulated	Actual	Simulated
D.C.	12.72	10.06	10.01	11.03
Montgomery County	24.15	28.36	29.60	33.46
Prince George's County	13.68	10.23	13.32	6.38
Arlington County	9.19	8.03	7.26	6.36
Fairfax County	25.47	30.88	29.44	36.16
Alexandria County	5.78	4.07	5.27	3.19
Prince William County	9.03	8.39	5.11	3.41

Table 4: Simulated Probability Shares of Homeownership, Washington, D.C. Metropolitan Area, 2000

	White	Black		Latino		Immigrant	
	Actual	Actual	Simulated	Actual	Simulated	Actual	Simulated
D.C.	34.35%	19.59%	35.86%	17.72%	25.29%	19.55%	22.66%
Montgomery	62.06%	39.16%	57.51%	41.59%	57.84%	48.71%	57.30%
Prince George's County	43.59%	48.20%	50.85%	35.14%	42.04%	39.22%	41.18%
Arlington County	33.88%	24.80%	41.50%	25.44%	37.31%	26.25%	34.21%
Fairfax County	60.20%	41.07%	58.20%	44.35%	59.95%	50.93%	58.99%
Alexandria County	37.08%	31.37%	47.91%	27.29%	42.14%	29.97%	40.49%
Prince William County	61.63%	43.24%	51.02%	43.61%	51.97%	45.48%	52.16%

Note: Simulated homeownership probability shares are based on estimates of race- and immigrant-stratified models of tenure choice among recent movers in the Washington, D.C. metro area. Socio-economic controls in the tenure choice equation are identical to those included in the location choice model. To compute simulated probability shares, white characteristics for each of the seven areas in the study (above) were attributed to black, Latino, and immigrant mover households.

respectively. Further, in 1980, large simulated improvements in black socio-economic status had little impact on black location choice. Specifically, the simulated elevation of black socio-economic status to that of whites reduced only slightly to 75 percent the proportion of black movers choosing to locate in D.C. or Prince George's County.

Results for 2000 indicated that, despite some dispersion, the intrametropolitan location choices of black households remained concentrated in D.C. and Prince George's County. Indeed, black movers choosing to locate in D.C. or Prince George's County declined from 85 percent in 1980 to about 66 percent in 2000. The intervening decades did witness a substantial jump, from 6 percent in 1980 to 14 percent in 2000, in the share of black movers choosing to locate in Montgomery County. In marked contrast, moves by blacks to Fairfax County showed only limited increase over the intervening two decades. As in our prior study, large simulated increases in black socio-economic status to that of whites served to raise only slightly the share of black households choosing to locate in Montgomery and Fairfax Counties. Moreover, the simulated black intrametropolitan location pattern differed markedly from that of white households. Relative to their simulated black socioeconomic counterparts, 2000 white household location choice was substantially more concentrated in the suburbs, notably Fairfax and Montgomery Counties, and evidenced to a far lesser degree in D.C. and Prince George's County.

Our findings suggest that D.C. area blacks made limited progress in movement beyond traditional areas of settlement over the intervening two decades. As previously,

simulated elevation of black socioeconomic status to that of whites was inadequate to encourage levels of black movement to outlying areas commensurate with that of whites. Further, to a significant degree, patterns of black-white housing segregation evidenced in 1980 continued to prevail in 2000.

It is clear from Table 2 that the converse of the above conclusion also holds. When black households, with their existing socioeconomic characteristics, take on the locational preferences and constraints of white households (as embodied in the white MNL coefficient vector), the predicted pattern of black residential location is quite different from their actual location choices in the Washington, D.C. area. In contradistinction to results above, the locational choices of black households are skewed away from the traditional black residential choices and are instead heavily concentrated in Fairfax and Montgomery Counties.[11] Also, in contrast to findings of our prior study, results suggest that white location patterns are substantially insensitive to changes in socioeconomic status. Indeed, substitution of black socioeconomic characteristics for those of whites does little to change the intrametropolitan distribution of white movers.

Table 3 characterizes the intrametropolitan location choices for Latino and immigrant households for 2000 only, reflecting the expansion of the analysis to those groups for the more recent period. Interestingly, results for Latino and immigrant households reveal patterns of residential location starkly different from black households and more similar to those of white households. Fairfax and Montgomery Counties together comprise 51 and 59 percent of residential location choices among Latinos and immigrants, respectively. Similarly, both groups reveal relatively damped propensities to locate in D.C. or the inner-ring suburbs of Arlington and Alexandria. Upon elevation of the socioeconomic status of Latinos and immigrants to that of whites, those groups move away from Prince George's and toward Montgomery and Fairfax counties. Note, however, the immigrant moves to D.C. rise modestly when incomes increase.[12]

In order to test whether increases in the socioeconomic status of minority group would impact homeownership choice, Table 5 presents results of simulation of homeownership tenure choice by race and immigrant status and among recent movers to the seven Washington, D.C. areas. Simulated homeownership probability shares are based on estimates of race- and immigrant-stratified models of tenure choice among recent movers in the Washington, D.C. metro area. Socio-economic controls in the tenure choice equation are identical to those included in the location choice model. To compute simulated probability shares, white characteristics for each of the seven areas in the study (above) were attributed to black, Latino, and immigrant mover households. Consistent with findings of our prior analyses (see, for example, Gabriel and Painter (2008)), results show that homeownership tenure choice among recent black and Latino movers to be highly sensitive to elevation in socio-economic status in Montgomery and Fairfax Counties. In Fairfax County, for example, simulated black and Latino homeownership choice jumps by 17 and 16 percentage points, respectively. Substantially more muted response to elevated socio-economic status was evidenced among immigrant households and in other areas.

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[11]A comparison with earlier findings does reveal some evolution in the distribution of white household moves over the past few decades. As shown in Table 2, relative to 1980, substantially lower proportions of white movers chose the District of Columbia or inner-ring suburbs of Arlington and Prince George's Counties. Instead, mover shares to Montgomery County increased markedly, and a full 10 percent of recent white movers chose the outer-ring Prince William County. Notably, over the course of the two decades, the proportion of white movers choosing Fairfax County remained about constant at one-third.

[12]This is likely due to non-Latino immigrants moving to D.C.

5. CONCLUSION

Research findings indicate only limited dispersion over recent decades in choice of residential location among black households in the Washington, D.C. metro area. As in our earlier analysis (Gabriel and Rosenthal, 1989), intrametropolitan location choice among blacks is relatively insensitive to simulated elevation in socio-economic status. In marked contrast, locational choices by Latino and immigrant households appear substantially closer to those of whites. Further, unlike their black socio-economic counterparts, Latinos and immigrants move to Fairfax County as their incomes increase.

Simulation of a tenure choice model shows that homeownership attainment among D.C. area blacks is sensitive to closure of socio-economic gaps. Unfortunately, the data indicate no progress toward closure of the black-white income gap in the D.C. area over the intervening decades. Further, gains in black economic and educational status do not necessarily imply black integration of previously highly segregated areas. Together, these findings underscore the persistent, limited access of black households to economic, educational, and housing opportunities available outside traditional areas of urban settlement.

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APPENDIX 1

TABLE A1: Multinomial Logit Model Results on Location Choice in the Washington, D.C. Metropolitan Area, 2000

Location Choice (D.C. is the omitted category)	Montgomery Coef.	Montgomery Z value	Prince George's Coef.	Prince George's Z value	Arlington Coef.	Arlington Z value	Alexandria Coef.	Alexandria Z value	Fairfax Coef.	Fairfax Z value	Prince William Coef.	Prince William Z value
Moved from—Prince George's County	4.549**	46.61	2.201**	20.5	1.023**	5.51	1.347**	6.09	2.405**	16.27	2.275**	6.88
Montgomery County	2.302**	22.38	3.899**	44.67	0.407	1.71	1.268**	5.72	2.262**	15.31	2.505**	8.43
Arlington County	1.480**	7.49	0.602*	2.31	4.746**	28.78	3.838**	19.62	4.309**	25.01	3.959**	12.64
Alexandria County	1.749**	6.67	1.457**	5.4	3.574**	15.3	5.858**	26.61	5.069**	23.43	5.199**	16.23
Fairfax County	1.620**	11.28	0.827**	4.54	3.037**	21.39	3.738**	23.63	5.928**	44.56	5.797**	23.23
Prince William County	1.825**	4.4	2.197**	5.84	2.930**	7.73	4.063**	11.42	5.386**	17.52	9.114**	25.35
Other parts of the U.S.	2.171**	27.95	1.934**	26.3	1.604**	15.15	2.199**	16.94	3.413**	31.91	4.574**	19.63
Education—less than high school	−0.446**	−4.29	0.203*	2.01	−0.635**	−4.68	−0.807**	−5.4	−0.523**	−4.84	0.452**	3.15
High school diploma	0.064	1.06	0.640**	10.2	−0.344**	−4.15	−0.257**	−2.97	0.272**	4.53	1.196**	15.65
Age cohort—25–34	0.323**	3.41	−0.157	−1.68	−0.032	−0.3	0.306**	2.61	0.172*	1.96	0.182	1.52
35–44	0.698**	6.91	0.124	1.24	0.165	1.43	0.401**	3.1	0.550**	5.74	0.420**	3.23
45–54	0.583**	5.38	−0.002	−0.02	0.093	0.73	0.580**	4.26	0.595**	5.77	0.492**	3.52
55–64	0.436**	3.39	−0.04	−0.31	0.183	1.19	0.477**	2.84	0.486**	3.84	0.272	1.58
Marital status—Single male head	−0.880**	−12.06	−0.835**	−10.9	−0.179*	−1.99	−0.469**	−4.94	−0.792**	−11.04	−1.186**	−12.17
Single female head	−0.708**	−10.76	−0.841**	−12.31	−0.175*	−2	−0.352**	−3.92	−0.742**	−11.11	−1.332**	−14.92
Number of children	0.263**	9.98	0.208**	7.76	−0.019	−0.45	−0.153**	−3.39	0.315**	11.33	0.390**	11.54
Income—Wages	0.010**	9.56	0.009**	6.91	0.014**	8.45	0.009**	6.75	0.016**	12.81	0.006**	3.77
Wages squared	0.000**	−8.8	0.000**	−7.18	0.000**	−6.05	0.000**	−5.21	0.000**	−10.29	0.000**	−5.18
Investment	−0.005**	−3.51	−0.019**	−6.29	−0.004*	−2.16	−0.002	−1.14	−0.007**	−4.9	−0.017**	−4.82
Other	0	0.25	−0.002	−1.38	0	0.22	0.001	0.46	−0.001	−0.82	−0.007**	−3.39
Homeowner	0.556**	9.26	0.791**	12.75	−0.526**	−6.43	−0.435**	−5.17	0.512**	8.47	1.146**	14.73
Racial/ethnic group—Black	−0.672**	−10.49	0.895**	14.35	−1.470**	−14.28	−0.648**	−7.14	−1.176**	−16.54	−0.599**	−6.8
Latino	−0.218	−1.3	0.405*	2.35	−0.094	−0.48	−0.184	−0.84	−0.133	−0.86	−0.081	−0.42
Asian	−0.125	−0.64	−0.536**	−2.07	0.392	1.94	−0.528	−1.89	−0.049	−0.26	−0.888**	−2.96
Latino immigrant	−0.155	−0.69	0.029	0.12	0.095	0.35	0.285	0.95	−0.22	−1	0.206	0.7
Asian immigrant	0.436	1.68	0.991**	3.08	−0.158	−0.54	0.647	1.8	0.530*	2.1	1.171**	2.97
Immigrant (omitted category migrated Less 5 years ago)	0.578*	2.39	−0.021	−0.08	0.46	1.55	0.117	0.36	0.45	1.73	−0.742	−1.87
Migrated to U.S. 5–10 years ago	0.493	1.94	0.376	1.41	0.101	0.33	0.485	1.44	0.316	1.16	0.335	0.83
Migrated to U.S. 10–15 years ago	0.423	1.63	0.342	1.27	0.372	1.21	0.435	1.27	0.322	1.16	0.396	0.97
Migrated to U.S. 15–20 years ago	0.035	0.13	0.191	0.67	−0.496	−1.48	0.28	0.78	0.055	0.19	0.012	0.03
Migrated to U.S. 20–30 years ago	−0.17	−0.62	−0.121	−0.42	−0.165	−0.49	−0.231	−0.62	−0.233	−0.8	−0.302	−0.68
Migrated to U.S. 30 + years ago	0.085	0.26	−0.289	−0.79	0.026	0.06	0.107	0.23	−0.218	−0.61	1.017*	2.15
Constant term	−2.612**	−18.73	−2.800**	−20.43	−2.544**	−14.32	−3.255**	−16.25	−3.727**	−24.28	−5.547**	−20.32

Note: *indicates significant at 5 percent confidence level; **indicates significant at the 1 percent confidence level.