Race and Residential Accessibility to Shopping and Services

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Abstract

Predominantly black, upper-income census tracts in the 10-county Atlanta region have lower accessibility to certain personal consumption opportunities than comparable white tracts do; black residents are more likely to have to leave their neighborhoods to eat out (other than at fast food restaurants), grocery shop, or see movies. Accessibility is calculated as a function of travel time to providers of local goods and services. Such accessibility is a desirable attribute and contributes to neighborhood quality and housing value.

We find that differences in residential accessibility to shopping and services by race are not explained by income differences, but could result from real differences in consumption patterns, though these are more likely due to demographic differences between black and white populations of comparable incomes; inaccurate information on neighborhood attributes and personal consumption preferences; or racially biased business decisions. We conclude by summarizing the policy implications of our findings.

Keywords: Race, Residential accessibility, Shopping

Introduction

Black commercial areas flourished before the civil rights movement, when segregation kept blacks trapped in inner cities, trading with one another. These all-black local economies grew to substantial size and diversity (Weare 1994). But since that time, many affluent black households have moved away from the central city and taken their spending power with them, contributing to a decline in local-serving retail and services in black inner-city neighborhoods. Most previous research on the distribution of local-serving retail and services examines only poor inner-city neighborhoods (Bingham and Zhang 1997; Chung and Myers 1999; Initiative for a Competitive Inner City [ICIC] and PriceWaterhouseCoopers 2000; Kunreuther 1973; MacDonald and Nelson 1991; Porter 1995; Rauch 1997; Weissbourd and Berry 1999), ignoring the growing number of affluent black neighborhoods. But in places such as Prince George's County, MD, and DeKalb County, GA, anecdotal evidence suggests that wealthy neighborhoods composed almost entirely of black households lack local-serving retail and services compared with

similar white neighborhoods. Newspaper articles in various cities periodically note complaints by middle- and upper-income blacks that they have to drive into white residential areas to have a nice meal, buy groceries, or see a movie (Glanton 1998; Poe 1999; Reid 1998; "Southeast DeKalb Black Community" 1996). In addition, the focus to date on poor minority neighborhoods has obscured whether asymmetry in neighborhood consumption opportunities is associated with race or only with income.

We attempt to separate the effects of race and income, hypothesizing that middle- and upper-income black neighborhoods in Atlanta have fewer readily available local-serving retail stores and services than comparable white neighborhoods do. Our interest is not in access to specialized establishments, but rather those local-serving retail and consumer services that are both widely distributed among metropolitan neighborhoods and constitute frequent destinations for many people. The following section begins by reviewing previous research on related topics.

Literature review

Theories of why fewer local-serving businesses may locate in black neighborhoods

Real differences in income (spending power). Retail and service businesses clearly need customers who can afford their products. The most basic hypothesis that might explain an unequal distribution of local-serving retail and services among residential neighborhoods in a metropolitan area is differing levels of demand due to residents' differing incomes or wealth (Freer 1990; Hunter 1968; Vaughn 1989). Thus, when black neighborhoods are also majority poor, their lack of retail stores and service businesses can be explained as the result of insufficient demand. However, according to Jeffrey Humphreys of the University of Georgia Selig Center for Economic Growth, black buying power in the United States will increase 170 percent between 1990 and 2007. In the same time period, the buying power of Asian Americans will increase 287 percent, while white buying power will increase only 112 percent (Humphreys 2002). The number of affluent black households is growing (Gallop-Goodman 2001). The 1999 Current Population Survey (U.S. Bureau of the Census 1999) reports that over 1,063,000 black households (8.3 percent of black households) earn more than $90,000 a year.

Density of demand. The aggregate income of an area (per capita income multiplied by population) may be more important than median income

to businesses looking for viable markets. Even in poor neighborhoods, if residential densities are high, it may be possible to define market areas with ample consumption potential for some products as measured by aggregate income. Nonetheless, aggregate income is not a perfect measure of market potential. When demand for products and services is very income elastic (like meals in expensive restaurants), a few affluent households may consume more than many poor ones.

Household structure. If black and white populations with the same income distributions have different expenditure patterns, race is not the only possible explanation. Household size is important, for example. And even among households of the same size and income, household structure and members' age can be very important in explaining consumption. For example, the expenditures on movies and restaurants are likely to be quite different for a single parent and her preschool child, an elderly married couple, and two unrelated students sharing an apartment, even though all are two-person households with comparable incomes.

Real differences in consumption patterns. Although much is made of marketing to the different tastes of various groups (Maguire 1998), whether race is an important source of such differences is doubtful. Real data showing consumption by both race and income are limited. The ICIC publishes an annual survey with consumer data available by race. The subjects are 1,159 inner-city households, and they are compared with totals from PriceWaterhouseCooper's national consumer database, a survey of 6,000 households. These results do show differences among the races, even within the inner city. As an example, 70 percent of inner-city blacks purchased seafood in the past 30 days, compared with roughly 50 percent of persons of all other races, both nationally and in the inner cities.

The 1995 Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CES) reported that despite lower average income levels, black households as a group spent absolutely more on apparel and telephone services and proportionately more on housing, transportation, and food eaten at home than the U.S. average (Humphreys 1998). However, the CES does not provide detailed breakdowns of expenditures that allow comparisons by race for a constant income level (Eric Keil, personal communication. June 6, 2001).

Most useful to our understanding of the relative unimportance of race as a source of consumption differences was an unpublished paper by Pierre Bahizi (2001), of the BLS. He used three years of the CES to compare spending habits of low- and high-income blacks, noting which expenditures on goods and services were better explained by income

and which by race. He concluded that there was very little difference in spending patterns between white and black "consumer units" (essentially the same as households) with incomes of over $70,000 a year. Within this group, blacks averaged less income before taxes ($94,885 versus $110,699), but their consumption was nevertheless similar in most respects. The most notable differences were that whites owned their own homes at higher rates (90 percent versus 81 percent); blacks spent a larger share for transportation (21.3 percent versus 18.3 percent) and for personal care products (1.4 percent versus 0.7 percent), but less for health care (3.2 percent versus 3.7 percent) and entertainment (3.9 percent versus 5.8 percent). We conclude from this that affluent black and white consumer units spend in virtually identical ways. For the broad categories used by the CES, there were no radical differences in taste among affluent blacks and whites.

Systematic underreporting of disposable income for predominantly black areas. The formal measures of income used by the census and employed as baselines by many private data providers significantly underestimate inner-city disposable incomes because they do not capture the effects of the substantial hidden economy (Feige 1989; Lachman 1995). Household expenditures in inner-city neighborhoods have been reported to be as much as 30 percent larger than household incomes (Slesnick 1994), but these observations are generally limited to poor neighborhoods. We have no reason to suspect that underreporting of income is any greater for affluent black neighborhoods than for affluent white ones.

Inaccurate information on neighborhood attributes and personal consumption preferences supplied by private data providers. Classic retail theory suggests that those attributes of a location that affect the cost of doing business (like security), as well as a location's accessibility to markets, determine commercial rents in an area and whether and which activities locate there (see, for example, Ghosh and McLafferty 1987). But this theory assumes that firms have perfect information about these important attributes, including local tastes, buying power, accessibility, rents, and crime. In the modern business world, the role of supplying such information to business decision makers falls to government (through census data products, local and regional plans, estimates and forecasts, etc.) and to private data vendors like Claritas and McGraw-Hill. Because the latter focus specifically on providing market analyses to businesses, they have special influence. If these vendors classify a neighborhood as unpromising, even without malicious intent, retail redlining[1] may result. For example, accurate neighborhood

[1] Redlining refers to the practice of denying loans to those seeking to purchase properties in inner-city neighborhoods. Retail redlining has been defined as "the practice of not locating stores or closing stores in predominantly black neighborhoods" ("Walmart Accused" 1996, C6).

statistics provide a very different picture of Milwaukee's black neighborhoods than the negative profiles offered by major data providers do (Pawasarat and Quinn 2001). In particular, since perceptions of crime may be as important to business location as the reality, the algorithms data vendors use to estimate crime statistics by ZIP code may be very important and often very misleading (Pawasarat and Quinn 2001).

Part of the problem may be due to misunderstanding information because of cultural differences, preventing white businesses or franchises from properly gauging black markets in inner-city neighborhoods (ICIC and PriceWaterhouseCoopers 2000) or engaging a black workforce. Yet if this were a major deterrent to business location in black neighborhoods, Rauch (1996) suggests that it could be remedied by encouraging the formation of so-called independent buying offices that would represent retail clients in wholesale markets, tailoring the purchasing of goods to the particular tastes of specific types of residents. To date, such entities have not arisen spontaneously.

Racially biased business decisions. Alternatively, businesses may be racially biased in choosing locations and making loans, investments, and other business decisions. Holzer (1996), for example, concluded that some firms locate in the suburbs to reduce the number of black job applicants, whom they reject at higher rates than whites. Bates (1989) similarly concluded that whites prefer hiring whites and blacks prefer hiring blacks at all business locations, urban and suburban. If racially biased business decisions were irrational or inefficient, we would expect such businesses to fail in the long run. Thus, Ross (1998) focused on possible explanations for why racially biased business decisions could be advantageous, showing that if white customers avoided establishments serving blacks, this could create economic incentives for businesses to locate farther from black neighborhoods, as long as the racially biased customers were the larger market. Bates (1989, 1993) also found that holding equity, experience, and education constant, both being black and locating in a black neighborhood provided major obstacles to successful business creation and survival. Most important, entrepreneurs starting businesses in black neighborhoods, irrespective of their race, had less access to credit than their counterparts in white neighborhoods.

Failure to keep pace with neighborhood change. Immergluck (1999) noted that racial and ethnic change in the makeup of a neighborhood might logically have a lagged effect on the provision of retail and services. If indigenous businesses failed because of their lack of desire or ability to adapt to the tastes of new residents, it might take some time for them to close and for new businesses to move in and replace them. If this were true, less demographically stable neighborhoods might be

at a perpetual disadvantage with respect to local-serving retail and services. Given both the lower degree of homeownership among blacks and the potential for a minor change in neighborhood racial composition to result in white flight, it would not be surprising if predominantly black neighborhoods had been less demographically stable than predominantly white neighborhoods in the recent past.

Fewer greenfields (less undeveloped land). As is clear from viewing a map of the Atlanta region (see figure 1, page 82), affluent black neighborhoods are more centrally located than comparable white neighborhoods. This is likely true in most other metropolitan statistical areas in the United States as well. The centers of metropolitan regions typically offer fewer opportunities for greenfield development of sites for retail and residentiary services (e.g., grocery stores, per Stanback et al. 1981) than suburbs on the periphery do, possibly disadvantaging black neighborhoods compared with white ones. Porter (1995), among many others, mentions the scarcity of greenfield sites and stricter building codes as factors that inhibit business expansion in more central (central-city) locations.

Thus, there seem to be many potential explanations for the undersupply of consumer goods and services in black neighborhoods. Some apply only to poor black neighborhoods, but several apply to affluent black neighborhoods as well. Each explanation has somewhat different policy implications, but first it is important to ascertain whether and to what degree such undersupply really exists in affluent black neighborhoods in Atlanta.

A large literature tests both whether the supply of private consumer services is deficient in poor neighborhoods (U.S. Department of Housing and Urban Development [HUD] 1999) and whether these goods and services are too high in price or low in quality (Caplovitz 1963; Chung and Myers 1999; Kunreuther 1973; MacDonald and Nelson 1991). However, only four recent pieces of research are closely related to our question.

Supply of local consumption opportunities by neighborhood race and income

Bingham and Zhang (1997) examined the relationship between poverty and economic activities in 124 central-city ZIP codes (average size roughly 16,158 persons each) in seven Ohio metropolitan areas with populations of 2 million or more. Specifically, they sought to explain "how central-city neighborhood economies differ from one another as neighborhood poverty levels vary" (Bingham and Zhang 1997, 768).

They focused on local-serving businesses, choosing to study 24 industries[2] that Stanback et al. (1981) defined as residentiary services as well as 8 industries they classified as "producer services" (e.g., commercial banks), even though such services often serve local residents directly. Using Ohio ES–202 unemployment insurance data, Bingham and Zhang (1997) classified each ZIP code according to the percentage of its population in poverty and measured average earnings, average size of establishment, employment per 1,000 residents, and residents per establishment in each industry for each ZIP code. The results showed relationships between the presence and attributes of each industry and the poverty of ZIP code residents. For example, banking had a lesser presence in poorer neighborhoods, while check-cashing operations were more prevalent. In addition, diminished levels of local-serving employment were found in a number of the industries studied, even when poverty levels were low (20 percent). Bingham and Zhang (1997) did not address the racial composition of the ZIP codes they studied.

Immergluck (1999) did consider race as a possible explanation for reduced levels of commercial activity, but also only in the context of central-city neighborhoods. He hypothesized that changes to neighborhood population, income, and racial and ethnic makeup would explain the variability in commercial building permits over time in 75 (of 77) Chicago neighborhoods (average size roughly 14,000 households each). As expected, he found significant positive associations between changes in population and income and change in commercial building permits issued, but he also found that the proportion of residents who were black and Hispanic significantly and negatively affected the number of permits issued.

In addition, Gibson (1999) considered race as a cause of the undersupply of one type of neighborhood consumption opportunity, retail grocery stores, in Chicago. She used data for 821 city census tracts (average size roughly 2,000 households each), as well as for their surrounding "communities" (the same 77 areas Immergluck (1999) employed in his research) to test whether neighborhood attributes explained the presence of retail grocery stores. Although none of the neighborhood characteristics she had hypothesized as possibly affecting the *supply* of chain grocery stores proved significant (e.g., neighborhood crime, rent levels), she concluded that purchasing power does affect *demand* for grocery stores. Although she tested models using both mean household income and population density and models using aggregate income per square mile[3]

[2] These were defined at the three-digit level of the Standard Industrial Classification code.

[3] Gibson calculated aggregate income density per gross square mile, not per square mile devoted to residential uses.

as indicators of purchasing power, only the latter proved to be positively and significantly related to the presence of grocery stores. She also tested the effects of race separately, controlling for confounding factors like purchasing power and crime, and found that "the percentage of a tract that is black is a positive and significant predictor of the distance to the closest low-price store" (supermarket) (Gibson 1999, 122).

Ross (1998) looked explicitly at race for a closely related question, hypothesizing that the percentage of black residents in the same ZIP code would negatively affect the supply of employment in 28 different industry sectors for 101 ZIP code areas in the Atlanta metropolitan area. He also estimated a demand equation that included ZIP code income as one of its explanatory variables to predict sales in the same sectors. In predicting employment, he found that percent black had the predicted negative coefficient in only 13 of the 28 sectors and was significant at the 0.10 level or above for only 3 sectors: drug stores, furniture stores, and movies. Thus, these results give no strong indication that blacks are underprovided with many local-serving retail and services in the Atlanta area. We found these results unconvincing, however, since the work combined 1990 census data on race with much more recent data on other variables, as well as relying entirely on ZIP code attributes to explain both supply and demand.

Conclusions from the literature review

The literature yields, first, a substantial list of possible reasons why black neighborhoods may be underprovided with local-serving retail and consumer services, including real differences in spending power caused either by lower incomes or lower gross residential densities or both, demographic differences other than race, real racial differences in consumption patterns (although the evidence did not support this), systematic underreporting of black disposable income (although there is no evidence that this would be greater than for whites in affluent areas), inaccurate information about black neighborhoods from private data providers, racially biased business decisions, lags between neighborhood demographic change and change in businesses serving the neighborhood, and less undeveloped land available in black tracts because of their greater centrality in the region.

In addition, the literature confirms the expected positive relationship between residents' incomes and the amount and types of local-serving consumer opportunities, but hints that race may play a significant role as well. However, the research that preceded ours was limited to central-city neighborhoods. Thus, many of the more affluent neighborhoods, black and white, were excluded. All studies also attempted to

measure the supply of residentiary services by counting their presence in defined geographic areas. None but Gibson considered the mismatch between the areas local shoppers frequent and their census tracts or ZIP code areas of residence. In the following analysis, using data for Atlanta in the 1990s, we first consider whether accessibility to local consumption opportunities differs by race among affluent neighborhoods and then explore the likelihood of different explanations for what we find.

Empirical analysis

We hypothesize that affluent black neighborhoods are less accessible than comparable white neighborhoods to local-serving retail and services in the Atlanta urban region. The following section describes the methods we used to test this question.

Methods and data used

This article was first written before the 2000 census Summary File 3 (U.S. Bureau of the Census 2002) data were available. We initially used demographic and income estimates from Claritas (1999) for the 417 (1990) census tracts that made up metropolitan Atlanta's 10 central counties, along with a Georgia ES–202 employment dataset (unpublished) for the first quarter of 1997, made available to us by the Atlanta Regional Commission (ARC) for the same 10-county region.[4] This article is a revision of that first draft, this time employing the recently released census Summary File 3 (U.S. Bureau of the Census 2002) data for the now 564 tracts comprising the same 10 counties, as well as travel time and ES–202 data also adapted to match 2000 census-tract geography.

Atlanta has added many Asian residents in recent years, but unlike New York and Los Angeles, for example, it continues to be a predominantly black and white metropolitan area. The 2000 census reports that all but 5 percent of the population of the Atlanta metropolitan area self-reports their race as either black or white (HUD 2001). Thus, all of our tests involving race will compare only blacks and whites. Table 1 shows that among the 564 tracts, only 168 (30 percent) are mixed black and white (from 20 percent to 80 percent black). Of the

[4] Before the 2000 census, the Atlanta metropolitan statistical area was 20 counties. However, over 85 percent of the region's jobs and 87 percent of its population were found in these 10 central counties.

Table 1. **Distribution of Number and Proportion of All Tracts by Percent of Population That Is White and Black**

Percent White	Number of Tracts	Proportion of All Tracts (%)	Percent Black	Number of Tracts	Proportion of All Tracts (%)
0–9.99	100	17.7	0–9.99	181	32.1
10–19.99	44	7.8	10–19.99	97	17.2
20–29.99	17	3.0	20–29.99	45	8.0
30–39.99	26	4.6	30–39.99	36	6.4
40–49.99	35	6.2	40–49.99	28	5.0
50–59.99	43	7.6	50–59.99	17	3.0
60–69.99	42	7.4	60–69.99	20	3.5
70–79.99	65	11.5	70–79.99	22	3.9
80–89.99	107	19.0	80–89.99	32	5.7
90–100.00	85	15.1	90–100.00	86	15.2
	564	100.0		564	100.0

Source: U.S. Bureau of the Census 2001.
Note: Percentages may not add to exactly 100 percent because of rounding.

remaining 396 (70 percent), 118 are 80 percent or more black (what we will call predominantly black tracts or PBTs), and 192 are 80 percent or more white (predominantly white tracts or PWTs).

Since our focus is on affluent black neighborhoods and their hypothesized lack of services, we were most interested in finding PBTs whose residents had relatively high incomes. We could have done this by establishing a definition of "affluent" in terms of tract household or per capita income. But we preferred to view all tracts relatively and determine where the black tracts fit in relation to the white tracts in terms of income. To locate the affluent tracts, we broke all 564 tracts into quintiles by both median household income and median per capita income. Since Atlanta is known in the popular press as a center for affluent blacks, we were surprised to learn that no PBTs fell into the top quintile of either tract median household income ($70,757 to $163,474) or tract per capita income ($32,769 to $105,333) (table 2). Four PBTs fell into the second quintile of both median household income ($56,094 to $70,757) and per capita income ($25,209 to $32,769). Though 14 PBTs were in the third quintile for per capita income ($20,064 to $25,209), only 11 of these also had household incomes in the second quintile (none were in the first). The PBT with the highest per capita income was 79.00 in the city of Atlanta, ranked 128th in per capita and 205th in median household income among the 564 tracts in the 10-county region. The PBT with the highest median household income was 233.05 in the western portion of suburban DeKalb County, ranked 127th in household income and 210th in per capita income among the 564 tracts in the 10-county region. Per capita

income was lower in black tracts even when household incomes were comparable to those of PWTs. In addition, many affluent black households in Atlanta appear to reside outside our PBTs. Thus, to have enough affluent PBTs to test our hypothesis, we created a practical selection criterion: To meet our definition of "affluent," a tract had to be in the top two quintiles of all 564 tracts on one of the income measures and in the top three quintiles on the other. We excluded tracts that were in the middle (third) quintile on both measures. Using this standard, we identified 15 PBTs.

Table 2. **PBTs and PWTs Meeting the Test for Affluence (N = 564 Tracts)**

	Per Capita Income Quintile			
Median Household Income Quintile	1	2	3	Total
PBTs				
1	0	0	0	0
2	0	4	11	15
3	0	0	NA	0
Total	0	4	11	15
PWTs				
1	57	37	1	95
2	11	23	20	54
3	8	6	NA	14
Total	76	66	21	163

Source: U.S. Bureau of the Census 2002.
Note: NA = cells not eligible for the study.

Table 2 also shows that white tracts were, on average, far more affluent than affluent black tracts. There were, for example, 57 PWTs in the top quintile on both measures of income, but no PBTs. Thus, rather than comparing all 15 affluent black tracts with all 163 affluent white tracts, we compared them to a subset. We chose the subset of PWTs whose income measures most closely matched those of the affluent PBTs. Though our task was less complex, our model for this was Isserman and Rephann's (1995) method for matching cases to compare development levels among counties. We, too, attempted to "make the leap of faith as small as possible" (Isserman and Rephann 1995, 363) for readers. To be a match, we required a PWT to be within $2,000 of its matching PBT's household median income and within $1,000 of its matching PBT's per capita income. This criterion eliminated 2 black tracts whose per capita incomes were lower than any of the potentially

matching affluent white tracts, leaving 13 PBTs. A total of 22 tracts qualified as both affluent and predominantly white. We eliminated the 10 that were located on the edge of our data-reporting area, giving them abnormally low accessibility scores because of the absence of data on service employment outside the region. Table 3 shows the 13 PBTs and their matching 12 PWTs and their income statistics. Some PWTs match more than one PBT, so table 3 also shows the weighting scheme we used to calculate summary statistics.

Figure 1 shows the 13 affluent PBTs and their matched PWTs. Of the black tracts in the study, 1 (79.00) is in the historic Cascade Road area of the city of Atlanta, 10 are in suburban DeKalb County, 1 is just outside the city in unincorporated Fulton County, and 1 is in suburban Clayton County.

Consumption opportunities. Stanback et al. (1981) created the phrase residentiary services to refer to those Standard Industrial Classification (SIC) categories that primarily serve consumer demand directly. Bingham and Zhang (1997) used a subset of the original list of residentiary services likely to locate in poor neighborhoods and added eight producer services that also often serve consumers directly. Our purpose was similar to these earlier efforts in that we wished to identify those types of businesses that served consumers directly. However, we limited ourselves to SIC categories that locate dispersed establishments in or near residential neighborhoods. In other words, we did not seek to investigate the accessibility of businesses known to cluster regionally or to serve markets much larger than neighborhoods. Therefore, our list excludes a subset of the categories considered by Bingham and Zhang (1997).[5] The categories we investigated are given in table 4 and include several types of establishments most middle-class households in metropolitan areas expect to find in or near their neighborhood. These businesses tend to locate in or near residential neighborhoods to reduce the travel burden on their customers because they offer household goods or services that are perishable, cannot be stockpiled, or must be consumed on the premises (groceries, restaurant or takeout meals, movies); may be urgently desired on short notice (prescription medicine, liquor, cash, or the ability to safely deposit cash or checks); or require frequent trips with bulky items (groceries, laundry). We assumed consumption opportunities to be proportional to employment in these industries, with higher employment indicating either more or larger establishments.

[5] We excluded general merchandise stores; automotive dealers; home furnishings stores; nondepository credit institutions; real estate offices; health, legal, and social services; and engineering, accounting, management, and related services as not being neighborhood oriented, but likely to locate either in larger commercial nodes in an urban area or to cluster with like businesses rather than locating near customers' residences.

Table 3. **Population and Income Attributes of Affluent PBTs and Their Matching PWTs**

Tract Number	2000 Population	Percent Black	Percent White	1999 per Capita Income	1999 Median Household Income	Median Household Income Quintile	Per Capita Income Quintile	Comparison Tract(s)	Weight*
Affluent PBTs									
79.00	4,389	98.0	1.1	$30,935	$58,403	2	2	304.01	0.08
103.03	5,526	96.5	2.5	$26,751	$65,254	2	2	909.01/909.02	0.08
232.09	5,777	85.7	10.1	$21,221	$61,729	2	3	701.02	0.08
232.11	3,795	92.4	4.6	$23,100	$58,938	2	3	301.03	0.08
232.12	3,878	90.6	6.3	$20,836	$58,700	2	3	910.03	0.08
233.02	10,136	85.6	11.5	$23,673	$62,757	2	3	507.21/506.02/805.07	0.08
233.05	10,680	84.9	11.6	$25,990	$68,156	2	2	507.15	0.08
233.06	5,282	89.1	8.0	$21,015	$58,841	2	3	910.03	0.08
234.12	6,857	93.6	4.4	$20,400	$56,289	2	3	910.03	0.08
234.14	7,354	93.2	4.9	$21,409	$59,528	2	3	910.03	0.08
234.15	8,647	94.9	3.1	$23,421	$65,643	2	3	805.07/507.04/303.10	0.08
234.16	5,676	93.1	5.3	$23,458	$67,644	2	3	303.10	0.08
405.09	4,280	85.5	11.6	$23,027	$60,538	2	3	301.03/701.02/507.21	0.08
Matching Affluent PWTs									
301.03	5,972	9.3	83.5	$23,943	$60,536	2	3	232.11/405.09	0.10
303.10	7,792	7.9	84.6	$24,114	$67,617	2	3	234.15/234.16	0.10
304.01	7,779	8.8	82.8	$31,700	$60,342	2	2	79.00	0.08
506.02	13,010	5.2	91.4	$24,424	$62,893	2	3	233.02	0.03
507.04	15,583	8.3	87.4	$24,141	$65,076	2	3	234.15	0.03
507.15	4,859	5.9	87.0	$25,310	$68,718	2	2	233.05	0.08
507.21	6,961	6.2	89.6	$23,986	$62,419	2	3	405.09/233.02	0.05
701.02	8,998	8.1	89.9	$22,060	$62,284	2	3	405.09/232.09	0.10
805.07	2,442	4.3	92.6	$23,663	$64,667	2	3	233.02/234.15	0.05
909.01	6,011	1.4	94.6	$27,681	$63,345	2	2	103.03	0.04
909.02	7,383	3.6	91.5	$27,168	$65,758	2	2	103.03	0.04
910.03	6,372	4.1	84.5	$21,151	$57,582	2	3	234.12/232.12/233.06/234.14	0.31

Source: U.S. Bureau of the Census 2001, 2002.

* Weights represent the share of all black tracts represented or compared with.

Figure 1. **Atlanta 10-County Region, 2000: Affluent PBTs and Their Matching PWTs**

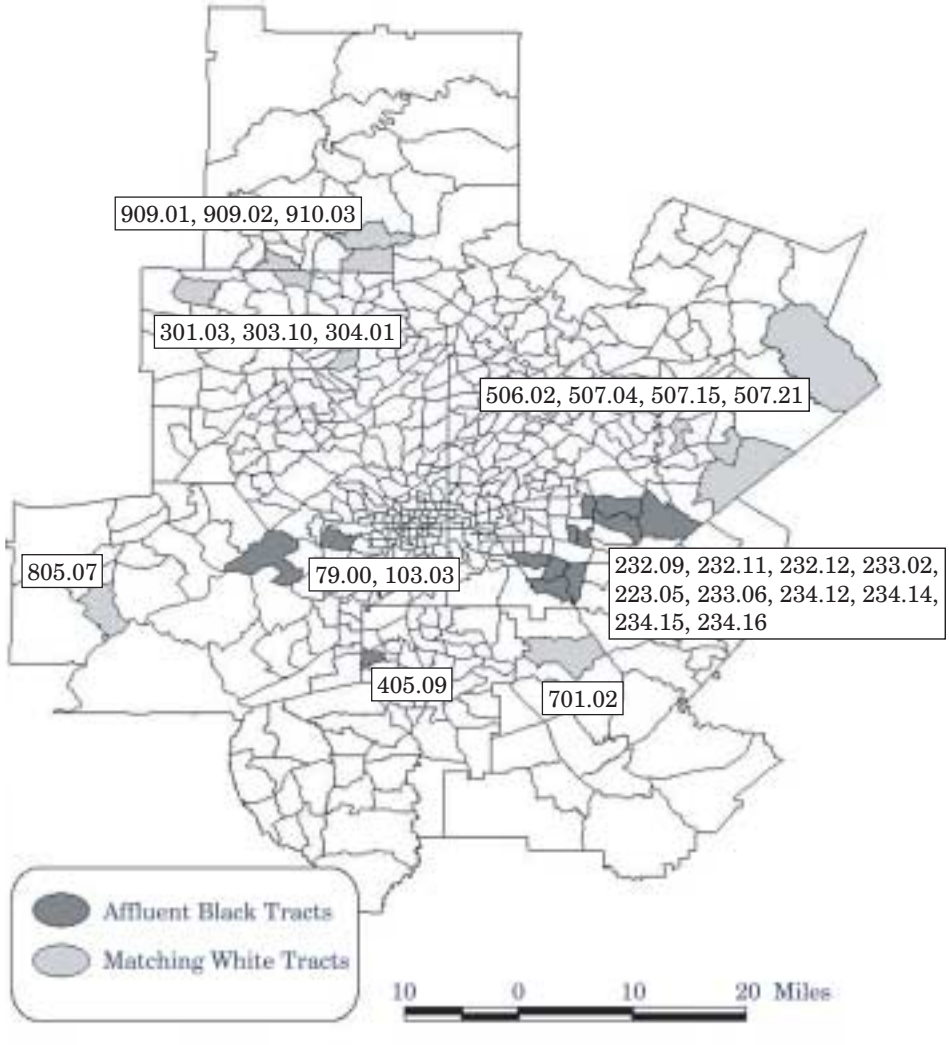

Table 4. **Standard/Census Industrial Classifications Defined as Retail and Consumer Service Opportunities**

SIC/CIC	Industry Group
541	Grocery stores
	Chain grocery stores only
	Mom and pop grocery stores only
581	Eating and drinking places
	Fast food chain eating places only
	Other eating places only
591	Drug stores
	Chain drug stores only
592	Liquor stores
602	Commercial banks
	Large banks only
	Small banks only
721	Laundry, cleaning, and garment services
783	Motion picture theaters

Source: U.S. Office of Management and Budget 1987.
Note: CIC = Census Industrial Classification.

Measuring accessibility. Both Immergluck (1999) and Bingham and Zhang (1997) counted indicators of consumption opportunity—local-serving employment, establishments or building permits—within discrete small areas to compare to the attributes of the residents of the same areas.[6] Gibson (1999) added a variable that described the larger geographic community containing each of her tracts. These approaches, even Gibson's, are problematic because most households would consider all consumption opportunities they could reach conveniently rather than those in just their own ZIP code, census tract, or community.[7] To remedy this problem, we use measures of accessibility.

We rate each census tract in the Atlanta urban region on how relatively accessible it is, compared with other tracts, to employment in the types

[6] Data providers and researchers commonly use ZIP codes or census tracts as areal units representing neighborhoods, although neither perfectly corresponds to what residents consider their neighborhood or necessarily represents a self-contained market for any good or service. Nonetheless, ZIP codes are even less desirable than census tracts, since, unlike census tracts, they are not created or maintained for the purpose of data analysis. ZIP codes vary dramatically in size and number of residents, often lack boundaries with meaning to local residents, and change unpredictably in response to the needs of the U.S. Postal Service, so that data users may not accurately understand the areas for which data are summarized.

[7] Even a person able to walk to destinations only within a half-mile radius can cover an area equal to approximately 80 percent of a square mile, which is larger than many in-town Atlanta census tracts.

of businesses listed in table 4. There are many methods of mathematically combining information on network separation and destination attractiveness into plausible measures of the accessibility of one location (usually a zone with an identified centroid) over other locations of interest in a region. We calculate two primary types of measures of accessibility, both functions of travel time: opportunity accessibility and gravity accessibility. The travel times we use are year 2000 congested peak travel times by car, modeled by the ARC (unpublished data).

Opportunity accessibility. Opportunity or isochronic accessibility measures the number of destination opportunities or attractions that can be reached from the originating zone (centroid) within a given travel time. In our case, as noted above, these are jobs in industries serving consumer demand, representing possible shopping or other personal trip destinations. The measure is defined as

$$A_i = W_t \tag{1}$$

where

A_i = the opportunity accessibility of the centroid of zone i
W_t = attractions that can be reached within t minutes from the centroid of zone i

In this type of measure, all opportunities within the designated radius contribute equally to zone i's accessibility, and the number and location of opportunities beyond that radius are irrelevant. If people's travel behavior matched this type of measure, they would be indifferent to the length of any trip taking t or fewer minutes and absolutely unwilling to make trips of greater than t minutes. We evaluate opportunity measures with radii of 5 minutes, 10 minutes, and 15 minutes by private vehicle.

Gravity accessibility. Gravity accessibility measures use attractions at each destination opportunity as weights, as well as taking travel time between every zone pair uniquely into account. Generally, gravity measures of accessibility look like this:

$$A_i = \sum_{j=1}^{n} (W_j) * (f(t_{ij})) \tag{2}$$

where

A_i = the gravity accessibility of zone i
W_j = attractions in zone j
$f(t_{ij})$ = an impedance function based on the separation in distance, travel time, or cost (t_{ij}) between zones i and j (ours take the form t_{ij}^{-b} where b is a parameter)
n = number of zones in the region

Gravity accessibility measures correspond to the denominators of gravity models used in the trip distribution portion of the standard four-step transportation demand–forecasting model. In these models, the total number of trips within a region is determined during trip generation (step one). Trip distribution (step two) allocates this total, predicting the number of trips that will flow between each pair of origin and destination zones. Real data are used to calibrate the model, and this same structure is then used for predicting (Dickey 1983; Meyer and Miller 2001).[8]

Gravity models have the most substantial theoretical underpinning of any of the aggregate spatial interaction accessibility measures (Cochrane 1975; Koenig 1980; Neuberger 1971; Niedercorn and Bechdolt 1969) and have been related to the standard utility-maximizing model of urban residential location and land rent (Helling 1992, 1998).

Ideally, we would be able to reference a national study of travel times and/or distances to various specific types of shopping opportunities by the income and race of the customer, but we did not find such baseline data, although we did find indications that it is appropriate to impose a high standard of convenience when choosing a measure of accessibility to those types of consumption that require the most frequent travel. Mantovani and Welsh (1997) studied food stamp recipients in three metropolitan areas. These shoppers are not a random sample of all shoppers in the United States, nor are they likely to resemble the affluent households of interest to us, but on average they traveled only 0.31 miles, 0.48 miles, and 0.56 miles to grocery stores in Baltimore, southeast Los Angeles, and Pasadena (CA), respectively. Handy and Niemeier (1997) found that the average resident of all of the more affluent communities they studied in the San Francisco Bay area had a supermarket within 3 minutes of home. The average in these communities was to have more than three supermarkets within 5 minutes of home and seven or more supermarkets within 10 minutes of home. Handy and Clifton (2001),

[8] Calibration also yields zone-to-zone adjustment factors (K factors), which take into account differences not otherwise captured by the gravity formulation. Because these K factors are estimated through calibration and are unique to each zone pair, their use, while practical for forecasting travel demand, tends to obscure other regularities that may exist but have not yet been modeled.

surveying residents of six fairly affluent neighborhoods in Austin, TX, reported that all but one had food stores within a mile of home and reported making an average of 2.3 food shopping trips a week. Although Handy and Clifton (2001) discovered in focus groups and from surveys that respondents chose shopping locations based on a variety of considerations, they assigned the highest average rankings to whether a store had the "best-quality products" (4.0 on a 5-point scale) and was "closest to home" (3.9 on a 5-point scale). While these communities do not represent a standard for all affluent urban neighborhoods, they do suggest that accessibility to local-serving retail and services is important and that access within 5 minutes of home to frequent destinations, like chain grocery stores, is commonplace. It argues against using measures with travel time radii as large as 15 minutes. The communities in both Handy and Niemeier (1997) and Handy and Clifton (2001) included some with older, more pedestrian-oriented commercial development and others with more auto-oriented strip development. They were not exceptional, but reflect the reasonable expectations of middle-class Americans.

The best recent national source is data from the 1995 Nationwide Personal Transportation Survey (NPTS) (U.S. Department of Transportation 1995), but it groups trips into "shopping" and "personal business," along with other, similarly general categories. The trips we are most interested in are the shortest and the most frequent ones, which include trips to the grocery store, for example, but in the NPTS, these are combined with trips to obtain less ubiquitous goods and services like furniture, clothing, and legal assistance. The latter are normally located in larger, more specialized nodes than neighborhood shopping areas and require longer travel times on average than those of primary interest to us. In 1995, the average NPTS shopping trip by vehicle was 5.64 miles. Even so, 39 percent of all NPTS shopping trips take no more than 5 minutes.

Despite their shortcomings, these sources do suggest that many households have certain types of establishments, including grocery stores, within a few minutes of home. Thus, the accessibility measure we chose as most reasonably representing convenient access to residential-serving retail and services was a hybrid of the opportunity and gravity types (Hyb5min-2.2), which assumes that most opportunities for such consumption ought to be within 5 minutes' travel by car at peak travel times, but that a small number of trips may lie outside this boundary, their (gravity) accessibility described by the decreasing function $\frac{1}{travel\ time^{2.2}}$. (3)

For comparison, a second measure (Hyb10min-2.2) makes the same assumptions, except that it expands the boundary encompassing most

local consumption destinations to 10 minutes. (For those familiar with Atlanta, an example of a 5-minute peak-period trip would include travel from Piedmont Park to the Georgia Tech campus, a distance of a little over a mile. An example of a 10-minute peak-period trip would be from the Olympic dorms north of downtown to the Brookwood interchange, where I–75 and I–85 split north of midtown, a distance of about two miles.) Congestion varies across the network, causing the distance that can be covered in 5 or 10 minutes during the peak travel period to vary around the region as well.

Test results and analysis of explanatory factors

Results

Table 5 shows the results obtained when the chosen accessibility measures for affluent PBTs were compared with those of their matched affluent PWTs. When the ratio in the right-hand column is greater than 1, it indicates that affluent PWTs had better access to employment in that category using the specified accessibility measure than PBTs did. Several conclusions can be drawn from table 5. First, assuming that it is desirable for most consumption opportunities of the type we investigate to be within 5 minutes by car, it is evident that the affluent PBTs are less accessible than their predominantly white matches to grocery stores of all types, restaurants other than fast food franchises, small neighborhood banks, liquor stores, and movie theaters. They are more accessible to fast food restaurants, laundries, drug stores, and large banks. This is true despite their having the same median and per capita incomes as their matched PWTs.

Comparison of these results with those for Hyb10min-2.2 in table 5 indicates how dramatically they depend on the accessibility measure chosen. This is reinforced by the results in table 6, which uses these and several other accessibility measures to show the average accessibility of the whole black and white populations of the Atlanta region to chain grocery stores. All of these measures support the same interpretations. Smaller absolute values for b in the gravity measures indicate lesser impedance, which is similar to assuming that longer trips are acceptable. But the pure gravity measures, even those with higher absolute values for the exponent (b), undervalue extremely convenient access because they impose no cutoff beyond which stores are too far away to count as beneficial. In a large metropolitan area like Atlanta, well served by limited-access highways, this implies that chain grocery stores in the far northern suburbs convey some benefit to residents of far southern suburbs. Opportunity and hybrid measures with small

Table 5. **Accessibility of the Comparably Affluent PBTs and PWTs to Local-Serving Consumption Opportunities**

SIC/CIC	Industry Group	Summed Accessibility of PBTs	Summed Accessibility of PWTs	Ratio of White Accessibility to Black Accessibility
Hyb5min-2.2[a]				
541	Grocery stores	23.7	26.0	1.10
	Chain grocery stores only	21.5	24.1	1.12
	Mom and pop grocery stores only	0.2	0.2	1.12
581	Eating and drinking places	48.7	47.9	0.98
	Fast food chain eating places only	30.2	25.3	0.84
	Other eating places only	18.5	22.6	1.23
591	Drug stores	4.6	2.6	0.57
	Chain drug stores only	4.1	1.5	0.36
592	Liquor stores	0.5	1.7	3.20
602	Commercial banks	3.8	4.2	1.11
	Large banks only	2.6	2.4	0.94
	Small banks only	1.2	1.8	1.47
721	Laundry, cleaning, and garment services	2.8	1.4	0.49
783	Motion picture theaters	0.4	1.5	3.85
Hyb10min-2.2[b]				
541	Grocery stores	212.9	136.6	0.64
	Chain grocery stores only	199.5	122.5	0.61
	Mom and pop grocery stores only	1.0	2.4	2.53
581	Eating and drinking places	367.2	288.4	0.79
	Fast food chain eating places only	266.0	169.7	0.64
	Other eating places only	101.2	118.6	1.17
591	Drug stores	42.8	16.4	0.38
	Chain drug stores only	39.4	12.5	0.32
592	Liquor stores	8.8	4.4	0.49
602	Commercial banks	34.2	37.1	1.08
	Large banks only	17.9	16.5	0.92
	Small banks only	16.3	20.6	1.26
721	Laundry, cleaning, and garment services	14.5	3.9	0.27
783	Motion picture theaters	0.9	1.5	1.77

Note: CIC = Census Industrial Classification.

[a] Hybrid of 5-minute opportunity accessibility and gravity accessibility, where b = –2.2

[b] Hybrid of 10-minute opportunity accessibility and gravity accessibility, where b = –2.2

radii, by contrast, give relatively greater weight to proximity. An opportunity measure with a 5-minute travel time radius values *only* consumption opportunities within 5 minutes. The hybrid measures value opportunities within the specified travel time most heavily and sharply discount those beyond this radius. The stimulus for our research was concern over whether residentiary services were present in, or very convenient to, affluent predominately black neighborhoods—not about

whether affluent Atlanta blacks could get on the freeway and travel to other parts of the region to shop. Table 6 shows that if longer trips *are* acceptable, Atlanta blacks have similar or better access to these types of consumption opportunities, but if such opportunities must be very close to be truly advantageous, they have poorer access.

Table 6. **Comparison of Mean Accessibility of Blacks and Whites in the Atlanta Region to Chain Grocery Stores,[a] Using Various Measures**

	Mean Accessibility of Blacks to Chain Grocery Stores	Mean Accessibility of Whites to Chain Grocery Stores	Ratio of Mean White Accessibility to Mean Black Accessibility
Selected measures			
Hyb5min-2.2[b]	39	44	1.12
Hyb10min-2.2[c]	182	175	0.96
Pure gravity measures			
Gravity accessibility, b = –0.85	1,225	1,131	0.92
Gravity accessibility, b = –2.2	13	12	0.92
Gravity accessibility, b = –3.0	2	2	1.01
Gravity accessibility, b = –4.0	0	0	1.12
Pure opportunity measures			
5-minute opportunity accessibility	27	33	1.23
10-minute opportunity accessibility	172	166	0.97
15-minute opportunity accessibility	625	557	0.89
All hybrid measures considered			
5-minute opportunity, gravity b = –0.85	1,243	1,154	0.93
10-minute opportunity, gravity b = –0.85	1,363	1,263	0.93
15-minute opportunity, gravity b = –0.85	1,764	1,609	0.91
5-minute opportunity, gravity b = –2.2 (Hyb5min-2.2)	39	44	1.12
10-minute opportunity, gravity b = –2.2 (Hyb10min-2.2)	182	175	0.96
15-minute opportunity, gravity b = –2.2	633	564	0.89
5-minute opportunity, gravity b = –3.0	28	34	1.22
10-minute opportunity, gravity b = –3.0	173	167	0.97
15-minute opportunity, gravity b = –3.0	626	558	0.89
5-minute opportunity, gravity b = –4.0	27	33	1.23
10-minute opportunity, gravity b = –4.0	172	166	0.97
15-minute opportunity, gravity b = –4.0	625	557	0.89

[a] Chain grocery stores as destinations are weighted by their employment.
[b] Hybrid of 5-minute opportunity accessibility and gravity accessibility, where b = –2.2.
[c] Hybrid of 10-minute opportunity accessibility and gravity accessibility, where b = –2.2.

The consistency of the results across measures in table 6 is very important. It shows that in general, greater emphasis on travel time and convenience in the measure chosen give black tracts less accessibility to chain groceries. Yet a 5-minute difference in travel time reverses the findings.[9] Such a difference may sound trivial, but it is not. As we have argued earlier, extremely convenient access to such destinations is common, and it is common because it is valuable. According to the NPTS, the average household made 4.65 one-way trips for shopping or personal business per day in 1995 (U.S. Department of Transportation 1995). Thus, if each such trip were 5 minutes longer, the average household would spend an extra 141.4 hours a year in travel due to this difference alone. Using this logic, large transportation investment decisions are driven by their potential to save a few minutes or even seconds per trip. Because of the savings such convenience represents, accessibility contributes to land value and thus to households' investments in their homes. Differences in the set of consumption opportunities within 5 minutes and those that have the same set of opportunities within a 10- or 15-minute radius can be distinguished by the average person. Yet an opportunity or hybrid access measure with a radius of 10 minutes implies that a grocery store trip of up to 10 minutes one way is indistinguishable from one that takes under 5 minutes (that both opportunities are equally weighted in the measure). Common sense suggests that this is not correct.

Analysis of explanatory factors

Earlier we listed nine reasons from the literature why affluent black census tracts in Atlanta might have less access to neighborhood goods and services than their white counterparts. Now we will explore each in turn.

Real differences in income (spending power). We attempted to rule out this explanation by selecting predominantly white census tracts that were comparable on both median household income and per capita income. However, although the matched pairs of census tracts were selected to have comparable income profiles, the boundaries of these tracts do not necessarily correspond to local-serving enterprises' entire market areas, and they could be surrounded by poorer communities than is the case for their white comparables. We test for this possibility

[9] Moving from a 5-minute to a 10-minute radius for a hybrid accessibility measure in table 5 makes affluent PBTs more accessible than their white counterparts. Moving from a 5-minute to a 10-minute radius in table 6 makes the mean accessibility of all blacks to chain grocery stores greater than the mean accessibility of all whites to chain grocery stores for opportunity measures and for three out of four hybrid measures.

by considering the accessibility of our affluent black and white tracts to metropolitan spending power (measured as aggregate income). The results of this analysis are shown in table 7. Clearly, the PBTs, which are more centrally located than their matches, are on average more accessible to regional spending power using the same measures of accessibility as previously, this time weighted by aggregate income rather than employment by industry. It seems unlikely, therefore, that deficient purchasing power in a neighborhood's environs explains the lesser accessibility to consumption opportunities in PBTs.

Table 7. **Comparison of the Accessibility of Comparably Affluent, Majority Black and Majority White Census Tracts to Aggregate Income in the Region**

Majority Black Tracts	Hyb5min-2.2[a]	Hyb10min-2.2[b]	Majority White Tracts	Hyb5min-2.2[a]	Hyb10min-2.2[b]
79.00	32,662	243,245	301.03	17,532	158,353
103.03	24,236	169,068	303.10	214,344	758,310
232.09	159,509	811,726	304.01	285,479	827,578
232.11	37,691	786,562	506.02	11,849	11,849
232.12	37,691	786,562	507.04	15,573	387,550
233.02	27,256	334,031	507.15	26,819	146,814
233.05	304,815	426,445	507.21	187,763	292,736
233.06	137,758	362,659	701.02	20,277	215,596
234.12	40,079	652,769	805.07	8,378	65,709
234.14	38,653	752,030	909.01	18,113	182,051
234.15	34,178	608,509	909.02	26,186	222,484
234.16	33,600	730,869	910.03	23,523	155,258
405.09	124,819	551,089			
Mean	79,457	555,043	Mean	71,320	285,357

[a] Hybrid of 5-minute opportunity accessibility and gravity accessibility, where b = –2.2.

[b] Hybrid of 10-minute opportunity accessibility and gravity accessibility, where b = –2.2.

Density of demand. If affluent black neighborhoods had lower population densities than their white counterparts, they might be less attractive markets even if median incomes were comparable. Figure 1 shows this to be unlikely, since the PBTs are more centrally located in the metropolitan area. Indeed, table 8 shows that both gross residential density (number of households per acre in the entire tract) and net residential density (number of households per acre in the portion of the tract in residential land use) are higher for the PBTs. Only 3 PBTs have a gross density under 1,280 households per square mile (2 households per acre) while 7 of the 12 PWTs have densities this low. The average for all PWTs is less than 1,280. The affluent black tracts are clearly more densely populated.

Table 8. **Residential Densities, Household Sizes and Ages in Affluent PBTs and Their Matching PWTs**

Tract Number	ZIP Code	Area (Sq. Mi.)	Gross Residential Density	Net Residential Density	Average Household Size	Median Age of the Household Head
Affluent PBTs						
79.00	30311	3.41	1,287	2,395	2.54	46.6
103.03	30331	13.57	407	1,983	2.64	37.7
232.09	30088	1.74	3,329	3,728	3.11	32.2
232.11	30088	0.98	3,858	4,840	2.74	31.2
232.12	30088	1.34	2,888	4,840	2.82	31.5
233.02	30058	11.44	886	1,611	2.93	33.2
233.05	30087	5.39	1,983	2,294	2.94	32.8
233.06	30058	4.82	1,095	2,351	3.21	31.8
234.12	30034	2.86	2,397	3,198	2.96	32.7
234.14	30034	2.64	2,785	3,198	2.99	34.2
234.15	30034	4.07	2,124	2,900	3.06	34.5
234.16	30038	3.69	1,537	2,900	3.05	32.5
405.09	30296	1.97	2,170	3,670	2.84	35.2
Tract average			2,058	3,070	2.91	34.3
Weighted* average			1,972	2,870	2.93	34.1
Affluent PWTs						
301.03	30101	6.20	963	1,956	2.67	34.0
303.10	30144	3.42	2,279	3,248	2.97	33.3
304.01	30068	3.06	2,543	3,169	2.33	35.9
506.02	30211	44.20	294	1,997	2.89	33.4
507.04	30249	21.72	718	1,498	2.97	34.5
507.15	30278	2.79	1,742	2,301	2.98	36.0
507.21	30278	4.48	1,553	2,397	2.95	36.3
701.02	30281	13.74	655	1,589	2.91	36.5
805.07	30135	9.66	253	2,217	2.94	37.1
909.01	30188	8.72	689	1,343	2.76	34.3
909.02	30188	7.33	1,007	1,623	2.66	33.0
910.03	30189	3.78	1,686	2,474	2.78	30.9
Tract average			1,198	2,151	2.82	34.6
Weighted* average			1,142	2,086	2.83	34.4

Sources: U.S. Bureau of the Census 2001, 2002; ARC unpublished data.
*Weights are the same as those given in table 3.

Household structure. Even if income remains constant, consumption of many necessities, like food, increases with household size. The age of household members is important as well. Table 8 shows the average size of the household and the age of the householder of the subject tracts. Affluent black tracts have larger households than comparable white tracts (2.91 persons per household versus 2.82), although their median age is virtually the same (34.3 years versus 34.6 years). The slightly greater size of black households would tend to increase consumption.

Thus, we do not believe that household size or age is likely to make affluent PBTs less promising markets for local retailers or service providers.

Real differences in consumption patterns. We have noted that the best data we could find on the consumption patterns of affluent black and white households show that they are virtually identical. Only for movie theaters is it possible that the observed difference might affect the local-serving establishments whose accessibility we considered, since black households spend less on entertainment. However, noting our results that movie theaters are particularly inaccessible from affluent PBTs, it is possible that black households spend less on entertainment because they do not have a convenient supply of it.

Systematic underreporting of disposable income for predominantly black areas. We have no special information that would lead us to expect affluent black and white neighborhoods to have differing rates of underreporting income.

Inaccurate information on neighborhood attributes and personal consumption preferences supplied by private data providers. Pawasarat and Quinn (2001) provide a model of how to compare commercially available ZIP code descriptions sold for marketing purposes with statistics drawn from local data sources. We cannot duplicate their substantial effort, but we can report what major private marketing data vendors say about the ZIP codes that contain Atlanta's most affluent black census tracts. Tract 79.00, the PBT with the highest per capita income in the Atlanta region, covers about one-quarter of the area in ZIP code 30311.

Claritas' (2001) Prizm marketing system indicated that ZIP code 30311 was inhabited by five Prizm Clusters™ of residents. The first, Pools & Patios, was ranked fourth out of 55 in market potential. It is said to include empty nesters over 45 with household incomes of $67,100. However, the remaining four clusters (Blue-Chip Blues, 22nd out of 55; Mobility Blues, 25th out of 55; Gray Collars, 26th out of 55; and Southside City, 51st out of 55) are described in terms less appealing to retail and service businesses looking for new locations. These residents are characterized as being likely to "read *Car Craft*," "watch TV wrestling," and "play the lottery weekly" (Claritas 2001).

CACI Marketing Systems reports ZIP code 30311's dominant ACORN (A Classification of Residential Neighborhoods) marketing cluster as 8E (Urban Working Families), which is described in the following way: "Nearly 40 percent of this young group of single-parent families is under the age of 20. They are working poor. They live in older, pre-war residential townhouse developments and small/multi-unit buildings.

They buy take-out food, hair and skin-care products, baby products and children's clothing" (CACI 2001). According to the CACI profile, this ZIP code was 99 percent black and had a year 2000 median household income of $34,023. The 2000 census did show that 98 percent of tract 79.00 residents were black, but listed a 1999 median household income of $58,403. Given this disparity, it seems possible that data that are inaccurate or that summarize a large diverse area might mislead potential business investors.

Racially biased business decisions. When other explanations for differences are eliminated, this remains. However, given our findings, it is not the only possibility.

Failure to keep pace with neighborhood change. We employed detailed census tract data as processed by GeoLytics to analyze whether the PBTs had experienced more rapid demographic change than the PWTs. Table 9 shows that changes in the 12 PBTs over the 1990s were comparable to changes in the PWTs and should not have produced radical changes in tastes. The changes that did occur should only have increased buying power.

Both the PBTs and PWTs gained population at a fast rate, 51 percent and 46 percent, respectively. According to the 2000 census, the 12 PBTs have become less racially integrated than they were in 1990. They lost 70 percent of their white population, from 19,214 down to 5,816. The PWTs had significant gains in their black populations, from 1,586 to 6,298 (297 percent). The 12 PBTs have low housing vacancy rates and stable average household sizes and have gained a significant number of housing units (8,804). The new units are overwhelmingly single-family rather than multifamily units. In short, the 12 PBTs have gained population, increased the proportion of their black residents, and remained housed largely in single-family units. These changes are comparable to those seen in the affluent PWTs, where retail and services have apparently been able to keep up with the growth in population and housing units. It seems very unlikely, therefore, that demographic change in Atlanta's affluent black tracts was too rapid for businesses to accommodate. The PWTs have greater accessibility to several important types of local retail and services, which makes them more desirable residential locations. However, the PBTs match their growth almost exactly, except for racial composition.

Fewer greenfields (less undeveloped land). Only 2 of our 12 PBTs are located in the city of Atlanta, whose development regulation has been criticized in the local press for creating a variety of bureaucratic obstacles to business operations and property development. But the counties

Table 9. **1990 to 2000 Demographic Change in Affluent PBTs and Their Matching PWTs**

	Affluent PBTs	Affluent PWTs
2000 total population	82,277	93,162
1990 total population	54,647	63,740
Percent change	51%	46%
2000 white population	5,816	82,820
1990 white population	19,214	61,288
Percent change	–70%	35%
2000 black population	75,347	6,298
1990 black population	34,317	1,586
Percent change	120%	297%
2000 percent black	92%	7%
1990 percent black	63%	2%
2000 housing units	28,153	32,647
1990 housing units	20,239	22,614
Change in units	7,914	10,033
Percent change	39%	44%
2000 occupied housing units	27,240	31,685
1990 occupied housing units	18,436	21,389
Change in units	8,804	10,296
Percent change	48%	48%
2000 percentage of vacant housing units	3%	3%
1990 percentage of vacant housing units	9%	5%
2000 average household size	3.02	2.93
1990 average household size	2.96	2.97
Percent change	2%	–1%

Source: GeoLytics 2002.

and other municipalities in the region also regulate and have less need to encourage commercial development than the city. None of our PWTs are in the city. It is also true that the PBTs have less vacant and developable land (43.1 percent of their total area versus 64.5 percent). Yet redevelopment of previously developed land is always possible if the market is thought to be good enough to justify it. Gibson's (1999) grocery store location research in Chicago found that neighborhood attributes affected demand significantly, but not supply. While the availability of vacant land may facilitate residentiary services, especially if it is already appropriately zoned, it seems unlikely that its

absence alone would be a barrier to business in predominantly black neighborhoods.

Conclusions and policy implications

Assuming that it is desirable for most consumption opportunities of the type we investigate to be within 5 minutes by car, we have found that the affluent PBTs are less accessible than their predominantly white matches to grocery stores of all types, restaurants other than fast food franchises, small banks, liquor stores, and movie theaters. They are more accessible to fast food restaurants, laundries, drug stores, and large banks, despite their having the same median and per capita incomes as their matched PWTs and despite evidence that affluent blacks and whites have comparable expenditure patterns. It is interesting to note that our results are somewhat weaker in this revision, leading us to conclude that affluent black neighborhoods may be better served than we originally thought. Nonetheless, access to the most important residentiary service, supermarkets, was still poorer for affluent black neighborhoods. As supermarkets evolve from mere grocery stores to include banks, pharmacies, florists, and a wide variety of retail goods, their importance as destinations is even greater. On average, black residents of Atlanta have similar or better access to chain supermarkets and these associated consumption opportunities only if we assume that longer trips are acceptable. If such opportunities must be very close to be truly advantageous, black residents have poorer access. We also found that the affluent PBTs have on average *more* regional aggregate income than their white matches, discrediting the notion that their lesser accessibility to local shopping and services is a result of deficient purchasing power. All this is said while acknowledging that accessibility measures are highly sensitive to the configurations of the geography of the units of analysis (here census tracts) and to the method used for measuring accessibility. This itself is an important part of our conclusions.

The importance of these results is that they are not driven by differences in income or density of purchasing power. Previous research found that lower-income areas (often also majority black) had fewer shopping opportunities. Since this could potentially be explained by the need on the part of retail and service businesses to locate so as to attract customers, policy remedies to date have focused on identifying viable markets. Thus, recent initiatives at the federal and local levels have sought to convince private businesses of the consumption potential waiting to be tapped in America's inner cities (HUD 1999; ICIC and PriceWaterhouseCoopers 2000; Local Initiatives Support Corporation 1997; Social

Compact, Annie E. Casey Foundation referenced in Cohn 2002; Weissbourd and Berry 1999). For example, as part of President Clinton's New Markets Initiative, HUD estimated the "retail gap" for 48 inner-city communities at $8.7 billion in 1998 (1999). A number of successes enticing retail and service businesses into the inner city have been reported (Fisher 1997; ICIC and PriceWaterhouseCoopers 2000).

But our finding that race has an effect separate from income suggests the problem is deeper. By looking at a specific set of Atlanta tracts, we rejected several other explanations for why some local-serving retail and services were less accessible even to black areas with ample purchasing power. These tracts did not exhibit either greatly different household demographics from their white counterparts nor more rapid demographic change, other than race. Thus, neither of these explanations seemed to explain poorer access to retail and services in the Atlanta case. Our literature review found little reason to expect dramatic differences in expenditure patterns between affluent blacks and whites. That leaves as potential explanations only the existence of inaccurate or stereotyped marketing profiles for black neighborhoods or racial bias in business decision making. We interpret this to mean that policy prescriptions that assume no racial bias are naïve and may be unsuccessful. One test would be whether the volume of additional services generated by gentrification will be found to depend on the race of the new residents.

However, as long as predominantly black neighborhoods exist, their access—or lack of it—to retail trade and personal services is more than just a matter of convenience. Greater accessibility means higher land values for owner-occupied homes, as well as for other types of land uses. Retail trade also provides employment for many Americans. Retail is the second-largest industry group among small businesses in the United States and employs 14 percent of the sector's entrepreneurs and 25 percent of its paid employees (Rauch 1997). Thus, we conclude that the anecdotes and newspaper stories were on to something and that access to some important types of local consumption was unequal in 2000.

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References

Bahizi, Pierre. 2001. Expenditures by Income in the Black Community. Paper presented at the 47th Annual Conference of the American Council on Consumer Interests, April 4. Washington, DC.

Bates, Timothy. 1989. Small Business Viability in the Urban Ghetto. *Journal of Regional Science* 29(4):625–43.

Bates, Timothy. 1993. *Banking on Black Business.* Washington, DC: Joint Center for Political and Economic Studies.

Bingham, Richard D., and Zhongcai Zhang. 1997. Poverty and Economic Morphology of Ohio Central-City Neighborhoods. *Urban Affairs Review* 32(6):766–96.

CACI. 2001. *CACI Marketing Systems.* World Wide Web page <http://www.infods.com/freedata/zipreport…fresh=841411&CFID=322803&CFTOKEN=31151673> (accessed July 19).

Caplovitz, David. 1963. *The Poor Pay More: Consumer Practices of Low-Income Families.* New York: Free Press.

Chung, Chanjin, and Samuel L. Myers Jr. 1999. Do the Poor Pay More for Food: An Analysis of Grocery Store Availability and Food Price Disparities. *Journal of Consumer Affairs* 33(2):276–96.

Claritas. 1999. Real Estate Solution Series Level 2 for all Block Groups and Tracts in the Atlanta, Georgia, Metropolitan Area (proprietary data on diskette).

Claritas. 2001. *Claritas Prizm Marketing System.* World Wide Web page <http://www.velocity.claritas.com/YAWYL/ziplookup.wjsp?zipcode=30311> (accessed July 19).

Cochrane, R. A. 1975. A Possible Economic Basis for the Gravity Model. *Journal of Transport Economics and Policy* 9(1):34–49.

Cohn, D'Vera. 2002. Retail Potential Found in Two Areas. *Washington Post*, July 17, A-1.

Dickey, John W. (with Walter J. Diewald, Antoine G. Hobeika, Charles J. Hurst, N. Thomas Stephens, Robert C. Stuart, and Richard D. Walker). 1983. *Metropolitan Transportation Planning.* 2nd ed. New York: Hemisphere.

Feige, Edgar L. 1989. *The Underground Economies.* London, England: Cambridge University Press.

Fisher, Christy. 1997. City Lights Beckon to Business. *American Demographics* 19(10):41–48.

Freer, J. 1990. Check-Cashers Try to Polish Their Image. *United States Banker* 100:29–31, 54.

Gallop-Goodman, Gerda. 2001. The Moving Dollar. *American Demographics* 23(1):14–18.

GeoLytics. 2002. Census CD. Neighborhood Change Database (NCDB). 1970–2000 Tract Data.

Ghosh, Avijit, and Sara L. McLafferty. 1987. *Location Strategies for Retail and Service Firms.* Heath.

Gibson, Diane. 1999. Neighborhood Effects in Store Location: A Theoretical and Empirical Analysis of the Availability of Grocery Stores in Chicago. Ph.D. diss. University of Chicago.

Glanton, Dahleen. 1998. Lingering Lines of Discrimination: The Neighborhood Is Solidly Middle Class, but Its Residents Have Trouble Getting Even a Pizza Delivered to Their Front Door. *Chicago Tribune*, March 1, A1.

Handy, Susan L., and Kelly J. Clifton. 2001. Local Shopping as a Strategy for Reducing Automobile Travel. *Transportation* 28:317–46.

Handy, Susan L., and Deborah A. Niemeier. 1997. Measuring Accessibility: An Exploration of Issues and Alternatives. *Environment and Planning A* 29:1175–94.

Helling, Amy. 1992. The Role of Accessibility by Automobile in Determining Residential Density in the Atlanta Region. Ph.D. diss. Emory University.

Helling, Amy. 1998. Changing Intra-Metropolitan Accessibility in the U.S.: Evidence from Atlanta. *Progress in Planning* 49(2):55–107.

Holzer, Harry. 1996. *What Employers Want: Job Prospects for Less-Educated Workers.* New York: Russell Sage.

Humphreys, Jeffrey M. 1998. African-American Buying Power by Place of Residence: 1990–1999. *Georgia Business and Economic Conditions* 58(4):1–15.

Humphreys, Jeffrey M. 2002. The Multicultural Economy 2002: Minority Buying Power in the New Century. *Georgia Business and Economic Conditions* 62(4):1–12.

Hunter, David R. 1968. *The Slums: Challenge and Response.* New York: Free Press.

Immergluck, Daniel. 1999. Neighborhoods, Race, and Capital: The Effects of Residential Change on Commercial Investment Patterns. *Urban Affairs Review* 34(3):397–411.

Initiative for a Competitive Inner City and PriceWaterhouseCoopers. 2000. *Second Annual Inner-City Shopper Survey: Inner-City Shoppers Make Cents (and Dollars).* Boston.

Isserman, Andrew, and Terance Rephann. 1995. The Economic Effects of the Appalachian Regional Commission: An Empirical Assessment of 26 Years of Regional Development Planning. *Journal of the American Planning Association* 61(3):345–64.

Koenig, J. G. 1980. Indicators of Urban Accessibility: Theory and Application. *Transportation* 9:145–72.

Kunreuther, Howard. 1973. Why the Poor Pay More for Food: Theoretical and Empirical Evidence. *Journal of Business* 46:368–83.

Lachman, M. Leanne. 1995. Hidden Income, Hidden Potential. *International Council of Shopping Centers Research Quarterly* 2(2).

Local Initiatives Support Corporation. 1997. Rural LISC Home Page <http://www.ruralisc.org/lisc.html> (accessed September 9).

MacDonald, John F., and Paul Nelson. 1991. Do the Poor Still Pay More? Food Price Variations in Large Metropolitan Areas. *Journal of Urban Economics* 30(3):344–59.

Maguire, Tom. 1998. Ethnics Outspend in Areas: Multicultural Purchase Trends Create New Market Opportunities. *American Demographics* 20(12):12–20.

Mantovani, Richard E., and James Welsh. 1997. *Authorized Food Retailer Characteristics Study: Technical Report IV—Geographic Analysis of Retailer Access*. Washington, DC: U.S. Department of Agriculture, Food and Consumer Service.

Meyer, Michael D., and Eric J. Miller. 2001. *Urban Transportation Planning: A Decision-Oriented Approach*. 2nd ed. New York: McGraw-Hill.

Neuberger, H. 1971. User Benefits in the Evaluation of Transport and Land Use Plans. *Journal of Transport Economics and Policy* 5(1):52–75.

Niedercorn, J. H., and Bechdolt, B. V. Jr. 1969. An Economic Derivation of the "Gravity Law" of Spatial Interaction. *Journal of Regional Science* 9(2):273–82.

Pawasarat, John, and Lois M. Quinn. 2001. *Exposing Urban Legends: The Real Purchasing Power of Central-City Neighborhoods*. Washington, DC: Brookings Institution, Center on Urban and Metropolitan Policy.

Poe, Juanita. 1999. Southwest Side Untapped as an Upscale Market. *Atlanta Journal-Constitution*, August 12, D1.

Porter, Michael. 1995. The Competitive Advantage of the Inner City. *Harvard Business Review* 73(3):55–71.

Rauch, James E. 1996. *Trade and Networks: An Application to Minority Retail Entrepreneurship*. New York: Russell Sage Foundation.

Rauch, James E. 1997. Empty Streets: How Building Networks Can Put More Black Retailers in City Neighborhoods. *Brookings Review* 15(1):14–17.

Reid, S. A. 1998. Managing Growth: Too Little or Too Much? *Atlanta Journal-Constitution*, November 30, E1.

Ross, Glenwood III. 1998. Are Black Communities Truly Underserved? An Analysis of Retail and Professional Services in the Atlanta Metropolitan Area. Ph.D. diss. Georgia State University.

Slesnick, Daniel. 1994. Consumption, Needs, and Inequality. *International Economic Review* 35(3):677–703.

Southeast DeKalb Black Community Questions Stalled Retail Development. 1996. *Atlanta Journal-Constitution*. November 30, D12.

Stanback, Thomas M., Peter J. Bearse, Thierry J. Noyelle, and Robert A. Karasek. 1981. *Services, the New Economy.* Totowa, NJ: Allanheld, Osmun.

U.S. Bureau of the Census. 1999. *The Black Population in the United States: March 1999. Current Population Reports* Series P–20, No. 530. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of the Census. 2001. *Census of Population and Housing. Summary File 1.* Washington, DC.

U.S. Bureau of the Census. 2002. *Census of Population and Housing. Summary File 3.* Washington, DC.

U.S. Department of Housing and Urban Development. 1999. *New Markets: The Untapped Retail Buying Power in America's Inner Cities.* Washington, DC.

U.S. Department of Housing and Urban Development. 2001. *State of the Cities Data Systems.* World Wide Web page <http://socds.huduser.org/scripts/odbic.exe/census/race.htm> (accessed September 22).

U.S. Department of Transportation, Federal Highway Administration. 1995. Nationwide Personal Transportation Survey Data Files. (CD.)

U.S. Office of Management and Budget. 1987. *Standard Industrial Classification Manual.* Washington, DC.

Vaughn, J. 1989. Banks Cash Out of the Ghetto. *Business and Society Review* 70:40–42.

Wal-Mart Accused of Local Bias. 1996. *St. Louis Post Dispatch,* January 30, C6.

Weare, Walter B. 1994. *Black Business in the New South: A Social History of the North Carolina Mutual Life Insurance Company.* Durham, NC: Duke University Press.

Weissbourd, Robert, and Christopher Berry. 1999. *The Market Potential of Inner-City Neighborhoods: Filling the Information Gap.* Washington, DC: Brookings Institution, Center on Urban and Metropolitan Policy.