Education and Household Location in the Chicago Metropolitan Area: Estimates by Race and Ethnicity

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Abstract. The effects of educational attainment on household location within the Chicago metropolitan area are examined. Particular attention is given to (Lake Michigan) lakefront locations within the city of Chicago. It is shown that high levels of educational attainment are associated with living near Chicago's lakefront relative to locations in the rest of the city of Chicago and suburban areas. Further, it is shown that this relationship holds for non-Hispanic whites, African-Americans, and Hispanics. Data from the five percent PUMS (public use microdata sample) from the *2000 Census of Population* are used for the empirical estimates in the paper.

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Introduction

What are now considered classic studies on household location focused on the tradeoff between commuting costs and housing consumption: More affluent households paid for more and newer housing in suburban areas with higher commuting costs to the core (Alonso, 1964; Mills, 1967; Muth, 1969). More recently, Brueckner and Rosenthal (2005) show that as suburbs become highly developed and as inner city housing depreciates, new housing development in the core becomes more attractive. Another aspect of the household location decision has focused on the effect of central city problems on the incentive to live in suburban areas (e.g., Wheaton, 1977). For example, Cullen and Levitt (1999) show that more educated-households have a higher demand for living in low-crime areas like many suburban communities. One of the concerns this has raised is that more affluent households move to suburban areas while central cities become increasingly poor (Wilson, 1987).

More recently, scholars have stressed other factors that may affect where households locate. In a recent study, Rosenthal (2008) shows how economic change affects the economic status of neighborhoods over time. He shows that neighborhood decline and renewal are related to the quality of housing and externalities associated with aspects of neighborhoods. Numerous studies have examined how neighborhood characteristics

affect household location. Bajari and Kahn (2005) show that white suburbanization is partly driven by a greater demand to live in high human capital communities. Bayer, McMillan, and Reuben (2003) and Bayer, Ferreria, and McMillan (2007) show that households self-segregate throughout the metropolitan area on the basis of race and education.

In a related study on the Chicago metropolitan area, Sander and Testa (2009) separate out the effects of education from other background factors including income and the location of work on household location. They show that college-educated (non-Hispanic) whites were more likely to live in the city of Chicago relative to suburban areas while more educated blacks and Hispanics were more likely to live in suburbs of Chicago. Sander (2005) also shows this to be the case in many of the largest metropolitan areas in the United States including New York City, Los Angeles, and Chicago.

In this paper, additional attention is given to the effects of a college education on household location in Chicago. Across the nation, college enrollment and the educational attainment of workers have climbed steadily. Through the decade of the 1990s, the proportion of college educated rose significantly as older, less educated, cohorts moved into retirement ages and as younger, more educated cohorts replaced them. In 2000, 28 percent of U.S. workers had college degrees versus 12 percent in 1964 with corresponding growth in those with at least some college and in those having graduate degrees (Aaronson and Sullivan, 2001). In the city of Chicago, the percentage of adults twenty-five and older with at least a college degree increased 62 percent since 1990 (to 2008).

More recently, some cities have become increasingly attractive to such college-educated households (Glaeser, Kolko, and Saiz, 2001). This partly follows both from households with high educational attainment demanding the amenities that city life offers (Glaeser and Shapiro, 2001) and because knowledge industries employing educated workers have located in cities as well. It has been shown that high concentrations of human capital in cities can have positive effects on the skills of individual workers and their earning ability, thereby increasing the incentive to live and work in cities (Glaeser and Mare, 2001; Rosenthal and Strange, 2008).

Further, changes in the family bear upon the incentive to live in cities. Marriage and children exert a negative effect on the incentive to live in cities such as Chicago because of crime and relatively low quality public schooling. One of the most significant demographic trends that is favorable to city locations has been the growth in never married adults. For example, the percentage of never married women 25-34 in the United States has increased from about one in ten in 1950 to one in three in 2000. For men, the percentages are even higher. In the city of Chicago the percentage of never married adults has increased 19 percent since 1990 (to 2008).

Following Becker and Murphy (2000) the incentive to live in a city like Chicago (or a neighborhood within the city of Chicago) is a function of many factors including education, income, marriage and children, and preferences as well as the amenities of the city (neighborhood). In choosing a Chicago neighborhood, Lake Michigan is one such prominent amenity. Further, the likelihood of living in Chicago or a neighborhood in Chicago depends upon the characteristics of others who live there. For example, young

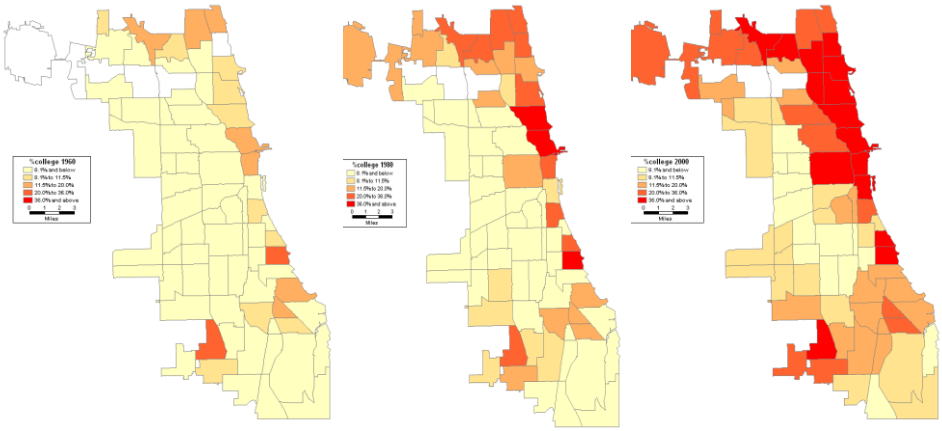
college graduates prefer to live in areas with high concentrations of young college graduates (Cortright, 2005; Florida, 2008).

This paper highlights the effects of economic and demographic background on the location of households within the Chicago metropolitan area. Particular attention is given to the effect of educational attainment on household location. We show that high levels of attainment are associated with living on Chicago's lakefront. This is the case for non-Hispanic whites, African-Americans, and Hispanics.

Chicago Overview

Over the past two decades, significant gains in educational attainment of adults have taken place in the Chicago area, with the city experiencing outsized gains. Over the 1990s alone, the share of adults having attained a four-year college degree or more rose by 7 percentage points in the city as compared to 5 percentage points in suburban Chicago (Sander and Testa 2009). As defined by quintiles of educational attainment in the year 2000, maps of the city's 77 community areas illustrates the remarkable gains from 1960 to year 2000. In 1960, only two community areas (Hyde Park and Beverly) reported shares of college educations greater than 36 percent. By 1980, there were 9 community areas and 18 by year 2000.

Figure 1: Percent college educated by quintile 1960, 1980 and 2000

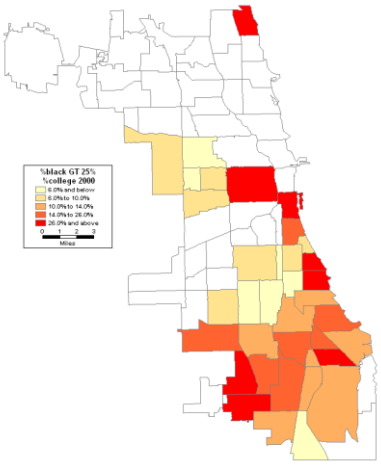


A sharp contrast and segmentation becomes apparent in these maps. Many community areas located in the interior west and southwest sides (and far south side) experienced little or no gains in educational attainment. In contrast, educational attainment expanded outward from their original concentrations in 1960. Attainment on the far north side deepened and expanded toward Chicago's new job magnet, O'Hare airport. Meanwhile, Chicago's lakefront community areas evolved into a nearly uniform wall of high educational attainment. The areas from the Chicago's northern most community (Rogers Park) south to the South Loop neighborhood just below the Central Business District all rank in the top two quintiles. Farther south, the educational stronghold around the University of Chicago (Hyde Park) retained its attainment, adding the Kenwood neighborhood just north of it.

A sharp contrast to the north side neighborhoods that are dominated by young non-Hispanic whites, sizable black communities reside in Hyde Park (former home of Mayor Harold Washington), and the Kenmore area (home to the Obama family). As illustrated by Figure 2, educational attainment is quite disparate among neighborhoods with sizable black communities. Of the 36 such community areas, 8 of them are characterized by an adult population having more than 26 percent college attainment; seven of them having attainment of 6 percent and less.

Figure 2--Community areas where percent black population share g.t. 25%

Note: Quintiles here were calculated after the subset of "black greater than 25%" was created.



Overall, data indicate that educational attainment levels are slightly higher than the national average in the Chicago metropolitan area. Within the metropolitan area, average educational levels have been higher in the suburbs relative to the city of Chicago. This is less the case today, especially for younger non-Hispanic whites. In Table 1, data are arrayed on the percentage with a college degree by age in the city of Chicago and suburbs of Chicago since 1990. One of the important changes since 1990 is that younger adults in Chicago ages 25 to 44 now are more likely to be college graduates relative to their suburban counterparts. Further, non-Hispanic whites living on Chicago's lakefront are substantially more likely to have a college degree relative to whites elsewhere in Chicago and the suburbs (Table 2). This is particularly the case on the north side of Chicago. African-Americans living on Chicago's lakefront are also more likely to be college graduates relative to blacks elsewhere. This is also the case for Hispanics living on the north side lakefront in Chicago.

Data on the percentage with a college degree in 1980 and 2000 by community areas on Chicago's lakefront are presented in Table 3. Data are arrayed from the most northern community area (Rogers Park) to the most southern community area (East Side). The data indicate relatively large increases in the percentage with a college degree from Edgewater to the Near South Side. Thereafter, the percentage of college graduates declines until Kenwood and Hyde Park. South of Hyde Park the percentages are relatively low.

About two out of three residents on Chicago's north side lakefront are non-Hispanic white while about three out of four south side lakefront residents are black. For the rest of Chicago almost forty percent are white while over half are either black or Hispanic.

For suburban areas about three out of four are white while eight percent are Hispanic and eight percent are black (Table 4). The black population in suburban areas of Chicago has been increasing, especially in Cook County. Since 1990 the black population of suburban Cook County increased from about 229,000 to about 398,000 for the 2005-2007 period. During this period, the city of Chicago lost about 129,000 blacks.

If the data are broken down by age and location, one of the key differences is that the population living on the north side lakefront is relatively young (Table 5). The percentage of the population 25 to 34 is almost twice as high on the north side lakefront as it is in the suburbs. Data in Table 6 show the percentage of respondents who are married (and are married with children) by location. The data indicate that a relatively low percentage of respondents are married (and married with children) on the city of Chicago's lakefront. A higher percentage are married (and married with children) in the rest of the city of Chicago. The highest percentage of married (and married with children) is in suburbs.

Chicago's important and changing role as an employment center must be taken into account to fully understand Chicago's residential patterns, especially with respect to educational attainment of its households. Skill-intensive jobs will surely exert an independent pull on the residential location of educated workers.

One of the key changes over the past few decades has been a decline in manufacturing and growth in services. Since 1981, manufacturing payroll jobs in Chicago have declined at an average annual pace of 2.8 percent—75 percent overall by 2008. (Illinois Department of Employment Security, 2008). In contrast, the remainder of the six-county Chicago region experienced only a 21 percent decline. The share of

manufacturing jobs in Chicago amounts to only 7.2 percent in 2008, one half of the concentration in Chicago's suburban area.

One of the perceived consequences of this change is growth in human capital oriented jobs that are disproportionately located in the city of Chicago (Sassen, 2004). The transformation of the city's central business district has been profound. Though the central area has lost virtually all of its 70,000 manufacturing jobs since 1981, these have been replaced by finance, professional service, and hospitality jobs with a net addition of 40,000 (Table 7). Payroll jobs alone in service sectors amounted to over 500,000 in the central area as of 2008.

In Table 8, we provide more general and persuasive evidence for the locational tendency of skilled jobs in the city of Chicago. We regress a measure of occupational concentration in 2000 on educational attainment and other background factors. The occupational concentration variable is computed using three digit occupational codes. Several hundred occupations are represented in the Chicago metropolitan area. It is measured as the percentage of jobs in an occupation in the Chicago metropolitan area that are located in the city of Chicago. The results indicate that higher levels of educational attainment are associated with working in jobs that are more concentrated in Chicago. For example, a college degree increases the occupational concentration ratio measure by about five percentage points. Respondents with professional degrees like lawyers and doctors are the most likely to work in jobs that are concentrated in the city of Chicago. Respondents with the lowest level of education (less than high school) are the least likely to work in jobs that are concentrated in the city of Chicago. The other significant results include black and age squared having a positive effect on the occupational concentration

variables while age, male, Hispanic, and Asian have negative effects. Such results are consistent with that of Sander and Testa (2009) who show that low-income and low-skilled Chicago residents now tend to find employment in the suburbs rather in the city.

Further, if data are broken down by educational attainment and place of work (city of Chicago versus suburbs of Chicago) for 1990 and 2000, higher levels of educational attainment are associated with jobs in Chicago. In 2000, 42% of workers twenty-five and older in the city of Chicago had at least sixteen years of schooling while 35% of workers in the suburbs had at least a college education. In 1990, 34% of workers in Chicago had a college education while 29% of workers in the suburbs had at least a college education (Table 9). This indicates that between 1990 and 2000 the percentage of workers with a college education increased by 5.7 percentage points in the suburbs and 8.1 percentage points in the city of Chicago.

The heightened specialization of the city as an employment nexus for skilled work is sometimes believed to contribute to widening income disparities in the city (Doussard, Peck and Theodore, 2009). For central city Chicago, this is indicated by gini coefficients (calculated using census data) measured over households from 1990-2000 shows a rise from .41 in 1990 to .47 in 2000. In Chicago's suburbs, the same coefficient rises apace, from .36 to .42. The degree of inequality and growth in inequality in the city of Chicago roughly parallels changes at the national level. For suburban areas, levels and changes in inequality are slightly below national trends.

Although it is usually perceived that rising inequality is not desirable, Glaeser, Resseger, and Tobio (2008) show that this is not necessarily the case for cities. To the extent that inequality arises from cities' ability to successfully attract more skilled

workers, inequality can have positive effects such as providing better role models for low-income communities as well as a propulsive effect of job generation from nearby high income neighbors. At the same time, however, higher inequality in metro areas can have a negative effect on growth and increase crime (Glaeser, Resseger, and Tobio, 2008).

Another consequence of rising inequality in cities can be an increase in spatial polarization. Sassen (2001) shows this to be the case in global cities such as New York and London. She also suggests that this is the case in Chicago (Sassen, 2004). For example, locations around the core in Chicago that had some of the highest concentrations of poverty as recently as the 1980s (see Wilson, 1987) now have some of the highest concentrations of high human capital households.

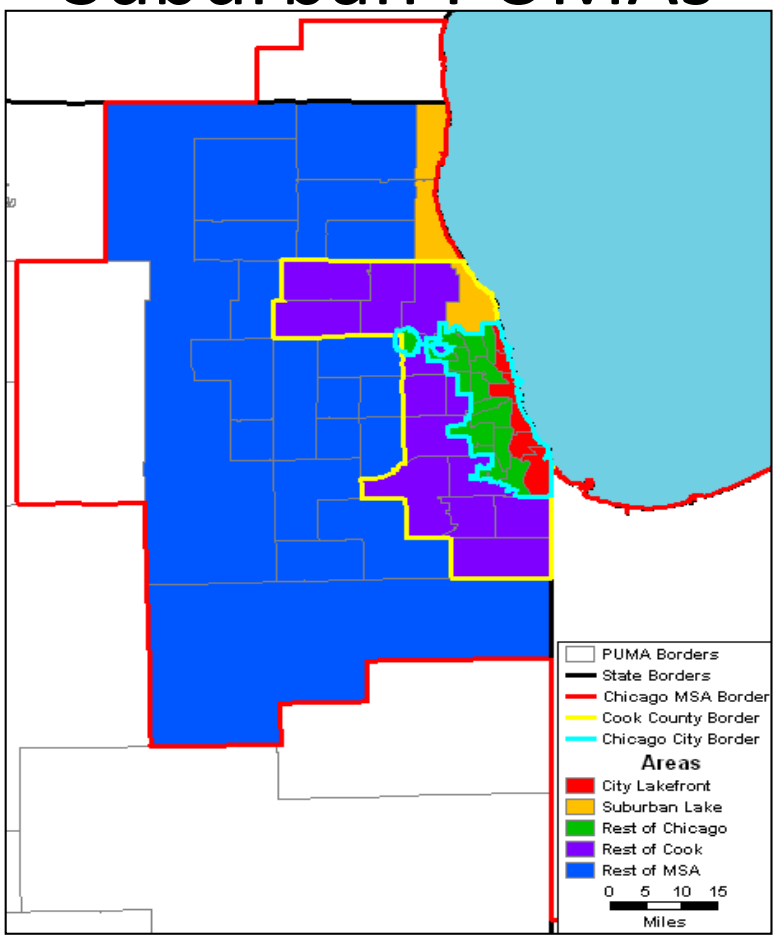
The Chicago area has experienced a marked type and character of widening inequality in its central city (Doussard, Peck, and Theodore, 2009). Occupations at the middle wage spectrum, especially manufacturing, have suburbanized. Those that remain below the high skill occupational end of the spectrum tend to be contingent and transitory. Some studies have noted the racial/ethnic character of Chicago's shifting economy; low-skill jobs have become strongly occupied by low-skill immigrants, especially Hispanic workers. Meanwhile, middle-income job opportunities for middle income African-American workers have been diminished due to both suburbanization and immigrant competition. Other studies have noted that middle and upper income African-American households have suburbanized in the Chicago region, leaving behind low-income neighborhoods (Wiese 2004).

This perception that upwardly mobile blacks and Hispanics are suburbanizing may be somewhat mistaken or subject to further refinement. As the analysis to follow will show, the *lakefront* residential location of (single and married no-children) black and Hispanic households having high educational attainment has tended to mimic that of (non-Hispanic) whites.

Data and Models

Data from the five percent PUMS (public use microdata sample) sample from the *2000 Census of Population* for the Chicago metropolitan area (Illinois part) are used to explore residential location choices of households. Estimates were also undertaken with the five percent PUMS sample from the *1990 Census of Population* and the (smaller) *2006 American Community Survey*. Although we will focus on estimates for 2000, (non-reported) differences in results for other periods will be briefly discussed as well.

Figure 3: The Chicago area: City and Suburban PUMAs



Multinomial logit estimates of household location are undertaken for all respondents twenty-five years of age and older and for workers twenty-five and older. Four locations are estimated in the model based upon the PUMAs (public use micro data areas) for the Chicago area (figure 3 above). PUMAs are sample areas with a population of at least 100,000. There are fifty-four PUMAs in our sample. The four areas that are estimated include PUMAs on the city of Chicago Lake Michigan lakefront from the downtown northward (called "LakefrontN"), PUMAs on the city of Chicago lakefront south of the downtown (called "LakefrontS"), and the rest of the city of Chicago. The omitted category is PUMAs in suburban areas. The city lakefront PUMAs account for a little over ten percent of the sample. The rest of the city of Chicago accounts for slightly over twenty percent of the sample while the suburban areas make up a little less than seventy percent of the sample.

A particular focus is given to estimating the likelihood of living in a lakefront PUMA in Chicago because the data arrayed above indicate relatively high levels of educational attainment (and growth in attainment) in areas adjacent to Lake Michigan. For example, in the PUMA that includes the CBD and the areas adjacent to it, 73 percent of adults have a college education. This could be a result of many factors including the high concentration of college graduates in the PUMA and the amenity value (recreational access, views, temperate climate) of the lake. The importance of the former is suggested by a simple OLS regression of the percent with a college degree in the PUMA on our measures of individual householders' educational attainment and other background factors. The results (not shown) indicate that higher levels of education are associated with living in PUMAs with having higher average levels of schooling.

The variables that are used to estimate household location include educational attainment (relative to high school graduate), age and age squared, household income, marital status (relative to never married), three dummy variables indicating children in the household (kids less than six, kids six to seventeen, and households with children less than six and children six to seventeen), gender, black, Hispanic, and Asian.

Since the location of work is an important determinant of household location, we also estimated household location of workers adjusting for a predicted value of working in the city of Chicago. Predicted work is used because the location of work is endogenous with where one lives. Following previous studies (e.g., Bajari and Kahn, 2005), we estimate the location of work as a function of the other variables in our model and the industry of the worker for identification. The rational for using industry of work for identification is that industries differ in their suburbanization propensities and that workers have invested in industry-specific human capital. Research by Neal (1995) also provides a justification for this approach. The industries that are used to identify working in Chicago include agriculture, manufacturing, construction, retail trade, wholesale trade, finance, information, professional services, and education. The omitted industry is arts, entertainment, and recreation. Apart from finance and professional services that have significant positive effects on working in Chicago, the other industries have significant negative effects.

Finally, we separately estimate household location for non-workers aged fifty-five and older. Estimates for non-workers are undertaken to show how non-work related factors like amenities and social enclaves might affect household location for retirees. We select respondents who were not working and who were not unemployed. If they were married,

we eliminated respondents with spouses working. The other variables in the model are as above. Summary statistics (means and standard deviations) for the data set are presented below (Table 10).

Results

Multinomial logit estimates of household location in the Chicago metropolitan area indicate that higher levels of education (bachelor's degree and higher) increase the probability of living on the lakefront of Chicago (Table 11). This is particularly the case on the north side of Chicago and less the case on the Southside. Respondents with higher levels of education are less likely to live in the rest of the city of Chicago relative to suburban areas. Income has a significant positive effect on the probability of living on the north side lakefront while its effect is negative on Southside lakefront locations and other Chicago location. If the marriage and children variables are excluded from the regression, the effects of the higher education variables increase for locations along the north lakeshore in Chicago (not shown). For example, the effect of having a bachelor's degree increases from .05 to .07. This suggests that education has both a direct and indirect effect (through marriage and children) on the likelihood of living in Chicago.

Age has a u-shaped effect on the probability of living on the lakefront. Age has an inverted u-shaped effect on living in the rest of Chicago. The key result for marriage is that currently married respondents and ever-married respondents are less likely to live in the city of Chicago. This is usually the case for respondents with children as well, especially in lakefront locations. The other significant findings including a very modest

negative effect of male on lakefront locations and positive black, Hispanic, and Asian effects on city of Chicago locations.

Results for non-Hispanic whites indicate that higher levels of education increase the probability of living on the north side lakefront (Table 12). Graduate education has a very small positive effect on living on the south side lakefront while higher levels of education mostly has a negative effect on living in the rest of Chicago. The effect of income is positive and significant for north side lakefront locations and negative and significant for other locations in Chicago. Age has a u-shaped effect on lakefront locations and no effect on locations in the rest of Chicago. The effect of marriage and children is once again mostly negative on city of Chicago locations.

Estimates for African-Americans indicate the higher levels of education have positive effects on locations on both the north side and south side lakefronts (Tables 13). The effect of higher education and income is negative on locations elsewhere in Chicago. The effect of age is not significant for north side lakefront locations and negative for south side lakefront locations and u-shaped for other Chicago locations. Although children have a negative effect on locating on the north side lakefront, all of the kids variables are positive and significant for south side lakefront locations and locations elsewhere in the city of Chicago. Currently married and ever-married respondents are more likely to live in the suburbs.

Hispanics with higher levels of education are significantly more likely to live in north side lakefront areas while the effects of higher levels of education are insignificant for south side lakefront areas (Table 14). The effects of a college degree or a master's degree are negative on the probability that Hispanics live in the rest of Chicago while the

effects of a professional degree or Ph.D.s (a very small group) are positive. Income has a negative effect on the likelihood that Hispanics live in Chicago. The effect of age is mostly not significant although older Hispanics are slightly likely to prefer "Other Chicago" residence. Kids tend to have either no effect or a small negative effect on the probability of living on the lakefront while marriage tends to have a negative effect on living in Chicago.

As noted above, education partly affects household location through the location of work. For this reason, an estimate for workers adjusting for a predicted value of whether the respondent worked in Chicago was undertaken. The first stage of this estimate is an estimate of working in Chicago adjusting for the other variables in the estimate. The industry of the worker is used for identification. The key result from this exercise is that the positive higher education effects on north side location are slightly lower than in the case when work location was not taken into account (Table 15). This suggests, once again, that part of the higher education effect works through its effect on employment.

We also estimate household location for workers by race and ethnicity adjusting for predicted work (results not shown). For brevity, we will discuss some of the key results. For non-Hispanic whites, the effects of high levels of education (bachelor's degree and higher) are reduced very modestly (e.g., the effect of a bachelor's degree declines from .05 to .04 for living on Chicago's north side lakefront). For African-American workers, the higher education effects are also reduced modestly for household locations on Chicago's lakefront. For Hispanics, the higher education effects on lakefront location either remain about the same or are reduced a little.

Finally, estimates are presented for non-workers fifty-five and older in Table 16. As noted above, these estimates are undertaken to show how high levels of education affect household location through non-work related variables such as amenities or other non-work related factors. The results indicate that high levels of education are associated with living on the city of Chicago's lakefront, especially on the north side of the city. That is, more educated older respondents who are mostly retirees are more likely to live on Chicago's lakefront. In an estimate that is not shown, we also adjusted for whether the respondent lived in the same house five years ago. This additional estimate was undertaken to test whether the effect of higher education on household location for older workers was confounded by the effect of household location five years prior. We did not find this to be the case.

We also estimated household location for 1990 and 2006. There were two important changes in the results over time that are important to note. First, locations in the interior of Chicago became less unattractive over time to highly educated respondents while locations of Chicago's lakefront retained their attractiveness to highly educated respondents. Thus, an increase in the effect of higher education on city of Chicago locations overall is at least partly driven by a decline in the unattractiveness of interior locations. The second key change over time is that the income effect is negative for northside lakefront locations in 1990 and positive for lakefront locations on the northside in 2000 and 2006.

Discussion

The usefulness of the central city-suburban dichotomy in characterizing urban form, and in shaping urban policy, has been waning for some time. The erosion of the city-suburb model has come about as average job and population densities have fallen continually over time across the metropolitan area landscape. In its wake, central cities have lost profound shares of population and jobs, especially in those Northeast and Midwest cities having fixed municipal boundaries and physical infrastructures which were configured for a bygone era of high density living and working. So too, vast city neighborhoods have been left behind that have been shunned by high income jobs and residents.

However, in recent decades, a changing economic landscape has pushed some central cities back toward higher density, with opportunity for redevelopment. Rising average levels of human capital investment in modern economies, coupled with complimentary communication and information technology, have sharpened the productivity of so-called "knowledge" workplaces in high density configurations such as the central city. Bolstering this pull towards the center, rising educational attainment of the population in developed countries has re-awakened interest in many central cities as a place to live. The mutual attraction of job location and residential location has likely given rise to an additive effect of some significance. Further, declines in marriage have increased the attractiveness of city locations for singles.

As a case study, the city of Chicago exhibits features of these broad forces. Its economy remains somewhat healthier than its counterpart cities in the surrounding Midwest region; and it has seemingly replaced lost employment in manufacturing with gains in those industries that are more intensive in inter-personal information exchange.

However, as of yet, it is unclear whether its desirability as a job domicile has actually come about from changes in structure of a "new economy," or rather because some jobs have followed educated urban homesteaders back toward the center.

Our work finds that educational attainment does count in the household calculus of residential location that has sustained Chicago. In examining non-working households as one means to tune out the effects of job location, educational attainment is statistically significant, suggesting that the city's amenities and concentration of high human capital households are attractive to some households.

Looking more closely, we find at least one "city within a city" has taken shape in Chicago. Householders with greater educational attainment tend to congregate along the lake shore side of the city, while eschewing most of the inland neighborhoods to the West. To some degree, sharpening income disparities in the city have been accompanied by spatial separation as well.

In examining residential behaviors of householders in ethnic and racial categories, these same location tendencies have generally been repeated. However, some spatial differences can be seen in behavior, even at this somewhat broad geography. In particular, black householders with higher educational attainment have concentrated on the south lake shore areas rather than the north, while also choosing that locale over west Chicago and Chicago suburbs. This despite the fact that low-income and lower-education black householders have residential strongholds in many western portions of the city. Highly-educated Hispanic householders also follow the lake shore-inland dichotomy, though with no apparent proclivity for the south lakeshore.

Although lakefront locations are seemingly attractive to highly educated minority households, we would note that this is somewhat a result of the broad nature of the omitted category (the suburbs). For example, selected suburbs (especially in Cook County) have become increasingly attractive to high human capital African-American households. As a case in point, the black population in Olympia Fields (an affluent southern Cook County suburb) has increased from zero in 1990 to over fifty percent in 2000. The percentage of the adult population with at least a college degree was over fifty percent in Olympia Fields in 2000.

One of the key differences in college-educated black households in suburban areas like Olympia Fields and lakefront locations is that in the suburbs they are more likely to be married. For example, about sixty percent of college-educated blacks in the two PUMAs in Southern Cook County are currently married. Only about thirty percent of college-educated blacks in the lakefront PUMAs in Chicago are currently married. Thus, selected suburban locations are probably preferable for highly educated African-Americans that are married with children.

The draw of the workplace is shown to count for much in the residential location decision. For all groups, accounting for place of work weakens the effect of educational attainment. For this reason, we should not put too much emphasis on the importance of household amenities to central city living, nor perhaps should policymakers; jobs and job-attracting features continue to be important. Berry, Bodini, and Weissbourd (2005) also found that amenities only had a small effect on where college-educated households lived while jobs and wages had large effects.

Beyond this, not much is known about the extent to which the changing economic structure of central city Chicago is actually generating new jobs in related fields and transforming its economic base. Future research initiatives that can discern the importance of the city as a job location from its importance as a residential location will be especially helpful to city mayors and other policy makers. Leaders and analysts in other Great Lakes cities are looking at the Chicago experience for such insights as Chicago pursues policies to refashion itself as a "global city," in both its residential amenities and in its attractiveness to highly skilled workers in knowledge industries.

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Table 1

Percentage College Graduates by Age in the City of Chicago and Suburbs, 1990-2006

1990	**Chicago**	**Suburbs**
25-34	27%	31%
35-44	24%	36%
45-54	18%	29%
55-64	12%	21%
65+	8%	12%
2000		
25-34	36%	36%
35-44	25%	36%
45-54	24%	38%
55-64	20%	30%
65+	16%	22%
2006		
25-34	39%	35%
35-44	34%	39%
45-54	25%	37%
55-64	27%	35%
65+	16%	22%

Sources: United States Census Bureau, 1993, 2003, and 2006.

Table 2

Percentage with a Bachelor or Graduate Degree by Location, Race and Ethnicity

1990	**All**	**White**	**Black**	**Hispanic**
LakefrontN	45%	57%	15%	22%
LakefrontS	21%	46%	14%	12%
Other Chicago	13%	28%	8%	6%
Suburbs	32%	35%	17%	14%
2000				
LakefrontN	56%	70%	21%	22%
LakefrontS	21%	46%	17%	7%
Other Chicago	17%	28%	10%	7%
Suburbs	32%	35%	20%	9%
2006				
LakefrontN	62%	75%	26%	33%
LakefrontS	26%	51%	25%	6%
Other Chicago	21%	37%	12%	8%
Suburbs	34%	38%	22%	11%

Sources: United States Census Bureau, 1993, 2003, and 2006.

Table 3
Educational Attainment Lakefront Community Areas, 1980 and 2000

Community Area	College Grads 1980	College Grads 2000
Rogers Park	31%	32%
Edgewater	26	42
Uptown	19	40
Lakeview	33	71
Lincoln Park	49	78
Near North Side	45	67
Loop	23	64
Near South Side	9	43
Douglas	21	26
Oakland	3	10
Kenwood	30	45
Hyde Park	56	65
Woodlawn	8	13
South Shore	15	18
South Chicago	8	13
East Side	5	7

Chicago Fact Book Consouritum, 1995 and United States Census Bureau, 2003.

Table 4

Population Mix by Location, 2000

	White	**Black**	**Hispanic**	**Other**
LakefrontN	65%	17%	10%	8%
LakefrontS	12%	77%	9%	2%
Other Chicago	39%	29%	27%	5%
Suburbs	78%	8%	8%	6%

Sources: United States Census Bureau, 2003.

Table 5

Age Distribution by Location, 2000

	25-34	35-44	45-54	55-64	65+
LakefrontN	38%	22%	16%	10%	14%
LakefrontS	23%	22%	19%	14%	22%
Other Chicago	27%	24%	19%	13%	17%
Suburbs	21%	27%	22%	13%	17%

Sources: United States Census Bureau, 2003.

Table 6

Currently Married by Age and Location, 2000

(Married with Children in Parentheses)

	25-34	35-44	45-54	55-64	65+
LakefrontN	34% (11%)	41% (23%)	43% (14%)	47% (6%)	36% (1%)
LakefrontS	33%	37%	38%	45%	37%

	(21%)	(26%)	(14%)	(5%)	(1%)
Other Chicago	46% (31%)	56% (43%)	59% (27%)	58% (8%)	46% (2%)
Suburbs	61% (42%)	74% (62%)	75% (36%)	75% (6%)	57% (1%)

Source: United States Census Bureau, 2003.

Table7
Private Sector Employment (000s) Chicago Metropolitan Area

Note: Manufacturing category was redefined by year 2001 for manufacturing sector to exclude "management of companies" facilities.

All employment	**1981**	**1990**	**2000**	**2008**
Central area	502	532	529	520
Rest of city	698	669	627	576
City of Chicago	1,200	1,201	1,156	1,096
Suburbs	1,376	1,858	2,332	2,326
6-county area	2,576	3,059	3,488	3,422
Manufacturing employment	**1981**	**1990**	**2000**	**2008**
Central area	70	49	31	7
Rest of city	249	167	117	70
City of Chicago	319	216	147	79
Suburbs	425	437	470	335
6-county area	744	653	617	414

Source: Illinois Department of Employment Security, 2008.

Table 8

OLS Estimate of Occupational Concentration in City of Chicago, 2000

Less Than High School	-1.08**
Some College	1.90**
College Degree	4.92**
Master's Degree	6.70**
Professional Degree	20.01**
Ph.D.	10.09**
Age	-.04**
Age Squared	.0003**
Black	.57**
Hispanic	-1.21**
Asian	-1.83**
R^2	.15
N	172,647

Table 9

Educational Attainment by Location of Work, Workers 25+

	Chicago, 1990	Suburbs, 1990	Chicago, 2000	Suburbs, 2000
Less Than High School	15.8%	12.0%	12.1%	11.1%
High School	22.7	26.9	18.5	23.1
Some College	27.6	30.7	27.4	30.7
College	20.4	19.8	24.5	22.4
Master's Degree	8.2	7.5	10.8	9.2
Professional Degree	4.1	2.1	5.1	2.3
Ph.D.	1.2	1.0	1.6	1.2

Sources: United States Census Bureau, 1993 and 2003.

Table 10

Summary Statistics

	Mean	**Standard Deviation**
Less Than High School	18.6%	38.9
Some College	26.8%	44.3
Bachelor's Degree	18.9%	39.1
Master's Degree	7.7%	26.7
Professional Degree	2.5%	15.6
Ph.D.	1.0%	10.1
Male	47.5%	49.9
Age	47.7 years	15.8
Kids < 6	9.7%	29.6
Kids 6-17	21.8%	41.3
Kids < 6 and 6-17	10.4%	30.5
Income	$77,573	74,278
Married	62.1%	48.5
Divorced	12.2%	32.7
Widowed	7.5%	26.3
Black	16.4%	37.0

Hispanic	12.9%	33.6
Asian	4.9%	21.5

Table 11

Multinomial Logit Estimates of Household Location

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	.02**	.001*	.05**
Some College	.01**	-.001	-.03**
Bachelor's Degree	.05**	.002**	-.06**
Master's Degree	.06**	.01**	-.05**
Professional Degree	.09**	.01**	-.03**
Ph.D.	.08**	.03**	-.10**
Income	$.39x10^{-7}$**	$-.66x10^{-7}$**	$-.53x10^{-6}$**
Age	-.002**	-.0004**	.002**
Age Squared	.00001**	.000006**	-.00002**
Kids < 6	-.03**	-.004**	-.001
Kids 6-17	-.05**	-.005**	-.01**
Kids < 6 and 6-17	-.06**	-.005**	-.01**

Married	-.05**	-.01**	.-.09**
Divorced	-.02**	-.01**	-.07**
Widow	-.03**	-.01**	-.06**
Male	-.004**	-.002**	.001
Black	.03**	.06**	.24**
Hispanic	.01**	.03**	.23**
Asian	.02**	.01**	.11**
N	218,270	218,270	218,270

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.

Table 12

Multinomial Logit Estimates of Household Location, Non-Hispanic Whites

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	.02**	.002**	.06**
Some College	.02**	-.003**	-.03**
Bachelor's Degree	.05**	-.001	-.03**
Master's Degree	.05**	.01**	-.02**
Professional Degree	.07**	.01**	.004
Ph.D.	.07**	.02**	-.04**
Income	$.63x10^{-7}$**	$-.20x10^{-7}$**	$-.39x10^{-6}$**
Age	-.002**	-.0003**	-.001
Age Squared	.00002**	.000003**	.000003
Kids < 6	-.02**	-.002**	-.004
Kids 6-17	-.05**	-.004**	-.02**
Kids < 6 and 6-17	-.06**	-.002**	-.02**

Married	-.04**	-.004**	-.07**
Divorced	-.01**	-.003**	-.06**
Widow	-.02**	-.003**	-.05**
Male	-.003**	-.0003	.002
N	144,216	144,216	144,216

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.

Table 13

Multinomial Estimates of Household Location, African-Americans

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	.02**	-.02**	.05**
Some College	.01**	.02**	-.06**
Bachelor's Degree	.04**	.05**	-.16**
Master's Degree	.04**	.09**	-.19**
Professional Degree	.09**	.14**	-.26**
Ph.D.	.08**	.05	-.28**
Income	$-.45x10^{-6}$**	$-.41x10^{-6}$**	$.73x10^{-5}$
Age	-.0001	-.004**	.007**
Age Squared	-.00001	-.0001**	-.00005**
Kids < 6	-.02**	.03**	.04**
Kids 6-17	-.03**	.04**	.05**
Kids < 6 and 6-	-.04**	.03**	.07**

17			
Married	-.02**	-.08**	-.07**
Divorced	-.01**	-.02**	-.06**
Widow	-.01**	-.05*	.-.03**
Male	.001	-.02**	.01*
N	35,779	35,779	35,779

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.

Table 14

Multinomial Logit Estimate of Household Location, Hispanics

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	-.004	-.001**	.03**
Some College	.001	-.004	.01
Bachelor's Degree	.04**	-.01	-.05**
Master's Degree	.04**	-.001	-.07**
Professional Degree	.04**	-.02	.09**
Ph.D.	.04*	.01	.16*
Income	$-.13x10^{-6}$**	$-.12x10^{-6}$**	$-.11x10^{-5}$**
Age	.00004	.001	.01**
Age Squared	-.000001	-.0001*	.0001**
Kids < 6	-.03**	-.01	-.01
Kids 6-17	-.03**	.001	.01
Kids < 6 and 6-17	-.03**	-.01**	-.01

Married	-.02**	-.01*	-.07**
Divorced	-.01*	-.01**	.05**
Widow	-.002	-.01	-.02
Male	.001	-.004	-.02**
N	28,243	28,243	28,243

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.

Table 15

Marginal Education Effects Adjusting for Predicted Work in Chicago

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	.02**	.001	.04**
Some College	.01**	-.001	-.03**
Bachelor's Degree	.04**	-.0004	-.05**
Master's Degree	.04**	.01**	-.05**
Professional Degree	.05**	.01**	-.07**
Ph.D.	.05**	.02**	-.11**
Income x 10^{-7}	$.46x10^{-7}$**	$-.44x10^{-7}$**	$-.47x10^{-6}$**
Age	-.003**	-.001**	.001
Age Squared	.00002**	.00001**	-.00001
Kids < 6	-.03**	-.003**	-.004
Kids 6-17	-.04**	-.002**	-.01**
Kids < 6 and 6-17	-.05**	-.002**	-.01*

Married	-.03**	-.01**	-.07**
Divorced	-.01**	-.002**	-.05**
Widow	-.01**	-.003*	-.02**
Male	-.01**	-.002**	-.01*
Black	-.02**	.04**	.14**
Hispanic	-.01**	.01**	.18**
Asian	-.002	.01**	.08**
Work Predicted	.15**	.02**	.18**
N	130,331	130,331	130,331

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.

Table 16

Multinomial Logit Estimate of Household Location for Non-Workers 55+

	Chicago Lake North	**Chicago Lake South**	**Other Chicago**
Less Than High School	.02**	.005	.06**
Some College	.01	.01*	-.03**
Bachelor's Degree	.04**	.005	-.08**
Master's Degree	.04**	.02**	-.07**
Professional Degree	.05**	.02**	-.05**
Ph.D.	.07**	.03**	-.08**
Income	$.26x10^{-7}$	$-.94x10^{-8}$	$-.32x10^{-6**}$
Age	-.003	-.00003	.02**
Age Squared	.00003	.000004	-.0001*
Kids < 6	-.07**	.001	.04
Kids 6-17	-.02**	-.002	.06**
Kids < 6 & 6-17	-.04*	-.01	.06**
Married	-.06**	-.02**	-.14**
Divorced	-.02**	-.01**	-.09**
Widow	-.04**	-.01**	-.08**
Male	-.001	.001	.02*

African-American	.03**	.08**	.29**
Hispanic	.03**	.04**	.23**
Asian	.05**	.01	.19**
N	11,001		

*Significant at the 5% level.

**Significant at the 1% level.

Note: Coefficients indicate marginal effects.