

FEDERAL SPENDING AND SEGREGATION IN CHICAGO SUBURBS

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I. INTRODUCTION

Previous studies documented that the shift in federal spending away from urban oriented programs toward suburbs during and after the Reagan administration has changed the intra-metropolitan distribution of federal funds. Based on the Consolidated Federal Funds Reports (CFFR)¹ data, Robert Parker (1995, 1997) argued that a “stealth” urban policy was pursued during the Reagan years in which direct redistributive and grant programs replaced the programs distributed through central city governments. Similarly, by utilizing the CFFR data, Persky and Kurban (2001, 2003) and Persky, Kurban and Lester (2002) disaggregated the federal programs to the municipality level to investigate the role of federal government in accelerating urban sprawl in Chicago.

This paper explores a related but different issue. Rather than focusing on central city and suburb dichotomy, it focuses on the distribution of federal funds across suburbs by the racial composition of the suburb. In the United States, segregation by race is not only a central city phenomenon (Myron, 1997, 2002). In the Chicago metropolitan area, about 70 percent of suburban blacks live in the suburbs where the majority of the population is black. Although the black suburbs have slightly higher home ownership rates than other suburbs, they are located in the older and inner rings of the Chicago metropolitan area, isolated from the new job growth areas that have emerged in the outer suburbs. Compared to the other lower income suburbs, the black suburbs have higher concentration of poverty and lower housing values.

This study documents that the federal government sends relatively more funds for income support and relatively less income tax subsidy for housing to the black suburbs. While black suburbs receive more per capita federal funds than other suburbs in the Chicago metropolitan area, the types of funds they receive do not enhance local economic activity and are negatively correlated with housing prices.

The federal government sends funds to the suburbs for various purposes, such as income support, retirement, education, health, and housing subsidy. Federal programs can impact a local area through various channels, ranging from the multiplier effect to the long-term investments in housing services. These funds differ in terms of their spatial impacts, i.e., leading to further investment in housing services, directly or indirectly increasing the provision of local public goods or maintaining more economic activity in the places. While federal subsidy for mortgage interest deduction generates substantial spatial impacts in affluent neighborhoods, the multiplier effect of the income support funds is almost negligible in the lower income neighborhoods. Persky and Kurban (2003) documented that income support funds have limited spatial impacts in the Chicago's lower income neighborhoods because most of the retail centers are located in the upper income suburbs. Income tax subsidy for housing, on the other hand, reduces the cost of housing, land and related spatial infrastructure. The federal deductibility of mortgage interest lowers the cost of housing disproportionately for higher income families in upper tax brackets, who are subject to higher marginal tax rates (Voith, 1999). Similarly, funds for education, community development and crime prevention improve the quality of life in the place.

This paper is organized as follows. Background and motivation of this paper is presented in Section II. Section III of this paper describes the data and methodology. In Section IV, an analysis of the distribution of per capita federal spending and expenditures across the suburbs is presented. Section V discusses the results. Section VI summarizes the main conclusions of this paper.

II. BACKGROUND AND MOTIVATION

The debate on the central city/suburb disparities goes back to early 1950s, when federal housing programs and, newly built highways pulled the middle class and jobs to the suburbs. As the middle class white population moved to suburbs for cheaper land and easy access to suburban jobs, the central cities were left with an immobile poor population disconnected from the jobs and affordable housing opportunities (Kain, 1968).

The poverty-relieving housing and community development programs, on the one hand, helped to keep the poor in the central cities (Forrester, 1969); on the other hand, these programs have been seen as the "push factor" in the flight of the middle class towards the suburbs (Brueckner, 1983). More recent studies have investigated the ways that various federal programs have contributed to urban sprawl (Pack, 2005; Wiewel and Persky, 2002).

Through mortgage tax deduction, public housing programs, assistance for rental housing and fair housing initiatives, the federal government has subsidized homeownership, the cost of rental housing and public housing. Homeownership is seen as an important tool of wealth building (Oliver and Shapiro, 1997). The black suburbs have higher homeownership rates, but at the same time, they have higher concentrations of poverty. Through housing subsidies, the federal government has clearly contributed to increasing homeownership in these neighborhoods. To determine which suburbs benefit most from the federal funds, a detailed classification of federal funds based on the spatial impacts is warranted.

III. DATA AND METHODOLOGY

The basic data source for federal expenditures, Consolidated Federal Funds Report (CFFR), comes from the U.S. Census Bureau.² The CFFR system covers federal expenditures or obligations for the following categories: grants, salaries and wages, procurement contracts, direct payments for individuals, other direct payments, direct loans, guaranteed or insured loans, and insurance. These categories lack a well defined spatial impact grouping. In the CFFR system, a highway construction grant and a university research grant for the study of cancer fall into the same category, and yet the former is far more spatially relevant than the latter. From the federal government's point of view, a dollar for retirement is the same as a dollar for housing subsidy. At the place level, on the other hand, some programs directly or indirectly induce more spending on housing services and local public goods, but others only increase spending on the consumption goods without significant spatial impacts.

The CFFR distributes the federal funds at state, county, and municipality level. However, a number of programs are not disaggregated below the county level. Following the methodology developed by Persky and Kurban (2001, and 2003), I disaggregate federal funds in each program category to the municipality level in the Chicago metropolitan area. For the six county region³ of Chicago, I use municipalities as the basic building blocks. There are 239 municipalities in this data set.

The CFFR does not report federal spending on public transit, highways and income tax subsidy, and therefore, per capita federal expenditures in these categories are estimated.⁴ In the estimations, highway and public transit subsidies are allocated by the proportion of the utilization of the publicly provided capital in each municipality.⁵

Finally, to smooth out possible annual fluctuations in the federal programs, the average of the federal spending for the 1993–1996 period is used. Once all

federal programs are disaggregated to the municipality level, the per capita federal spending can be aggregated by new suburban group levels, such as black suburbs, white suburbs and mixed suburbs.

1. Defining White, Black and Mixed Suburbs

The suburbs are classified as white suburbs, black suburbs, and mixed suburbs based on the population shares of the ethnic/racial groups in each municipality.⁶ The suburbs with more than 50 percent white population share and less than 25 percent combined black and Hispanic population share in 1999 are labeled as “white suburbs”. As more black households moved in, some white suburbs have experienced “white flight.” To account for these suburbs in transition, I compared the population shares of the white population between 1989 and 1999. If a suburb’s white population share was more than 60 percent in 1989, but declined to below 50 percent in 1999, this suburb is treated as nonwhite. Similarly, to be considered as a “black suburb”, a suburb’s black population share should be greater than 50 percent in 1999 and greater than or equal to 25 percent in 1989. Generally, the suburbs with more than 50 percent black population in 1999 did pass the 25 percent cut-off rule in 1989. A third category of suburbs is defined as “mixed suburb” where blacks and Hispanics combined made up at least 25 percent of the population and the white population share was less than 70 percent.⁷ Of 239 suburbs in Chicago, 175 suburbs, 20 black suburbs⁸ and 44 mixed suburbs are identified.

Table 1 presents a summary of the selected characteristics of the Chicago suburbs. About 72 percent of the black suburbanites reside in the black suburbs where the median household income and median house values are significantly lower compared to the other suburbs. The median income of the poorest white suburb is \$36,278, but there are five black suburbs whose median household incomes are less than this amount. In the \$35,000 to \$50,000 median household income range, there are eight black suburbs, 25 mixed suburbs and 27 white suburbs. With the exception of one, in all black suburbs median household income is less than \$62,500. The median household income is \$94,827 in the richest black suburb, but this suburb has only 4,732 residents.

2. Grouping Federal Programs Based on the Spatial Impacts

Using the methodology developed in Persky and Kurban (2001, 2003), I have aggregated thirty federal programs into eight categories based on their spatial impacts. In Persky and Kurban methodology, the membership of a program to one of the eight categories was determined based on program objective. In this paper, however, the factor analysis⁹ is utilized to group the federal

TABLE 1
Selected Characteristics of the Chicago Suburbs in 1999

Variable	Mean	Standard Deviation	Minimum	Maximum	Black Share, %
All Suburbs (<i>N</i> = 239, population share = 100%)					
Median House Value, \$	211438	144733	42300	972000	
Median Household Income, \$	67556	29911	17500	200001	
Population	19279	21194	367	142997	9.9
Black Suburbs (<i>N</i> = 20, population share = 6%)					
Median House Value, \$	98485	40776	42300	234200	
Median Household Income, \$	44893	16709	17500	94827	
Population	14437	10204	2157	39071	72.4
White Suburbs (<i>N</i> = 175, population share = 65%)					
Median House Value, \$	241528	156092	93600	972000	
Median Household Income, \$	74635	31182	36278	200001	
Population	17171	17771	367	128358	2.3
Mixed Suburbs (<i>N</i> = 44, population share = 29%)					
Median House Value, \$	143107	47112	77300	290800	
Median Household Income, \$	49704	11184	34663	94222	
Population	29865	31917	1607	142990	13.8

N refers to the number of municipalities in the group

Note. Overall, about 30 percent of blacks lived in the suburbs and 70 percent lived in the City of Chicago. Black population share was 20 percent and 36.4 percent in the six-county metropolitan area and in the City of Chicago, respectively.

funds with similar spatial impacts under the same category. An important advantage of the factor analysis is that it is less likely that the unrelated programs will be grouped under the same category.

Table 2 displays the eight categories identified by the factor analysis. The first category is called income support to the persons. Federal funds for food stamps, redistributional grants, medical assistance, unemployment, supplementary social security are grouped under this category. The second category, retirement and subsidies to present earners, includes funds for social security and other type of retirements, Medicare, earned income tax credit and public transit. Having transit subsidies listed under the second category is hardly a surprise because the lower income workers and the retirees are concentrated around the transit line in the Chicago metropolitan area. Federal funds for education, redistribution to lower income for housing, income tax subsidy for housing (mortgage interest deduction), veteran benefits, and salaries formed their own categories. Federal grants for research, health and other activities that flow to the educational and research facilities are grouped under the last category.

TABLE 2
Program Grouping Based on the Factor Analysis

-
1. Income Support to the Persons
 - Food Stamps
 - Redistributional Grants
 - Medical Assistance
 - Unemployment
 - Supplemental Social Security
 2. Retirement and Subsidies to Current Earners
 - Social Security and Other
 - Medicare
 - Earned Income Tax Credit
 - Public Transit
 3. Education
 - Education
 4. Redistribution to the Places
 - Housing and Other Transfers to Low Income
 - Community Development and Other Housing
 5. Housing Subsidy
 - Income Tax Subsidy for Housing (mortgage interest deductions)
 6. Salaries
 - Salaries of Federal Employees
 7. Veteran Benefits
 - Veterans and Families
 - Retirement for Veterans
 8. All other
 - Research
 - Other Health
 - Other Grants
-

IV. FEDERAL EXPENDITURES IN WHITE, BLACK AND MIXED SUBURBS

The sum of all programs in Table 3 support Parker's (1995, 1997) contention that the federal government had a "stealth" urban policy. Total per capita federal expenditures were highest in the city and lowest in the white suburbs. However, a closer look at the Table 3 indicates that the disparity between expenditures in the city, black suburbs, mixed suburbs and the white suburbs results from substantial differences in per capita expenditures on the three major program areas: income support to persons, retirement and housing subsidies.

Kurban

55

TABLE 3
Average Per Capita Federal Expenditures in Chicago Suburbs, 1993–96

	City	White Suburbs	Black Suburbs	Mixed Suburbs
<i>N</i>		175	20	44
1. Income Support to the Persons	\$1593	\$164	\$904	\$505
Food Stamps	212	18	136	74
Redistributional Grants	241	18	143	73
Medical Assistance	621	30	283	153
Unemployment	263	83	220	142
Supplemental Social Security	256	15	122	63
2. Retirement and Subsidies to the Current Earners	2464	2148	2579	2073
Social Security and Other	1437	1360	1572	1319
Medicare	865	723	911	669
Earned Income Tax Credit	92	37	63	61
Public Transit	70	28	33	24
3. Education				
Education	80	10	48	29
4. Redistribution to the Places	359	40	60	103
Housing and Other Transfers to Low Income	178	34	55	76
Community Development and Other Housing	181	6	5	28
5. Housing Subsidy				
Income Tax Subsidy for Housing (mortgage interest deductions)	125	651	220	279
6. Salaries				
Salaries of Federal Employees	581	390	859	832
7. Veteran Benefits	57	19	35	33
Veterans and Families	46	16	30	28
Retirement for Veterans	11	3	5	5
8. All other	139	32	25	119
Research	110	31	23	110
Other Health	22	0	0	4
Other Grants	7	1	2	5
Total	\$5398	\$3454	\$4731	\$3972

Per capita figures in each suburb group is weighted by the population.
All figures in 1996 dollars.

The distribution of the retirement programs is flat across the city and the suburbs. Income support programs are largely pro-city and pro-black suburbs. The city and the black suburbs are poorer than white suburbs so it is not surprising that per capita income supports were \$164 in the white suburbs, \$505 in the mixed suburbs, \$904 in the black suburbs and \$1,593 in the city.

Redistributional programs toward places mostly went to the city for lower income housing and community development efforts. The city received \$359 in per capita about six times the amount received by the black suburbs. The poverty relieving housing and community development programs helped to keep the poor in the city. Similar to the city, the black suburbs received relatively more income support programs.

The per capita housing subsidy is \$651 in the white suburbs, \$220 in the black suburbs and \$279 in the mixed suburbs. For a family of four, the housing subsidy is about \$2400 in the white suburbs and \$880 in the black suburbs. It is clear from Table 3 that housing subsidy mostly benefits the white suburbs. The housing subsidies encourage the residents to invest more in the housing services, and in the long run these differences will widen the wealth gap between white and black suburbs. Federal salaries are mainly pro-mixed and black suburbs.

Since there are substantial income differences among the black, white and mixed suburbs, the same analysis is carried out for only lower-income suburbs. Table 4 compares the suburbs whose median incomes are below \$63,000. Compared to Table 3, even though the gap has narrowed, the white suburbs still receive more housing subsidies and the black suburbs receive considerably more income support funds.

Among the very low income suburbs, those with median household income below \$50,000, there are significant differences between the white suburbs and the black suburbs. The average per capita income tax subsidies for housing investments are \$158, \$172, and \$328 in the black suburbs, mixed suburbs and white suburbs respectively. For a household of four whose household income is below \$50,000, the average housing subsidy is \$632 in the black suburbs and \$1,312 in the white suburbs and \$ 988 in the mixed suburbs.

V. DISCUSSION

The black suburbs and, to some extent, the mixed suburbs of Chicago have substantially lower housing values. As indicated by Table 1, across the black suburbs the median house value was \$98,485 in 1999. The median house values across the mixed suburbs and white suburbs were \$143,107 and \$241,528, respectively. The differences in median house values cannot be exclusively attributed to the median household income differences between the minority

Kurban

57

TABLE 4
Average Per Capita Federal Expenditures in the
Lower Income Suburbs*, 1993–96

	White Suburbs	Black Suburbs	Mixed Suburbs
<i>N</i>	81	19	40
1. Income Support to the Persons	\$188	\$917	\$522
Food Stamps	30	138	78
Redistributional Grants	21	145	77
Medical Assistance	27	288	157
Unemployment	98	222	145
Supplemental Social Security	13	124	65
2. Retirement and Subsidies to the Current Earners	2548	2585	2155
Social Security and Other	1561	1575	1364
Medicare	907	913	702
Earned Income Tax Credit	51	64	64
Public Transit	30	33	25
3. Education			
Education	7	49	30
4. Redistribution to the Places	29	61	108
Housing and Other Transfers to Low Income	26	56	78
Community Development and Other Housing	3	5	30
5. Housing Subsidy			
Income Tax Subsidy for Housing (mortgage interest deductions)	415	206	263
6. Salaries			
Salaries of Federal Employees	388	865	880
7. Veteran Benefits	22	36	34
Veterans and Families	20	31	29
Retirement for Veterans	3	5	6
8. All other	26	25	127
Research	24	23	118
Other Health	0	0	4
Other Grants	1	2	5
Total	\$3624	\$4745	\$4120

All figures in 1996 dollars.

*Median household income is below \$63,000.

and white suburbs. Even after controlling for income differences in the regression in which the median house value was regressed against the median household income and the black suburb dummy variable, I found that the house values were substantially lower in the black suburbs. The coefficient on the black suburbs dummy variable is significant and has a negative value of 23,274.

Housing value is determined by the housing characteristics, neighborhood characteristics, local amenities and demographic characteristics of the households. To the extent that federal programs improve local public goods, encourages more investment in housing services, eventually they will be capitalized in the housing prices. Table 5 displays the results of the regression analysis, where median house value is regressed against the per capita federal expenditures in the main categories listed in Tables 3 and 4 and minority suburb dummy variables. These regression results are intended to show the correlations between the median house value and the independent variables.

Income support programs have a negative effect on median house values. The average per capita federal funds for income support are \$917 in the black suburbs and \$188 in the white suburbs (Table 4). On average, for every one dollar increase in income support, the median house value decreases by \$106. Note that the level of income support programs is directly related to the level of poverty. Our exploratory regression analysis indicates that the income support programs (proxy for the concentration of poverty) lowers the median house values in the black suburbs by \$74,518 or $(106 * (917 - 188))$. This reduction in the median house values can be attributed to two factors: the negative

TABLE 5
Regression Results*

Dependent Variable: Median House Value	Coefficient	Standard Error
1. Income Support to the Persons	-105.9	22.1**
2. Retirement and Subsidies to Current Earners	-3.5	6.2**
3. Education	726.7	197.4**
4. Redistribution to the Places	-9.3	67.4
6. Salaries to Federal Employees	-9.8	5.3***
8. All Other	105.4	29.1**
Black Suburb	-64281.8	26704.2**
Mixed Suburb	-56268.9	14652.5**
Constant	239432.9	15805.7**

N = 239

Adjusted R-squared = 0.29

*Variables are weighted by population

**Significant at 1% level

***Significant at 5% level.

externality of the concentration of poverty and the lower rate of return on the investment in housing services.

Federal spending on local education has significant impact on median house values as well. A dollar in education increases the median house value by about \$727. In addition, federal expenditures on local universities and hospitals for research and other ~~type of~~ activities have positive impacts on median house values. A \$1 dollar increase in per capita spending in this category increases the median house value by \$105. Lower poverty rates, more spending on education and, to some extent, more funds for local universities and other research institutions improve ~~the~~ local areas and these improvements are eventually capitalized in the housing prices.

Table 5 indicates that federal funds for education, research, educational facilities and income tax subsidy have significant long-term impacts. If federal government decides to send more funds to the black suburbs for education and for the programs listed under category eight, it will, potentially, increase the median house values and may help to reduce the black/white wealth gap. The improvement in the quality of life in the black neighborhoods will be capitalized into the housing prices.

VI. CONCLUDING REMARKS

This paper attempted to empirically determine the extent at which federal spending in the city of Chicago and its white, black and mixed suburbs has subsidized the public and private investments. ~~Our~~ analysis is descriptive and ~~our~~ regression results are at best exploratory. However, the preliminary results still provide a detailed account of the direct and indirect role of the federal programs in shaping the metropolitan form. The basic argument is that federal spending, when classified by the spatial impacts, actually benefits the well-to-do more than the poor because of the more substantial positive impact on wealth that occurs from the types of federal assistance received in the former neighborhoods, despite the higher expenditure on consumption in poor neighborhoods.

While the city and, to some extent, the black suburbs ~~in~~ Chicago have experienced a considerable cash inflow from the federal government, most of this is aimed at alleviating poverty and supporting the elderly. Although much smaller than transfers, the per capita federal funds with greater spatial impacts, such as housing subsidies for mortgage deductions, mostly flow to the affluent and, almost exclusively, non-black suburbs. By consistently allowing special tax treatment to housing, the federal government has encouraged higher income households to invest more in housing and expanded their local tax base.

The driving force of ~~our~~ result is the prevalent segregation by income and race in the Chicago suburbs. Housing subsidies go to the households based on

their incomes and their consumption of housing services and land. Due to segregation by income and race, the lower income suburbs are excluded from the better education opportunities and the amenities financed by the larger tax base in the rich neighborhoods. The concentration of poverty in the black suburbs, on the other hand, keeps the housing prices lower and limits the level of investments in housing services. The linkage between the type of federal funds and their impacts on housing prices (capitalization) needs to be explored further.

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NOTES

1. The CFFR is an annual presentation of federal government expenditures for all states, counties and localities in the U.S.
2. See the appendix section of Persky, Kurban and Lester (2002) for a detailed description of the CFFR data.
3. The six counties are Cook, DuPage, Kane, Lake, McHenry, and Will.
4. Since the CFFR lacks data on tax expenditures, the income tax subsidies for housing and the earned income tax credit are estimated. Housing subsidies come from the income tax treatment of housing. Persky and Kurban (2003) estimated per capita housing subsidies at the municipality level.
5. Note that a town's allocation of highway expenditures doesn't depend on how many highway dollars were actually spent within its borders, but rather on the journey-to-work miles its commuters made over highways constructed, improved or maintained with federal funds in each county.
6. A few recent studies have also aggregated suburbs in terms of demographic variables and levels of income (Orfield 1997 and 2002; Immergluck, 1998).
7. There are three suburbs where Hispanic population has clear majority status (Cicero 77 percent, Melrose Park 54 percent and Stone Park 79 percent). Of 239 suburbs, separating three suburbs would not make sense. Thus, they are added to the mixed suburbs. The list of black, white and mixed suburbs is available from the author upon request. In the six-county area, the white population share was around 70 percent in 1999.
8. Of the 20 black suburbs, 16 of them are also older suburbs, which joined the metropolitan area in 1950s.
9. The factor analysis groups the federal programs under new categories defined by the principal factors. The size of the eigenvalue of each principal factor determines its importance. The eigenvalue for the first principal factor is 6.34 and for the eighth principal factor is 0.65. Overall, these eight factors explain about 98 percent of the variation. By examining the magnitude and the sign of the factor loadings of each program under every

factor, one can identify the list of the program groups that belongs to each principal factor. To be included as a component of a factor, a federal program was required to have the factor loadings of 0.5.

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