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AND THE CHANGING ECONOMIC BASE OF THE CENTRAL CITY

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ABSTRACT

Postwar declines in the economic bases of large older cities can be linked, in part, to the increasing numbers of low-income minorities that have come to be housed within their borders. Since the groundwork for these changes lay with decades of black cityward migration from the South and a substantial suburbanward movement of central city whites during the immediate postwar years, present-day policymakers have now become concerned over the migration side effects that may be imbedded in proposed urban programs--although often on the basis of little empirical evidence.

This analysis employs data from several census sources to estimate the aggregate consequences that race-specific movement streams have imposed on the economic bases of large central cities during two postwar intervals. Decreases in city revenue-producing capacity directly attributable to both black in-migration and white "flight" are not found to be large in either the late 1950s or late 1960s and, due to changes in the volume and selectivity of movement, the adverse effects of both streams appear to be decreasing over time. In contrast, the nonmigrating black residential population has increased its influence on the demographic and economic structure of large Northern central cities.

Black In-Migration, White Flight, And The Changing Economic Base of the Central City

Postwar changes in the population compositions of large older central cities, brought about by the selective processes of intrametropolitan residential mobility and interregional migration, have contributed substantially to the fiscal problems these cities are now experiencing (Gorham and Glazer, 1976; Clark et al., 1976). The extensive suburbanward movement of upper and middle income central city families, which has become a dominant feature of intrametropolitan population dynamics since the late 1940s, served to redistribute a good deal of the metropolitan area's tax base out of the central core. As a consequence, a more disadvantaged population has been left behind which contributes less to, and demands more from, city financial resources (Hirsch, 1971).

A key element in this redistribution for central cities outside the South has been the gradual but steady change in their racial compositions. The seeds of this change were sown with the city-directed migration of relatively low-skilled Southern blacks that occurred over several decades prior to World War II (Hamilton, 1964; Farley, 1968). Because the suburbanization phenomenon has been confined almost exclusively to the white population (Taeuber and Taeuber, 1965a; Schnore et al., 1976; Frey, 1978b), the black share of central city populations has increased noticeably over the past thirty years. In short, black movement both into and within the metropolitan area is restricted to the central city, while white movement occurs on a metropolitan-wide basis. As a result, the high levels of poverty and unemployment that have come to be concentrated among urban blacks have also come to be concentrated within large central cities.

Terrell (1971) undertook a comparative analysis of 46 large central cities to empirically estimate the consequences that each city's nonwhite residential population effected on 1960 city revenues and expenditures, as a function of that population's lower aggregate income level and increased demand for locally financed services. Findings from this study show that the net per capita costs imposed by nonwhites on the white populations of these cities were high--averaging about $15 across the sample; and that an important part of these costs had to do with the lower revenue-producing capacity of nonwhites. Employing median family income as an indicator of city revenue-producing capacity, Terrell contrasted the actual 1960 capacity of each city, with that which would be expected in the absence of its nonwhite residents.[1] This comparison makes plain that in those Northern central cities, which served as primary destinations during the massive South-to-North black migration, fiscal capacities are lowered significantly by the presence of a nonwhite population. Median income levels for 1960 in Chicago, Philadelphia, and Detroit, for example, are lowered by $700, $633, and $702, respectively.

Aware of past migration patterns, and recognizing the strong link between a city's population composition and its economic base, urban analysts are now becoming sensitized to indirect migration effects that may be imbedded in programs and strategies that are proposed to deal with various urban problems. Of particular concern are migration effects which lead to changes in the city's racial composition.

When the National Advisory Commission on Civil Disorders (1968) recommended that interim federal assistance be provided to poverty-ridden city ghettos until greater metropolitan-wide residential integration could be achieved, critics charged that such "ghetto gilding" would promote an in-migration of low income

Southern blacks as well as an increased suburban out-movement of central city whites--each leading to further deterioration of the city's economic viability (Kain and Persky, 1969; Harrison, 1974). Recent, more modest proposals to encourage job creation within declining central cities for the benefit of their poor and minority residents (The President's Urban and Regional Policy Group, 1978), are also criticized because they would provide added incentives for these populations to accumulate within areas which can least afford to retain them (Kristol, 1978). Finally, remedies called for to deal with another urban problem--the racial segregation of school children--have been scored because of the additional white "flight" they are seen to promote.[2]

Such concerns with unintended migration consequences of urban strategies directed to other purposes can be contrasted with an increased interest toward implementing policies explicitly designed to attract back to the city a larger share of the metropolitan middle class white population (Stanfield, 1976; City of Seattle, 1977; Wilkens, 1978). Recent trends toward smaller families, childless couples, and dual career households, as well as financial constraints associated with rising suburban housing prices and the greater costs of commuting, have all been cited as factors that might facilitate a "return to the city" movement (Alonso, 1977; Sternlieb and Ford, 1978); case study accounts in both the scholarly and popular literature provide some evidence that a return is already underway in many older, declining city centers (Grier and Grier, 1977; Fleetwood, 1979; Alpern, 1979). Although it is generally recognized that the population sizes of these cities will continue to shrink, the return of upper income whites is looked upon as a means toward slowing the pace of tax base erosion, if not as a stimulus toward central city revival (Subcommittee on the City, 1977; The President's Urban and Regional Policy Group, 1978).

This increased attention to migration incentives and disincentives notwithstanding, empirical evidence which demonstrates the aggregate consequences that contemporary racial movement streams impose on the economic bases of larger, older central cities is virtually nonexistent. The demographic data usually cited for individual cities reflect population changes rather than movement stream contributions, while inferences to the latter tend to be drawn from national survey data which aggregates the experiences of all cities within broad region and size classes (Barabba, 1975). Individual city surveys have yielded some relevant information (Grier and Grier, 1977; Sternlieb and Ford, 1978; U.S. Bureau of the Census, 1976), although one cannot estimate precisely economic base contributions for all movement streams by race. The most appropriate data to investigate such race and movement effects for individual cities--aggregate migration data from the census--cannot be obtained directly for this purpose;[3] and to date, no rigorous attempt has been made to employ them in order to examine this issue indirectly.

Demographic studies which do exist on recent racial migration patterns suggest that the negative fiscal consequences accompanying both black metropolitan in-migration and white suburban "flight" may be somewhat less severe than in years past. The in-migration of blacks to large Northern cities has levelled off considerably during the 1960s (U.S. Bureau of the Census, 1971a; 1975), and the selectivity of black in-migrants with respect to measures of socioeconomic status has come to resemble the positive selectivity patterns of white in-migrants (Taeuber and Taeuber, 1965b; Farley, 1976). White intrametropolitan redistribution might still be characterized as a suburban directed "circulation of elites" (Taeuber and Taeuber, 1964); however, available evidence suggests that

the magnitude of white city-to-suburb movement has not increased over time and, in some large cities, has tapered off from 1950s' levels (Long, 1975; Speare, Goldstein, and Frey, 1975; Farley, 1976).

The analyses presented below were prepared to examine explicitly how black in-migration to the city, white city-to-suburb residential mobility, and other race-specific movement streams have operated to affect the economic bases of selected large central cities during two postwar intervals, 1955-60 and 1965-70. Although available census tabulations do not permit a direct assessment of these effects, an indirect standardization procedure using published race and occupation-employment migration tabulations for individual cities from the 1960 and 1970 censuses (U.S. Bureau of the Census, 1963; 1973a), and income tabulations from the 1/100 State Public Use Sample files of 1960 and 1970 census records (U.S. Bureau of the Census, 1971b; 1972) is employed to derive empirically based estimates. Eight of the twelve cities in this study are located outside the South and served as primary destinations during the large migration of Southern blacks to the North and the West. The four remaining cities are located in the Southern region (as defined by the Census) and contain sizeable black populations within their borders. In light of the demographic literature cited above, we would anticipate that the negative fiscal consequences of present black in-migration to large Northern and Western cities are less severe than many urban analysts fear. The deleterious effects of white city-to-suburb flight, we hypothesize, are still significant but to a lesser extent than was the case in the immediate postwar period.

Following the approach Terrell (1971) used to evaluate the entire nonwhite population's impact on city revenue-producing capacity, we examine the change in each city's mean income level that would be expected in the absence of one or more race-specific movement streams, where the per capita income level

of the resident male civilian labor force population is employed as an indicator of city revenue-producing capacity.[4] Migration effects on the city's economic base, as assessed here, reflect both the volume and revenue-producing capacity of individuals in each black and white movement stream. Therefore, the results will be examined in three stages: (1) the aggregate change each stream exerts on the end-of-period city population size; (2) the mean income levels for individuals in each movement stream; and (3) the aggregate impact that each stream exerts on the city's end-of-period mean income level.

METHODOLOGY, DATA, AND SELECTION OF CITIES

Methodology

The methodology for this investigation is based on a decomposition of each city's end-of-period male civilian labor force into resident and movement stream population components defined according to residence location at the beginning of the period. Assuming that all individuals in the analysis are alive at both the beginning and end of the migration interval (i.e., the migration status of individuals who die during the interval would not alter the end-of-period population size, and births occurring over the interval do not affect the labor force population), migration induced change in the city's end-of-period size is a function of the sizes of components: same city residents throughout the period (CC); in-migrants to the city from outside the SMSA (IC); suburb-to-city movers within the SMSA (SC); out-migrants from the city to points outside the SMSA (OC); and city-to-suburb movers within the SMSA (CS). This decomposition preserves the important analytic distinction between intrametropolitan residential mobility streams (CS, SC) and inter-labor market migration streams (IC, OC), as each type of stream is subject to quite different area- and race-specific influences (Frey, 1978a).

Using subscripts w and b to denote the white and black populations, respectively, one can define the actual end-of-period central city population (CP) as:

$$CP = CC_w + CC_b + IC_w + IC_b + SC_w + SC_b \cdot \qquad (1)$$

A hypothetical end-of-period population (CP*), which would result if all of the movement streams had not taken place over the course of the interval, can be denoted as:

$$CP^* = CC_w + CC_b + OC_w + OC_b + CS_w + CS_b \cdot \qquad (2)$$

These relationships enable one to specify several hypothetical end-of-period populations (CP*) which would have resulted from the absence of one or more race-specific movement streams: by subtracting from the right-hand side of equation (1) any of its last four terms; or by adding to that side of the equation any of the last four terms in equation (2). For example, the end-of-period city population resulting from the absence of black inmigration can be specified as $CP^* = CP - IC_b$ and that resulting from an assumption of no white city-to-suburb "flight" over the interval would be $CP^* = CP + CS_w$.

Migration-induced change in the city's end-of-period mean income level can be arrived at in similar fashion. The actual mean income level for the population of city labor force males at the end of the period (Y_{CP}) is equivalent to the weighted average of mean income values for each race-specific resident and movement stream population as follows:

$$Y_{CP} = \frac{(Y_{CC.w}CC_w + Y_{CC.b}CC_b + Y_{IC.w}IC_w + Y_{IC.b}IC_b + Y_{SC.w}SC_w + Y_{SC.b}SC_b)}{CP} , \qquad (3)$$

where

$Y_{XX.r}$ = the end-of-period per capita income for the metropolitan area's civilian labor force males in resident or movement stream population XX, and of race r,

and the hypothetical mean income resulting from no movement over the interval

(CP* in equation (2)) can be specified as:

$$Y_{CP*} = \frac{(Y_{CC.w}CC_w + Y_{CC.b}CC_b + Y_{OC.w}OC_w + Y_{OC.b}OC_b + Y_{CS.w}CS_w + Y_{CS.b}CS_b)}{CP*} . \quad (4)$$

Alternative hypothetical city income levels (Y_{CP*}) based on the assumption that various movement streams did or did not take place can be calculated in like manner. Following our earlier examples, the assumed absence of black in-migration would bring about an end-of-period income level of:

$$Y_{CP*} = \frac{Y_{CP}CP - Y_{IC.b}IC_b}{CP - IC_b} ;$$

and the absence of white city-to-suburb movement over the interval would result in an end-of-period mean income level of

$$Y_{CP*} = \frac{Y_{CP}CP + Y_{CS.w}CS_w}{CP + CP_w} .$$

The hypothetical estimates arrived at by this decomposition technique are based on an assumption that the observed end-of-period per capita income and labor force participation levels for each resident and movement stream population would have occurred in the absence of migration. This assumption is not an unreasonable one for same-city residents (CC) and intrametropolitan movers (CS, SC), because such movement is generally not employment-related (Simmons, 1968; Speare, Goldstein, and Frey, 1975). However, it is inconsistent with empirical research on inter-labor market migration which suggests that the latter responds to employment and wage differentials between origin and destination labor markets (Greenwood, 1975; Ritchey, 1976). The observed sizes and per capita income levels for the SMSA inmigrant and outmigrant components (IC, OC), are likely to represent overestimates of those that would be obtained in the absence of migration. Hence, our findings tend to overstate the negative fiscal consequences of black and white migration streams leading from the central city to destinations outside the SMSA.

Data and Estimation Procedures

Several of the migration and income parameters that are required for the relationships presented above cannot be obtained from available data sources and must be estimated in an indirect manner. Least problematic in this respect are the resident and movement stream population components on the right-hand sides of equations (1) and (2). Most of these values for the 1955-60 and 1965-70 periods can be obtained from census data appearing in the parallel Mobility for Metropolitan Area subject reports (U.S. Bureau of the Census, 1963; 1973a) which tabulate the reported 1955 (or 1965) city, suburb, and outside metropolitan area residence locations for 1960 (or 1970) central city and suburb residents of individual SMSAs. This information permits us to calculate race-specific values of components, CC, IC, SC, and CS for white and nonwhite labor force males in 1960 and for black and nonblack labor force males in 1970. (For ease of exposition, race-specific findings will be discussed in terms of "whites" and "blacks" for both intervals.) The census data can be further disaggregated on the basis of a 10-category occupation-employment status classification (distinguishing unemployed males and employed civilian males according to nine broad occupation classes) so that the above migration parameters can be calculated specific to each race and employment-occupation status category. The latter disaggregation is used in the estimation of the remaining migration component, the per capita income values required for equations (3) and (4), and in the allocation of NAs in the published migration data.[5]

The migration component, OC, cannot be obtained directly from census data. While the Mobility for Metropolitan Area subject reports (U.S. Bureau of the Census, 1963, 1973a) do tabulate the number of 1960 (or 1970) residents outside each metropolitan area who reported residing there in 1955 (or 1965), these individuals are not designated according to central city, or suburb location within the metropolitan area--a tabulation that would be necessary to compute the OC values.

However, race-specific OC values can be indirectly estimated from these data, disaggregated by occupation-employment categories within racial groups, if it is assumed that out-migration rates for metropolitan whites and blacks within each occupation-employment subgroup hold for central city whites and blacks within each occupation-employment subgroup.[6] (See the Appendix for further details on the computations of each migration parameter from census data.)

The most significant shortcoming of the census migration tabulations, for purposes of the present study, lies with the lack of detailed income information (see footnote 3). To obtain the required per capita income values for race-specific resident and movement stream populations ($Y_{XX.r}$), the following indirect standardization procedure is employed: first, per capita income levels are estimated for occupation-employment status categories of each race-specific resident and movement stream population; and second, these estimates are standardized on the basis of the known occupation-employment compositions for the respective resident and movement stream populations in each metropolitan area. The per capita income level estimates were compiled from the detailed income classifications available in the 1/100 U.S. Census 1960 and 1970 State Public Use Sample files U.S. Bureau of the Census, 1971b; 1972) and pertain to comparable population components for the census region in which the SMSA of interest is located.[7] The race-specific percapita income levels ($Y_{XX.r}$) in equations (3) and (4) are computed as follows:

$$Y_{XX.r} = \frac{\sum_{0=1}^{10} (XX_{r.o} Y^{**}_{XX.r.o})}{\sum_{0=1}^{10} (XX_{r.o})}, \qquad (5)$$

where

$XX_{r.o}$ = the number of the metropolitan area's civilian labor force males in resident or movement stream population XX, of race r, and in occupation-employment category o, and

$Y^{**}_{XX.r.o}$ = estimated end-of-period percapita income value for civilian labor force males in resident or movement stream population XX, of race r, and occupation-employment category o.

Selection of Cities

The twelve SMSAs selected for this study are among the twenty most populous 1970 metropolitan areas for which blacks made up greater than ten percent of the central city population. Three other metropolitan areas that qualified under this criterion (New York, Washington, D.C. and Newark) had to be eliminated because the previous residence location for a substantial number of individuals could not be ascertained, or because a significant military population resided therein. Eight metropolitan areas from the North (Chicago, Philadelphia, Detroit, Pittsburgh, St. Louis, Cleveland) and West (Los Angeles-Long Beach, San Francisco-Oakland) constitute the primary focus of this research. These developed around older central cities which, historically, served as final destinations for a large portion of black Southern-origin migrants. They also share a similar postwar suburbanization pattern wherein the central city has come to comprise an increasingly smaller portion of the total metropolitan population (U.S. Bureau of the Census, 1973b; Farley, 1976).

Four Southern SMSAs (Baltimore, Houston, Dallas, Atlanta) will serve as a basis for comparison with the Northern ones, although they are by no means similar to each other with respect to their population redistribution patterns. Baltimore might actually be considered a "border" SMSA. Like other Northeast corridor metropolitan areas, it served as a destination for black in-migrants from the deep South, and has undergone considerable postwar suburbanization. The latter SMSAs have all been characterized as Southern "growth centers," although the intrametropolitan city-suburb redistribution pattern in Atlanta, the oldest of the three, bears some resemblance to that of metropolitan areas in the North (Frey, 1978a). Rapid suburbanization in the two Texas SMSAs, on the other hand, has only developed recently. Due to the different historical patterns black residence and rural-to-urban migration in the South (Taeuber and Taeuber, 1965a), and to recent Southern increases in white metropolitan inmigration and suburbanization (Sternlieb and Hughes, 1975), the central cities of the four Southern SMSAs are not expected to conform to the Northern "model."

ANALYSIS

The data in Table 1 provide an overview of the movement-induced changes in city racial compositions and mean income levels resulting from all race-specific movement streams over the 1955-60 and 1965-70 periods. End-of-period values for each measure are presented (columns 1 and 3) along with hypothetical changes in those values that would have resulted from the absence of any movement over the previous five years (columns 2, 4, and 5). In Detroit, for example, the 1970 black percentage of 40.0 would be reduced by 8.2 percent if no 1965-70 movement had occurred. Similarly, the mean per capita income level of $8518 would be increased by $356 or some 4 percent in the absence of all migration and residential mobility.

Table 1: End-of-Period Values for City Racial Compositions, Mean Income Levels, and Changes that would result in the absence of all Movement Streams during the 1955-60 and 1965-70 periods, Male Civilian Labor Force, Central Cities of 12 SMSAs.[1]

SMSA	Period	Percent City Black: At end-of-period (1)	Percent City Black: Absolute Change[2] (2)	City Mean Income Level: At end-of-period (3)	City Mean Income Level: Absolute Change[3] (4)	City Mean Income Level: Percent Change[3] (5)
NORTH AND WEST						
Chicago	1955-60	19.6	-2.9	5916	+185	+3.13
	1965-70	25.9	-3.3	9019	+166	+1.84
Philadelphia	1955-60	23.5	-2.8	5545	+138	+2.49
	1965-70	28.5	-2.9	8826	+182	+2.06
Detroit	1955-60	25.3	-4.5	5759	+150	+2.60
	1965-70	40.0	-8.2	8518	+356	+4.18
Pittsburgh	1955-60	15.1	-1.6	5558	+104	+1.87
	1965-70	15.9	-1.8	9085	+172	+1.89
St. Louis	1955-60	23.8	-4.5	5645	+227	+4.02
	1965-70	34.7	-4.0	8474	+212	+2.50
Cleveland	1955-60	25.8	-4.9	5433	+252	+4.64
	1965-70	33.6	-3.7	8406	+249	+2.96
L.A.-Long Beach	1955-60	14.6	-1.5	6558	+106	+1.62
	1965-70	13.4	- .5	10056	+ 28	+0.28
S.F.-Oakland	1955-60	19.2	-2.4	6222	+108	+1.74
	1965-70	17.3	-2.0	9515	+113	+1.19
SOUTH						
Baltimore	1955-60	30.9	-4.9	4956	+177	+3.57
	1965-70	40.6	-5.3	7459	+266	+3.57
Houston	1955-60	20.7	- .2	5501	+ 16	+0.29
	1965-70	21.4	-1.1	8747	+ 66	+0.75
Dallas	1955-60	16.8	- .8	5713	+ 62	+1.09
	1965-70	19.8	-1.4	8852	+100	+1.13
Atlanta	1955-60	33.3	-2.7	5175	+182	+3.52
	1965-70	45.2	-7.3	7605	+472	+6.24

Sources: U.S. Bureau of the Census, 1963. Census of Population 1960 PC(2)-2B
U.S. Bureau of the Census, 1973. Census of Population 1970 PC(2)-2B
1/100 State Public Use Sample files of basic records, 1960 and 1970 U.S. Censuses (See text for explanation)

[1] In this and Tables 2 and 4, the race categories "black" and "white" pertain to nonwhites and whites for the 1955-60 period, and to blacks and nonblacks for the 1965-70 period. This change in classification may affect longitudinal comparisons for the Los Angeles-Long Beach, and San Francisco-Oakland SMSAs wherein blacks comprise less than 90 percent of the nonwhite population.

[2] The absolute change measure equals: $\frac{CP^*_b}{CP^*_b + CP^*_w} - \frac{CP_b}{CP_b + CP_w} \times 100$

where CP_b and CP_w denote the actual end-of-period sizes of city black and white populations and CP^*_b and CP^*_w denote hypothetical end-of-period sizes of city black and white populations that would result if no movement streams took place during the period (based on text equation (2)).

[3] The absolute change measure equals: $Y_{CP^*} - Y_{CP}$; the percent change measure equals:

$$(Y_{CP^*} - Y_{CP})/Y_{CP} \times 100$$

where Y_{CP} denotes the actual end-of-period city mean income level (defined in text equation (3)), and Y_{CP^*} denotes the hypothetical end-of-period city mean income level that would result if no movement streams took place during the period (defined in text equation (4)).

It is apparent from the percentages in column 5 that all of the central cities in this study suffered declines in revenue-producing capacity as a result of selective movement patterns in both periods, although the magnitudes of these declines vary among cities. Movement induced declines in mean income levels for Northern cities range from 2 to 4 percent over both periods. However, apart from Detroit and Pittsburgh, the declines were greater in the earlier 1955-60 period. Reductions in per capita income levels during each period were somewhat smaller for the two Western cities and, among the Southern cities, there is a divergence in pattern.

Given the magnitudes of these changes, it would be fair to conclude that the net migration effects on city tax base losses were not substantial over either the 1955-60 or 1965-70 intervals. The previous statement notwithstanding, a comparison of the percentages in columns (2) and (5) do support the conventional wisdom which posits that a change in the city's black population share is negatively associated with a change in its fiscal capacity. With few exceptions among the cities in this study, the more pronounced decreases in the latter occur in cities which experienced the largest increases in black percentages. However, to attribute this apparent relationship to the effects of black in-migration, white city-to-suburb flight, or any other movement stream which leads to changes in city racial composition requires a decomposition of total city per capita income change into race-specific movement stream contributions.

Stream Contributions to City Population Size

The data in Table 2 permit an assessment of black and white movement stream contributions to the end-of-period population size in each city, as well as changes in the magnitudes of these contributions between the late 1950s and late 1960s. The total end-of-period population size of each central city is listed in column (1)

of the table, and the percentage changes in that size which would have resulted from the absence of a race-specific movement stream or resident population are listed in columns (2) through (11).

An examination of these percentages reveals that for all Northern cities and for the older Southern cities of Baltimore and Atlanta, white city-to-suburb movement exerts the greatest impact of all streams on city population size over both periods. The exceptions to this pattern occur in the two Western SMSAs and in the Texas growth centers of Houston and Dallas, where white in-migration to the SMSA or out-migration from the SMSA predominate for at least one of the periods. However, when attention is confined to intrametropolitan residential mobility (columns (5), (6), (10), and (11)), the white flight stream predominates for all SMSAs.

The small percentages in column (3) point up quite convincingly that black in-migration from outside the SMSA adds far less to each city's end-of-period population size than white city-to-suburb movement removes. Yet, in almost every instance, this stream exerts a greater impact on aggregate redistribution than each of the other black movement streams. The 1965-70 black in-migration stream to Detroit effected a greater absolute change on the city's 1970 population than any other black stream, or either of the white in-movement streams which originated outside the city.

Although the city-to-suburb white flight stream represents a dominant migration component of city population loss for both periods, some cross-decade changes are apparent: first, the negative contributions of white city-to-suburb movement to city populations, outside the South, have remained generally the same or declined over the latter period (Pittsburgh constituting the exception); second,

Table 2: Race Specific Movement Stream and Resident Population Contributions to end-of-period City Sizes for the 1955-60 and 1965-70 periods, Male Civilian Labor Force, Central Cities of 12 SMSAs.

SMSA	Period	End-of-Period City Size (100s) (1)	Percent Change in City Size[1] resulting from the absence of: BLACK Same City Residents (2)	BLACK SMSA In-Migrants (3)	BLACK SMSA Out-Migrants (4)	BLACK Suburb to City Movers (5)	BLACK City to Suburb Movers (6)	WHITE Same City Residents (7)	WHITE SMSA In-Migrants (8)	WHITE SMSA Out-Migrants (9)	WHITE Suburb to City Movers (10)	WHITE City to Suburb Movers (11)
NORTH AND WEST												
Chicago	1955-60	10009	-17.4	-1.9	+ .8	- .2	+ .2	-73.2	- 5.4	+ 7.3	-1.2	+11.9
	1965-70	8503	-23.6	-1.5	+1.1	- .7	+ .4	-65.6	- 5.2	+ 7.9	-3.4	+12.2
Philadelphia	1955-60	5322	-22.0	-1.3	+ .7	- .2	+ .3	-72.4	- 2.6	+ 5.5	-1.5	+10.4
	1965-70	4692	-26.7	-1.6	+ .8	- .3	+ .5	-65.5	- 4.0	+ 6.4	-2.0	+ 9.3
Detroit	1955-60	4525	-23.6	-1.1	+1.5	- .6	+ .5	-68.3	- 3.3	+ 8.7	-3.1	+20.1
	1965-70	3673	-34.0	-4.7	+1.0	-1.3	+ .7	-51.0	- 4.7	+ 6.5	-4.4	+18.8
Pittsburgh	1955-60	1601	-14.1	- .7	+ .8	- .4	+ .3	-76.8	- 3.9	+ 7.2	-4.1	+12.7
	1965-70	1225	-14.5	- .8	+1.1	- .5	+ .8	-72.6	- 6.4	+ 9.0	-5.1	+18.6
St. Louis	1955-60	1899	-22.0	-1.5	+1.2	- .2	+ .3	-66.6	- 6.8	+ 9.2	-2.8	+23.0
	1965-70	1362	-31.6	-2.3	+1.5	- .8	+3.2	-54.8	- 5.9	+ 7.9	-4.6	+19.0
Cleveland	1955-60	2385	-23.1	-2.5	+1.2	- .2	+ .2	-62.8	- 8.4	+ 9.9	-3.0	+20.2
	1965-70	1808	-30.2	-2.6	+1.3	- .8	+3.2	-54.9	- 6.8	+ 7.8	-4.8	+18.8
L.A.-Long Beach	1955-60	7776	-11.1	-3.1	+ .7	- .4	+1.3	-62.0	-15.4	+ 8.9	-8.0	+15.5
	1965-70	8254	-10.9	-1.8	+ .7	- .7	+1.7	-64.5	-13.3	+13.0	-8.8	+12.1
S.F.-Oakland	1955-60	3104	-16.1	-2.2	+1.3	- .9	+1.1	-64.7	-11.5	+12.8	-4.6	+14.0
	1965-70	2775	-14.1	-2.4	+ .9	- .8	+1.0	-62.4	-14.7	+13.3	-5.6	+13.1
SOUTH												
Baltimore	1955-60	2474	-28.5	-2.0	+1.0	- .3	+ .2	-62.7	- 4.5	+ 7.4	-1.9	+14.6
	1965-70	2133	-37.3	-2.1	+1.1	-1.2	+ .7	-51.0	- 4.8	+ 6.7	-3.6	+13.9
Houston	1955-60	2527	-18.0	-2.4	+1.0	- .3	+ .5	-59.6	-16.4	+ 9.8	-3.2	+ 4.2
	1965-70	3254	-18.1	-2.5	+ .8	- .8	+ .5	-56.4	-19.2	+ 9.1	-3.0	+ 9.9
Dallas	1955-60	1857	-14.3	-2.2	+1.1	- .3	+ .2	-62.9	-17.4	+11.8	-2.9	+ 6.9
	1965-70	2228	-15.9	-2.5	+ .8	-1.4	+ .1	-54.2	-20.5	+11.3	-5.5	+ 9.0
Atlanta	1955-60	1208	-30.9	-1.8	+1.7	- .6	+ .4	-49.5	-13.3	+10.8	-3.9	+14.4
	1965-70	1188	-37.4	-5.6	+1.7	-2.3	+1.9	-36.4	-13.8	+10.8	-4.6	+20.0

Sources: U.S. Bureau of the Census, 1963. Census of Population 1960 PC(2)-2B
U.S. Bureau of the Census, 1973. Census of Population 1970 PC(2)-2B

[1] The percent change measure equals: $(CP^* - CP)/CP \times 100$

where CP denotes the actual end-of-period city size (defined in text equation (1)), and CP* denotes the hypothetical end-of-period city size that would result in the absence of the race-specific movement stream or resident population designated in the column heading (based on text equations (1) and (2)).

the positive contributions of black in-migration to city population size have increased slightly in all but two SMSAs; and third, each of the white suburb-to-city counterstreams contributed a greater share to city population increase in the late 1960s than in the earlier postwar interval. It should be emphasized that none of these changes are substantial enough to alter the relative magnitudes of race-specific stream effects over the course of the decade. Indeed, one should be particularly cautious about overstating the importance of an increased city "return" of white suburban residents. Even in the latter 1965-70 period, its positive effect on the city population is dwarfed by the magnitude of the dominant white city-to-suburb stream in ratios greater than 3:1 for most cities examined. Yet the apparent stabilization of the white flight stream, as indicated here for non-Southern SMSAs, is a noteworthy finding; particularly in light of the continued expansion of employment, housing, and other metropolitan activities outside the central city jurisdiction.

Before leaving Table 2, it is important to underscore changes over time in contributions of resident nonmobile populations to end-of-period city sizes (columns (2) and (7)). Although the white residents constitute the greatest percentage of the end-of-period populations for both periods, this percentage has decreased substantially over time for most Northern cities and the two older Southern cities. Concurrently, the black same-city resident populations in these SMSAs represent a much greater percentage of their respective city sizes in the latter period. These data point up the increasing role that the <u>non-migrant</u> black population is likely to play in shaping future demographic and economic conditions within central cities.

Mean Income Values of Contributing Movement Streams

We next examine per capita income levels associated with each resident and movement stream population that contributes to the end-of-period mean city income level. To facilitate cross-sectional and over-time comparisons, each stream's mean income level is presented as a percentage of that for the total city or, using the notation developed in the previous section: $[Y_{XX.r}/Y_{CP}] \times 100$.

The data in Table 3 show that, with only a few exceptions, the income levels associated with each white stream lie above the city mean income level, while all black movement stream populations score lower than the overall level. This confirms the conventional wisdom suggesting that a net in-movement of blacks exerts a depressing effect on the overall tax base of the central city. However, a closer look at the Table 3 data reveals that the blacks in each resident and movement stream category register decade-wide increases in mean income levels, as compared with the total central city mean income values. Increases tend to be most pronounced among the black in-migration stream--the stream with which low status blacks are most often identified. These over-time changes occur in both Northern and Southern central cities.

White variations in mean income levels, both across migration statuses and over time, are less noticeable than those for blacks. In Northern SMSAs it is the white city-to-suburb stream which generally ranks highest on income during both periods, and among the three growing Southern SMSAs, it is somewhat surprising to find that the greatest mean income levels are recorded for white same-city residents. However, the important finding to be noted from the data in Table 3 is the significant increase in migrant selectivity that occurred for blacks over the decade--an increase that was most pronounced among black SMSA in-migrants.

Table 3: End-of-period Mean Income Values for 1955-60 and 1965-70 Race Specific Movement Stream and Resident Populations expressed as a percentage of the city mean income level, Male Civilian Labor Force, Central Cities of 12 SMSAs.

SMSA	Period	End-of-Period City Mean Income Level (1)	End-of-Period Mean Income Values expressed as a percentage of City Mean Income Level[1] BLACK: Same City Residents (2)	BLACK: SMSA In-Migrants (3)	BLACK: SMSA Out-Migrants (4)	BLACK: Suburb to City Movers (5)	BLACK: City to Suburb Movers (6)	WHITE: Same City Residents (7)	WHITE: SMSA In-Migrants (8)	WHITE: SMSA Out-Migrants (9)	WHITE: Suburb to City Movers (10)	WHITE: City to Suburb Movers (11)
NORTH AND WEST												
Chicago	1955-60	5916	67	52	52	67	70	109	93	108	113	119
	1965-70	9019	75	70	70	75	76	109	104	106	111	116
Philadelphia	1955-60	5545	67	57	59	68	67	110	122	126	115	118
	1965-70	8826	71	71	81	71	77	111	117	122	119	118
Detroit	1955-60	5759	68	52	54	66	67	112	103	105	109	116
	1965-70	8518	80	75	78	79	79	115	105	110	114	120
Pittsburgh	1955-60	5558	63	58	62	61	63	106	122	123	107	112
	1965-70	9085	68	79	80	65	71	105	117	120	106	110
St. Louis	1955-60	5645	70	53	54	70	67	111	93	109	115	117
	1965-70	8474	77	73	76	81	82	113	104	111	112	116
Cleveland	1955-60	5433	73	56	57	71	79	112	94	108	119	121
	1965-70	8406	80	74	78	78	84	111	104	111	114	119
L.A.-Long Beach	1955-60	6558	65	59	55	64	66	110	91	94	107	104
	1965-70	10056	68	57	54	68	68	108	95	98	101	99
S.F.-Oakland	1955-60	6222	67	60	61	68	71	110	95	99	114	113
	1965-70	9515	70	61	58	73	74	108	100	102	112	108
SOUTH												
Baltimore	1955-60	4956	57	51	53	56	60	120	114	122	118	120
	1965-70	7459	67	70	77	68	73	122	130	129	120	126
Houston	1955-60	5501	50	43	45	48	48	116	105	107	111	100
	1965-70	8747	57	56	62	57	58	113	109	112	107	106
Dallas	1955-60	5713	48	42	44	47	46	113	103	107	103	101
	1965-70	8852	55	57	59	56	54	112	109	110	105	107
Atlanta	1955-60	5175	54	49	50	52	53	128	108	121	116	121
	1965-70	7605	65	68	75	65	67	133	119	127	120	129

Source: Same as Table 1.

[1]The percent measure equals: $Y_{XX.r}/Y_{CP} \times 100$

where Y_{CP} denotes the end-of-period city mean income level (defined in text equation (3)), and $Y_{XX.r}$ denotes the end-of-period mean income for the race-specific movement stream or resident population designated in the column heading.

Stream Contributions to Mean City Income

We turn now to examine the combined consequences of stream volume and stream selectivity for changes in city fiscal capacity. Shown in Table 4 are percentage changes in city end-of-period mean income levels that would be expected for each period in the absence of various race-specific movement streams or resident populations. As might be anticipated from earlier volume and selectivity patterns, these results show that white city-to-suburb movement generally exerts the greatest negative impact of all race-specific streams on the city economic base. This generalization characterizes most Northern cities as well as the older Southern cities of Baltimore and Atlanta. Notable exceptions are Dallas, Houston, Los Angeles-Long Beach, and Pittsburgh, whose white in-migration or out-migration streams tend to dominate.

As for black in-migration, the data indicate that its negative impact on the city's fiscal capacity is relatively small, particularly in Northern and old Southern SMSAs. Despite its increased over-time contribution to central city size, its aggregate impact on mean city income generally declines in the later 1965-70 period. For most Northern SMSAs then, both black in-migration and white city-to-suburb movement have decreased their revenue-reducing effect on the central city tax base in the second movement period. Only Detroit and, to a lesser extent, Pittsburgh deviate from this pattern.

The measures in Table 4 again point up the increasing influence that the nonmobile black resident population is exerting on the economic bases of large central cities. While the revenue-reducing impact of this population was significant in the earlier 1955-60 period, the magnitude of its aggregate effect--unlike those attributable to black in-migration and white city-to-suburb movement--has generally increased over time in large Northern metropolitan areas.

Table 4: Race and Movement Stream Contributions to end-of-period City Mean Income Level for the 1955-60 and 1965-70 periods, Male Civilian Labor Force, Central Cities of 12 SMSAs.

SMSA	Period	End-of-Period City Mean Income Level (1)	Percent Change in City Mean Income Level[1] resulting from the absence of: BLACK					WHITE				
			Same City Residents (2)	SMSA In-Migrants (3)	SMSA Out-Migrants (4)	Suburb to City Movers (5)	City to Suburb Movers (6)	Same City Residents (7)	SMSA In-Migrants (8)	SMSA Out-Migrants (9)	Suburb to City Movers (10)	City to Suburb Movers (11)
NORTH AND WEST												
Chicago	1955-60	5916	+ 6.86	+ .93	-.39	+.07	-.07	-25.32	+ .38	+ .56	- .23	+1.98
	1965-70	9019	+ 7.63	+ .46	-.32	+.18	-.09	-17.12	- .21	+ .41	- .39	+1.73
Philadelphia	1955-60	5545	+ 9.43	+ .57	-.29	+.07	-.11	-26.07	- .58	+1.38	- .23	+1.68
	1965-70	8826	+10.47	+ .45	-.16	+.08	-.10	-20.64	- .73	+1.29	- .38	+1.55
Detroit	1955-60	5759	+10.00	+ .53	-.67	+.21	-.16	-25.23	- .10	+ .43	- .29	+2.67
	1965-70	8518	+10.42	+1.24	-.21	+.29	-.14	-15.29	- .26	+ .63	- .63	+3.15
Pittsburgh	1955-60	5558	+ 5.99	+ .28	-.28	+.16	-.09	-19.04	- .92	+1.57	- .29	+1.35
	1965-70	9085	+ 5.50	+ .17	-.21	+.19	-.22	-13.22	-1.19	+1.65	- .34	+1.62
St. Louis	1955-60	5645	+ 8.59	+ .72	-.55	+.07	-.11	-22.61	+ .52	+ .75	- .42	+3.18
	1965-70	8474	+10.53	+ .62	-.34	+.16	-.56	-15.74	- .28	+ .78	- .60	+2.61
Cleveland	1955-60	5433	+ 8.16	+1.11	-.50	+.06	-.04	-19.67	+ .51	+ .72	- .59	+3.48
	1965-70	8406	+ 8.65	+ .68	-.29	+.18	-.50	-13.17	- .32	+ .78	- .69	+2.95
L.A.-Long Beach	1955-60	6558	+ 4.42	+1.32	-.29	+.15	-.45	-16.33	+1.63	- .48	- .58	+ .53
	1965-70	10056	+ 3.97	+ .79	-.30	+.22	-.54	-14.22	+ .69	- .22	- .09	- .10
S.F.-Oakland	1955-60	6222	+ 6.33	+ .92	-.49	+.29	-.30	-18.09	+ .59	- .13	- .65	+1.55
	1965-70	9515	+ 5.01	+ .94	-.37	+.22	-.25	-12.78	+ .05	+ .25	- .72	+ .96
SOUTH												
Baltimore	1955-60	4956	+17.29	+1.01	-.49	+.13	-.08	-33.57	- .64	+1.54	- .35	+2.51
	1965-70	7459	+20.00	+ .63	-.26	+.39	-.18	-23.27	-1.49	+1.81	- .73	+3.15
Houston	1955-60	5501	+10.89	+1.38	-.56	+.17	-.27	-23.12	- .92	+ .66	- .35	- .01
	1965-70	8747	+ 9.56	+1.14	-.30	+.36	-.19	-16.91	-2.14	+1.01	- .20	+ .51
Dallas	1955-60	5713	+ 8.67	+1.31	-.61	+.16	-.08	-22.43	- .57	+ .73	- .08	+ .04
	1965-70	8852	+ 8.44	+1.12	-.31	+.62	-.07	-14.71	-2.25	+1.05	- .30	+ .56
Atlanta	1955-60	5175	+20.48	+ .91	-.83	+.29	-.19	-27.07	-1.19	+2.06	- .64	+2.64
	1965-70	7605	+20.62	+1.92	-.42	+.82	-.60	-18.84	-3.04	+2.60	-1.00	+4.83

Source: Same as Table 1.

[1] The percent change measure equals: $(Y_{CP*} - Y_{CP})/Y_{CP} \times 100$

where Y_{CP} denotes the actual end-of-period city mean income level (defined in text equation (3)), and Y_{CP*} denotes the hypothetical end-of-period city mean income level that would result in the absence of the race-specific movement stream or resident population designated in the column heading (based on text equations (3) and (4)).

DISCUSSION

The findings from this analysis indicate that in both the late 1950s and late 1960s, black in-migration to old non-Southern cities accounted for only a small degree of change in the economic compositions of their resident populations. Most economic base decline that could be linked to race-specific movement in each period was a function of white flight to the suburbs of the same metropolitan area. Yet the evidence presented here suggests that income-lowering effects attributable to both black in-migration and white flight to the suburbs have decreased over time. The decrease in the former can be explained by the greater status selectivity among black metropolitan in-migrants, while the decline in the latter is due largely to a stabilization in the level of white out-movement from older central cities.

These findings should serve to dispel the fears of those analysts who see the consequences of "ghetto enrichment" or the targeting of federal assistance to distressed cities, to include a rapid cityward influx of unskilled, low status blacks. Although the migration patterns of unemployed noncity blacks may well be responsive to increased employment, improved housing, and better public services in aging urban centers, our data do not suggest that this migration--in the aggregate--would place a large additional burden on the cities' economic bases.

What our data do indicate is that the existing, nonmigrating black population is becoming a dominant force in the demographic and economic compositions of older Northern cities. While city economic well-being would undoubtedly be strengthened if this population was dispersed across the wider metropolitan unit, the weight of existing evidence indicates that the strong discriminatory and economic barriers which prevented a metropolitan-wide integration of the races in the past continues to operate; and that the long-standing pattern of black city concentration will not be reversed in the forseeable future (Taeuber, 1975;

Frey, 1978b). Given this situation and the fact that blacks born in the city exhibit the highest incidence of poverty of all city blacks (Long, 1974), our findings would suggest that the gains accruing from social programs directed to raising the economic potentials of existing second and third generation black city residents should weigh at least as heavily in policy decisionmaking as the negative in-migration side effects which are often attributed to such programs.

With respect to white city-to-suburb flight, the data presented here confirm a widely held contention that this movement still exerts a significant influence on central city tax base erosion; and show, as well, that it constitutes the race-specific stream which contributes most to the continued concentration of city blacks as assessed in Table 1. Our findings, nevertheless, indicate that the aggregate impact of this stream for reducing both population size and revenue-producing capacity in declining Northern cities, seems to be decreasing over time--in spite of the fact that an increasing share of metropolitan employment and housing opportunities is being made available outside the boundaries of the city political unit. One might infer from these results that the deleterious effects of white city-to-suburb movement for older, underbounded cities is now subsiding from those of the peak, postwar suburbanization years; and that the population substrata with both the means and desire to relocate in the suburbs have already done so. Indeed, studies which have examined determinants of recent white city-to-suburb movement show metropolitan ecological and demographic structural factors to dominate in its explanation; suburbanward white movement is greatest in growing metropolitan areas with younger population age structures, and in those which have experienced rapid suburban development since World War II. In contrast, present white flight from more mature central cities that can be attributed to the changing city racial composition or policy-alterable conditions

such as the prevalence of school desegregation, the crime rate, or city-suburban disparities in taxes of public services, is much smaller in magnitude (Bradford and Kelejian, 1973; Frey, 1977; 1978c).

Because migration tabulations from the census constitute the most recent data source that affords an adequate examination of aggregate race and movement stream contributions to individual city sizes and economic bases, it is impossible for us to rigorously assess the significance of two post-1970 redistribution patterns: (1) an increased black movement to the suburbs; and (2) a white "return" movement to the city-- which single city case studies and nationwide migration surveys suggest may be occurring (Goodman, 1978; Grier and Grier, 1977; 1978; Nelson, 1978; Sternlieb and Ford, 1978; U.S. Bureau of the Census, 1978a). In light of our findings, which show the contributions of both these streams to be far smaller than the dominant white city-to-suburb movement, it would appear unlikely that the radical changes necessary to reverse past migration patterns and significantly strengthen sagging city economic bases are in the offing. Census and survey based figures from 1965-77 for the nationwide city population, assembled in Table 5, tend to confirm this view; however, it is risky to generalize from these aggregated national data to the individual cities in this study. A thorough assessment of these new redistribution patterns will have to await analyses of detailed census migration tabulations that will not become available until the early 1980s.

The results of this investigation provide evidence that the contributions of traditional race-specific migration streams to a further "blackening" of older city populations and the concomitant lowering of their economic bases have diminished over time. While white city-to-suburb flight continues to effect some increment to the black concentration in older central cities, the bulk of this concentration is a product of more voluminous and selective race-specific

Table 5: Contributions to end-of-period City Population Size of Race Specific Intrametropolitan Movement Streams, 1965-70, 1970-75, 1975-77, Total U.S. Central City Population[1]

Period	End-of Period City Size (in 1000s)	Percent Change in City Size Resulting From the Absence of: BLACK Suburb to City Movers	BLACK City to Suburb Movers	NONBLACK Suburb to City Movers	NONBLACK City to Suburb Movers
	(1)	(2)	(3)	(4)	(5)
1965-70	58507	-.54	+.68	-3.52	+9.32
1970-75	56466	-.43	+.94	-3.52	+10.10
1975-77	58222	-.33	+.83	-2.71	+5.10

Sources: U.S. Bureau of the Census, 1973. Census of Population 1970 PC(2)-2B
U.S. Bureau of the Census, 1978. Census of Population Reports P-20, No. 32
U.S. Bureau of the Census, March 1975 Current Population Survey, Unpublished Tabulations

[1]End-of-period central city populations of metropolitan areas defined in 1970: ages 5 and over for 1965-70 and 1970-75 periods; ages 2 and over for 1975-77 period. The 1970-75 and 1975-77 Current Population Survey figures exclude the institutional population and members of the Armed Forces residing on military bases.

movements of earlier decades that now appear to have subsided. Older Northern cities will continue to experience population losses and tax base erosion, but less as a result of black in-migration and white suburbanization, and more as a consequence of lower ratios of births to deaths among their aging populations; decreased levels of labor migration into the entire metropolitan unit, and the continued inability of their resident, minority population to upgrade their standard of living, or relocate to the suburbs. The findings presented here, coupled with conclusions of other studies (cited above) that city-suburb movement levels are only minimally influenced by policy-alterable factors, suggest that the race-migration consequences, both intended and unintended, of urban programs directed to the poor, to minorities, or to the economic well-being of the city, can easily be overemphasized in public discussions and policy debates.

NOTES

[1]The use of median family income as an indicator of city revenue-producing capacity is based on the "economic indicators approach" to fiscal capacity measurement (Advisory Commission on Intergovernmental Relations, 1962) under the premise that all taxes must be paid out of income unless a community decides to draw upon its capital stock (see Terrell, 1971; pp. 152-153 for a discussion of this measure). Terrell's analysis assumes any subpopulation (e.g., the nonwhite population) that lowers the revenue-producing capacity of the city imposes a fiscal burden on the remainder of the city population which can be calculated as the difference between the median family income of the rest of the population (excluding the low income subpopulation), and the median family income of the total city population. This measure of fiscal, or revenue-producing capacity, should be distinguished from the actual revenue collected. The relationship between the two latter measures is not consistent across the nation's cities due to varying governmental levels of revenue responsibility as well as other externalities (Terrell, 1971; pp. 155-164).

[2]Most recent studies of school desegregation-induced white flight focus on white enrollment declines in central city school districts (see reviews in Pettigrew and Green, 1976; Snyder and Kelley, 1977; Armor, 1979), which is not necessarily indicative of white city-to-suburb residental movement (Taeuber and Wilson, 1978). However, indirect evidence from such analyses has suggested that suburbanward residential movement constitutes an important component of this decline (Coleman, 1976; Armor, 1979), and has led to claims that school desegregation plans confined only to the city will result in an accelerated out-movement of white upper-income residents (Coleman, 1977).

[3]Census migration tabulations which come closest to those required for this task appear in parallel Mobility for Metropolitan Area subject reports of the 1960 and 1970 censuses (U.S. Bureau of the Census, 1963, 1973a). These compile the sizes and racial-socioeconomic characteristics of movement streams between, and into, cities and suburbs of the nation'a largest SMSAs for the 1955-60 and 1965-70 intervals. Unfortunately, these tabulations do not provide adequate income information for an examination of race and movement stream contributions to the city economic base. The 1970 report does tabulate individuals in each race-specific movement stream by six broad family income categories; however in preliminary analyses with this tabulation,we found the income categories to be too gross for the task at hand. The 1960 report also provides income detail for individuals in each movement stream; although the income categories are not coincident with those in the 1970 report (the open-ended category is $25,000+ in 1970, and $15,000+ in 1960) and are not specific to race. Another census product available for both years, the 1/100 State Public Use Sample (U.S. Bureau of the Census, 1971b; 1972) does provide detailed income information for individuals on the file. However, it does not permit identification of movement streams leading into and out of individual central cities. As we shall discuss below, the present investigation employs all of the above data sources in order to produce indirect empirical estimates of movement stream contributions in individual cities for both 1955-60 and 1965-70 intervals.

[4]Because the migration tabulations used in this investigation pertain to individuals rather than to households, the income of individuals in the civilian labor force constitutes a more appropriate analytic measure than the income of households; and unlike the latter, provides for the inclusion of unrelated individuals. The restriction to males is necessary because our technique for estimating movement stream income values (discussed below) requires occupation-employment status

tabulations for individuals in each race-specific movement stream; and census migration tables provide this information only for males. The exclusion of females from this study should serve to overstate the differences between white and black mean income levels due to the larger male-female income disparity which exists within the white civilian labor force population (U.S. Bureau of the Census, 1973b).

[5]There are a few unavoidable problems with the census "residence 5 years ago" question for migration analyses which all previous studies have been forced to tolerate: (1) the comparison of 1955 (or 1965) residence with 1960 (or 1970) residence does not allow for the identification of multiple or return movers; (2) persons who misreport their previous place of residence are not taken into account; and (3) a significant minority of residents at each census (an SMSA average of 7.2 percent in 1970, and 3.4 percent in 1960) are placed in a residual category of movers whose previous residence could not be ascertained, or were abroad, with "NAs" constituting the predominant share. The latter problem is most significant because it leads to the understatement of mobility levels and confounds comparisons across SMSAs and population subgroups which differ in the degree to which NAs are reported. To minimize this problem, we have allocated 1960 (and 1970) movers so classified in each SMSA, according to the 1955 (or 1965) locational distributions of that SMSA's movers who reported their previous residence. These allocations were first performed within each race, and occupation-employment status subgroup, and then summed to obtain allocated tabulations for each race-movement category.

[6]This assumption is consistent with literature indicating that relevant "origin" characteristics in the explanation of inter-labor market migration are those which pertain to the entire labor market (or metropolitan) area (Greenwood, 1975; Frey, 1978a); but that their effects will differ across race and

occupation-employment status specific subpopulations within the labor market (Ritchey, 1976).

[7]Because of confidentiality constraints and other limitations on the geography characteristics available with the census Public Use Sample files, it is not possible to construct regional resident and movement stream populations which correspond exactly to those available with the published metropolitan migration data. However, the regional estimates used in this standardization pertain to base populations that closely approximate those to which they are applied. (See Appendix for a detailed discussion of the use of census data in the standardization procedure.)

APPENDIX

Computation of Resident and Movement Stream Component Sizes and Per Capita Income Values from Census Tabulations

The sizes and per capita income values for the resident and movement stream population components employed in text equations (1), (2), (3) and (4) were computed from published and computer generated tabulations from the 1960 and 1970 U.S. Census, which are summarized in Chart A. These source tabulations pertain to population subcategories, disaggregated by individual race and occupation-employment status characteristics, of the male civilian labor force resident and movement stream components used in the analysis. The sizes of a metropolitan area's resident and movement stream components required for equations (1) and (2) can be computed from the source tabulations listed in the second column of the chart. These are based on Tables 4 and 6 from the 1960 census Mobility for Metropolitan Areas subject report (U.S. Bureau of the Census, 1963) and Tables 15 and 16 from the 1970 census Mobility for Metropolitan Areas subject report (U.S. Bureau of the Census, 1973a); although prior to our computations, migrants in the residual "NA" category of Tables 4 and 15 were allocated to other migrant categories (as discussed in footnote 5). The per capita income values for a metropolitan area's resident and movement stream components, required for equations (3) and (4), are estimated through an indirect standardization procedure described in the text. This procedure utilizes both the metropolitan population subcategory tabulations listed in the second column of Chart A and per capita income estimates for each population subcategory that are based on tabulations from the 1/100 Public Use Sample computer files of the 1960 and 1970 U.S. censuses (U.S. Bureau of the Census, 1971b, 1972) listed in the third column of Chart A. In the notation used below, the subscript, r.o , or the parenthetical expression (r,o) indicates tabulations disaggregated by both race and occupation-employment status characteristics; a subscript, r , or parenthetical expression (r) indicates race-specific tabulations aggregated over the ten occupation-employment classes.

Computation of Sizes for Resident and Movement Stream Components

Remaining cognizant of the caveats which apply to the use of census "place of residence five years ago" tabulations for migration analyses (discussed in footnote 5), the size of a metropolitan area's components CC_r , SC_r , CS_r , and IC_r can be computed directly from the source tabulations in the second column

Chart A: Source Tabulations from the 1960 and 1970 U.S. Censuses, Used to Calculate the Sizes and Per Capita Income Values for Resident and Movement Stream Population Components.

Population Subcategory (r,o)[1]	Published Census Tabulations used to compute the size for subcategory (r,o)[2]	Public Use Sample Tabulations used to estimate subcategory (r,o) per capita income in the standardization equations[3]
A. City Nonmover (r,o)	end-of-period central city residents of race r, and occupation-employment status o, that resided in the same dwelling unit at beginning-of-period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in the same dwelling unit at beginning-of-period
B. Intra-SMSA, Intracity Mover (r,o)	end-of-period central city residents of race r, and occupation-employment status o, that resided in a different dwelling unit in central city of the same metropolitan area at beginning-of-period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a different dwelling unit in the same metropolitan county at beginning-of-period[4]
C. Intra-SMSA, Suburb-to-City Mover (r,o)	end-of-period central city residents of race r, and occupation-employment status o, that resided in suburbs of the same metropolitan area at beginning-of-period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a different dwelling unit in the same metropolitan county at beginning-of-period[4]
D. Intra-SMSA, City-to-Suburb Mover (r,o)	end-of-period suburb residents of race r, and occupation-employment status o, that resided in central city of the same metropolitan area at beginning-of-period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a different dwelling unit in the same metropolitan county at beginning-of-period[4]
E. In-migrant to City from other SMSA (r,o)	end-of-period city residents of race r, and occupation-employment status o, that resided in another metropolitan area at beginning of period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a metropolitan area in a different state at beginning of period[5]
F. In-migrant to City from non-SMSA (r,o)	end-of-period city residents of race r, and occupation-employment status o, that resided in a nonmetropolitan county at beginning-of-period	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a nonmetropolitan county at beginning-of-period
G. Out-migrant from SMSA to other SMSA (r,o)	beginning-of-period metropolitan residents of race r, and occupation-employment status o, that resided in another metropolitan area at end-of-period	beginning-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a metropolitan area in a different state at end-of-period[5]
H. Out-migrant from SMSA to non-SMSA (r,o)	beginning-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a nonmetropolitan county at end-of-period	beginning-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a nonmetropolitan county at end-of-period
I. SMSA Nonmover (r,o)	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in the same dwelling unit at beginning-of-period	———
J. Intra-SMSA Mover (r,o)	end-of-period metropolitan residents of race r, and occupation-employment status o, that resided in a different dwelling unit in the same metropolitan area at beginning-of-period	———

[1] Denotes end-of-period civilian labor force males in one of two race classes (white, nonwhite) and one of ten occupation-employment status classes (employed professional, technical and kindred workers; managers and administrators; sales workers; clerical and kindred workers; craftsmen and kindred workers; operatives; labor rs; farmers and farm workers; service workers; and unemployed).

[2] Tabulations for subcategories of individual metropolitan areas appear in Tables 4 and 6 of 1960 Census subject report Mobility for Metropolitan Areas (U.S. Bureau of the Census, 1963) and Tables 15 and 16 of 1970 Census subject report Mobility for Metropolitan Areas (U.S. Bureau of the Census, 1973a).

[3] Tabulations were produced for census regions from 1960 and 1970 Census State 1/100 Public Use Sample computer files (U.S. Bureau of the Census, 1971b, 1972). Rare subcategories are defined in terms of "blacks" and "whites" for both periods.

[4] The Public Use Sample tabulations do not uniquely identify all movers that resided in the same SMSA, or the central city or suburbs of the same SMSA, five years prior to census date. Movers within the same metropolitan county can be uniquely identified, and constitute the closest Public Use Sample tabulation to the former categories which does not also include inter-SMSA migrants. The standardization procedure, therefore, attributes per capita incomes for race- and occupation-employment status-specific (r,o), civilian labor force males in this tabulation to (r,o) civilian labor force males in each intrametropolitan subcategory: B, C and D.

[5] The distinction between intermetropolitan migrants and intrametropolitan movers cannot be made directly with Public Use Sample tabulations. However, a further control for interstate migration permits a tabulation of intermetropolitan, interstate migrant civilian labor force males (r,o), which is used to estimate per capita income values for (r,o) civilian labor force males in subcategories E and G.

of Chart A as follows:

$$CC_r = \sum_{o=1}^{10} \left(\begin{array}{l} \text{Number of City Nonmovers } (r,o) \\ +\text{Number of Intra-SMSA, Intracity Movers } (r,o) \end{array} \right)$$

$$SC_r = \sum_{o=1}^{10} \text{Number of Intra-SMSA, Suburb-to-City Movers } (r,o)$$

$$CS_r = \sum_{o=1}^{10} + \text{Number of Intra-SMSA, City-to-Suburb Movers } (r,o)$$

$$IC_r = \sum_{o=1}^{10} \left(\begin{array}{l} \text{Number of In-migrants to City from other SMSA } (r,o) \\ +\text{Number of In-migrants to City from non-SMSA } (r,o) \end{array} \right)$$

The size of the remaining metropolitan migration stream component OC_r cannot be computed directly from published tabulations; however, it is possible to estimate its value indirectly under the assumption that out-migration rates for metropolitan whites and blacks within each occupation-employment status class hold for central city whites and blacks within each occupation-employment status class (see footnote 6). Since this is equivalent to asserting that the central city share of a metropolitan area's out-migrants (of race r and of occupation-employment class o) during a period is equal to the central city share of the metropolitan residents (of race r and of occupation-employment class o) that did not out-migrate during the period, one can estimate the value of OC_r as follows:

$$OC_r = \sum_{o=1}^{10} \left[\left(\frac{\begin{array}{l} \text{Number of City Nonmovers } (r,o) \\ +\text{Number of Intra-SMSA, Intracity Movers } (r,o) \end{array}}{\begin{array}{l} \text{Number of SMSA Nonmovers } (r,o) \\ +\text{Number of Intra-SMSA Movers } (r,o) \end{array}} \right) \times \left(\begin{array}{l} \text{Number of Out-migrants from SMSA to other SMSA } (r,o) \\ +\text{Number of Out-migrants from SMSA to non-SMSA } (r,o) \end{array} \right) \right]$$

It should be emphasized that this estimation does not assume that the out-migration rate for all city labor force males equals the out-migration rate for all metropolitan labor force males but rather that the difference in the respective out-migration rates for these populations is attributable to the differences in their race and occupation-employment status compositions.

Computation of Per Capita Income Values for Resident and Movement Stream Components

Because per capita income values for metropolitan resident and movement stream components cannot be obtained directly from available data, the values

are estimated through an indirect standardization procedure using the actual race and occupation-employment compositions of each resident and movement stream component, and estimated per capita income values for each race and occupation-employment status-specific component. The estimated values are based on detailed income tabulations for comparable population subgroups in the metropolitan area's census region, compiled from the 1960 and 1970 Census State Public Use Sample files as presented in the third column of Chart A. (Subgroup per capita income values were derived from the detailed income tabulations by: (a) weighting the midpoint of each closed income category by the subgroup proportion in that category; (b) estimating the mean of the open-ended category using the Pareto function (Klein, 1962, pp. 152-53) and weighting by the subgroup proportion in that category; and (c) summing the weighted values.)

Reproducing the standardization formula in the text (equation 5), the per capita income estimate for a metropolitan area's resident or migration stream component, XX.r, is computed as follows:

$$Y_{XX.r} = \frac{\sum_{0=1}^{10} (XX_{r.o} Y^{**}_{XX.r.o})}{\sum_{0=1}^{10} (XX_{r.o})}$$

The sizes of resident or movement stream components, $XX_{r,o}$, are computed as combinations of the Chart A population subcategories defined above (although not summed over the 10 occupation-employment status categories). The respective per capita income values, $Y^{**}_{XX.r.o}$, are themselves estimated through an indirect standardization wherein their corresponding resident or movement stream components, $XX_{r.o}$, and are defined as combinations of Chart A population subcategories. The computation formulas for these values based on the source tabulations in the chart are as follows:

$$Y_{CC.r} = \sum_{o=1}^{10} \frac{\left(\begin{array}{l}\text{Number of City Nonmovers } (r,o) \times \text{Per Capita Income of City Nonmovers } (r,o) \\ +\text{Number of Intra-SMSA, Intracity Movers } (r,o) \times \text{Per Capita Income of Intra-SMSA, Intracity Movers } (r,o)\end{array}\right)}{CC_r}$$

$$Y_{SC.r} = \sum_{o=1}^{10} \frac{\text{Number of Intra-SMSA Suburb-to-City Movers } (r,o) \times \text{Per Capita Income of Intra-SMSA Suburb-to-City Movers } (r,o)}{SC_r}$$

$$Y_{CS.r} = \sum_{o=1}^{10} \frac{\text{Number of Intra-SMSA City-to-Suburb Movers } (r,o) \times \text{Per Capita Income of Intra-SMSA Suburb-to-City Movers } (r,o)}{CS_r}$$

$$Y_{IC.r} = \sum_{o=1}^{10} \frac{\left(\begin{array}{l}\text{Number of In-migrants to City from other SMSA } (r,o) \times \text{Per Capita Income of In-migrants to City from other SMSA } (r,o) \\ +\text{Number of In-migrants to City from non-SMSA } (r,o) \times \text{Per Capita Income of In-migrants to City from non-SMSA } (r,o)\end{array}\right)}{IC_r}$$

$$Y_{OC.r} = \sum_{o=1}^{10} \frac{\left[\left(\frac{\text{Number of City Nonmovers } (r,o) + \text{Number of Intra-SMSA, Intracity Movers } (r,o)}{\text{Number of SMSA Nonmovers } (r,o) + \text{Number of Intra-SMSA Movers } (r,o)}\right) \times \left(\begin{array}{l}\text{Number of Out-migrants from SMSA to other SMSA } (r,o) \\ \times \text{ Per Capita Income of Out-migrants from SMSA to other SMSA } (r,o) \\ +\text{Number of Out-migrants from SMSA to non-SMSA } (r,o) \\ \times \text{ Per Capita Income of Out-migrants from SMSA to non-SMSA } (r,o)\end{array}\right)\right]}{OC_r}$$

Because of confidentiality constraints and other limitations on geography characteristics available with the census Public Use Sample files, the population subcategories used to estimate per capita income values $Y^{**}_{XX.r.o}$ (in the third column of Chart A) do not correspond precisely to those available with the published metropolitan migration tabulations (in the second column of Chart A). However, the Public Use Sample-generated tabulations do preserve the important analytic distinctions between subcategories of (a) metropolitan nonmovers, (b) intrametropolitan movers, (c) metropolitan-to-nonmetropolitan migrants and, (d) nonmetropolitan-to-metropolitan migrants, which provide sufficient estimates for our indirect standardization that is based on the actual population subcategories, and individual race and occupation-employment status compositions of each metropolitan area's resident and movement stream components.

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