LABOR MOBILITY: AN ANALYSIS OF SOCIAL SECURITY DATA FOR ATLANTA[1]

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Over 30 years ago, Dorothy Thomas recommended that data being collected by the Social Security Administration on all those covered by Old Age, Survivors, Disability and Health Insurance (OASDHI) program be used for migration and sociological research [1]. Ten years later, Donald Bogue and his associates used these data for a pioneering work on labor force mobility in Michigan and Ohio [2]. Though the number of papers based upon the Social Security data is finally growing, the materials still represent a largely unmined resource.

Using one city, Atlanta, as an example, this paper will illustrate the unique capability of the Social Security One Percent Current Work History Sample (CWHS) to indicate the direction and extent of both geographical and industrial mobility as they relate to aggregate changes in employment. At present, monthly employment and unemployment for states and large SMSAs by industry, by race, and by sex can be estimated from reports from a sample of establishments. Estimates of net migration for states--and with less accuracy for large SMSAs--are possible using census survival methods, and with each census the streams of migration over the previous five years can be more precisely delineated. But except for the census one percent public use sample, these are group statistics, and cannot be related to each other.

On the other hand, with the CWHS estimates of employment and labor force by industry can be combined with knowledge of the personal characteristics of the workers, including income, sex, and age; and with these data the same individuals can be followed over time. Thus we can study the personal characteristics of the mobile and nonmobile--including their origins and their destinations--by industry. This paper draws from a longer monograph on Atlanta to illustrate briefly some of these possibilities. First we compare establishment data with Social Security data, and then devote the remainder of the paper to a discussion of industrial and geographic mobility.

Data were drawn from the CWHS for every worker in the one percent sample who was in covered employment[2] in the Atlanta SMSA in 1962 or in 1967. The following items were extracted for each individual for both years: major industry of employment by SIC (defined as the single industry of highest earnings); location of employment by state and SMSA; total earnings for the year; and age, race, and sex.

Changes in Employment by Industry

Since the Social Security data constitute a one percent sample and do not cover the entire labor force, we are interested in ascertaining its biases when we seek to use it for small area analyses.[3] As Table 1 indicates, both the Social Security data and data derived from establishment reports of average yearly employment[4] show a 35% rate of growth for the Atlanta SMSA over the five year period, although the difference in magnitude between these two sets of data is roughly 20%. In a sense, this 20% disparity is a measure of turnover, since the Social Security data relate to the number of persons holding jobs in Atlanta at any time during the year, while the establishment data refer to the average number of jobs available during the year.

The final two columns of Table 1 show that the ratio between the two measures varies widely by industry--from 1.75 for services in 1967 to .65 for government in 1967. The latter ratio undoubtedly reflects the limited Social Security coverage of state and local government personnel, a gap that must make tentative any conclusions about government employment from these data. Equally, the disparities in the areas of services and construction suggest caution in interpretation. Over the five year period many more people were, in fact, employed in these industries, but the number of jobs did not grow as quickly as the Social Security data might indicate.

When the industries are ranked by rates of growth, as shown by the two data sources, the order is quite similar except for services and government. The range of rates of growth shown by Social Security data is greater--varying from 17% for finance, insurance, and real estate to 68% for services; while establishment data range only from 25 to 48%. Thus we must bear in mind that Social Security data appear to overstate the extent of change in employment.

At both ends of the period, trade accounted for the largest number of workers, more than a quarter of the total, a reflection of Atlanta's preeminence as a trade and distribution center. Manufacturing was second, but the proportion in this industry declined from nearly a quarter to little more than a fifth in five years. Although the high turnover rate in services results in some overstatement of growth, both in number and proportion, services was the growth industry for Atlanta during this period. Nearly a third of the total increase in workers was in services, and there were three service workers in 1967 for every two in 1962.

The lowest rates of growth, excluding the insignificant agriculture and mining categories, were in manufacturing and finance. Government and trade also grew at below average rates. The declining role of manufacturing mirrors the national trend, and is partly due to increases in productivity, and a change in the industrial mix toward larger and more efficient operations.

Change in the Atlanta Labor Force 1962 and 1967

Figure 1 shows that, of the 484,000 persons in covered employment in 1962, only 60% were still employed in Atlanta in 1967, and they constituted less than half of the city's labor force. One in five had left covered employment and one in five were working outside the SMSA.[5]

Blacks of both sexes were more likely to remain in Atlanta, and were less likely to migrate to other states. Males were more likely to move than females, and were more likely to migrate over long distances.

Net in-migration and 206,000 new entrants combined to produce a 1967 labor force in which only 44% were holdovers from 1962. It is obvious that the high percentages of female retires and new entrants reflect more mobility in and out of the labor force by women. Such high apparent turnover reminds us that the Social Security data are not the perfect registration system we might desire for studying labor mobility. Even among males, almost half of the retires were under age 45 and thus can be assumed not to have retired in the conventional sense. However, the extraordinarily high percentage of black female entrants undoubtedly reflects new opportunities for employment. It is also notable that these new entrants were not concentrated in personal services.

Considering this change in terms of age, we find that partly because of the large influx of young entrants, there were, percentage wise, more workers under age 24 and relatively fewer aged 25 through 44 in 1967 than in 1962. The percentage of workers aged 45 and over was almost exactly the same (27.7 and 27.8%, respectively), although the proportion of oldest (over 60 years) workers increased slightly. The relative decrease in the middle age-group may reflect the small cohorts of Depression babies; it is more likely that the decrease arises from the greater tendency of younger workers to change jobs and take advantage of a quickly growing area like Atlanta.

Labor Mobility of Atlanta Workers

The large number of entrances into and exits from the Atlanta labor force, its substantial growth during the five year period, and the degree of turnover that may be inferred from the disparities in level between Social Security and establishment data all combine to suggest high labor mobility and many job openings in Atlanta during this period. But since we have not considered changes in jobs for those who remained in the Atlanta labor force, we have thus far underestimated the true extent of mobility.

With the CWHS, it is possible to infer change of employers (job mobility) since all sources of income in covered employment are given, but the tabulations prepared for this report do not contain such information. For ease of data handling, employees were assigned to the industry and location of their job of highest earnings in each of the two years considered, 1962 and 1967. Thus we consider here only two kinds of mobility, industrial and geographic. We define industrial mobility to have occurred when the industry (as measured by one-digit SIC code) of employment in 1967 differs from that in 1962. A change in the place of employment across the boundaries of the Atlanta SMSA was taken to constitute geographic mobility.[6]

Table 2 presents the data on mobility for all workers who appear in tabulations for both 1962 and 1967. The upper portion of the table shows the destination of all in the Atlanta labor force in 1962 who were still in covered employment in 1967, and percentages have been calculated to indicate differences in mobility among the different sex-race groups. We observe again that whites are more geographically mobile, but we also note that blacks are much more likely to change industry. When only those who are geographically mobile are considered in the lower portion of the table, the differences in industrial mobility between blacks and whites appear to be less for Atlanta in-migrants than for the out-migrants.

Industrial Labor Mobility

Perhaps as well as migration, industrial mobility indicates how efficiently the economy is functioning to reallocate manpower and resources in spite of institutionalized hindrances. Indeed, as the number of intrafirm moves increases, industrial mobility (with its inferred abandonment of pension plans, seniority, etc.) may better measure the flexibility of the labor force. In this respect the Social Security data permit examination not only of the personal characteristics and industrial affiliation of industrially mobile workers, but also of the effects of such mobility on particular industries. Thus we can, for example, determine the attractiveness of given industries to experienced workers, the labor force components of their relative growth and decline, and what kinds of workers move in and out and at what rates of pay.

For the Atlanta SMSA, as has been observed more generally elsewhere [3], it is the young, the poorly paid, and the blacks who are more likely to change industry, regardless of geographical mobility. Figure 2, which shows the relative distribution of Atlanta stayers, out-migrants, and in-migrants by age and industrial mobility, graphically represents the greater likelihood of young workers to change industry. When stayers are compared with migrants, we see also that geographical mobility is associated with a greater likelihood of industrial change; 56% of those who changed location also changed industry, while only 38% of those who remained in Atlanta worked in a different industry in 1967. Those who changed industry also had greater increases in incomes than those who did not change industries.

To consider the impact of industrial shifts by those employed in both 1962 and 1967 (both stayers and migrants) upon industries in the Atlanta area, net industry change (the total of moves in and out of a particular industry) as a percentage of employment in 1962 was calculated. As would be expected, agriculture experienced net losses equivalent to 73% of its 1962 employment. Less obvious, perhaps, is the 20% loss of experienced workers by retail trade--an industry that grew by 30% in the five year period. The greatest gains of experienced workers through industry shifts occurred in the areas of personal services and construction.

Geographic Labor Mobility

Figures 3 and 4 illustrate two of the many ways in which the Social Security data can illuminate the processes of labor mobility in a metropolitan area. Streams of migration between Atlanta and other areas and the resulting net migration are shown in Fig. 3. As is usually the case, the total number of migrants between Atlanta and any other region was much greater than the net redistribution of population accomplished by such streams. The effectiveness of migration, defined as:

$$\frac{|\ \text{in} - \text{out}\ |}{\text{in} + \text{out}}$$

was greatest in redistributing people from the other Southern states to Atlanta. To the extent that Atlanta's work force grew through net migration, it can be seen that the favorable balance was supplied largely by interchange with the South, and only marginally by net in-migration from the Northeastern and Western states. Atlanta's status as a growth center relative to the whole country is shown, however, by the lack of significant net out-migration to any region. Net in-migration into Atlanta also characterized all sex, race, and age groups, except for nonwhite males aged 18 to 24.[7]

In the graph depicted in Fig. 4, we take advantage of our knowledge of the characteristics of the entire 1962 Atlanta work force to calculate out-migration as a rate of all employed for 12 different age groups, thus in a sense, measuring the probability of such migration. Rates are shown for the total work force, for white males and females, and for nonwhite males.[8] Since our sample is now quite small, the resulting curves are something less than smooth. However, comparison with Fig. 5, which shows the remarkably regular curves that approximate rates of migration over a five year period for white and nonwhite male by single years of age in 1960, reveals important similarities. In each case rates of migration rise from low levels for teenagers to peak in early adulthood and decline thereafter. As with the national sample, migration appears to be more selective by age for nonwhites than for whites, and for females than for males.

Finally when the economic consequences of migration are considered, we find that the migrant improves his level of income at a greater rate than the nonmigrant, even when we account for the different distributions of the two groups in terms of age, sex, race and industry change classifications.

Summary

This paper has illustrated how the Continuous Work History Sample can be used to provide insight into the relationships between labor mobility and changes in the level of employment for large SMSAs, portraying to a greater extent than is otherwise available the individual characteristics and work histories of those who are mobile. The examples given are scattered--for example, little has been said about income although this is one of our major interests and our data appear to indicate that the migrant improves his level of income at a greater rate than the nonmigrant even when we control for differences in age, sex, and race. Yet, even the few examples given here are suggestive--for trade, the largest industry in terms of size and one that grew at a close to average rate by both data sources, we find a net loss of experienced workers, such that growth in employment depended upon recruiting new entrants and same-state migrants.

For Atlanta, an SMSA whose central city is now 51% black, we find that in spite of respectable growth and high turnover during the five year period, blacks increased their share of the labor force only slightly from 18 to 19%. Regional migration flows show at the same time that Atlanta is attractive to migrants from all parts of the country.

To turn to the quality of the data for these purposes, it is evident that the usefulness of these data for small area analysis will be increased as we gain information about the significance of the "precise" estimates that can be drawn from the data. For Atlanta, estimates of employment level and growth by broad industrial classifications compare favorably with those derived from establishment data. Further work should include comparing results with those from other sources of data on the labor market and migration.

The imminent release of the 1970 First Quarter CWHS data will provide valuable opportunities for checking results for large SMSAs with census data, both the sample questions on migration, place of work, occupation, income and such, and the one percent public use sample for large SMSAs. Comparisons between different types of cities should also increase the utility of these data, and it is in this direction that our future work will head.

Footnotes

[1]Work supported by the Department of Housing and Urban Development and the U.S. Atomic Energy Commission under Interagency Agreement No. IAA-H-35-70 AEC 40-192-69, and conducted at Oak Ridge National Laboratory, Oak Ridge, Tennessee operated by Union Carbide Corporation for the U.S. Atomic Energy Commission. Data from Social Security Administration's Work History Sample tapes were processed by David Hirschberg, Regional Economics Division, Office of Business Economics. At no time were individual records made available to the author. Opinions expressed in this report are solely those of the author and do not necessarily represent the views of ORNL, AEC or HUD.

[2]Throughout the U.S. about 88% of workers are in covered employment and thus represented by the sample. Those workers who are most likely to be excluded from coverage are federal civilian employees, some state and local government employees, household and farm workers who do not work long enough or earn enough to meet the minimum requirements, and very low income self-employed persons (Current Population Survey P-23, No. 31). Therefore, reported figures for women and blacks are probably a lower percent of the actual employment.

[3]The Atlanta SMSA with a 1970 population of 1,390,164 is smaller than the smallest areas studied with Social Security data in the past, such as Michigan and Ohio [4]; North Carolina, South Carolina, and Georgia [5]; and the TVA region [6,7].

[4]Georgia Employment and Earnings: A selected sample of employers report the number of full and part-time workers during the second week of each month, and these figures are averaged for the year.

[5]The following terminology is used in this paper:

Retires = those who were in covered wage employment in 1962 but not in 1967.

New entrants = those who were in covered wage employment in 1967 but not in 1962.

Stayers = those who were in covered wage employment in Atlanta in both 1962 and 1967.

In-migrants = those who changed from covered employment outside the Atlanta SMSA in 1962 to covered employment in Atlanta in 1967.

Out-migrants = those who changed from covered employment in the Atlanta SMSA in 1962 to covered employment outside Atlanta in 1967.

[6]We cannot strictly equate such mobility with migration. Especially as Atlanta's highway system expands and commuting distances lengthen, such an assumption becomes less tenable. Because of Atlanta's location in the state, however, it seems safe to assume that interstate job changes represent migration. Such essentially arbitrary decisions must be made whenever Social Security data, showing change in county of employment, are used to study migration, which is usually defined as a change in county of residence.

[7]However, considering the use of Social Security's Continuous Work History Sample for measure of net migration by geographic area, Zitter and Nagy [8] show that it appears more likely that the CWHS will pick up in-migration to low coverage states from high coverage states, and less likely to reflect out-migration from low coverage states to high coverage states. Thus in-migration may be overestimated and out-migration underestimated by our data between Atlanta and the more industrialized states of the Northeast, especially for nonwhites for whose rates standard errors are higher.

[8]There were too few nonwhite female migrants to warrant this calculation.

References

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[7] Wesley G. Smith and Robert A. Matson, "The Mobility of the Tennessee Valley Employed Labor Force," presented at the Symposium on Assessing Social Costs sponsored by the Civil Service Commission and The Association for Public Program Analysis, Washington, D. C., June 16, 1969.

[8] Meyer Zitter and Elisabeth S. Nagy, "Use of Social Security's Continuous Work History Sample for Measurement of Net Migration by Geographic Area," American Statistical Association, Proceedings of the Social Statistics Section, 1969, pp 235-60.

Table 1. Growth in Employment by Industry, Atlanta SMSA Counties, 1962 and 1967

Industry of Employment	Establishment Data*			Social Security Data**			Ratio of Social Security to Establishment Data	
	1962	1967	Growth Rate (%)	1962	1967	Growth Rate (%)	1962	1967
Total Covered Employment				484,000	653,000	34.8		
Total Nonagriculture	397,250	534,000	34.3	478,200	647,100	34.8	1.20	1.21
Construction	22,500	33,200	48.0	31,800	49,900	57.0	1.41	1.50
Manufacturing	90,150	117,000	30.0	116,100	137,300	18.0	1.29	1.17
Transportation	37,200	51,100	37.0	37,000	55,100	49.0	.99	1.08
Trade	104,700	140,300	34.0	136,900	177,400	29.6	1.31	1.26
Finance, etc.	29,950	37,300	25.0	34,700	40,700	17.3	1.16	1.09
Services	55,750	77,300	39.0	80,600	135,600	68.2	1.45	1.75
Government	57,000	78,100	37.0	41,000	51,100	24.3	.72	.65

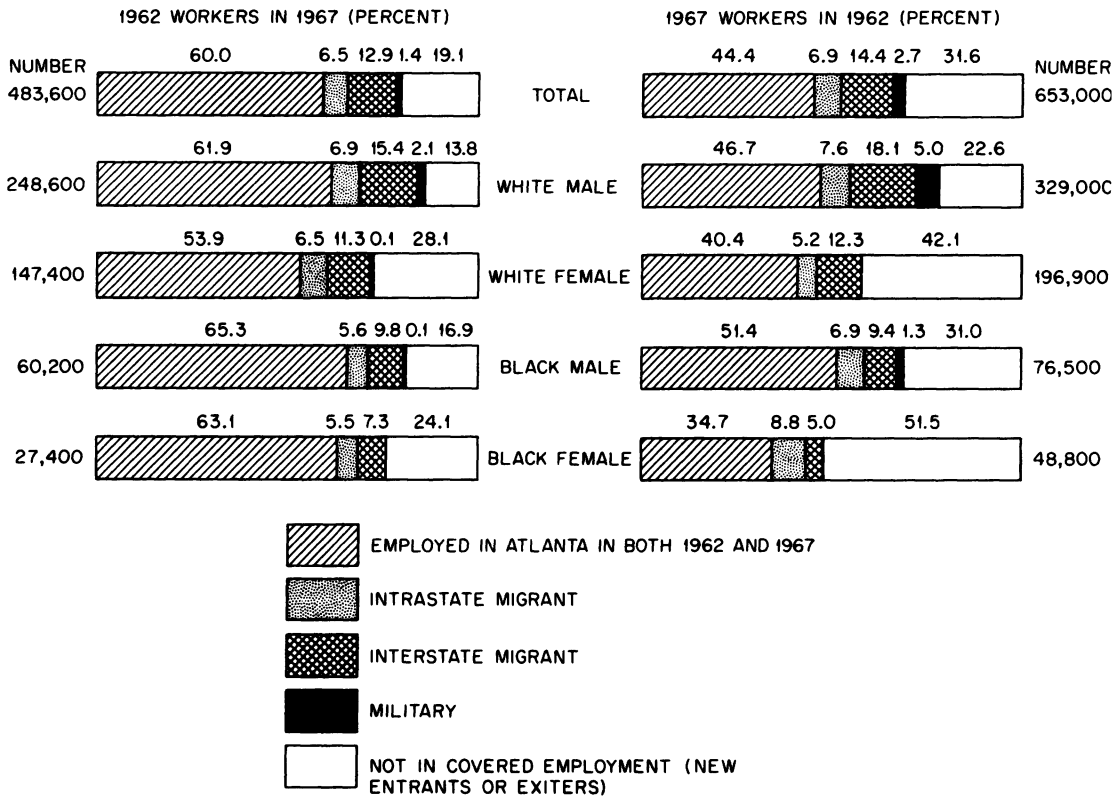
*Source: Georgia Department of Labor "Employment and Earnings."

**Source: Estimated from the One Percent Continuous Work History Sample, Social Security Administration.

Table 2. Mobility of Atlanta Workers

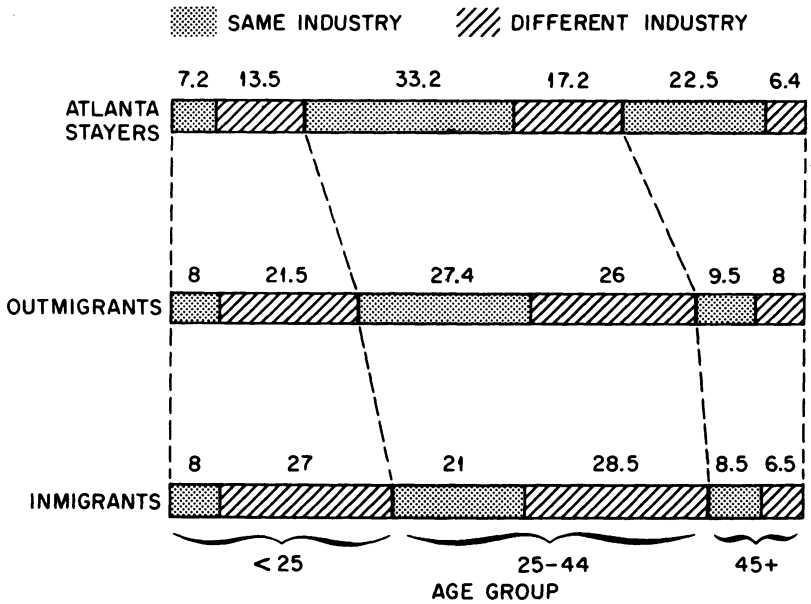
Mobility Status	Number of Workers (in thousands)					Percent				
	Total	Male		Female		Total	Male		Female	
		White	Black	White	Black		White	Black	White	Black
Working in Atlanta in 1962 and in Covered Employment in 1967										
No mobility	182.2	101.1	18.6	53.1	9.4	47.2	48.2	38.9	50.2	44.3
Same SMSA										
Different industry	107.6	52.8	20.5	26.2	8.1	27.9	25.1	42.8	24.8	38.2
Geographical mobility from Atlanta										
Same industry	43.1	27.1	2.2	11.6	1.2	11.1	12.9	4.6	10.9	5.6
Different industry	52.4	28.7	6.5	14.7	2.5	13.5	13.6	13.5	13.9	11.7
Totals for all workers	385.3	209.7	47.8	105.6	21.2	100.0	100.0	100.0	100.0	100.0
Working Elsewhere in 1962 and in Atlanta in 1967*										
Geographical mobility to Atlanta										
Same industry	52.5	33.0	3.4	13.8	2.3	38(45)	39(48.5)	31(24)	38.5(44)	33(32)
Different industry	86.4	52.1	7.7	22.0	4.6	62(55)	61(51.5)	69(76)	61.5(56)	67(68)

*Figures shown in parentheses below indicate percent of persons in Atlanta in 1962 but elsewhere in 1967 who remained in the same industry or changed industry.



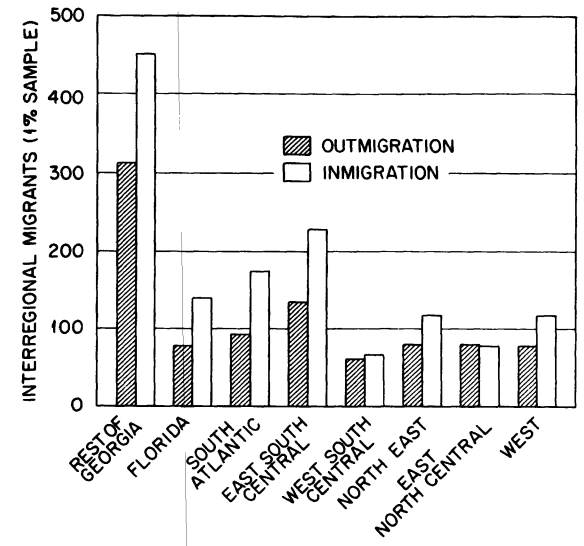
Migration and Labor Force Status of Atlanta.

Fig. 1



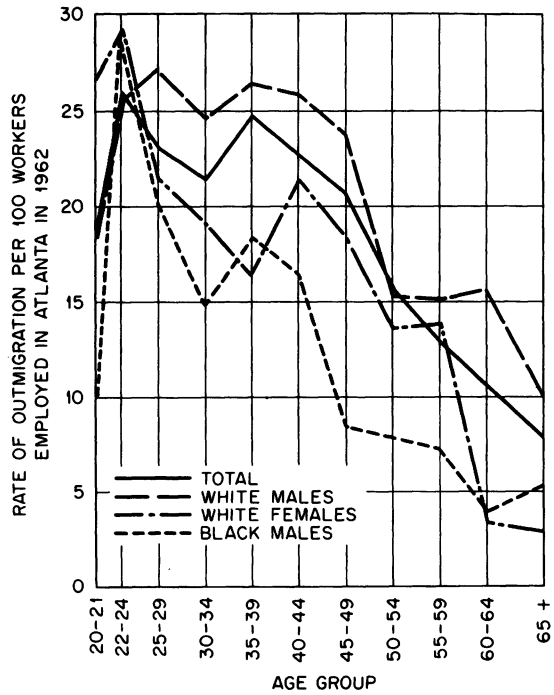
Atlanta Stayers, Outmigrants and Inmigrants by Age in 1962 and Industrial Mobility.

Fig. 2



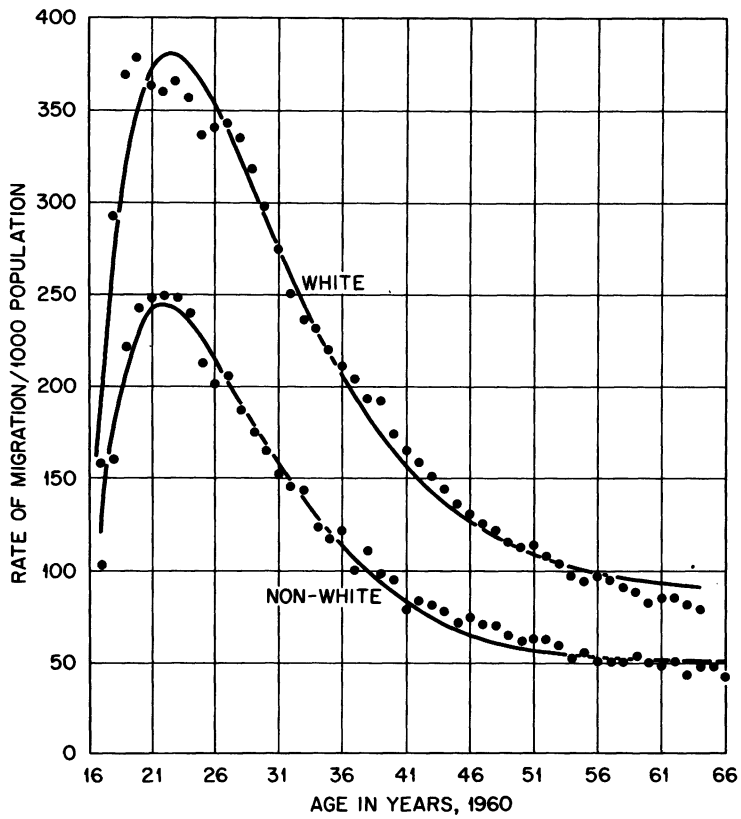
Regional Migration Streams to and from Atlanta 1962 and 1967.

Fig. 3



Rates of Outmigration from Atlanta in 1962 by Age, Sex, and Race.

Fig. 4



Total White Male Migration, U.S. 1955-60, as Compared with Total Non-White Male Migration.

Fig. 5