An Examination of Race, Socioeconomic Status, Age, Sex, and Marital Status as Determinants of Distribution Patterns for Migrants and Movers in the 1960 Richmond Metropolitan Area

Mayling Oey

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AN EXAMINATION OF RACE, SOCIOECONOMIC STATUS, AGE, SEX,
AND MARITAL STATUS AS DETERMINANTS OF DISTRIBUTION
PATTERNS FOR MIGRANTS AND MOVERS IN THE 1960
RICHMOND METROPOLITAN AREA

A Thesis
Presented to
The Faculty of the Department of Sociology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

By
Mayling Oey
1970
APPROVAL SHEET

This thesis is submitted in partial fulfillment of
the requirements for the degree of
Master of Arts

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ABSTRACT

Since 1940 the United States Census has included a question about one's migration status during a fixed period, thus indicating a growing concern for internal migration as an important social phenomenon. As such, internal migration has provided subject matter for various research projects in recent years. Studies on selective migration can be dealt with from either end of the migration process—the sending as well as the receiving area. The objective of this study is to deal with the phenomenon at the receiving area. In order to do so, the receiving area has been broken down into the smallest homogeneous areas for which data are available. The purpose of this study is to identify migrant and mover differentials with respect to specific characteristics in the 1960 Richmond S.M.S.A.

Using the 1960 census tract data for Richmond and its surrounding counties of Chesterfield and Henrico, it is possible to recognize areas with differential rates of migration (those who lived in a different S.M.S.A. in 1955) and moving (those who lived in the same S.M.S.A. in 1955) rates. The major concern in this study is to explore the relationship between measures of race, socioeconomic status, age, sex, and marital status as independent variables, with rates of migration and moving as dependent variables, while controlling for place of residence.

The findings indicate that: (1) Central city migrants: are predominantly white; score low on the socioeconomic scale; are well represented among persons between the ages 18-34; are excessively male and primarily single. (2) Suburban migrants: are predominantly white, rank high on the socioeconomic scale; are predominantly between ages 18-34; are excessively female and over-represented among married people. (3) Central city movers: are predominantly Negro; rank low on the socioeconomic scale; are primarily female and predominantly single. (4) Suburban movers: are primarily white; score high on the socioeconomic scale; are predominantly married persons.
AN EXAMINATION OF RACE, SOCIOECONOMIC STATUS, AGE, SEX, AND MARITAL STATUS AS DETERMINANTS OF DISTRIBUTION PATTERNS FOR MIGRANTS AND MOVERS IN THE 1960 RICHMOND METROPOLITAN AREA
CHAPTER I

INTRODUCTION

Background of the Problem

Since 1940 the United States Census has included a question about one's migration status during a fixed period. This question indicates a growing concern for internal migration as an important social phenomenon. Consequently, internal migration has provided subject matter for various research projects in recent years.

Studies of internal migration can be dealt with from either end of the migration process—the sending as well as the receiving area. Ronald Freedman found that prior to his study in 1950, most studies of selective migration dealt with the subject matter from the sending area (1950: 2). On the other hand, more recent studies show a trend toward examining the problem in the receiving area—especially in urban areas. Various research projects have emphasized a comparative analysis between migrants versus non-migrants on various social as well as economic characteristics. Specifically, these are: age, sex, race or ethnicity, marital status, cultural background (rural or urban), education, employment status or occupation, and income (Freedman, 1950; Reiss and Kitagawa, 1953; and, Taeuber and Taeuber, 1965).

Works regarding migration differentials have dealt
with the issue by examining the migrants' motivation—which are found to be generally occupation oriented (Stouffer, 1940; Philblad and Gregory, 1957; Heer, 1963; and, Rose, 1958). The most recent studies indicate further distinctions among the migrant population. As a consequence, a comparison has been made between in- and out-migrants (Price, 1948; Schmid and Griswald, 1952). The effects of in- and out-migration (Goldstein, 1954 and 1955), and, in-migration and local-migration, on a specific area (Goldstein and Mayer, February and May, 1960) are also important areas of great interest to differential migration research.

Differential migration studies have as yet not been concerned with the possible distinctions between in-migrants from outside the metropolitan community and local-migrants or movers. Therefore, it is desirable that differentials between migrants and movers be examined in addition to their selective distribution within the city. A study of migration and moving patterns within an urban area constitutes an additional important migration differential, relevant to research concerning the problems of urban life.

**Statement of the Problem**

The United States Census enumeration of 1960 has included a question about one's residence five years prior to the enumeration date. As such, the replies to this question have provided the means to classify the 1960 United States population by its "migration status". The present investigation is designed to utilize the 1960 Census Tract data to ans-
wer some significant questions about distributions of migrants in the 1960 Richmond S.M.S.A., and patterns of movers within Richmond and its surrounding counties of Chesterfield and Henrico.

The central problem of this study is whether migrants and movers are distributed in the 1960 Richmond S.M.S.A. in a systematic manner with respect to various significant social characteristics. The objective is to determine the nature of the relationship between types of migrants and movers and specific social characteristics which are representative of particular areas in either the city or suburban areas of the metropolitan community.

Previous studies have indicated certain social characteristics to be associated with the migrant population. Of these characteristics, the following will be specifically investigated in this study: race; socioeconomic status; age, particularly, only the mobile age groups; sex; and, marital status. Considering these social characteristics, the writer is mainly concerned with the following research questions: First, how do areas with differential racial composition in city and suburbs vary in rates of migration and moving? Second, how do areas with diverse socioeconomic scores in city and suburbs differ in rates of migration and moving? Third, how do characteristics such as mobile age, sex and marital status composition of an area in either city or suburb determine rates of migration and moving? In addition, the researcher is also concerned with developing inductive implications for further research from the findings on migrants and movers. Thus, using measures
of race, socioeconomic status, age, sex, and, marital status as independent variables, while controlling for place of residence, it is possible to identify patterns of migration and moving inside the metropolitan area.

Review of Pertinent Literature Relevant to the Problem

Previous studies on migration differentials have emphasized various aspects of the migration phenomenon.* In Ronald Freedman's research study, Recent Migration to Chicago, (1950) migration differentials for the city of Chicago as a whole were examined. The following general conclusion was developed. It has been found that while migrants differ from non-migrants, they resemble each other in some respect as a result of their common mobility. Specifically, Freedman found that, as a whole, migrants had either equal or higher rank than non-migrants on those social characteristics for which a high to low scale has meaning in an urban environment. For both sexes, migrants as a whole had achieved a higher educational attainment, were more frequently in the labor force and less frequently unemployed, and were less frequently foreign-born than non-migrants. Male migrants were of higher occupational status than non-migrants, while the female migrants were not distinctly either higher or lower than non-migrants in occupational status. Migrant families were generally of higher economic status than non-migrants insofar as rent is an indication of economic status. From this, Freedman conclud-

*For an extensive review of the previous literature, see Freedman, 1950.
ed that the stereotype of the "problem" migrant as a person of depressed social and economic status has not been found to fit migrants as a whole (1950: 71).

Furthermore, Freedman found that as a group, migrants differ from non-migrants on several distinctive characteristics. As compared to non-migrants, either male or female migrants were predominantly young adults. They were concentrated in typically urban service-production occupations. They were relatively free from primary group controls in that relatively large numbers of them were living alone or in small families and were living under mobile extra-familial types of residential arrangements (1950: 71).

The study also found support for claims that the characteristics of different types of migrants are related to their rural or urban cultural background. The characteristics of different types of migrants vary in relation to the rural-urban cultural level of their place of origin. Where the cultural level for the place of origin among migrants affected the direction of the difference in characteristics between migrants and non-migrants, the urban migrants were generally 'higher' and the rural farm migrants 'lower' in rank with respect to specific characteristics than non-migrants (1950: 72). Among the various types of internal migrants only the male rural farm migrants were found to have characteristics indicative of low social and economic status. Thus, with respect to occupational status, employment, educational attainment, and economic status, the male rural-farm migrants were found to be in a less favorable position than non-migrants.
The urban migrants were found to be in a better position than non-migrants in each of these categories, while the rural-non-farm migrants were either of about equal to or of higher status than non-migrants. Rural-farm migrants whose social and economic status was clearly lower than that of non-migrants came from areas culturally most dissimilar to Chicago. The major group of migrants (urban) whose economic and social status was higher than that of the non-migrants came from areas culturally most similar to that of Chicago (1950: 72).

Thus, as a result of their common mobility, migrants tend to resemble one another, and, as a group, migrants show differences from non-migrants. As a whole, the migrants occupy a relatively more favorable social and economic position than non-migrants. On the other hand, the results of an examination of migrants in terms of their place of origin shows that the migrants' cultural backgrounds definitely influence their social and economic position as compared to non-migrants in the city.

Freedman's study reveals that specific demographic characteristics can be associated with migrants as a result of their common mobility. On the basis of Freedman's conclusions, Albert J. Reiss, Jr. and Evelyn M. Kitagawa have compared migrants to non-migrants on the relationship between these demographic characteristics and work participation. Reiss and Kitagawa were particularly interested in the following migration characteristics which are associated with mobility.

(1) There is a larger proportion of mi-
grants than non-migrants in the younger age groups.

(2) There is a larger proportion of migrants than non-migrants in the labor force.

(3) Migrants more often than non-migrants tend to belong to families or households whose size indicates relative freedom from family controls or responsibility.

(4) City-ward migration is selective of women, consequently, there is a lower sex ratio among migrants than non-migrants, and the sex-ratio is lowest among the young adult age groups (1953:72).

In this study Reiss and Kitagawa attempted to establish the relationship between the mobility characteristics of migrants and work participation. To do so, they analyzed data from six cities: Chicago, Philadelphia, San Francisco, St. Paul, and, New Haven. The choice of migrants and non-migrants was based on a sample survey of 4,000 to 5,000 people fourteen years and older in each of the six cities in January 1951. For the most part, these persons were located in about 1,900 households in each city which were enumerated in the 1950 Census of Population and Housing. Their findings show:

(1) In general both men and women were more often at work than non-migrants. However, among men the higher work participation rated for all migrants than all non-migrants were almost entirely due to more "favorable age distributions of migrants insofar as providing workers was concerned". Thus, the higher participation of migrants in the work force is due to a high concentration of an age group where participation is high.

(2) Migrant women in each age group were
more often at work than non-migrant women of the same age group. However, marital status and family responsibility of non-migrant women as compared to migrant women probably account for a somewhat high participation in the work force of migrant women (1953: 72-75).

In this study it was found that the data employed by Reiss and Kitagawa tended to comply with Freedman's findings on demographic characteristics associated with migrants. On the outset, Reiss and Kitagawa stated that they were basing their study on Freedman's results. Then they found statistical data in support of Freedman's conclusions, and the data were interpreted identical to Freedman's. This study seems to be a "self-fulfilling prophecy," and, its validity is questionable. As a result, the present researcher raises the following questions. First, was it necessary to develop identical interpretations when confronted with supporting data? In other words, do basic assumptions limit the researcher's perspective to interpret statistical data? Second, is it possible that only those data were being utilized which complied with the researcher's initial expectations?

On the other hand, the studies by Freedman and Reiss and Kitagawa both show that migrants differ from non-migrants on several demographic characteristics as well as work participation.

Differences between migrants and non-migrants, found in earlier studies, led Savitz to hypothesize a difference between delinquency rates of these two groups in his 1960 study. However, his study failed to support a difference between migrants and non-migrants, when correlated with delinquency
rates. Savitz' research project tends to contradict the widely held practice of linking migration to delinquency. Based on a sample of 1,062 youths from public school rolls of several high schools in a highly delinquent area, of which the major portion dealt with Negro youths--84% of the total sample population was Negro--the findings show that only 333 or 29% were delinquent. Savitz concludes: "Migration does not have the criminogenic effects attributed to it. The Philadelphia-born population more frequently became delinquent than did the migrant group, though the difference was seldom statistically significant" (1960). Thus, Savitz disproved a widely accepted stereotype which relates migration with delinquency. Of more importance, perhaps, he found no significant difference in this area between migrants and non-migrants.

Karl E. and Alma F. Taeuber's study also reveals a contradiction to a generally held theory. In general, demographic research of migration has usually shown that it is the higher status segments of a population which are the most residentially mobile. On the contrary, it is also a generally accepted agreement that Negro in-migrants to cities were of lower socioeconomic status than both the resident Negro and white population. On the other hand, Taeuber and Taeuber's analysis of data on migration during the 1955-60 period, reveals that "Negro in-migration to a number of large cities, despite the presence of a socioeconomic depressed group of non-metropolitan origin, were not of lower average socioeconomic status than the resident Negro population. Furthermore, the findings show that in educational attainment, Negro in-
migration to northern cities was equal to or slightly higher than the resident white population" (1965: 429). These findings support Freedman's earlier findings and upsets a widely held stereotype. Results from comparisons with data from earlier periods suggest that, "as the Negro population has changed from a disadvantaged rural population to a metropolitan one, of increasing socioeconomic levels, its patterns of migration have changed to become very similar to the white population" (1965: 429).

The Taeubers claim that Negroes are becoming increasingly urbanized. Therefore, they hold that only those in-migrants to metropolitan areas from rural areas resemble the stereotype of the socioeconomic depressed migrants. On the whole, as in-migration of non-metropolitan origin declines and inter-metropolitan migration increases in relative importance, the status of the total in-migration group rises. In particular, as characteristics of the Negro population have changed from that of the disadvantaged rural population to a largely metropolitan population or rising socioeconomic status, the Negro migrants increasingly manifest similar patterns as the white population--inter-metropolitan movement is of persons of relatively higher socioeconomic status (1965: 439-41).

Furthermore, Taeuber and Taeuber analyzed several particular social characteristics which distinguish Negro migrants from Negro non-migrants. In-migrants are better educated and more likely engaged in white collar occupations. In-migrants from non-metropolitan origin are much lower in educational and
occupational status than migrants from other metropolitan areas but rather similar to non-migrants. In-migrants from other S.M.S.A.'s are distinctive of being higher in their educational and occupational status than either in-migrants of non-metropolitan origin or non-migrants. In-migrants of metropolitan origin are of higher educational and occupational status than non-migrants, whether the comparison is with all non-migrants or with non-migrants of the same age group. Migrants of non-metropolitan origin, though similar in educational status to all non-migrants are of lower status than non-migrants if the comparison is restricted to non-migrants of the same age (1965: 435-37).

Thus, the Taeubers' findings indicate a similar trend of Negro migration with the whole internal migration phenomenon. The Taeubers' conclusion on more favorable social and demographic characteristics associated with Negro migrants as compared to non-migrants, which is in turn determined by their cultural background, is in agreement with Freedman's findings on migration patterns in general.

It can be summarized from this first category of research projects that migrants in general occupy relatively more advantageous social and economic positions than non-migrants. According to this approach the studies on migration, as represented by the above cited works, have emphasized a consideration of the different characteristics which distinguish migrants from non-migrants. The following studies include those works which focus on the migrants' characteristics, with a special emphasis on the migrants' age.
Those studies which have considered age as an important demographic variable in comparing migrants to non-migrants, are supported by results of research projects carried out by Bogue, Eldridge, and Hitt who examined simply characteristics of the migrant population. In general, they all agree that migration is largely a phenomenon of young adults.

In particular, Donald J. Bogue states:

*Peak mobility takes place as adulthood is attained. The median age for mobile persons is 22.9 years in 1964-65. Assuming that mobility had occurred six months earlier, it can be inferred that the median age of mobility at time of movement is about 22.3 years. For migrants it is roughly one-fourth year younger and for local movers (different house but same county) it is roughly the same about older. But the median can be a misleading statistic; the rates are high between ages 18 and 34, indicating that residential mobility is high throughout the time of young adulthood, and quite similar for the two sexes (1969: 763).*

Hope T. Eldridge made an attempt to derive longitudinal information from essentially cross-sectional statistics. She used estimates of net migration by age for states in successive intercensal decades to study migration histories of five-year cohorts. She concluded that "the propensity to interstate migration was greatest at ages 20-24, which she found to be consistent with the peak age of interstate migration in post-war cross-sectional data for annual surveys." Thus, both cross-sectional and longitudinal statistics indicate that the age of peak mobility is in the early twenties.

A similar conclusion was derived by Homer L. Hitt. He claims that "voluntary migration is largely a phenomenon of
youth" (1954: 194). Hitt holds that such a generalization has been confirmed by the internal migration data collected by both 1940 and 1950 censuses. Furthermore, he claims that "the latter materials show that after the age category 25-29 years is passed, each successive age group contributed proportionately fewer of its respective members to the streams of internal migration" (1954: 194).

Thus, according to these studies which examined the specific age categories of migrants, it may be concluded that migrants are highly represented by those in their early twenties. In addition, the findings indicate decreasing representation in age groups thereafter.

Another approach to the study of migration characteristics is typified by Daniel O. Price, who found differences between in- and out-migrants of large cities. Price concluded that "out-migrants are generally older than in-migrants" (1948: 200). This finding is in support of the study conducted by Dorothy Swain Thomas, who noted the same in discussing migrants to and from Amsterdam during 1926-30. "The medians for out-migrants were in general a year or so further towards the older ages than those for in-migrants" (Thomas in Price, 1948: 200). Price found that among in-migrants, cities over 100,000 population seem to select younger people since in general they are more employable. As persons become older, and can afford to move to suburbs with their families, they move out of the city (1948).

While age is an important independent variable in determining in- and out-migration, race seems to be an equally
influential variable. Price claims that non-white migrants were younger than white migrants in movements to and from the city (Price, 1948). Price states that such results may be attributed to the following characteristics:

(1) The shorter life expectancy of non-white persons, results in a lower median age of the total non-white population.

(2) There is only a small proportion of non-white migrants above the age of fifty (1948: 198).

Price also found other interesting characteristics associated with race. In a comparison of age distributions of white and non-white migrants to and from fifteen cities of over 100,000 population, he found that non-white migrants more than white migrants tend to be single persons or childless couples, and they tend to be concentrated in highly employable ages. Non-white in-migrants are more concentrated in ages 18-29 than non-white out-migrants (1948).

Comparative studies on migrants and non-migrants have developed a generalizable conclusion that, as a group migrants are younger than non-migrants. Other examinations solely of migrants have defined specific age categories. Price further distinguished between age groups of in- and out-migrants and found that in-migrants are generally younger than out-migrants.

The following study denotes social characteristics of in- and out-migrants as well as a further approach to the general study of migration patterns. C. F. Schmid and M. F. Griswold's examination considers city in-migration and out-migration. The results of their study can be summarized as
follows:

In-migrants to central cities:

(1) Excess of females.

(2) Large proportion of young adults with maximum selection for age group 20-24.

(3) Relatively high educational status.

(4) Overselection of both employed and unemployed, but, with a greater overselection of unemployed.

(5) Overselection of lower status occupations except professional workers which also shows an overselection.

Out-migration from central cities to non-metropolitan regions:

(1) Excess of males

(2) Higher median age for in-migrants with maximum selection for age group of 25-29.

(3) Higher educational status for female out-migrants than female in-migrants and lower educational status for male out-migrants than male in-migrants with a net out-migrant group with four years of high school and one or more years of college.

(4) Overselection of employed migrants and underselection of unemployed migrants and of migrants not in the labor force.

(5) Overselection of professional and semi-professional workers (1952: 326).

As such, it can be generalized from this study that, as a group, out-migrants from central cities in the state of Washington seem to occupy relatively more favorable economic positions than in-migrants to central cities. This study covered a greater number of variables than the study carried out by Price. However, the findings on age tend to support
Price's conclusion that in-migrants are younger than out-migrants. These two studies have focused on the difference between in-migrants and out-migrants. This approach to conducting studies on migration patterns is further developed by emphasizing the effects of in- and out-migration on a particular area.

Ann R. Miller utilized data from the 1960 Census of Population to investigate the relationship between in-migration and out-migration of employable persons to and from specific metropolitan areas. The results of her analysis presents evidence that the relationship between in- and out-migration of employed persons to and from specific metropolitan areas is fairly close. Specifically, she finds areas gaining large (or small) numbers of employed persons through migration tend also to lose large (or small) numbers this way, whether the gain or loss is measured on a relative or absolute basis. Moreover, the correlation between the two flows remains high whether one examines data for all employed persons in combination or breaks the group into categories by color, sex, and other major components (In Population Index, 1968: 4212). Thus, Miller's study indicates that in-migration and out-migration have no significant effect on the stability of the employed metropolitan population--the net effect is hardly significant. A similar conclusion was achieved by Goldstein from his research works in Norristown, Pennsylvania. Sidney Goldstein examined the changing pattern of occupational mobility among male members of the Norristown, Pennsylvania labor force over the last forty years. He was also interested in
determining the relationship between patterns of occupational mobility and patterns of migration in and out of Norristown. From results of his data, Goldstein concluded:

Data on migration and occupational mobility suggest the possibility that to the extent Norristown is able to meet either its increased or its changing labor force needs by attracting persons from outside the borough, to that extent will there be less need and or opportunity for occupational mobility by those who are gainfully employed in the local economic structure. On the other hand, once this outside supply ceases to be attracted, the labor force needs of the local area are met by a constant readjustment within the resident population.

Thus, as a concomitant of decreased net migration, there has been an increased amount of occupational mobility. Therefore, migration and occupational mobility have served to complement each other and in so doing have jointly served to meet the changing needs of the local economy and thereby to effect changes in the labor force structure (1955: 408).

Essentially, Goldstein claimed that the effects of in- and out-migration of Norristown on the labor force have not resulted in drastic changes of the resident employed population composition. In another study he commented: "The importance of the Norristown findings and other migration studies lies in the fact that they have demonstrated that high rates of in- and out-migration do not necessarily mean a correspondingly high degree of population change or population instability." Furthermore, "large volumes of movement, which have been shown to characterize the American population, may be attributed to repeated movements of small number of people rather than to
single moves of a large proportion of the population (1954: 540-41). Thus, Goldstein's research in Norristown indicated the effects of net migration (difference between in-migration and out-migration) on the stability of the resident population. His findings support Miller's results—there is no definite turnover of the resident labor force.

Goldstein's continued interest in migration has prompted him to further examine other social characteristics which may be associated with the migration phenomenon. In conjunction with Kurt Mayer, he analyzed the interrelation between residence, commuting, and migration, using special census tabulations obtained for Rhode Island. These data reveal the following:

Although central cities provide job opportunities for persons living well beyond their boundaries, most people in the suburbs and out-lying areas live fairly close to their place of work. Moreover, within respective zones purely local migration takes place, independent of changes in job location. For those migrating greater distances, the greater the distance moved, the less strong tendency there is to retain jobs in their area of origin.

Nevertheless, a substantial number of people migrate a considerable distance without changing their job location. Although this tendency is most pronounced in the case of city to suburb migration, it operates at greater distances and in reverse direction as well. By making residential mobility possible without concomitant change in job location, such a commuting pattern results in an increased volume of migration (May, 1964: 472).
An examination of United States rates of internal migration has indicated a remarkably constant rate since 1940. According to Goldstein and Mayer, this phenomenon may be attributed to an increasing rate of commuting. A discussion on this explanation is as follows:

High rates of mobility is a function of the ability of the labor force to move further away from places of work to desirable residential locations. Therefore, migrations which are independent of job changes are generally of short distances. In contrast, migrations which are considered as a substitute for job changes in the same area involves greater distances. Thus, commuting reduces long distance migration while increasing short distance mobility (May, 1964: 474).

The application of the above analysis to the data has resulted in the following specific conclusions:

1. With sole exception of the immediate suburbs, the majority of working inhabitants of each residential category holds jobs located within their zone of residence. This tendency is strongest for residents of central cities and those living in outlying parts of the state.

2. In the case of the immediate suburbs, there is an almost equal distribution (49%-51%) of those who work in central cities and in the suburbs--most people live fairly close to their place of work.

3. Given the modern means of transportation, purely local mobility takes place independent of job location.

4. Commuting patterns vary among migrants whose moves involve greater distances. In general the greater distance moved, less strong is the tendency to retain a job in area of origin. The data suggest that modern means of commuting
make it possible for a substantial number of people to move residence without changing jobs (May, 1964: 481).

Thus, the constant rate of migration since 1940 as found by Goldstein and Mayer is a curious phenomenon, explainable by the developments in modern means of transportation which have increased commuting patterns while keeping migration rates stable. On the whole, migration rates have been constant for Providence, Rhode Island. It is a widely known fact that central cities are losing their population to their outlying rings, and Providence, Rhode Island appears not to be exempted from this crucial phenomenon.

Goldstein and Mayer employed their data on Rhode Island migration rates to study other social characteristics of the state population, showing that the population of Rhode Island has declined faster between 1950-1960 than 1940-1950. Therefore, Goldstein and Mayer hypothesized that the disappearance of stratification of the population in Providence is a function of population decline (February, 1964: 48). However, the population in central cities remained heterogeneous while increasing movement from the central city has caused suburbs to become more heterogeneous. On the other hand, they hold that "whatever narrowing of ecological differentials occurs is more likely the consequence of the general diminution of class differences in American society, rather than primarily the result of migration and changes in population size" (February, 1964: 53).

Contrary to the conclusion attained by Goldstein and
Mayer, Taeuber and Taeuber find that "in most large urbanized areas the recent gains in socioeconomic level have been greater for suburbs than for the cities. Hence, the city-fringe status differences has widened" (1964: 718). Such changes may be attributed to "a flight" of high status people from central cities to suburbs while the central city is gaining only in low status persons. The Taeubers conclude, "the end result is seen as a more homogeneous city composed increasingly of persons of lower socioeconomic status" (1964: 718). They arrived at such a conclusion from an analysis of census data on migration patterns between 1955-1960 for twelve large metropolitan areas. In general, they claim that "nearly all streams of migration are of higher average socioeconomic status than non-migrants both into the city and the ring. Large cities contribute to their suburbs and other metropolitan areas more high status migrants than they receive. Suburban rings, on the other hand, receive more high status migrants than they lose. Therefore, the circulation of people of higher socioeconomic status has the net effect of increasing the socioeconomic status of the fringe population while diminishing the status difference of the central city population" (1964: 718).

The Taeubers have come to a similar conclusion by analyzing the effects of in- and out-migration on both the city and the ring. First, a discussion on in-migration is specified as follows:

(1) City to ring and ring to city migrants are highly similar with re-
gard to average measures of educational and occupational status.

(2) Migrants of a given origin going to the city tend to resemble those going to the ring.

(3) Migrants, whether in the city or the ring tend to be of higher educational and occupational status than non-migrants (1964).

Essentially, migrants are similar to each other regardless of destination. "Since non-migrants in the city are of lower status than non-migrants in the ring, the addition of similar relative volumes of in-migration to the city and the ring would raise the average status level of the city relative to that of the ring. On the other hand, out-migration tends to remove from the cities people with higher status than those remaining behind while the rings lose migrants whose status is only slightly higher" (1964: 718). Thus, in-migration does not affect the status level of either city or rings. Out-migration, however, has important consequences--it tends to widen the status gap between cities and rings. A continuous relative decline of socioeconomic level for central cities is considered to be a reason for eventual homogeneity of its population.

Another approach to study the migration phenomenon is by treating migration as a process. James Beshers and Eleanor N. Nishiura developed hypotheses on migration as being a function of age, occupation, and education (1961). Specifically, they stated the following hypotheses:

(1) When change of locale is involved, the amount of migration within the
professional category is more than other occupational categories.

(2) The amount of migration among farmers and farm managers is less than the amount of migration of most other occupations.

(3) More migration will occur among young adults than among any other age group.

(4) Migration among persons 65 and over is greater than within immediately preceding age categories, except in streams with a rural area of origin.

(5) 15-19 year olds migrate less from rural areas than 20-24 year olds.

(6) The amount of migration in a particular stream is less among those with six or fewer years of education than among other educational groups.

(7) The amount of migration among those with college education is greater than any other educational category. (1961).

Essentially, their hypotheses support various previously mentioned studies that migration is a phenomenon associated with those who belong to groups of more favorable social and economic positions.

In the last category the migration phenomenon is being considered with an emphasis on the migrants' motivation. This approach includes works conducted by Stouffer, Zipf, Folger, Philblad and Gregory, Heer, and Rose. Samuel A. Stouffer developed a theory on the relationship between distance of a movement and available opportunities. According to this theory, "the number of persons going to a given distance is directly proportional to the number of opportunities at that distance, and inversely proportional to the number of intervening oppor-
tunities" (1940: 846). While he found this theory to be generally valid, he also found that there were some limitations. A closer examination of the validity of this theory disclosed that race or ethnic affinity had to be taken into consideration. He found it necessary to define opportunities at place of destination and intervening opportunities (such as employment, housing, etc.) in terms of cultural backgrounds of the migrant population being considered. Stouffer's theory evidenced validity only when racial or ethnic affinity was controlled.

In 1946 George K. Zipf derived a mathematical model to determine the attractiveness of two places for the flow of population between them. According to Zipf's hypothesis, intervening obstacles are an inverse function of the distance between place of origin and place of destination. Furthermore, he proposed that the attractiveness of two places is determined by "the amount of interchange between any two areas which is directly proportional to the product of the population in the two areas while inversely proportionate to the distance between them" (1946). This hypothesis provides information concerning migratory streams only in terms of numbers of population and distance while ignoring social characteristics and social psychological motivations for residential changes.

In 1953 J. Folger applied the hypotheses of Stouffer and Zipf to a study of patterns of migration in the Tennessee Valley. Folger placed greater emphasis on Stouffer's hypothesis and concluded that the definition of intervening opportunities provides a very good description of migration patterns.
between the sub-regions of Tennessee (1953: 259). Folger's study emphasized the significance of Stouffer's hypothesis while deemphasizing Zipf's mathematical formula. His study indicated the insignificance of Zipf's mathematical model as a theory on migratory movements.

A similar research work on motivation for migration was conducted by C.T. Philblad and C.L. Gregory, which showed that migration is primarily motivated by the search for occupational opportunities. It was also found that the volume and direction are primarily influenced by job opportunities. They found that the results from the "Current Population Reports: Internal Migration in the United States" show that "both the rates of volume and direction as well as the distance moved are related to occupation" (1957: 56). Thus, job opportunity was found to be the most important factor which motivates people to migrate.

Similarly, David M. Heer found that in the South, job opportunities largely explain the migratory attractiveness of a particular area. His study was an attempt to support the hypothesis: "status discrepancy between whites and non-whites in areas within the American South in 1950 should be related to the relative attractiveness of those areas (in terms of net in- and out-migration) to members of each race during the ensuing decade" (1963: 10). In other words, according to this hypothesis, holding race constant, the socioeconomic level of an area should be the determining factor of the attractiveness of a particular area to in-migration. Heer was unable to find support for his hypothesis. Instead, he concluded that "an
area's attractiveness is solely determined by its occupational opportunities" (1963: 107).

A further analysis of migration motivation was carried out by A. M. Rose. In this study it was hypothesized "high status persons seeking better jobs or opportunities must move greater distances to find them, on the average, than do persons whose skills or aspirations direct them to look for less desirable opportunities" (1958: 420). That is to say, the migrants' socioeconomic status is directly related to the distance moved. On the contrary, the lower one's socioeconomic status, the shorter distance covered. In terms of Stouffer's theory it can be stated "lower class persons find many more intervening opportunities in a given distance than upper class people do" (1958: 423). Consequently, those persons who seek better jobs must move farther while those less particular about their occupations can find their "opportunities" close by. In general, Rose concludes:

"Upper class" neighborhoods are being disproportionately filled with persons who have migrated a long distance, while the opposite is true for the "poorer class" neighborhoods. The exception is for the poorest class of neighborhoods, as most of these areas contain a disproportionate number of Negroes who are being augmented significantly by migrants coming all the way from the South (1958: 423).

Here again we find that similar to Stouffer's hypothesis, Rose's hypothesis—socioeconomic status of migrants is directly proportional to distance migrated—is supported, provided race is being controlled. While migration is determined by
occupational opportunity, holding race constant, the distance migrated is a function of the migrants' socioeconomic level.

Thus, the studies included in this last category may be summarized as follows. First, the principal motivation can be attributed to occupational opportunities. Second, the amount and direction of migration depend on the available opportunities while controlling for race.

This review of the most recent literature on migration has indicated that the study of migration may be conducted by focusing on different aspects of the phenomenon. Hence, these studies have been categorized contingent upon the approach in examining migration patterns. Therefore, the studies considered in this writing have been classified into six general categories. First, migration has been examined as a comparative analysis between migrants and non-migrants. Second, research focusing solely on migrants have emphasized the migrants' age. The third category includes those studies which deal with the distinction between in- and out-migration of urban areas. Fourth, these studies have considered an examination of the effects of in- and out-migration on a particular area. Fifth, migration has been discussed as a process. Sixth, the emphasis has been on the migrants' motivation.

This review of the relevant scientific literature has indicated that research has been carried out to ascertain the distinctive social characteristics which may be associated with the whole migrant population. Similarly, there have also been studies which have dichotomized the migrant population into in-migrants as opposed to local migrants or movers. How-
ever, no work has been done on the distribution of various
types of migrants and movers when categorized according to
specific social characteristics. In light of the state of
knowledge in the field, the present study will make a contri-
bution to studies of the metropolitan community by examining
differentials in rates of in-migration and moving by race,
socioeconomic status, age, sex and marital status, controlling
for place of residence, the first study of this kind. By
providing information regarding population redistributions in
an urban community, this research project will make an addi-
tional contribution to the body of knowledge concerning pat-
terns of differential migration into and within a metropolitan
community. Further contribution will be made to existing re-
search with respect to population growth which does not result
from natural increase.
CHAPTER II

SOURCES OF DATA, BASIC DEFINITIONS, AND METHODOLOGY

This study takes an ecological approach to the study of migrants and movers. In essence, the ecological approach is concerned with the distribution in space of persons with specific characteristics. "Human ecology as a science does not deal with individuals as individuals; rather, it is concerned with groups of individuals having some common characteristic--human ecology is always concerned with collectivities or aggregates" (Gist and Pava, 1964: 96). However, characteristics of individuals are utilized as the basis to arrive at a "typical" or common characteristic measure of all persons within an area. Rather than analyzing the pattern of distribution among individuals within a given area, this approach describes an average pattern of group social characteristics for a particular geographic area. Hence, it should be recognized that this approach provides only an aggregate measure of social characteristics distinctive of an area.

The specific geographic areas of concentration in this study are census tracts. A measure of distinctive social characteristics for each census tract is arrived at by calculating the proportion of individuals classified according to particular social characteristics being considered from all persons within that census tract. In this manner, a measure for each
census tract is achieved for migrants, movers, Negroes persons between the ages 18 and 34, males, and married persons. A score for socioeconomic status is based on a methodological scheme issued by the United States Census Bureau for use with the 1960 census data.

The Data

Source of Data on Migrant and Mover Status

On the basis of the 1960 United States Census, the question concerning one's residence five years prior to the enumeration has provided this particular study with the basic definitions of migrants and movers. Comparison of the answers to this question with the place of residence of the respondents in 1960 makes it possible to classify a proportion of the population of the United States in 1960 according to their "migrant status" and "mover status". All data on migrants and movers are derived from this primary source.

The category "different house in the United States" has provided this study with the definitions of migrants and movers. This category includes all persons five years old and over who on April 1, 1955, lived in a different house from the one they occupied on April 1, 1960. Persons in this category are subdivided into several groups according to their 1955 residence. In this study migrants are defined as those who in 1955 lived "outside this S.M.S.A." Movers, on the other hand, are those who belong to the categories of those who in 1955 lived in the "central city of this S.M.S.A." and "other part of this S.M.S.A." (United States Censuses of
Population and Housing 1960: 4). Both migrants and movers are further dichotomized according to their area of residence in 1960--those in the central city and those in the suburbs.

The data on migrants and movers derived from the census enumerations indicate several deficiencies. The limitations to these tabulations are as follows:

1. Children under five years are categorically excluded from all migration tabulations.

2. Migrants and movers recorded by the census are only those persons who both entered the area or moved within the area and survived to the census date (Barclay, 1964: 244).

3. A comparison between places of residences in 1955 and 1960 indicates at least one more was made during the five years, though a person may well have made several moves during that period (Karl E. Taeuber, 1961: 116-131). As such, migration tabulations for a particular area are deficient of those people who moved into an area and have left the area again between succeeding census enumeration dates.

4. The category "same house as in 1960" may include those persons who have moved and returned to the same house,
although such cases are probably not
found very frequently (Karl E. Taeuber,

These limitations to the data on migrants and movers
are unfortunate, but it probably does not seriously affect the
validity of the findings reported in this study. It is very
unlikely that the consistent patterns of findings in this
study should be attributed to these inadequacies. Although
certain deficiencies in the migration data have been indicated,
they are not serious enough to deter their use. They are the
best available data on population redistribution. In the ab­sence of flawless data, it is desirable that those available
be utilized to maximum benefit, notwithstanding full recogni­tion of their limitations.

Variables

Similar to the data on migrants and movers, the prima­ry source of data on other social characteristics is the 1960
United States Census on Population and Housing; specifically,
Census Tract data for Richmond S.M.S.A. Therefore, the basic
definitions of terms and classifications are necessarily those
of the Census Bureau. Corresponding with the data on migrants
and movers, other data collected by the Census Bureau are not
void of errors; several of these errors are recognized by the
Census Bureau, such as those due to enumerating and sampling
effects (1960 Census of Population: xl-xlv). Therefore, utili­zation of data from this primary source should be with due
recognition of the flaws in the data.
Race and Color--The Census Bureau has distinguished three major categories: white, Negro, and other races. The category Negro includes all persons of Negro, mixed Negro and white descent, and persons of mixed Indian and Negro descent unless the Indian ancestry very definitely predominates or unless the person is regarded as an Indian in the community (Census Tract Report, 1960: 3). The data on race for 1960 Richmond S.M.S.A. indicate a very small number of those belonging to the category "other races"—1%. In this study, the category "other races" has been included in the Negro population. However, this inclusion of those belonging to other races into the Negro count is not considered to cause significant differences in the outcomes.

Socioeconomic Status--Various works on migration differentials have indicated socioeconomic status to be highly associated with mobility patterns. This study is, therefore, concerned with analyzing the relationship between an individual's position in the hierarchy of statuses when mobile persons are distinguished between city and suburban migrants and movers. The methodology utilized in this research project to arrive at socioeconomic scores is primarily derived from "Methodology and Scores of Social Status."* According to this report, socioeconomic scores are comprised of a combination of data on education, income and occupation (Working Paper No. 15, 1960: 2).

Following are definitions and explanations of the com-

*This report, issued by the Bureau of the Census, is primarily a methodological statement of the socioeconomic status scores prepared for use in the 1960 Census of Population.
ponent items used in the derivation of the socioeconomic scores. In addition, the procedure and its considerations are also described.

**Years of school completed**–The data on years of school completed were derived from the answers to the two questions: (a) "What is the highest grade (or year) of regular school he has ever attended?" and (b) "Did he finish this grade (or year)?" Enumerators were instructed to obtain the approximate equivalent grade in the American school system for persons whose highest level of attendance was in an ungraded school, whose highest level of schooling was measured by "readers," or whose training by a tutor was regarded as qualifying under the "regular" school definition. Persons were to answer "No" to the second question if they were attending school, had completed only part of a grade before they dropped out, or failed to pass the last grade attended (Census Tract data, 1960: 4).

The specific data utilized in this study are based on the median school years completed by persons twenty-five years and over.

**Family income in 1959**–Information on income for the calendar year 1959 was requested from all persons fourteen years old and over in the sample. "Total family income" is the sum of amounts reported separately for wage or salary income, self-employment income, and other income. Wage or salary income is defined as the total money earnings received for work performed as an employee. It represents the amount received before deductions for personal income taxes, Social Security, bond purchases, union dues, etc. Self-employment income is defined as net money income (gross receipts minus operating expenses) from a business, farm, or professional enterprise in which the person was engaged on his own account. Other in-
come includes money income received from such sources as net rents, interests, dividends, Social Security benefits, pensions, veterans' payments, unemployment insurance, and public assistance or other governmental payments, and periodic receipts from insurance policies or annuities. Not included as income are money received from the sale of property (unless the recipient was engaged in the business of selling such property,) the value of income "in kind," withdrawals of bank deposits, money borrowed, tax refunds, and gifts and lumpsum inheritances or insurance payments. Although the time period covered by the income statistics is the calendar year 1959, the composition of families refers to the time of enumeration. For most of the families, however, the income reported was received by persons who were members of the family throughout 1959.

Occupation--The data on this subject in this report are for employed persons and refer to the job held during the week for which employment status was reported. For persons employed at two or more jobs, the data refer to the job at which the person worked the greatest number of hours (Census Tract, 1960: 5).

The socioeconomic status score is determined in the following manner:

(a) The occupation, education and family income for the chief income recipients were identified;

(b) using the listings of scores for each component provided in the appendices the scores corresponding to the categories of the three items in which the chief income recipients fell were located;

(c) a simple average of the three component scores was computed; and,

(d) the result was rounded to the nearest
whole score (Working Paper No. 15, 1960: 3).

Further descriptions of concepts used to determine socioeconomic status scores are as follows:

**Family**—A family consists of two or more persons in the same household who are related to each other by blood, marriage, or adoption; all persons living in one household who are related to each other are regarded as families. In a primary family, the head of the family is the head of the household. Other families are secondary families. An unrelated individual is a member of a household who is not related to anyone else in the household, or is a person living in group quarters who is not an inmate of an institution. A head of a household living alone or with non-relatives is a primary individual (Census Tract Report, 1960: 4).

**Chief income recipient**—The chief income recipient in a family was defined as that member of a family who had the largest total income (at least $1 more than any other family member.) If the family head and one or more other family members had identical incomes and they had the highest incomes in the family, or if no family member had reported income, the family head was considered the chief income recipient. If two or more family members other than the head had equal and highest incomes, the first one listed was regarded as the chief income recipient (Working Paper No. 15, 1960: 2).

**Occupation**—The occupation, if any, for a chief income recipient is used, provided he was currently in the labor force or, if not, had worked since 1950. Since the rank and duties of members of the Armed Forces were not known from the census, chief income recipients currently in the Armed Forces were assigned a uniform occupation rating. For a chief income recipient without an occupation reported, his score on education was assigned as
The report on the methodology to determine socioeconomic scores included the following considerations in choice of procedures:

(1) A basic assumption in the derivation of the socioeconomic measures is that the status level of a family is determined largely by the status attributes of the family breadwinner and that the socioeconomic measures for the chief income recipient of a family thus should be assigned to other family members. One practical advantage in using the characteristics of the chief income recipient is that he generally has these items reported in the census for him whereas other family members may not have them reported for them because they are not employed or do not have income.

(2) The component items of the measures (occupation, education, and income) were selected because they represent somewhat different aspects of socioeconomic status and, in addition, because they are items which are periodically included in the Current Population Survey and in other population censuses and surveys conducted by the Bureau of the Census.

(3) The choice of a particular index of each component item was based, in part, on the kinds of data available in census reports and, in part, on the expected uses to which the socioeconomic data would be put. Family income, rather than the income of the chief income recipient, was chosen because it was felt that the socioeconomic status of a family was related more closely to the family income than to the income of the chief earner. In the process of developing the family income scores, the effect of measuring family income in different ways (simply family income, per capita family income, and family income adjusted for differences
in the composition of the family) was studied.

(4) The scores assigned to the categories of the component items were derived as follows: (a) The scores for education were obtained by computing a cumulative percentage distribution by education of chief income recipients in families as of 1959. (For example, persons who had completed five or more years of college were found to be distributed between the 96th and 100th percentiles.) The score assigned to each category of education was the midpoint of the cumulative percentage interval for the category. (For example, a score of 98 was assigned to persons who had completed five or more years of college.) (b) The scores for family income were obtained in a similar manner. (c) The scores for detailed occupations were based on the most recently available data, those for males 14 years old and over in the experienced civilian labor force as of 1950. The detailed occupations were scored according to the combined average levels of education and income for the given occupation. Thus, the score obtained is an average score for the occupation and it contributes an independent effect to the total socioeconomic score, which includes also the individual's actual educational and income levels. Using the number of workers in each occupation, a relative percentage distribution was obtained. The score for a given occupation was then determined by taking the midpoint of the cumulative percentage interval for that occupation (Working Paper No. 15, 1960: 3).

On the basis of individual scores for education, income, and occupation, a standard score is computed for the whole census tract. The census data have provided a median score for each census tract for years of school completed by all individuals twenty-five years old and over. Similarly, a median family income is indicated for each census tract.
For these two items a standardized score index was provided in the 1960 Bureau of Census Working Paper No. 15 (Appendices I and II). Thus, a standard score was determined for income and education for each census tract.

A score for occupation is somewhat more complicated to determine. As was stated earlier, the occupation of a chief income recipient is used (Working Paper No. 15, 1960: 3), hence, an occupation score for each census tract is attained by computing a score for all employed males within each census tract. The report has similarly provided a standardized index for occupation scores (Appendix III). A final socioeconomic status score for each census tract is determined by taking the average of the three scores on education, income, and occupation. This socioeconomic status score is, therefore, representative of all the people residing within that particular census tract.

Age—According to the 1960 United States Census, the age classification is based on the age of the person in completed years as of April 1, 1960, as determined from the replies to a question on month and year of birth (United States Census of Population and Housing, 1960: 3). On the other hand, a review of the literature on mobile persons has indicated that the rates are high throughout the time of young adulthood; specifically, between the ages 18 and 34. Hence, this study will be mainly concerned with analyzing this particular age group in relation to patterns of migration and moving in the Richmond metropolitan area.
Sex--The results from recent works on migration differentials indicated a difference between the sexes when related to different mobility patterns. Therefore, in this analysis the sex variable is also being examined when related to the migrants and movers population. As a consequence of sex being a dichotomous variable, it is considered sufficient to be concerned only with the males, while simultaneously implying relationships about females.

Marital Status--Previous research works have indicated a relationship between marital status and mobility patterns. It is, therefore, considered significant to examine the relationship between these variables in this research project. The census report indicated the classification "married" to refer to the person's marital status at the time of enumeration. Persons classified as "married" comprised both those who have been married only once and those who re-married after having been widowed or divorced. In addition, persons in common-law marriages and separated persons were included in the count of married persons. On the other hand, persons whose only marriage had been annulled were classified as single (United States Census of Population and Housing, 1960: 4). Likewise, this variable is considered a dichotomous variable--those who are married as opposed to single persons. Hence, implications will be made on these two categories.

Methodology

The purpose of this research project is to explore the causal relationship between the following independent
variables: (1) race, (2) socioeconomic status, (3) age, (4) sex, and, (5) marital status with rates of migration and moving as dependent variables while controlling for area of residence. According to Stinchcombe "a causal law is a statement or proposition which states that there exist environments in which a change in the value of one variable is associated with a change in the value of another and can produce such change without any change in other variables in the environment" (1968: 31). Thus, a causal relationship is established when a change in one variable causes a change in another; in addition it is assumed that all variables explicitly included in the causal model have been controlled and do not vary (Blalock, 1964: 19).

Correlation analysis is useful in exploratory work to locate the important variables. The correlation coefficient is a measure of strength or degree of relationship between variables (Blalock, 1960: 285), and it indicates the direction of the relationship. Furthermore, the magnitude of the correlation describes the nature of the relationship (Blalock, 1964: 51). Thus, correlation coefficients provide general indicators of causal relationships in which a change in one variable is followed by a change in the related variable. However, it should also be qualified that correlation coefficients in effect imply measurements of the amount of unexplained variation, and may be used to test the adequacy of any given causal model, but in themselves correlation coefficients have little or no theoretical significance (Blalock,
Correlation coefficients are further tested for their significance in establishing a causal relationship. Analyses of variance (F-tests) are tests to determine the significance of a causal relationship established by correlation coefficients. In this study the level of significance is placed at the .05 level. This means that whenever the F-values in this study are equal to or larger than 4.00 for the city and 4.26 for the suburbs, the causal relationships established by the correlation coefficients are significant.

As a generalizing indicator, correlation coefficients do not present accurate descriptions of all the cases involved. Especially, correlation coefficients do not account for extreme cases, which may distort the general outcomes such as size and direction of the relationship. Scattergrams, which provide better representations of all actual observations, are therefore utilized as an additional test in determining the causal relationships between independent and dependent variables.

Likewise, various researchers have criticized the use of correlation coefficients with ecological variables to develop inferences on individual properties. Robinson (1950) is one of the major critics on this issue. He examined the accuracy of correlation coefficients to develop predictions on individual properties from group data. Other examinations on the problem of changing units of analysis (Gehlke and Biehl, 1934; Menzel, 1950; Davis, 1953; Davis and Duncan, 1961; Foley, 1953; and Goodman, 1953) have indicated differences between ecological correlations and individual correla-
tions. Not only are ecological correlations found to be higher than individual correlations, but also as the number of cases decreases, the higher the correlation coefficients. In addition, "variations in size of the correlation coefficients seem conditioned upon changes in the size of the unit being analyzed with the smallest value of the correlation associated with the smallest unit (Gehlke and Biehl, 1934: 170). Thus, by changing units of analysis an accurate causal indicator for those units about which inferences are being made cannot be provided. Therefore, inferences on individuals may be developed only from individual correlations. Similarly, ecological correlations should be instrumental only in developing inferences on characteristics of collectivities.

Notwithstanding all these criticisms against ecological correlations, such correlations may still be very useful. As Foley contends: "Ecological correlations should be used as long as it is clearly understood that they tend to relate characteristics of areal units and that they are not adequate substitutes for individual correlations" (1953: 739). Therefore, in this research project ecological correlations are considered useful to explore the causal relationships between the independent and dependent variables as long as recognition is given to the kind of data being analyzed and inferences are being made on the same level of analysis.

The limitations of correlation coefficients led several researchers to explore other statistical measurements in establishing causal relationships. Blalock argues for the advantages in using regression equations over correlation coef-
ficients. He claims that correlation coefficients in themselves have little or no theoretical significance (1964: 46), while regression coefficients provide the laws of science (1964: 51). Furthermore, the comparative analysis of two samples of different sizes but with the same unit of analysis make regression coefficients more accurate measures of association than correlation coefficients.

Blalock also indicates that when no assumption is made on the direction of causation, correlation coefficients should be used with caution. The reason for such caution being the influence of intervening variables or nuisance variables which affect the magnitude of the correlation. On the other hand, the value of the regression slope-- \( b_{yx} \) (y is the dependent and x the independent variable)--appears to be unaffected by such intervening variables except for sampling errors (1964: 18). In addition, it was found that if it can be assumed that manipulations have been made in terms of independent variables while intervening variables have been controlled, then comparisons involving slopes will ordinarily be more meaningful than those using correlation coefficients (Blalock 1964: 126). Since the object of statistical measurements is to make predictions about the population, \( b_{yx} \) is a preferable measure of association between independent and dependent variables.

As the case is with correlation coefficients, regression analyses will be tested for their significance. T-values provide tests of significance concerning the direction of a causal relationship established by regression slopes. Here
again the level of significance is placed at .05 for a one-tailed test. This means that whenever the results in this study are equal to or larger than $\pm 1.671$ for the city and $\pm 1.708$ for the suburbs, it may be inferred that the direction of the causal relationship established by the regression slopes are significant.

In this inductive study, an examination of regression slopes to explore the relationship between the independent variables and migrants and movers in Richmond and its surrounding counties of Chesterfield and Henrico will be meaningful. Correlation coefficients are being utilized in these analyses mainly to aid in determining the degree of accuracy in the estimates of the slopes.

Blalock claims two basic uses for regression equations: (1) as causal models, and (2) as estimating equations (1964: 43). In this exploratory study it is of interest to examine both cases. First, this study is concerned in examining a causal relationship between race, socioeconomic status, age, sex, and marital status with rates of migrants and movers, holding area of residence constant. Second, as an inductive study it is concerned with making generalizations from data on the 1960 Richmond S.M.S.A. to other similar metropolitan areas.

Thus, this examination of the differentials in rates of in-migration and moving by race, socioeconomic status, age, sex, and marital status controlling for place of residence is based on various statistical measurements. Correlation coefficients, which are further tested for their sig-
nificance by analyses of variance, regression slopes, which are tested for their significance by t-tests, and scattergrams are the statistical measurements utilized in this study to determine causal relationships between independent and dependent variables. An examination of this kind will be a contribution to the state of knowledge on size, composition and distribution of a population.
CHAPTER III

DIFFERENTIALS IN RATE OF MIGRATION BETWEEN CITY AND SUBURBS IN THE 1960 RICHMOND METROPOLITAN AREA

In this chapter the relationship between rates of migration and social characteristics of the 1960 Richmond S.M.S.A. population will be investigated in detail. The overall purpose will be to discover, from the 1960 census tract data on Richmond S.M.S.A., patterns of internal migration. In the succeeding sections of this chapter migration differentials will be considered for the following social characteristics: (1) race, (2) socioeconomic status, (3) age, (4) sex, and (5) marital status.

TABLE 3-1
MEAN AND STANDARD DEVIATION FOR PERCENT MIGRANTS TO 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>12.7</td>
<td>18.2</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>10.7</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Internal migration is recognized as an increasing important phenomenon. However, migrants--as defined in this study--represent less than one fifth of the total 1960 Richmond
CHAPTER III

DIFFERENTIALS IN RATE OF MIGRATION BETWEEN CITY AND SUBURBS IN THE 1960 RICHMOND METROPOLITAN AREA

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TABLE 3-1
MEAN AND STANDARD DEVIATION FOR PERCENT MIGRANTS TO 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 61*</td>
<td>N = 26</td>
</tr>
<tr>
<td>Mean</td>
<td>12.7</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Internal migration is recognized as an increasing important phenomenon. However, migrants—as defined in this study—represent less than one-fifth of the total 1960 Richmond

*N refers to the number of census tracts in this table and in all subsequent tables.
S.M.S.A. population. There is a significantly higher migrant population in the suburbs than in the central city. Both Richmond and the suburban census tracts are equally heterogeneous in their rates of migration. The standard deviations around the means are quite large when considered in relation to the magnitude of the averages.

In this section the relevance of an area's racial composition in determining patterns of distribution will be tested. Specifically, the main question of interest is how do areas with differential racial composition in city and suburbs vary in their rates of migration. The first part will deal with data for the city. Then suburban rates of migration will be discussed. Finally, a summary and implications will be drawn.

**TABLE 3-2**

CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT NEGRO BY MIGRANTS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th>Migrants</th>
</tr>
</thead>
</table>
|          | Central City | Suburbs  
|          | N = 61       | N = 26   
| Correlation coefficient | -.44 | .31  
| Analysis of variance | 14.54 | 2.54  
| Regression coefficient | -.12 | .20  
| t-test | -3.81 | 1.59  

At $\alpha = .05$ $F_{1,59} = 4.00$  
$F_{1,24} = 4.26$  
$T_{60} = + 1.671$  
$T_{25} = + 1.708$
There is a negative correlation between the proportions of Negroes and percent migrants in the Richmond census tracts. The negative correlation indicates an inverse relationship between the two variables—areas with high Negro populations have low rates of migration. The magnitude of the correlation indicates an important relationship between the two variables. It follows that a causal relationship between the independent and dependent variables may be established—a change in the proportion of Negroes is followed by a change in the rate of migration in the opposite direction. The analysis of variance which tests the significance of the correlation coefficient indicates a highly significant relationship between the percentages of Negroes and migrants (Table 3-2). The magnitude of the F-value is far greater than 4.00. This means that the negative relationship established by the correlation is highly significant at the .05 level of significance. Thus, the proportion of Negroes in an area provides knowledge of an approximate rate for migrants and movers.

The evidence from scattergram 3-1 demonstrates a rather heterogeneous distribution of Negroes with greater representations at both extremes of the distribution scale. Similar evidence on the heterogeneity of the distribution is presented by the measures of spread around the means (Table 3-3). Except for one census tract which has a very high proportion of migrants (65%), the distribution of the rates of migration is far more homogeneous and highly concentrated at the lower end of the scale. The mean for the rates of migration equals 12.7 and the standard deviation equals 10.7
Scattergram 3-1. Relationship between racial composition and in-migration for census tracts in the central city of the 1960 Richmond S.M.S.A.
TABLE 3-3
MEAN AND STANDARD DEVIATION FOR PERCENT NEGROES
IN 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 61</td>
<td></td>
<td>N = 26</td>
</tr>
<tr>
<td>Mean</td>
<td>40.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>41.3</td>
<td>13.9</td>
</tr>
</tbody>
</table>

(Table 3-1). The scattergram substantiates the highly significant negative relationship between the two variables as indicated by the correlation coefficient.

Further evidence shows a rather low predictive value from knowledge of proportion of Negroes on the rate of migration. The data for Richmond shows a small regression coefficient. A unit change in percent Negro causes a change of .12 in the proportion of migrants in the opposite direction.

In summary, the different methods utilized to examine the causal relationship signify a negative relationship between proportion of Negroes and proportion of migrants. This negative relationship between proportions of Negroes and migrants for the central city is contrary to the highly accepted assumption that Negroes are highly represented among migrants in central cities. The statistics on Negro migrants for the nation as a whole have caused various researchers to develop generalizations on all large cities. Rose claims that areas highly populated by Negroes have equally high proportions of migrants coming from the South (1958: 423). The South had
lost about 14% of its 1950 Negro population through net out-
migration by 1960 (Thomlinson, 1965: 221). Furthermore,
Petersen claims that "the typical urbanization of Negroes has
been to central cities of metropolitan areas. Between 60-70% of
rural Negroes born in the Deep South now leave by age 30,
going typically to large cities in either that region or other
regions" (Petersen, 1969: 474-475). Thus, the data for
Richmond do not support the generalizations on metropolitan
areas from nation-wide data. Therefore, generalizations should
be made with caution.

The data for the suburbs seem to contradict the findings
for the city. Table 3-2 shows a positive correlation between
the independent and dependent variables. Areas with large
Negro populations have similarly high proportions of migrants.
Furthermore, it may also be inferred that in the suburbs Negroes
are fairly well represented among the migrants. To test the
significance of the causal relationship established by the
correlation coefficient the analysis of variance (Table 3-2)
indicates a value smaller than 4.26. The inference being that
no significant causal relationship can be established between
an area's racial composition and its rate of migration.

On the contrary, the scattergram 3-2 for the data on
the suburbs demonstrate a definite negative relationship be-
tween the two variables, leading one to expect a negative
correlation. Instead, the results show a positive correlation.
This outcome is probably attributable to one extreme census
tract which has the highest proportion of both Negroes and mi-
grants. As was stated in the previous chapter, correlations
Scattergram 3-2. Relationship between racial composition and in-migration for census tracts in the suburbs of 1960 Richmond S.M.S.A.
are frequently distorted by extreme cases, especially, when the total number of cases in the sample is small \( N_s = 26 \). A representation on a scattergram of all the cases is therefore a more reliable indicator in establishing this causal relationship. Consequently, it is preferred to accept the direction of the relationship as indicated by the scattergram without knowledge of the strength or degree of the relationship which is indicated by the magnitude of the coefficient.

Another statistical measurement to determine a causal relationship is represented by the regression slope. The regression coefficient between the proportion Negroes and percent migrants equals .20, indicating that a unit increase in the percent Negro causes an increase of .20 for the proportion of migrants. As a determinant of the significance of the regression slope the t-value (Table 3-2) shown is smaller than \( \pm 1.708 \). This shows that in the suburbs there is no significant positive relationship between an area's Negro population and its rate of migration.

An evaluation of these three methods to demonstrate the causal relationship between proportion of Negroes and percent migrants presents conflicting results. Due to correlations being a function of regression slopes, the direction is the same even though the magnitude may differ. It might, therefore, be inferred from correlations and regression coefficients that a change in the independent variable is followed by a change in the dependent variable in the same direction, or, as the rate of Negroes increases the higher the rate of migration. On the other hand, the scattergram exhibits a definite
inverse relationship in twenty-five of the twenty-six census tracts. These conflicting results for the suburbs are similarly indicated by the tests of significance. Both the F-test and the t-test indicate that no significant causal relationship can be established between an area's racial composition and its rate of migration.

As the scattergram manifests an actual representation of all the cases involved, the writer is inclined to accept the evidence demonstrated by this method. Thus, the inference on the causal relationship of these two variables for the suburban data is established as a negative relationship—areas with large proportions of Negroes have low rates of migration. The negative relationship for the data on the suburbs is stronger than the city, which may be attributed to the fewer census tracts in the suburbs as compared to the cities (Gehlke and Biehl, 1934; Menzel, 1950; Davis, 1953; Davis and Duncan, 1961; Foley, 1953; and, Goodman 1953). As such, this inference corresponds with the findings for the city. It may be generalized that as the Negro population increases, the rate of migration decreases in both city and suburbs. It follows that Negroes are not well represented among migrants in either the central city or the suburbs.

A consideration of the small proportion of Negroes among migrants and the rather high representation of Negroes in Richmond (X = 40.5, Table 3-3) leads one to conclude that Negroes are not recent migrants to Richmond. In view of the much discussed exodus of Negroes from rural areas and from the South, this may seem surprising. On the other hand, this con-
clusion is in agreement with Bogue who claims that in the early sixties a very substantial majority of the Negro population had already moved from rural areas of the South. Once they arrived at a metropolitan destination, Negroes appeared to have little inclination to migrate further (1969: 763). Likewise, historical accounts of Richmond's population indicates that the city has been about 50% Negro since its earliest days (Pollard, 1954: 73 and Stanard, 1923: 117, 130, 153, 219). It follows that whites are well represented among migrants. This conclusion is consistent with Peterson's claim that "the South is now in a period of net in-migration, presumably mainly of whites" (1969: 473).

Furthermore, a comparison of the distribution of proportions of Negroes within census tracts, between city and suburbs indicate a consistent finding with previous research works. The data on Table 3-3 indicate averages for percentages of Negroes in the city to be 40.5 and for the suburbs it equals 11.1. The conclusion which may be drawn is that Negroes are better represented in the central city than in the suburbs, or, the farther away from the central city the fewer Negroes there are. This finding is hardly surprising, while further substantiating earlier research (Frazier, 1937).

Summary of Racial Differentials in Patterns of Migration--
The findings on migrant differentials with respect to race may be summarized as follows:

(1) The proportion of Negroes in an area is inversely related to the rate of migration in both city and suburbs. It
follows that, in 1960 Richmond S.M.S.A highly populated Negro areas have low rates of migration. Areas which are predominantly white have likewise low rates of migration. Thus, Negroes are under-represented while whites are over-represented among in-migrants to 1960 Richmond S.M.S.A.

(2) There is a larger Negro population in the central city than in the suburbs. On the other hand, the rate of migration is higher in the suburbs than in the central city. Thus, as one moves away from the central city, one encounters fewer Negroes and more migrants.

Socioeconomic Status Differentials Among Migrants

The socioeconomic structure of a sub-group is an important indication of the group's position in the socioeconomic status hierarchy of the larger population. Socioeconomic status is an indication of the group's position and role in the social and economic life of the larger group. The group's social and economic position in the status hierarchy determines, in turn, its attractiveness to its in-migrating population. In this section the significance of an area's average socioeconomic score in determining migration rates will be investigated in detail.

The data for the city indicate a positive correlation coefficient (Table 3-4) between socioeconomic status and the proportion of migrants. The regression coefficient indicates a similar positive relationship between the independent and dependent variables. A unit change in the socioeconomic status score causes .19% change in the rate of migration. As
Scattergram 3-3. Relationship between socioeconomic status and in-migration for census tracts in the central city of 1960 Richmond S.M.S.A.
TABLE 3-4
CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION SLOPES AND t-TESTS FOR SOCIOECONOMIC STATUS SCORES BY MIGRANTS AND PLACE OF RESIDENCE, 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation coefficient</td>
<td>.32</td>
<td>.23</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>6.96</td>
<td>1.41</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>.19</td>
<td>.17</td>
</tr>
<tr>
<td>t-test</td>
<td>2.64</td>
<td>1.19</td>
</tr>
</tbody>
</table>

At \( \alpha = .05 \)
\[ F_{1,59} = 4.00 \]
\[ F_{1,24} = 4.26 \]
\[ T_{60} = \pm 1.671 \]
\[ T_{25} = \pm 1.708 \]

expected, the regression coefficient and correlation coefficient coincide with each other in establishing the causal relationship, as a change in socioeconomic score is followed by a change in the rate of migration in the same direction. Scattergram 3-3 shows a high degree of heterogeneity for average socioeconomic scores for the city census tracts. This is also indicated by a mean of 43.9 and a standard deviation equal to 17.8 (Table 3-5). The scattergram presents supportive evidence for the correlation and regression coefficients—a positive relationship between socioeconomic status scores and migrant population. The tests which determine the significance of the causal relationships established by the correlation coefficient
Scattergram 3-4. Relationship between socioeconomic status and in-migration for census tracts in the suburbs of 1960 Richmond S.M.S.A.
and regression slope indicate a very significant relationship. The F-value (Table 3-4) is considerably larger than 4.00. Hence, at the .05 level, the relationship between socioeconomic status score and proportion of migrants is highly significant. The t-value for this relationship is similarly beyond +1.671, the level at which the regression slope is being tested.

The data for the suburbs (Table 3-4) appear to substantiate the findings for the city. Although a difference in size is recognizable, the direction and degree of the relationship are fairly identical. The scattergram 3-4, on the other hand, shows a more definite positive relationship between socioeconomic status and rate of migration for the suburban census tracts. However, the tests which determine the significance of the causal relationship for the suburban data do not indicate that a significant causal relationship can be established. The size of the analysis of variance test statistic is smaller than 4.26, and the t-value is smaller than +1.708. Thus, on the basis of the two statistical measurements there is no indication of a significant causal relation-

<table>
<thead>
<tr>
<th>TABLE 3-5</th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 61</td>
<td>N = 26</td>
</tr>
<tr>
<td>Mean</td>
<td>43.9</td>
<td>57.7</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>17.8</td>
<td>12.8</td>
</tr>
</tbody>
</table>
ship between the socioeconomic status of an area and the rate of migration.

A comparison of the city and suburban data (Table 3-5) indicates a higher average socioeconomic status for the suburbs than for the central city. Moreover, the city is more heterogeneous than the suburbs. The measure of spread around the average for the city is considerably larger than for the suburbs. This finding is congruent with ecological theories which claim that the distance away from the central city is positively related to socioeconomic status (Burgess, 1925; Dundan and Duncan, 1955; Schmid et al., 1958).

In general, changes in rates of migration are proportional to changes in socioeconomic scores, or, as socioeconomic scores increase, the rates of migration similarly increase. There are more migrants in the suburbs who also have a higher socioeconomic status score; hence, migrants are associated with relatively high socioeconomic statuses. It may, therefore, be inferred that migrants are in favorable socioeconomic positions, and this finding is consistent with those found in previous studies (Freedman, 1950; Taeuber and Taeuber, 1965).

Summary of Migrant Socioeconomic Status Differentials—The results of the examination on migrants in relation to socioeconomic status differentials may be summarized as follows: Socioeconomic status scores are proportionately related to rates of migration in both Richmond and its suburbs. Areas which score high on socioeconomic status have equally high rates of
migrants in general enjoy relatively high socioeconomic statuses. Furthermore, the average socioeconomic status score is higher in the suburbs than in the central city. The average rate of migration, similarly, is higher in the suburbs than in the central city. Thus, the farther away from the central city, the higher the socioeconomic status and rates of migration.

**Age Differentials Among Migrants**

The age composition of the migrant population has been and continues to be of great interest in research on migration differentials, because age is an important determinant of several other characteristics of any population. Its availability for the productive labor force which, in turn, has repercussions on the economic structure of the community, is a function of the age composition. Requirements for educational and recreational services by an incoming group are determined by the age structure of that population. Other aspects of the migrants' position in the social and economic structure of the community are, in part, a function of the group's age composition.

Previous studies on selective migration have been very reliable in establishing the fact that migration is largely a phenomenon of youth. In a discussion about age differentials Bogue concludes: "The propensity to change residences varies markedly with age. Peak mobility takes place as adulthood is attained" (1969: 763).

The relevance of this generalization will be tested
in this section. In terms of the frame of reference as proposed in the introduction, the question is how do areas with differential mobile age composition in either city or suburb determine rates of migration?

### TABLE 3-6

**CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT 18-34 BY MIGRANTS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.**

<table>
<thead>
<tr>
<th></th>
<th>Migrants</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central City</td>
<td>Suburbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 61</td>
<td>N = 26</td>
<td></td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>.32</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>6.92</td>
<td>21.45</td>
<td></td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>.45</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>t-test</td>
<td>2.63</td>
<td>4.63</td>
<td></td>
</tr>
</tbody>
</table>

At $\alpha = .05$

- $F_{1,59} = 4.00$
- $F_{1,24} = 4.26$
- $T_{60} = \pm 1.671$
- $T_{25} = \pm 1.708$

The correlation between proportion of the mobile age population (ages 18-34) and migrant population for Richmond demonstrates a positive causal relationship between the two variables. This correlation is further improved by the magnitude of the regression slope which indicates a rather strong predictive value. Therefore, from knowledge of an area's mobile age composition, the rate of migration can be predicted. The scattergram (3-5) on the city data further substantiates
Scattergram 3-5. Relationship between age composition and in-migration for census tracts in the central city of the 1960 Richmond S.M.S.A.
this causal relationship. As the proportion of mobile-age persons in an area increases, the percent migrants increases by .45 percent of the independent variable. Furthermore, both tests which determine the significance of the relationship established by the correlation and regression coefficients indicate impressive results. The F-value, which tests the significance of the correlation coefficient, is considerably larger than 4.00. Likewise, the t-value is also way beyond +1.671. Therefore, it may be concluded that the proportion of the proportion of the population between 18-34 is a very significant determinant of the rate of migration.

The correlation and regression coefficients for the suburban data support findings from city data. Moreover, the magnitudes of the correlation and regression for the suburban data are strikingly larger than the results for the city. Therefore, a stronger causal relationship should be established between a population's age composition and its rate of migration in the suburbs than in the central city. Highly significant relationships are indicated by the analysis of variance and the t-test. The F-value is far greater than 4.26 and so is the t-value far beyond +1.708. Both the F-value and the t-value indicate that a highly significant causal relationship is established between the proportions of people between ages 18-34 and migrants.

On the other hand, the correlation and regression coefficients are not consistent with the scattergram (3-6) for these two variables. According to the scattergram only a weak causal relationship may be established when twenty-five
Scattergram 3-6. Relationship between age composition and in-migration for census tracts of the suburbs in the 1960 Richmond S.M.S.A.
of the twenty-six census tracts are being considered. Yet, due to one extreme census tract—with high representations of both mobile age persons and migrants—the results of the statistical measurements indicate a very strong causal relationship. Whereas the weak causal relationship demonstrated by twenty-five of the twenty-six census tracts in the suburbs is explainable by their high degree of homogeneity, the magnitudes of the correlation and regression slope are highly influenced by extreme cases. Such a distortion frequently occurs when the number of cases is small ($N_s = 26$).

A comparison of the results for the city and suburbs (Table 3-6 and scattergrams 3-5 and 3-6) shows the degree of influence extreme cases have with different numbers of cases. Whereas the magnitude of the correlation and regression coefficients for the city are smaller than the suburbs, the scattergrams for city census tracts exhibit a more definite positive relationship. Only a slight positive relationship is indicated by the suburban census tracts.

In general, it may be concluded that as an area's mobile age population increases, it is followed by an increase of the rate of migration. These results are consistent with the findings in previous studies. Migration is a phenomenon of young adults. Furthermore, Table 3-7 shows larger averages for the proportion of the mobile-age group in the suburbs than in the city. The under-representation of mobile persons in the city may be attributed to larger proportions of older people in the city as compared to the suburbs. This conclusion is consistent with Schmid's findings that when rent is con-
TABLE 3-7
MEAN AND STANDARD DEVIATION FOR PERCENT AGES 18-34 IN 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>21.7</td>
<td>23.8</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>7.7</td>
<td>5.6</td>
</tr>
</tbody>
</table>

sidered as an index of socioeconomic status: "as the proportion of the older population increases for the city as a whole, an inverse relationship in the ecological patterning between older people and mean rent tends to occur" (1958: 393). Likewise, it also confirms the widely accepted assumption of the young white middle-class exodus to the suburbs.

Summary of Migrant-Mobile Age Differentials—The findings of the inquiry into the migrant differentials with regard to mobile age may be summarized as follows: The proportion of the population between the ages 18-34 is directly related to the proportion of migrants in both the city and its suburbs. On the whole, areas with high proportions of mobile-age persons have equally high rates of migration. In general, the population between ages 18-34 is highly represented among migrants. Furthermore, there are fewer persons comprising the mobile age population in the central city than in the suburbs. Similarly, there are fewer migrants residing in the central city than in the suburbs. Therefore, as the distance
away from the central city increases, the proportions of mobile age persons and rates of migration increases.

**Sex Differentials Among Migrants**

The sex composition of any population is of equal importance to its age structure to researchers on selective migration patterns. One reason for studying the sex composition of a population is its relevance to family formation which, in turn, affects the population growth rates (Petersen, 1969: 65). Another reason to study a population's sex structure is its relevance to the labor market. The availability of employment for an area affects its population structure.

A population's sex composition is further affected by fertility, mortality, and migration. Migration, in turn, is a function of an area's labor market. Migration is predominantly motivated by occupational opportunities (Stouffer, 1940: 846; Folger, 1953: 259; Philblad and Gregory, 1957: 56; and, Heer, 1963: 107). It is in this frame of reference that the relationship between the sex composition of an area and its proportion of migrants is being tested. In this section, the central question of interest is "how do areas with diversified sex compositions determine the migrant distribution while place of residence is held constant?"

The correlation between percent males and proportion of migrants for the city shows a positive relationship (Table 3-8). The magnitude of the correlation is so small that a causal relationship is hardly meaningful. The size of the regression slope, on the other hand, is a fairly strong pre-
TABLE 3-8
CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT MALES BY MIGRANTS AND AREA OF RESIDENCE 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migrants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>61</td>
<td>26</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>.23</td>
<td>-.05</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>3.33</td>
<td>.06</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>.45</td>
<td>-.31</td>
</tr>
<tr>
<td>t-test</td>
<td>1.83</td>
<td>-.24</td>
</tr>
</tbody>
</table>

At $\alpha = .05$, $F_{1,59} = 4.00$
$F_{1,24} = 4.26$
$T_{60} = \pm 1.671$
$T_{25} = \pm 1.708$

dictor on the dependent variable. An increase of 1% of the proportion of males within an area is followed by .45% increase in the rate of migration. The scattergram (3-7) substantiates the positive relationship between these two variables, an increase in proportion of males is followed by a corresponding increase of the percentage of migrants. On the contrary, an inverse relationship exists when the female population is correlated with the migrant population. In testing the significance of the relationship established by the correlation and regression slope, it has been found that in both cases the relationship is not significant. The size for the analysis of variance is smaller than 4.00, the level at which the correlation coefficient is being tested. Similar-
Scattergram 3-7. Relationship between sex composition and in-migration for census tracts in the central city of the 1960 Richmond S.M.S.A.
ly, the t-value is smaller than +1.671. Thus, the data for Richmond indicate a slight relationship between percent males and rate of migration. However, the relationship is not significant.

This finding for the central city is contrary to previous research works (Reiss and Kitagawa, 1953: 72; Schmid and Griswald, 1952: 326; Bogue, 1969: 167). According to these studies among in-migrants to central cities, there is an excessive number of females because of the great demand for clerical help in metropolitan areas. It may, therefore, be concluded that the city of Richmond does not provide large numbers of opportunities for clerical help. On the other hand, occupational opportunities for males appear to be more favorable.

The statistical relations for the suburbs are, on the other hand, strongly modifying the findings for the city. With a correlation of -.05, a causal relationship is non-existent, while the predictive measurement $b_s = -.31$ (Table 3-8) is fairly meaningful. This latter measurement indicates the nature and negative direction of the relationship. The scattergram (3-8) is more congruent with the size of the correlation—a slightly negative relationship between percentage of males and proportion of migrants is recognizable. The tests of significance further reinforce the latter conclusion. To test the significance of the correlation, the F-value (Table 3-8) indicated is far smaller than 4.26. Similarly, the t-value is far smaller than -1.708. Thus, both the F-test and the t-test reinforce the indistinguishability of the relation-
Scattergram 3-8. Relationship between sex composition and in-migration for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
ship between sex composition and rate of migration in the suburbs.

In general, it may be concluded that a rather modified negative relationship exists for these independent and dependent variables for the suburban data. Thus, an increase of percent males is followed by a decrease of the rate of migration. This result is congruous with the findings in previous studies when central cities were considered. The combined results for both city and suburbs may have substantiated earlier findings.

In addition to the findings on the causal relationship, the scattergram exhibits a rather homogeneous representation of sex compositions. A comparison of city (scattergram 3-7) and suburban data (scattergram 3-8) show a greater homogeneity among suburban census tracts. The difference in degree of homogeneity is also indicated by the standard deviations.

| TABLE 3-9 |
|---|---|---|
| MEAN AND STANDARD DEVIATION FOR PERCENT MALES | IN 1960 RICHMOND S.M.S.A. | |
| | Central City | Suburbs |
| | N = 61 | N = 26 |
| Mean | 46.2 | 48.8 |
| Standard deviation | 5.5 | 1.4 |

In both city and suburbs, males are slightly under-represented. However, males are better represented in the suburbs than in
the city. These data are more consistent with the well established assumption that there are more females than males in urban areas (Burgess, 1925: 37; Bogue, 1969: 169).

Furthermore, the findings from Table 3-9 also show an increase of males away from the city. The farther away from the central city, the higher the socioeconomic status (Table 3-5). It may, therefore, be concluded that as one moves away from the central city the male population increases, and this relationship coincides with an increase in socioeconomic status. This finding is contrary to Schmid's claim that "There is an inverse relationship between the percentage of the population classified as male and socioeconomic status" (Schmid et. al., 1958: 205).

Summary of Migrant-Sex Differentials--The findings from the examination of migrants in connection with sex differentials may be summarized as follows: (1) The proportion of males is directly proportional to migration to the city, while only a slight inverse relationship is indicated for the suburbs. Hence, it follows that among migrants to the city there is an excess of males and an under-representation among females. Among migrants to the suburbs the opposite is indicated. Males are under-represented and females are over-represented among migrants to the suburbs. (2) In both the central city and its surrounding suburbs, there are fewer males than females. However, in the suburbs the proportion of males is a little higher than in the city. Similarly, there is a higher rate of migration in the suburbs than in the city. Therefore,
it may be concluded that as one moves away from the central city one will encounter an increasing number of males and migrants.

Marital Status Differentials Among Migrants

Earlier data on internal migration have resulted in the development of a widely accepted theory that migrants are largely composed of single young adults. Petersen claims that "Urbanization was at one time predominantly a movement of single persons, but as cities grew larger and older a tendency developed to move out of the crowded centers to the suburbs. The continuing in-migration of un-married persons was matched by an out-migration of families. In the United States today married couples move about as well as single persons" (1969: 266). Furthermore, Petersen states: "It may be, however, that the contrast between unmarried transients and relatively fixed families now fits the facts less than it used to" (1969: 265). It is in this frame of reference that the relationship between marital status and migrants is being examined in this section. Specifically, the question under consideration is: "how is the proportion of married people in an area in either city or suburb related to the migrant population?"

The correlation between percentages of married persons and migrant population for the central city indicates a negative relationship (Table 3-10). The magnitude of the correlation indicates a rather strong negative relationship between the two variables. As the proportion of married people increases, the migrant population decreases. The size of the re-
TABLE 3-10

CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT MARRIED BY MIGRANTS AND PLACE OF RESIDENCE 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th>Migrants</th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation coefficient</td>
<td>-.47</td>
<td>-.39</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>16.47</td>
<td>4.37</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-.58</td>
<td>-.84</td>
</tr>
<tr>
<td>t-test</td>
<td>-4.06</td>
<td>-2.09</td>
</tr>
</tbody>
</table>

At $\alpha = .05$ $F_{1,59} = 4.00$
$F_{1,24} = 4.26$
$T_{60} = \pm 1.671$
$T_{25} = \pm 1.708$

Regression slope is, similarly, fairly large. Thus, as the proportion of married persons increases one unit, the rate of migration decreases with .58 units. The scattergram (3-9) for these data substantiate this negative causal relationship. It follows that the contrary may be implied. As the proportion of single persons in the central city increases, the migrant population increases also. Moreover, the tests of significance on the correlation analysis and regression slope substantiate the causal relationship established by both statistical methods. The F-value is beyond the level at which the correlation is being tested. Likewise, the t-value is greater than -1.671. It may be concluded that in Richmond the negative relationship
Scattergram 3-9. Relationship between marital status and in-migration for census tracts in the central city of the 1960 Richmond S.M.S.A.
between the proportions of married people and migrants is significant. This finding is, therefore, still consistent with the "traditional popular stereotype of the migrant as a single person setting off alone to seek his fortune in the big city" (Bogue, 1969: 768). On the other hand, the findings for Richmond are contrary to the present-day assumption that a higher proportion of migrants are comprised of married than single persons (Petersen, 1969: 265; Bogue, 1969: 768; Thomlinson, 1969: 229).

The data for the suburbs manifested by the correlation and regression coefficients correspond with the findings for the city (Table 3-10). Both statistical measures denote a negative and fairly meaningful causal relationship between percent married persons and migrants in the suburbs. Furthermore, both the analysis of variance and t-test reinforce the strong causal relationship between proportions of married persons and migrants. The F-value is well beyond 4.26, and the t-value is considerably beyond -1.708. Thus, it may be concluded that the proportion of married persons in an area is a relevant determinant of its rate of migration. According to these results and the data for the city, there is no support for a contemporary assumption that larger numbers of married, rather than single, persons comprise the migrant population.

On the other hand, the scattergram (3-10) indicates more favorable support for this on-going assumption. The direction and magnitude of both the correlation and regression coefficients are affected by one deviant census tract which is strongly under-represented among married persons (35%). If
Scattergram 3-10. Relationship between marital status and in-migration for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
the effect of this one census tract were deleted, a weak but positive relationship can be recognized. Thus, it may be concluded that in twenty-five census tracts an increase of married people within a census tract is followed by an increase in the proportion of migrants. This conclusion is more consistent with the present mobility of families due to the population's improved socioeconomic status. "As the population becomes better educated and occupations are more specialized and technical, there is a rising tendency for corporations to move workers from one point to another and for heads of families to search further afield for opportunities for better employment, resulting in greater emphasis on movement of whole families" (Bogue, 1969:768). The migratory "organization man" as discussed by Whyte (1957:297-301) is a similar explanation for the increase in family mobility.

The following conclusions may be drawn from the data for Richmond and its suburbs. (1) In the city, the contemporary assumption of predominance of married people among migrants is not substantiated. (2) In the suburbs, on the contrary, the assumption is better supported. These contradictory findings would possibly have been eliminated in favor of the contemporary assumption if the data for 1960 Richmond S.M.S.A. were combined. It is, therefore, advantageous to separate the data and examine them separately.

A further consideration of the data on Table 3-11 indicates a significant difference for both the means and the standard deviations on the proportion of married persons between the city and the suburbs. Furthermore, the suburbs
show a high representation of married persons. A little over half of the suburban population is married while only 43.5% of the city population has this status. Furthermore, the city is more heterogeneous than the suburbs in its married population representation.

Summary of Migrant-Marital Status Differentials--The results of the investigation of migrants with respect to marital status differentials may be summarized as follows: In the central city the proportion of married persons is inversely proportional to the rate of migration, while for the suburbs this relationship is positive. It follows that among migrants to the city there is an under-representation of married people and an over-representation of single persons. On the other hand, suburban married persons comprise a larger proportion of the migrant population than those not married. Furthermore, the central city has a lower percentage of married people than the suburbs. Likewise, migrants are better represented in the suburbs than in the city. It may be concluded that as one...
moves away from the central city, one will come across an increasing number of married persons as well as migrants.

**Summary of Migration Differentials**

The findings on migration differentials in the 1960 Richmond S.M.S.A. indicate the following:

1. Migrants are significantly better represented in the suburbs than in the city. This finding is contrary to studies on urban mobility patterns which claim "In general, mobility is highest at the center of the city and declines toward the periphery" (McKenzie, 1923; Lind, 1925; Cowgill, 1935 in Freedman, 1950: 13). The inconsistency of the findings in this study with an earlier theory signifies the importance in reevaluating previous theories with current trends. In the 1960 Richmond S.M.S.A., it may be concluded that migration increases with distance from the central city.

2. In Richmond and its surrounding counties, Negroes are under-represented among migrants. On the contrary, migrants are predominantly white. These findings indicate a higher degree of geographic mobility among whites than Negroes. In light of previous theories on motivation for migration which are occupation-oriented, these findings provide additional support for the Negroes disadvantaged position in the social and economic hierarchy.

3. In general, as the socioeconomic status of an area increases, the proportion of in-migrants increases also. The suburbs score higher on the socioeconomic status hierarchy. Hence, migrants in the suburbs occupy a higher socioeconomic
status than in the city.

(4) Further support for a well-established theory is indicated by the findings on age differentials. Migrants are largely comprised of young people between ages 18-34. A further breakdown for specific age categories will be beneficial in the development of migration theories concerning age differentials.

(5) Migrants to the city are over-represented among males while under-represented among females. However, migrants to the suburban ring are approximately equally represented among both sexes.

(6) Married people are under-represented and single persons are over-represented in migration into the city. On the other hand, migrants to Richmond's surrounding suburbs are predominantly comprised of married people.

One significant aspect of these findings is in specifying the differences between in-migrants in the 1960 Richmond S.M.S.A. when place of residence is held constant. These findings have indicated that in-migrants should not all be categorized into one large homogeneous group. The heterogeneity of in-migrants when examined in terms of their area of residence is in support of one of Freedman's main hypotheses (1950). Similarly, local movers do not all belong to one large homogeneous group. In the next chapter, movers will be analyzed in detail to determine their differences when place of residence is held constant.
CHAPTER IV

DIFFERENTIALS IN THE DISTRIBUTION OF MOVERS BETWEEN CITY AND SUBURBS FOR THE 1960 RICHMOND S.M.S.A.

In this chapter, the importance of increasing mobility in urban areas will be examined by emphasizing intra-metropolitan mobility in relation to various social characteristics of the 1960 Richmond S.M.S.A. A methodology similar to the one used in the previous chapter will be applied in this discussion to identify the pattern of distribution for movers. The relationship between rates of moving and social characteristics of the population in the 1960 Richmond S.M.S.A. will be surveyed in detail. In the succeeding sections of this chapter the differentials for movers will be investigated in detail on the following social characteristics: (1) race, (2) socioeconomic status, (3) age, (4) sex, and (5) marital status.

TABLE 4-1
MEAN AND STANDARD DEVIATION FOR PERCENT MOVERS IN 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>33.7</td>
<td>31.8</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>11.3</td>
<td>7.4</td>
</tr>
</tbody>
</table>
The data on Table 4-1 indicate a significant degree of local mobility. In both city and suburbs, approximately one out of three persons has changed his residence within the metropolitan area between 1955 and 1960. Moreover, it should be recognized that these data do not account for multiple moves during the same period. It is not unlikely to find local mobility to be much higher than indicated by these rates of moving.

The rates of moving are high in both the central city and the suburbs. However, the rates of moving are slightly lower for the suburbs than for the city. These findings are not surprising when housing conditions are being considered. In general, the city provides more residential arrangements, such as apartments to transients. Suburban areas do not supply these kinds of housing units in as much quantity. Furthermore, it should be noted that, as in the case with all other variables, the suburban census tracts are more homogeneous than the city. The difference in degree of homogeneity is indicated by the difference in the standard deviations around the means.

Although previous studies on differential migration have proven residential changes to be related to occupational opportunities, (Stouffer, 1940; Folger, 1953; Philblad and Gregory, 1953; Heer, 1963; and, Rose, 1968), it is rather questionable whether intra-metropolitan mobility is wholly explained in terms of this variable. Goldstein and Mayer have developed a theory on short distance mobility. "High rates of mobility is a function of the ability of the labor
force to move further away from places of work to desirable residential locations. The availability of modern transportation has increased short-distance migration. Therefore, short-distance moves are independent of occupational changes" (May, 1964: 474).

**Racial Differentials Among Movers**

In this section, the significance of an area's racial composition as it affects the movers' pattern of distribution will be examined. Specifically, the question is: "How do areas with differential racial compositions in Richmond and its suburbs, Chesterfield and Henrico, vary in the proportions of movers?" First, data for the city will be analyzed. Then the data for the suburbs will be examined. This will be followed by a summary and comparison of the two sets of data. The same procedure will be followed in each of the succeeding sections.

The data on Table 4-2 indicate a positive correlation between the proportion of Negroes and movers in the central city. It follows that the greater proportion of movers in an area, the larger number of Negroes residing in the area. However, the rather strong causal relationship indicated by the correlation is not well supported by the regression slope which indicates only a weak predictive value on the rate of moving. But the scattergram (4-1) tends to support the positive relationship between independent and dependent variables as indicated by the correlation coefficient. The tests which determine the significance of the two statistical measures indicate that the relationship between percent Negro and rate


**TABLE 4-2**

**CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT NEGRO BY MOVERS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.**

<table>
<thead>
<tr>
<th>Movers</th>
<th>Central City N = 61</th>
<th>Suburbs N = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation coefficient</td>
<td>.34</td>
<td>-.45</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>7.51</td>
<td>6.07</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>.09</td>
<td>-.24</td>
</tr>
<tr>
<td>t-test</td>
<td>2.74</td>
<td>-2.46</td>
</tr>
</tbody>
</table>

At $\alpha = .05$ 

\[ F_{1,59} = 4.00 \]
\[ F_{1,24} = 4.26 \]
\[ T_{60} = \pm 1.671 \]
\[ T_{25} = \pm 1.708 \]

of movers is highly significant. The analysis of variance which tests the significance of the correlation coefficient indicates a value considerably larger than 4.00, the level at which the relationship is being tested. The t-value is similarly larger than +1.671, indicating that the proportion of Negroes is a significant determinant of an area's rate of movers.

In general, it may be concluded that Richmond data show a definite positive relationship between proportions of Negroes and movers. Hence, the following implications may be drawn: first, as the Negro population of an area increases, the proportion of movers increases also. Second, Negroes comprise the majority of intra-metropolitan mobile persons. These find-
Scattergram 4-1. Relationship between racial composition and intra-metropolitan mobility for census tracts in the central city of the 1960 Richmond S.M.S.A.
ings confirm Bogue's claim: "For Negroes, mobility is heavily concentrated in the form of local movements. Once Negroes arrive at a metropolitan destination they are less inclined to migrate further" (1969: 763).

On the other hand, there are relatively few whites among movers in the central city. Whites were less likely to change residences within the city between 1955-1960. Furthermore, residential mobility among whites involved greater distances. Whites occupy more favorable social and economic positions than Negroes. Therefore, it follows that those ranking high on socioeconomic status move greater distances. This finding is congruent with Rose's hypothesis: "socioeconomic status of migrants is directly proportional to distance migrated" (1958: 420).

The results for the suburbs further substantiate the above hypothesis. The correlation coefficient and regression slope indicate a rather definite negative causal relationship between proportions of Negroes and movers in the suburbs. The size of the correlation coefficient indicates an important negative relationship between the independent and dependent variables. The analysis of variance further substantiates this relationship. The F-value indicates a highly significant relationship when tested at the .05 level. The regression slope shows that an increase of 1% in the proportion of Negroes is followed by a decrease of .24% in the rate of movers. Similarly, the t-test supports the predictability of the independent variable on the dependent variable. The t-value is significantly larger than -1.708. In addition, the scatter-
Scattergram 4-2. Relationship between racial composition and intra-metropolitan mobility for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
gram (4-2) confirms this negative causal relationship. Hence, as the Negro representation decreases in the suburbs, the rate of movers increases. On the other hand, the direction of the relationship between whites and movers is positive, indicating that as the white population of an area increases, so does the proportion of movers. Thus, in the suburbs movers are largely comprised of whites.

The census data show high concentrations of Negroes in the central city. Furthermore, the rapidly growing white suburbs have led to a widespread belief of the white exodus to the suburbs as a result of Negro in-migration to the central city. In general, whites occupy more favorable social and economic positions than Negroes. It may be considered that residential movements to suburbs involve greater distances than intra-city residential changes. Therefore, it may be concluded that whites, who occupy higher socioeconomic statuses move greater distances than Negroes, who rank lower on the socioeconomic status scale.

The findings also indicate the disadvantages Negroes face in their mobility patterns. The Negroes' low socioeconomic status works as a disadvantage to their chances of moving great distances. In addition, the data for the suburbs demonstrate that Negroes are barred from moving into suburbs, which are occupied predominantly by whites.

Summary of Racial Differentials Among Movers--The findings on differentials for movers in connection with race may be summarized as follows: The central city and the suburbs indicate
opposite relationships. In the city, the proportion of Negroes is directly related to the rate of movers, while an inverse relationship is demonstrated by the suburban data. It follows that there is an excess of Negroes among intra-metropolitan movers in the central city. On the other hand, intra-metropolitan movers are under-represented among whites. Among movers to the suburban ring, furthermore, there is an over-representation among whites and an under-representation among Negroes. It may also be inferred that suburban areas which are predominantly used by Negro residents are characterized by stability. This finding is important because it shows that middle-class Negroes are as unwilling as their white counterparts to allow new unknown residents to enter their area.

Socioeconomic Differentials Among Movers

In this section, the importance of an area's socioeconomic status in determining its rate of moving will be analyzed. In this frame of reference the specific question of interest is: "How do areas with diverse socioeconomic statuses compare concerning rates of movers in the 1960 Richmond metropolitan area?"

All the statistical measures utilized in this research project indicate a negative relationship between an area's socioeconomic status and rates of intra-metropolitan mobility in Richmond (Table 4-3). The correlation coefficient indicates that a substantial relationship exists between the independent and dependent variables. The test which determines the significance of the correlation analysis shows a value larger
### TABLE 4-3

**CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR SOCIOECONOMIC STATUS BY MOVERS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.**

<table>
<thead>
<tr>
<th></th>
<th>Movers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central City</td>
<td>Suburbs</td>
</tr>
<tr>
<td>N</td>
<td>61</td>
<td>26</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>-.36</td>
<td>.33</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>8.81</td>
<td>2.92</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-.23</td>
<td>.19</td>
</tr>
<tr>
<td>t-test</td>
<td>-2.97</td>
<td>1.71</td>
</tr>
</tbody>
</table>

At $\alpha = .05$  

$F_{1,59} = 4.00$  

$F_{1,24} = 4.26$  

$T_{60} = 1.671$  

$T_{25} = 1.708$

than the value at $\alpha = .05$. The regression slope demonstrates that, as the socioeconomic status score increases with one unit, the rate of moving decreases with -.23%. To test the significance of the regression slope, the t-test supports the significance of socioeconomic status as a predictor of the rate of intra-metropolitan movements. The t-value is considerably larger than -1.671. The scattergram (4-3) presented, similarly, supports the negative relationship between the independent and dependent variables. Thus, a decrease in socioeconomic status is followed by an increase in the rate of moving. It may be implied that: (1) areas which score low on socioeconomic status have high rates of intra-metropolitan
Scattergram 4-3. Relationship between socio-economic status and intra-metropolitan mobility for census tracts in the central city of the 1960 Richmond S.M.S.A.
movement. Such areas are highly transient areas. (2) Areas which rank high on socioeconomic status have a low turn-over rate. They are characterized by their stability.

The findings in this section further substantiate the reverse of Rose's hypothesis—those who score low on socioeconomic status tend to move shorter distances than those who score high (1958). When the Richmond data on movers are compared on the two variables of race and socioeconomic status, the following conclusions may be drawn: (1) Areas with high concentrations of Negroes can be identified as scoring low on socioeconomic status. In addition, such areas have highly transient residents. (2) Areas that are predominantly white score high on socioeconomic status in addition to being characterized as gaining few new residents from nearby areas.

Contrary to the data for the central city, the data for the suburbs indicate a positive causal relationship between socioeconomic status and rates of intra-metropolitan movements. The correlation coefficient indicates that a fairly important relationship between the independent and dependent variables can be established. However, the analysis of variance does not support a significant relationship between socioeconomic status and the proportion of intra-metropolitan movements. The F-value is smaller than 4.00, the level at which the correlation is being tested for its significance. The regression slope indicates that an increase of one unit in socioeconomic status is followed by an increase of .19% of the movers. The t-value is smaller than 1.671, indicating
Scattergram 4.4. Relationship between socioeconomic status and intra-metropolitan mobility for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
that socioeconomic status is not a significant determinant of the rate of intra-metropolitan movement. The scattergram (4-4) exhibits supporting evidence for the correlation analysis and regression slope. A definite positive relationship between socioeconomic status and the rate of moving is recognizable. Thus, it may be concluded that as socioeconomic status of an area increases, its proportion of intra-metropolitan movers increases. Areas which score high on socioeconomic status have an equally high rate of turnover. On the contrary, areas which score low on socioeconomic status are characterized by their stability.

These findings are still consistent with Rose's hypothesis, which states that socioeconomic status is directly proportional to distance moved (1958). To substantiate this conclusion, it is necessary to compare these findings with the findings in the previous section. An area's high proportion of Negroes predetermines its lower socioeconomic status as compared to whites. Both of these characteristics of an area are associated with an area characterized by its stability. An area's proportion of whites and its socioeconomic status are directly proportional to its rate of intra-metropolitan movements. Hence, areas with high rates of whites have equally high rates of new residents from the same metropolitan area. This finding is very likely a support for the theory of the white exodus to the suburbs. Likewise, areas which are predominantly white score relatively high on socioeconomic status and they are characterized by high rates of population
When movements to the suburbs are considered as involving greater distances as compared to intra-city movements, it may be concluded that those occupying favorable socioeconomic positions move greater distances.

Summary of Socioeconomic Status Differentials Among Movers—
The conclusions from an analysis of movers with regard to socioeconomic status may be summarized as follows: The findings for Richmond and the combined results for Chesterfield and Henrico indicate opposite relationships between socioeconomic status and rate of intra-metropolitan movement. For the central city, an increase in socioeconomic status is followed by a decrease in the rate of moving. In the surrounding suburbs, an increase in socioeconomic status is accompanied by a decrease in the rate of moving. Furthermore, it may be implied that: (1) In the central city, the intra-metropolitan movers are predominantly low in socioeconomic status. (2) There is an under-representation of those at the bottom of the socioeconomic status hierarchy among movers to suburban areas. (3) There are only a few of high socioeconomic status who changed their residence within the city between 1955 and 1960. (4) Movers to the suburban ring are well represented by those of relatively high socioeconomic status. Furthermore, it may be concluded that among intra-metropolitan movers, those occupying favorable social and economic positions tend to move away from the central city to the suburbs.
Age Differentials Among Movers

This section will be devoted to an examination of an area's age composition as a determinant of moving patterns. With this viewpoint, the question under consideration is: "What relationship, if any, is there between age composition and intra-metropolitan patterns of migration?"

TABLE 4-4

CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT 18-34 BY MOVERS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th></th>
<th>Movers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central City</td>
<td>Suburbs</td>
</tr>
<tr>
<td></td>
<td>N = 61</td>
<td>N = 26</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>-.09</td>
<td>.00</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>.47</td>
<td>.00</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-.13</td>
<td>.00</td>
</tr>
<tr>
<td>t-test</td>
<td>-.69</td>
<td>.01</td>
</tr>
</tbody>
</table>

At \( \alpha = .05 \)  
\[
\frac{F_{1,59}}{F_{1,24}} = 4.00
\]
\[
\frac{F_{0.05}}{F_{0.25}} = \pm 1.671
\]
\[
\frac{F_{0.01}}{F_{0.25}} = \pm 1.708
\]

The data on Table 4-4 indicate that the correlation between proportions of persons between ages 18-34 and movers is so small that no relationship can be considered. Similarly, the F-test indicates that the relationship is not statistically significant. The regression slope indicates that a change of 1% in the proportion of persons between ages
Scattergram 4-5. Relationship between age composition and intra-metropolitan mobility for census tracts in the central city of the 1960 Richmond S.M.S.A.
18-34 is followed by a change of only .13% in the rate of moving. Likewise, the t-test reinforces the non-significance of the relationship between the independent and dependent variables. The scattergram (4-5) provides additional substantiation on the non-existent relationship.

The data on the suburbs shed more light on the non-significance of the relationship between an area's age composition and its rate of movers within the community. The correlation indicates a definite non-existent relationship. Likewise, the analysis of variance provides similar information. The regression slope, too, shows that there is no predictability between the independent variable and the dependent variable. The t-test also confirms the fact that an area's age composition does not provide any knowledge of its rate of local movements. The scattergram (4-6) manifests similar evidence.

A plausible explanation for these non-existent relationships may be attributed to the degree of homogeneity of both independent and dependent variables in the city and the suburbs. The degree of homogeneity of any variable is indicated by the size of the standard deviation around the means of the respective variables--the smaller the standard deviation, the higher the degree of homogeneity.

The difference in magnitude of the correlation and regression coefficients between central city and suburbs is attributable to the degree of homogeneity of both variables. The zero-order correlation and regression coefficients for
Scattergram 4-6. Relationship between age composition and intra-metropolitan mobility for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
the suburbs are a result of highly undifferentiated age structures in suburban areas and low rates of movers. Thus, there is no causal relationship between these variables either in the central city or in the suburbs.

**Sex Differentials Among Movers**

In this section the importance of sex composition of an area as a determinant of its rate of movers will be tested. The specific question to be investigated is: "How does the sex composition of an area determine its percentage of intrametropolitan movement when area of residence is held constant?"

**TABLE 4-5**

**CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT MALES BY MOVERS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.**

<table>
<thead>
<tr>
<th>Movers</th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 61</td>
<td>N = 26</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>.20</td>
<td>.00</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>2.49</td>
<td>.00</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-.41</td>
<td>.00</td>
</tr>
<tr>
<td>t-test</td>
<td>-1.58</td>
<td>.00</td>
</tr>
</tbody>
</table>

At $\alpha = .05$  

$F_{1,59} = 4.00$

$F_{1,24} = 4.26$

$T_{260} = +1.671$

$T_{25} = +1.708$

In general, the data (Table 4-5) for Richmond indicate
Scattergram 4-7. Relationship between sex composition and intra-metropolitan mobility for census tracts in the central city of the 1960 Richmond S.M.S.A.
a very weak relationship between sex composition of an area and its percentage of movers. The correlation coefficient indicates an almost meaningless, negative relationship between these independent and dependent variables. The regression slope shows that an increase of 1% in the proportion of males is associated with a decline of .41% in the rate of local movers. The regression slope indicates that sex composition of an area is a fairly important determinant of its rate of local movers. The scattergram (4-7) tends to support this latter implication.

The tests of significance show that both the correlation analysis and regression slope are not significant at the .05 level. The F-value is smaller than 4.00, the t-value is also smaller than -1.671. However, the magnitude of the t-value is not much smaller than the level at which the regression coefficient is being tested. Therefore, the writer is inclined to develop inferences on the basis of information provided by the regression slope and the scattergram.

A negative relationship between sex composition of an area and its rate of movers leads to the following implication. A highly transient area is also characterized by fewer males than females. A further implication is that females appear to be more mobile within metropolitan areas than males. This finding is not surprising. On the contrary, the finding is consistent with one of the "laws" or "generalizations" developed by E. S. Ravenstein, 80 years ago, and recently discussed by Everett S. Lee. "There is a predominance of females
among short-distance migrants; in other words, in short-distance migration, females tend to outnumber males" (Lee in Bogue, 1969: 756).

On the other hand, the data for the suburbs do not seem to support the findings for the city. With correlation and regression coefficients of zero, no causal relationship apparently exists between an area's sex composition and its percentage of movers. Both F- and t-values are also zero, indicating the non-significance of the relationship. The scattergram (4-8) demonstrates the same non-existent relationship.

Summary of Sex Differentials Among Movers—With respect to sex composition, the results for differentials among movers may be summarized as follows: The findings for Richmond indicate an inverse relationship between the proportions of males and movers. In the suburbs, there is no recognizable relationship. Hence, only areas in the city with high rates of males are characterized by stability. Furthermore, areas of the city used primarily by women are characterized by high local mobility.

Marital Status Differentials Among Movers

The importance of the proportion of married persons in an area as a determinant of its rate of movers will be reviewed in this section. With this framework the question under consideration is: "How, in either the central city of the suburbs, does the percentage of married people in a census
Scattergram 4-8. Relationship between sex composition and intra-metropolitan mobility for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
tract determine its rate of movers within the community?"

TABLE 4-6

CORRELATION COEFFICIENT, ANALYSIS OF VARIANCE, REGRESSION COEFFICIENT AND t-TEST FOR PERCENT MARRIED BY MOVERS AND AREA OF RESIDENCE, 1960 RICHMOND S.M.S.A.

<table>
<thead>
<tr>
<th>Movers</th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>N = 61</td>
<td>N = 26</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>-.06</td>
<td>.47</td>
</tr>
<tr>
<td>Analysis of variance</td>
<td>.25</td>
<td>6.74</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-.09</td>
<td>.82</td>
</tr>
<tr>
<td>t-test</td>
<td>-.50</td>
<td>2.60</td>
</tr>
</tbody>
</table>

At $\alpha = .05$ 

$F_{1, 59} = 4.00$

$F_{1, 24} = 4.26$

$t_{60} = +1.671$

$t_{25} = +1.708$

The statistics (Table 4-6) for the central city do not indicate the existence of a relationship between these two variables. The correlation analysis indicates an almost meaningless relationship between percent of married people in an area and its rate of movers. As the analysis of variance is a function of the correlation, the F-test supports a non-significant relationship. The regression slope is, similarly, so small that no predictability of the dependent variable can be acknowledged. The t-test necessarily indicates the insignificance of the regression slope. However, the scattergram (4-9) demonstrates a definite negative relation-
Scattergram 4-9. Relationship between marital status and intra-metropolitan mobility for census tracts in the central city of the 1960 Richmond S.M.S.A.
ship between proportions of married persons and movers. Hence, census tracts with large proportions of married persons have few intra-metropolitan mobile residents. On the other hand, an area populated by predominately single persons has a large number of new arrivals from other parts of the metropolitan area. Furthermore, it can be implied that the intra-city mobile population is mostly comprised of single persons.

When intra-metropolitan mobility is considered as one aspect of the migration phenomenon, the findings for Richmond are consistent with the usual theory on selective migration. Migrants, generally, are single persons (Petersen, 1969: 264-65). Moreover, such findings are expected because it is more feasible for single persons to make frequent residential changes.

Contrary to the findings for the central city, a positive relationship is exhibited between marital status and the proportion of movers in the suburbs. The correlation analysis shows an important negative relationship between proportions of married people and movers in an area. The analysis of variance further confirms the significance of the relationship between the independent and dependent variables. The F-value is considerably larger than 4.26, the level at which the correlation is being tested. The regression slope indicates a very high predictive value on the dependent variable. An increase in the proportion of married people is followed by an increase of .82% of intra-metropolitan movements. The t-test similarly confirms the significant relationship established by the regression slope. The t-value is larger
Scattergram 4-10. Relationship between marital status and intra-metropolitan mobility for census tracts in the suburbs of the 1960 Richmond S.M.S.A.
than +1.708, which means that the relationship is significant at the .05 level. In addition, the scattergram (4-10) provides further support for the positive relationship between marital status and rate of moving. It may be implied that when an area is over-represented by married persons, it will probably be highly transient. Therefore, movers to the suburban ring are primarily comprised of married people with their families. On the other hand, there are relatively few single persons among movers to the adjacent suburbs. These findings are not surprising, considering the available residential arrangements in the suburbs. Suburbs provide more housing for families than single persons. Housing in the suburbs are primarily single-family dwelling units rather than apartment-type residential arrangements. These findings further confirm theories on the family-oriented suburban residents.

In conclusion, the findings for movers differentials with respect to marital status may be summarized as follows: Marital status is inversely proportional to the rate of movers in the city while in the suburbs a positive relationship is indicated. Hence, in the central city, an increase in the proportion of single persons is accompanied by a decrease in the rate of movers. Thus, movers in the central city are predominantly comprised of single persons. On the other hand, in the suburbs, movers are primarily comprised of married persons with their families.

Summary of Movers Differentials in the 1960 Richmond S.M.S.A.

Differentials in patterns of moving, with respect to race,
socioeconomic status, age, sex, and marital status, have been examined in detail in this chapter. A review of the findings will be presented in this section.

Intra-metropolitan mobility is high in both the central city and the contiguous suburbs. Approximately one-third of the total population in both Richmond and its surrounding counties of Chesterfield and Henrico have changed their residences within the metropolitan area between 1955 and 1960. This finding substantiates a report by the Richmond City Planning Commission which claims that, since 1950, a great number of married persons now live in their own houses rather than with relatives or others (p. 5). Hence, residential mobility among married persons accounts for a good portion of voluntary moves, which are primarily movements to the suburban ring. However, as the findings have indicated, in the city, there is a predominance of Negroes, residents of low socioeconomic status, females, and single persons among the movers. Furthermore, the city also indicates a higher rate of movers than the suburbs. This difference may be attributed to forced moves in the city as a result of Urban Renewal Programs (Gans, 1965; Greer, 1965; Jacobs, 1961). Urban Renewal Programs have particularly affected those areas occupied by Negroes of low socioeconomic status who are unmarried females.

Intra-metropolitan movers in the central city are primarily Negroes while movers to the suburban ring are primarily comprised of whites. In addition, movers in the city are comprised of those ranking low in socioeconomic status. In the
suburbs, movers generally occupy favorable socioeconomic positions. It has been found that age does not appear to be a determinant of the rate of movers in both the city and the suburbs. It has also been found that there are more females than males among intra-metropolitan movers in the city. No indication is provided by the suburban data concerning the relevance of sex composition as a determinant of the rate of movers. Furthermore, the majority of movers in the central city are single persons and, in the suburbs, movers are primarily comprised of married persons.

The findings on the differentials for movers have indicated differences between movers in the city and the suburbs. Similar to the findings on migrants, the findings on movers within the 1960 Richmond metropolitan area show that place of residence is a significant control variable. The importance of the control variable, in conjunction with a breakdown of the mobile population into migrants and movers, will further be analyzed in the next chapter.
CHAPTER V

A COMPARISON OF DIFFERENTIALS FOR MIGRANTS AND MOVERS

AND FURTHER IMPLICATIONS FROM THE FINDINGS

The position of the mobile person in the city may be viewed as part of the larger problem of mobility and of the segregation of population types within the city. The many types of movement within urban areas have been characterized as resulting in selective distributions of population and personality types in the metropolitan area. "The city acts as a giant sieve sorting out its inhabitants into groups which are more or less socially and economically homogeneous" (Cressey in Freedman, 1950: 3). Furthermore, Bogue claims that "the specific differences are not independent of each other, but are highly interrelated. Therefore, internal migration is selective of persons with particular combinations of traits (Bogue, 1969: 794). This research project on migration and moving differentials has been an effort to discover ways in which internal migration is selective of persons with particular characteristics or combinations of characteristics.

Migrants and movers have been examined for each of the social characteristics considered in this study, while controlling for area of residence in the city or suburbs. The specific differentials have been treated in detail in the two
preceding chapters with summaries at the conclusion of each section and chapter. In this final chapter, the focus will be on a comparison of differentials for migrants and movers, followed by inductive implications from the findings of this research project.

The detailed examination of patterns of migration and moving in the 1960 Richmond S.M.S.A. has indicated differences between migrants and movers to the central city and its surrounding suburbs. In general, migrants to the central city may be characterized as follows: (1) they are predominantly white; (2) they score relatively low on socioeconomic status; (3) they are well-represented among people between the ages 18-34; (4) they are over-represented by males; and, (5) they are primarily single. Data concerning intra-metropolitan movers in the city indicate that (1) they are predominantly Negro; (2) they rank low on socioeconomic status; (3) they are over-represented by females; and, (4) they are mainly single persons. The characteristics associated with migrants to the suburban ring are: (1) they are primarily white; (2) they rank high on socioeconomic status; (3) they are primarily of the age category 18-34; (4) they are disproportionately female; and, (5) they are over-represented by married persons. Intra-metropolitan movers in the suburbs are (1) primarily white; (2) of high socioeconomic status; and, (3) predominantly married persons.

It has been found that internal migration is highly selective in many different ways. The findings on migrants
to the central city indicate similar characteristics associated with earlier foreign immigrants. In addition, when long-distance mobility is concomitant with job changes, the majority of migrants will be young persons who are beginning a career. Intra-metropolitan movers in the central city, however, reflect the disadvantaged and those who are continually forced to move, as a result of urban renewal programs. From the findings on migration to the suburban ring it may be inferred that there is a relatively high sex ratio among suburban migrants. Assuming that long-distance movements are occupationally motivated, it may be implied that the metropolitan area provides an abundance of clerical positions. Furthermore, intra-metropolitan movers in the suburbs are probably part of the white exodus to the suburban areas.

The importance of this research project is in providing basic, demographic information which may contribute to the development of theories and further research. As a demographic study, this research work has not provided answers that would explain why a particular demographic situation exists or what forces underlie an observed change in the size, composition and distribution of a population (Bogue, 1969: 753). In general, the findings indicate that migrants tend to resemble movers when area of residence is controlled. Cressey and Freedman claim that inhabitants of sub-areas within the city are more or less socially and economically homogeneous (1950: 3). Hence, the social characteristics of migrants and movers resemble those of the indigenous residents.
Furthermore, the areas in which the indigenous residents reside tend to attract new residents with similar social characteristics. It may further be implied that an area's attractiveness to new residents is determined by the social characteristics of the indigenous residents. Further research would be necessary to find the answer to the question of why people are attracted to one area rather than another. Therefore, the following hypothesis is suggested as a premise for further research: "An area's attractiveness to internal migrants is determined by a combination of social characteristics of the residents of the area of destination."

In his study on Levittown, Gans found that the majority of Levittown residents were attracted to the area because it offered "the best house for the money" (1967: 32). By utilizing the data for the 1960 Richmond metropolitan area it would be of interest to prove the validity of Gans' finding. Hence, the following hypothesis is suggested: "When change of area of residence is involved, choice of residence is determined by the available housing at the area of destination."

If the previous hypotheses are confirmed then the following hypothesis is suggested: "To the other-directed, highly-conforming, middle-class Americans, the social characteristics, rather than the availability of housing are the prime determinants in choice of area of destination.

The above suggested hypotheses will provide answers to reasons why one community "pulls" selected mobile persons. Besides the attractive conditions at place of destination, the
circumstances at place of origin that repel residents should also be explored when developing generalizations on migratory movements. "Migration research, in fact, begins with the premise that every departure for a new community is either a response to some impelling need that a person believes he cannot satisfy in his present residence or a flight from a situation that for some reason has become undesirable, unpleasant, or intolerable" (Bogue, 1969: 753).

However, no valid "laws" can be formulated on migration streams because empirical regularities do not always hold (Petersen, 1969: 289). This latter claim is further substantiated by Bogue who states that "it is fruitless to seek permanence and inflexible differentials in migration that will not vary to some degree at least, in pattern and intensity with time and place" (1969: 794-95). Abstractions which are made in order to classify the specific "push" and "pull" forces at work provide a framework for generalizations on migratory movements through time.

The ultimate generalization of the various conditions under which migration takes place will lead to a typology on migratory streams. It has been suggested that such a typology should include personal motives and subjectively-interpreted socioeconomic environments of the presently occupied area, and another area that is a possible alternative (Bogue, 1969: 754 and Petersen, 1969: 289-90). Hence, if data were available on the "push" and "pull" factors of migrants and movers in the Richmond metropolitan area, an important contribution could be
made toward the development of a typology on migratory streams to and within a metropolitan area.

In addition to the theoretical inferences, several practical implications derived from the findings of this research project are also being offered. Redistribution of the urban population, as a result of migration and moving into and within the metropolitan area, is related to many urgent problems of urban living. For example, "the problems of the stability of the electorate and the ability of the political machines to control the political life of local areas are closely related to the rate of turnover of the local population and to the social and economic level of the incoming new residents" (Freedman, 1950: 2). Furthermore, the size and socioeconomic status of new residents also determine land values. Land values are, in turn, important determinants of land use and locations of various public services. Thus, the problems of development and redevelopment are closely related to the changing pattern of population settlements.

The findings of this study should, therefore, be relevant to the concerned citizen who wishes to assess the effects of migration and moving upon the growth of the population and the area. The distribution and redistribution of people also affect the available human and natural resources and requirements for public services. Moreover, increasing and decreasing congestion have practical effects on conditions of living, working, shopping and playing. It is, therefore, suggested that this kind of research can be used to reevaluate existing
housing, educational and recreational facilities and various public services in light of a flux in population. The findings of this study reveal the social characteristics of the new residents. On the basis of this information, projections can be made regarding improvement and or implementation of services in relation to the needs of new residents with selected social characteristics.
### APPENDIX I

**SCORES FOR CATEGORIES OF YEARS OF SCHOOL COMPLETED**

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Score</th>
<th>Category</th>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>College: 5 or more</td>
<td>67</td>
<td>High School:</td>
<td>4 23</td>
<td>Elementary:</td>
</tr>
<tr>
<td>93</td>
<td>4</td>
<td>49</td>
<td>3</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>89</td>
<td>3</td>
<td>42</td>
<td>2</td>
<td>08</td>
<td>5 and 6</td>
</tr>
<tr>
<td>86</td>
<td>2</td>
<td>34</td>
<td>1</td>
<td>04</td>
<td>3 and 4</td>
</tr>
<tr>
<td>83</td>
<td>1</td>
<td>02</td>
<td></td>
<td>01</td>
<td>None</td>
</tr>
</tbody>
</table>

## APPENDIX II

### SCORES FOR CATEGORIES OF FAMILY INCOME (OR INCOME OF PERSONS NOT IN FAMILIES)

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>$25,000 or more</td>
<td>49</td>
<td>$5,000 to $5,499</td>
</tr>
<tr>
<td>98</td>
<td>$15,000 to $24,999</td>
<td>41</td>
<td>$4,500 to $4,999</td>
</tr>
<tr>
<td>94</td>
<td>$10,000 to $14,999</td>
<td>34</td>
<td>$4,000 to $4,499</td>
</tr>
<tr>
<td>89</td>
<td>$9,500 to $9,999</td>
<td>27</td>
<td>$3,500 to $3,999</td>
</tr>
<tr>
<td>87</td>
<td>$9,000 to $9,499</td>
<td>21</td>
<td>$3,000 to $3,499</td>
</tr>
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<td>84</td>
<td>$8,500 to $8,999</td>
<td>17</td>
<td>$2,500 to $2,999</td>
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<tr>
<td>81</td>
<td>$8,000 to $8,499</td>
<td>12</td>
<td>$2,000 to $2,499</td>
</tr>
<tr>
<td>78</td>
<td>$7,500 to $7,999</td>
<td>08</td>
<td>$1,500 to $1,999</td>
</tr>
<tr>
<td>74</td>
<td>$7,000 to $7,499</td>
<td>05</td>
<td>$1,000 to $1,499</td>
</tr>
<tr>
<td>69</td>
<td>$6,500 to $6,999</td>
<td>03</td>
<td>$500 to $999</td>
</tr>
<tr>
<td>63</td>
<td>$6,000 to $6,499</td>
<td>01</td>
<td>Loss, none, or less than $500</td>
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## APPENDIX III

### SCORES FOR CATEGORIES OF MAJOR OCCUPATION GROUPS

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>Professional, technical, and kindred workers.</td>
</tr>
<tr>
<td>81</td>
<td>Managers, officials, and proprietors, except farm.</td>
</tr>
<tr>
<td>71</td>
<td>Clerical, sales, and kindred workers.</td>
</tr>
<tr>
<td>58</td>
<td>Craftmen, foremen, and kindred workers.</td>
</tr>
<tr>
<td>45</td>
<td>Operatives and kindred workers.</td>
</tr>
<tr>
<td>34</td>
<td>Service workers, including private household.</td>
</tr>
<tr>
<td>20</td>
<td>Laborers, except farm and mine.</td>
</tr>
<tr>
<td>33</td>
<td>Occupation not reported.</td>
</tr>
</tbody>
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