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RACE AND INTRA-URBAN MIGRATION

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Abstract—Data from the urban renewal experience in Syracuse, New York are used to examine the impact of race on patterns of intra-urban migration. The results show that, overall, the migration patterns exhibited an exponential decay in frequency with increasing distance. Both blacks and whites display this pattern, but blacks tend to cluster more closely around the point of origin. Indirect evidence is developed to show that this phenomenon is due to blacks and whites having different access to information about housing, which ultimately maintains housing segregation.

In 1963, the city of Syracuse, New York inaugurated a program of urban renewal. As a result, an area of substandard housing, located at the intersection of four contiguous census tracts (tracts 32, 33, 41, and 42), was eliminated. This area was adjacent to the downtown shopping district and constituted the core of the city's black neighborhood. The population living in the urban renewal area was not, however, uniformly black; it was about two-thirds black and one-third white.

The leveling of all residences in the renewal area forced hundreds of families, white and black, to find new housing. Records of intra-city migrations were kept by the city's Urban Improvement Department. Of the 746 families that were compelled to move, 489 were black and the remainder (257) were nonblack, primarily white. Of these, 575 families relocated within the city, and 173 left. The 575 families break down into 366 black and 209 nonblack.

Specifically, the city's data describe the total flows of the 575 migrating families into and out of city census tracts by race. For any given tract, the data show the total number of relocating black and nonblack families moving into and out of that tract. These data do not show the movements of particular families; nor do they show movements by street address.

One major consequence of the urban renewal program in Syracuse was a public debate about what its ultimate effect would be on residential racial segregation. Some defenders of the program believed urban renewal would reduce segregation, some critics argued that the program would actually increase segregation, and there were those, of course, who argued that it would have no effect on segregation at all (Campbell et al., 1964).

These data permit the examination of patterns of movement created when a large number of households relocate in a relatively short period of time. Moreover, they permit the systematic comparison of intra-urban migration patterns by black and white migrants. It is this pair of problems that are addressed in the present paper.

Background for the Study of Migration

Previous studies of intra-urban migration have shown that the frequency of

movement is an inverse function of the distance between the origin and the destination of migrants (Morrill, 1963; Morrill and Pitts, 1967; Brown and Moore, 1970). A great many standard simple functions have been fit to intra-urban migration data, including the compound interest equation of Pareto, the lognormal, the exponential, and a more complex combination of the Pareto and the exponential functions. Morrill and Pitts (1967) fit all four of these equations to five different sets of intra-urban movement data. They came to the conclusion that, although any of these functions provides a reasonably good approximation to the form of the relation between frequency and distance, the best fit for migration data was produced by the exponential equation

$$Y = ae^{-bD},$$

where D = a migration distance, Y = the number of persons moving a distance equal to D, a and b are free parameters, and e is the base of the natural logarithms. Their results indicate that distance and frequency of migration customarily share more than 90 percent of the variance. Migration, it would seem, is an extremely lawful phenomenon.

Exactly what causes the decline in frequency of migration with increasing distance has been considered in several papers by Brown and others (Brown and Moore, 1970; Brown, Horton, and Wittick, 1970; Brown and Holmes, 1971a; Brown and Holmes, 1971b). They propose a set of ideas involving the flow of information in a network of human communication.

Typically, a person seeking urban housing has very little information about the market. His job would be relatively simple if he could obtain a complete list of available housing: He could design an intelligent search plan and, after comparing all the possibilities, make a rational choice. Housing information, however, particularly in the low-cost rental market, is not readily available. Finding an acceptable place largely depends on a person's ability to sample a range of information channels (Brown and Moore, 1970). He may read the want ads, call realtors, ask friends, or simply move around and look for vacancy signs. In the low-cost rental market, however, the first two of these four channels are relatively ineffective. Rossi (1955) has shown that the percentage of effective use of newspapers and realtors in finding housing were only 18 and 14 percent, respectively. This means that a person seeking housing must depend to a very great degree on his knowledge of the city and, in particular, on his contacts with others who might be helpful in locating a vacancy.

Essentially, success in finding a vacancy in a particular location depends on a person's "awareness space" (Brown and Moore, 1970; Brown, Horton, and Wittick, 1970). Horton and Reynolds (1970) have shown that an urban resident's general awareness about other locations in his city declines with the distance of those locations from his residence. His network of contacts—therefore, his access to information—are both dense in his immediate neighborhood and increasingly sparse with greater distance from his home. Therefore, to the degree that an urban resident depends on his network of contacts in locating a vacancy, he will find more opportunities closer to his own residence. Thus, the tendency of persons to find new housing relatively close to their old residence is simply the result of a spatial bias in their opportunity to locate vacancies.

This is a simple, obviously oversimplified, conception of a search process. It does not treat the subtle complexities of each particular migrant's experience. Nevertheless, it proposes a rationale, based on information gathering in social networks, for the ability of a distance-decay function to forecast migration frequencies.

The Syracuse Results

The instance of migration examined here is unique, in that it involves the more or less simultaneous movement of a rather

large number of migrants from a common origin. The studies described above, on the other hand, traced individual, one-at-a-time movements from locations throughout particular areas; movements were independent. It is entirely possible that the movement of an entire neighborhood may bias the information gathering of the migrants in such a way that the standard exponential distance-decay pattern would not be observed. The potential nonindependence created by a number of migrants seeking housing together, for example, could result in an entirely different relation between distance and frequency of migration.

The fit of the exponential distance-decay function to the data for all migrants within Syracuse is indicated in Table 1. In order to evaluate the effectiveness of this equation in forecasting migration frequency by distance, Pearson's r was calculated on the logarithms of these variables. The square of the calculated value, $r^2 = .96$, indicates that, for these data, 96 percent of the variance in migration frequency can be explained on the basis of distance. Thus, the overall pattern of migration in Syracuse is consistent with previous findings about intra-urban migration. Simultaneous relocation of an entire neighborhood, it seems, has no effect on the exponential distance-decay pattern.

Forecasts based on the exponential function for blacks and whites, taken separately, are still quite good, as shown in Table 2. For blacks, $r^2 = .93$; for whites, $r^2 = .92$. However, the table also shows different patterns of migration. In general, it seems that blacks tend to cluster closer to the point of origin than do whites. In fact, for the Syracuse data, half of the white population was relocated within .323 miles of the origin, while the corresponding figure for blacks was .216 miles. Thus, although both races exhibited similar exponential patterns of spatial movement, the black migrants ended up considerably closer to their original residences than did the whites.

The explanation of this variation must lie in some differential experience of white and black migrants. Perhaps black migrants located acceptable housing just as readily as whites, but white landlords refused to rent to black applicants (Freeman and Sunshine, 1970). Although federal regulations and state law forbid such dis-

TABLE 1.—Migration Density in Syracuse, Observed and Predicted by the Exponential-Decay Model

	Density per Square Mile	
Distance in Miles	Observed	Predicted
0 -0.5	196.08	207.66
0.5 -0.75	78.43	95.92
0.75-1.0	69.85	49.04
1.0 -1.25	37.91	24.97
1.25-1.5	21.30	12.69
1.5 -1.75	3.92	6.44
1.75-2.0	2.04	3.27
2.0 -2.25	.90	1.66
2.25-2.5	1.34	.84
2.5 -2.75	.24	.42
2.75-3.0	.22	.21
3.0 -	.20	.11

TABLE 2.—Migration Density in Syracuse by Race of Migrant, Observed and Predicted by the Exponential-Decay Model

	Density per Square Mile			
	Black		White	
Distance in Miles	Observed	Predicted	Observed	Predicted
0 -0.5	128.60	172.83	67.48	48.73
0.5 -0.75	69.26	69.11	9.17	26.40
0.75-1.0	38.56	31.17	31.28	15.51
1.0 -1.25	16.41	13.99	21.50	9.08
1.25-1.5	16.67	6.27	4.63	5.31
1.5 -1.75	1.57	2.80	2.35	3.10
1.75-2.0	.68	1.25	1.36	1.81
2.0 -2.25	.30	.56	.60	1.06
2.25-2.5	.54	.25	.80	.62
2.5 -2.75	--	--	.24	.36
2.75-3.0	--	--	.22	.21
3.0 -	--	--	.20	.12

crimination, the efficacy of such rules is debatable. However, recalling the tensions and self-consciousness of the period, we do not believe that the spatial dispersion of the 489 black migrant families was significantly influenced by discrimination on the part of landlords.

A second possible explanation of the variation in spatial migration patterns by race is economic: differential ability to pay for housing. The economic capabilities of the black migrants, however, was probably not much inferior to that of the white migrants. In fact, the mean rent for new dwellings paid by black migrants was about $9.00 greater than that paid by white migrants. This suggests economic discrimination, but it does not account for differences in location.

A third possible explanation is that there's a racial bias on the information networks described earlier. We have postulated that information about new housing was mostly obtained through interpersonal contacts. However, if blacks would not contact whites or if whites who knew of available housing kept that information from blacks who needed it, then only by contacting other blacks could a black migrant get useful information leading to a successful relocation. The search for housing by blacks would, consequently, be biased by what Brown and Holmes (1971) called an "orientation node"—a special location or set of locations relevant to the migration decision. In this case, it is assumed that blacks are oriented to locations already characterized by black occupants. Thus, the probability of a black family finding a vacancy in a particular area would be proportional to the number of blacks already located in that tract.

In order to examine this reasoning, the correlation between the number of blacks in each tract according to the 1960 census and the number of black families relocating in that tract was calculated. The r^2 is equal to .90.

The size of the correlation suggests that racial prejudice may separate the migrants' contacts for housing information into two, more or less separate, networks. In other words, a racial bias on the communication of this information seems to reduce the number of available houses

blacks can know about and restricts such knowledge to information about previously "black" neighborhoods.

In the absence of detailed information on the ways in which blacks and whites gained information about available housing, this correlation cannot be taken as proof of the soundness of this reasoning. It does suggest that a study of the communication networks which transmit housing information might be made to account for the different shapes of the negative exponential displayed by black and white migrating groups.

The black-white differential just mentioned does have an interesting implication for determining the impact of urban renewal on segregation. If urban renewal works as it did in Syracuse—i.e., eliminating the area of greatest concentration of black housing but resulting in the redistribution of those blacks to other areas of the city in proportion to the numbers of blacks already residing in those areas—it must, if repeated, increase segregation. Each successive repetition of this renewal policy eliminates blacks from a given area. Each, therefore, results in the reduction of the number of tracts occupied by blacks and in a relatively greater concentration of blacks in the remaining tracts.

Depending on initial conditions in terms of the distribution of blacks in tracts throughout the city, a given application of this sort of urban renewal process might either reduce or increase the concentration of blacks. If, for example, 90 percent of the black population were concentrated in a tract and 1 percent in each of ten other tracts, elimination of the tract containing 90 percent would result in a great dispersion of the black population. On the other hand, if 50 percent of the initial black population were distributed in each of two tracts, elimination of one of these would result in the concentration of the entire black population in a single ghetto. In any case, regardless of initial conditions, *repeated* application of this process would always result in the allocation of all blacks to a single area of the city. Thus, the Syracuse experience suggests that, although urban renewal may result in a temporary reduction in the concentration of blacks, if allowed to continue it turns out to be a mechanism that maintains segregation.

Summary and Conclusions

This paper has shown that patterns of migration due to urban renewal in Syracuse, New York exhibit the same exponential distance-decay pattern that has been observed in other studies of intra-urban migration. Furthermore, the analysis of movements by race shows that the Syracuse urban renewal program relocated the main neighborhood of black concentration without disturbing the basic pattern of residential segregation. The findings suggest that differential access to housing information may be a key factor in maintaining segregated housing.

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