THE DISTANCE OF MIGRATION: IS IT SHORTENED BY FINANCIAL CONSTRAINTS?

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ABSTRACT: The distance of a destination of a migration is usually posited to be constrained by financial considerations. However, this assumption may be invalid in the case of depressed regions of more developed countries. The part of the migration process in which a destination is selected may in fact by impacted by other considerations such as familial and kinship ties, location-specific capital, and informal sources of information. This paper examines the distance of out-migration and the distance of return migration for three different types of depressed regions in Appalachia using data from the 1960 and 1970 U.S. censuses.

INTRODUCTION

In an era of decreased population growth in the United States, a major component of population change in the country is internal migration. Research on migration has been directed from economic, sociological, psychological, ecological, political, and geographical perspectives on both the micro- and macro-levels. Issues which have been addressed with respect to out-migration, in-migration, and return migration include the role of migration in economic growth, the selectivity of migration, the adjustment of migrants at their destinations, the importance of origin and/or destination conditions in the formulation of migration decisions, and the spatial and temporal contexts in which migration is conducted (DeJong and Gardner, 1981; Shaw, 1975). However, with the exception of one study of central Appalachia by Clark and Ballard (1980) concerning the importance of origin conditions in the formulation of out-migration decisions, little research has been done on the out-migration, in-migration, and return migration of depressed regions of more developed countries such as the United States. This paper examines the out-migration and return migration of a large heterogeneous depressed region, Appalachia. It first delimits three different sub-regions in Appalachia based on varying levels of underdevelopment and then compares the distances of out-migrations and return migrations for the three sub-regions in an effort to ascertain the impact of financial constraints on the migration distances.

DELIMITATION OF APPALACHIAN REGION

The 88th Congress established a Presidential Commission in 1963 to study a region which included portions of nine states. Two years later in 1965 the Appalachian Regional Development Act was passed and signed into law by President Lyndon Johnson. The Act established the Appalachian Regional Commission and expanded the number of states with areas in Appalachia to 12. A 1967 amendment added area in a 13th state, Mississippi to the Appalachian region. The region thus defined included 397 counties in 13 states plus 5 independent cities in Virginia (Appalachian Regional Commission, 1974; Newman, 1972; Walls, 1972). This was the basic study area. However, it was modified to coincide with the boundaries of the areas for which the migration data was aggregated.

The migration data from the 1960 U.S. Census and the 1970 Census was used in this study. It was aggregated at the State Economic Area level. State economic areas are groups of counties of homogeneous characteristics. If 50 percent or more of the counties comprising the state economic area were defined as Appalachian counties by the Appalachian Regional Commission, the state economic area was considered to be a part of the Appalachian region defined for use in this study. If fewer than 50 percent of the counties of the state economic area were part of the Appalachian Regional Commission defined region, that state economic area was excluded. The operational region of Appalachia which resulted from this method of demarcation is therefore composed of 381 counties in 61 state economic areas in 13 states.

The next step included division of the entire underdeveloped Appalachian region into three sub-regions on the basis of level of development. The three part subdivision was based in part on a subdivision suggested by the Appalachian Regional Commission (Appalachian Regional Commission, 1974; Widner, 1970) and modified via the use of an Index of Development contrived for this purpose.

The index value indicating the level of sociodemographic, economic, and infrastructural development of each state economic area was used to assign the 61 state economic areas to each of the three sub-regions via iterative discriminant analysis (Gansner, Seegrist, and Walton, 1971).

If the discriminant analysis classified a state economic area as one kind of region, but it was surrounded by state economic areas classified as another type of region, it too was given the same classification as the region which surrounded it for the sake of regional contiguity. This was the case of only one anomaly, Alabama State Economic Area A, Birmingham.

The northern area of Appalachia is composed of 3 state economic areas in New York, 12 state economic areas in Pennsylvania, 5 state economic areas in Ohio, 1 state economic area in Maryland, and 2 state economic areas in West Virginia. Economic development in this sub-region has traditionally been dominated by a limited number of types of industries. Technological changes occurred in the production methods of the dominant industries. Because no substantial reinvestment had been made, the manufacturing establishments had outdated factories which no longer promised suitable returns on investment. Subsequently, the factories were closed. The lack of diversification in the economy meant that many factories ceased operations, causing unemployment to increase and employment opportunities to decrease. Hence the economy and the development of the region were in a state of decline. This sub-region of declining industry due to outdated manufacturing establishments has the highest level of development of the three Appalachian sub-regions. In addition the population has the highest level of education, the lowest level of fertility, the lowest incidence of poverty, and the highest levels of health of the three Appalachian sub-regions. Hence formal communication channels are most likely to be used as primary information sources in the selection an out-migration destination. Thus the out-migration will not be conducted under financial constraints as stringent as those of the other two sub-regions. Therefore, it is expected that the distances of the out-migrations from this sub-region will be greater than those of the other two sub-regions. Hereafter, this sub-region will be referred to as the INDUSTRIAL Region.

The central area includes 3 state economic areas in Virginia, 7 state economic areas in West Virginia, 4 state economic areas in Kentucky, and 5 state economic areas in Tennessee. This sub-region is archetypical of depressed regions and is the one most commonly thought of

as Appalachia (Ulack and Raitz, 1981). It is an area which is rich in natural resources such as coal and timber that have been extracted and removed elsewhere with little efforts by the outside interests exploiting the land to foster any development of the region (Caudill, 1962; 1971; 1976). Because most of the land is owned by these private outside interests or the government, the population has little access to the land and it remains virtually undeveloped (Appalachian Land Ownership Task Force, 1983). Consequently, the population suffers from a condition of isolation as a result of an inadequate transportation system. Lack of access to the land and a decline in the number of employment opportunities due to changes in the resource extraction methods tend to act as push factors in the migration process (Brown and Sanders, 1981). The lack of development is manifest in the demographic characteristics of the population of this region. It has the highest incidence of poverty, the lowest level of education, the poorest levels of health, and the highest levels of fertility of the three Appalachian sub-regions. The demographic characteristics tend to indicate that the migration will be oriented toward the use of an informal network of family and friends at the origin and destination in searching for employment and therefore will be primarily chain migration (Brown and Sanders, 1981). Hence it seems the out-migration will be conducted under the most severe financial constraints of the three sub-regions and will thus have the shortest distances to out-migration. For the remainder of this paper, this sub-region will be referred to as the RESOURCES Region.

The third and southernmost area includes 3 state economic areas in North Carolina, 2 state economic areas in South Carolina, 4 state economic areas in Georgia, 8 state economic areas in Alabama, and 2 state economic areas in Mississippi. The sub-region has a depressed agricultural economic base which is beset by many problems including high production costs due to outdated methods of production, soil erosion and infertility, and low prices for farm products in the marketplace. While this region has experienced a greater amount of development than the RESOURCES Region, it has experienced a lesser amount of development than the INDUSTRIAL Region. From this point on, this region will be referred to as the AGRICULTURAL Region.

Like the RESOURCES Region, the level of the development of the AGRICULTURAL Region is evidenced in the demographic characteristics. The population of this sub-region has a lower incidence of poverty and a lower level of fertility than the INDUSTRIAL Region. In addition, the population of the AGRICULTURAL Region has a higher level of education and enjoys better health than the RESOURCES Region, but it has a lower level of education and poorer health than the INDUSTRIAL Region. The population of this region experienced less isolation than the population of the RESOURCES Region, but a greater amount of isolation than that experienced by the population of the INDUSTRIAL Region.

Just as the level of development of the AGRICULTURAL Region is different from that of the other two sub-region, so is the migration pattern. Out-migration from this region is a response to changes in the basic regional economic sector: agriculture which results in less demand for labor and therefore less employment opportunities. In this respect the region is similar to the RESOURCES Region in that at least some of the out-migration is "resource-pushed." There is a significant amount of chain migration although this type of migration is not as prevalent in the migration process of this region as it is in the migration of the RESOURCES Region. The use of informal information sources such as other family members of friends to select a destination is in proportion to the amount of chain migration conducted (Brown and Sanders, 1981). Therefore it might be concluded that the migration of this region is less

financially constrained than the migration of the RESOURCES Region, but more constrained than the migration from the INDUSTRIAL Region. Thus the distances of the migration of this sub-region will be shorter than the distances of the INDUSTRIAL Region but longer than the distances of the RESOURCES Region.

ANALYSIS OF OUT-MIGRATION

Using the migration data from the state economic area tables of the U.S. Census for 1970, the number of out-migrants from each state economic area to all other non-Appalachian destination state economic areas was obtained. Using a digitizer and a road map published by the American Automobile Association, the distance from the population center nearest to the geographic center of each origin state economic area to every non-Appalachian destination state economic area was calibrated. Then the number of migrants was correlated with distance via an intervening opportunities model (Haynes, Poston, and Schnirring, 1973). The number of out-migrants and the distance between the origins and destinations were transformed to logarithmic functions in order to satisfy the linearity requirements of the regression model (Taylor, 1971). The slopes or beta values of the regression would represent the average weighted distances of the out-migration. A steep slope or higher beta value would indicate an out-migration pattern in which higher number of migrants traveled shorter distances, while a moderate or less steep slope would indicate a pattern in which few migrants journeyed longer distances.

The regression analysis produced distance slopes, or beta values for each of the 61 Appalachian state economic areas in the three types of depressed regions: INDUSTRIAL, RESOURCES, and AGRICULTURAL. Next, the distance slopes for the three regions were compared via a oneway analysis of variance. The F-ratio of 3.395 was significant at the .05 level. Results of the Scheffe multiple comparisons procedure found that the distance slopes, or beta values, of the out-migration from the AGRICULTURAL Region were significantly steeper or greater than the distance slopes or beta values of the out-migration of the INDUSTRIAL Region at the .05 level.

TABLE 1
Analysis of Variance of
Distance of Out-Migration 1965-70

Region	Mean	S.D.	N
INDUSTRIAL[1]	-.3059	.1888	23
RESOURCES[2]	-.3344	.2030	19
AGRICULTURAL[3]	-.4490	.1567	19

Analysis of Variance

Source	df	ss	ms	f
Between	2	.2304	.1152	3.3950
Within	58	1.9683	.0339	
Total	60	2.1987		

p < .05   A significant difference was found between:
         INDUSTRIAL and AGRICULTURAL Regions

[1]INDUSTRIAL is Declining Industrial Region
[2]RESOURCES is Rich in Natural Resources but Exploite Region
[3]AGRICULTURAL is Depressed Agricultural Region

These results indicate that the out-migrants from the AGRICULTURAL Region were selecting destinations which were shorter distances from the origin than were the out-migrants from the INDUSTRIAL Region. The distance of the out-migration from the RESOURCES Region was not significantly different from the distance of either of the other two depressed regions.

Therefore, the depressed regions exhibiting the lowest level of education and highest incidence of poverty and therefore the region that would have the highest amount of migration conducted under the most severe financial constraints of the three depressed regions instead had migration distances which were longer than the migration distances of the AGRICULTUR-AL Region.

TABLE 2
Analysis of Variance of
Distance of Out-Migration 1955-60

Region	Mean	S.D.	N
INDUSTRIAL[1]	-.1800	.1840	23
RESOURCES[2]	-.2368	.2552	19
AGRICULTURAL[3]	-.3587	.1243	19

Analysis of Variance

Source	df	ss	ms	f
Between	2	.3396	.1698	4.4861
Within	58	2.1954	.0379	
Total	60	2.5351		

p < .05   A significant difference was found between:
INDUSTRIAL and AGRICULTURAL Regions

[1]INDUSTRIAL is Declining Industrial Region
[2]RESOURCES is Rich in Natural Resources but Exploited Region
[3]AGRICULTURAL is Depressed Agricultural Region

The study was replicated using the data from the 1960 U.S. Census of Population with the same results. The distances of the out-migration from the AGRICULTURAL Region were significantly longer than the distances of the migration from the INDUSTRIAL Region. The distances of the migration from the RESOURCES Region were not significantly different from either of the other two regions.

ANALYSIS OF RETURN MIGRATION

A portion of in-migration to an area is return migration (Campbell and Johnson, 1976), but specific data for return migration were not available for state economic areas. Therefore, to derive estimates of return migration an addition set of data were necessary. A statewide percentage of return migrants was obtained from the Census of the Population: Subject Reports, Lifetime and Recent Migration. This was then multiplied by the number of in-migrants to an individual state economic area resulting in a proximate measure of the number of return migrants to each state economic area during the 1965-70 time period.

The number of return migrants were correlated with the distances of the return migration in the same manner that it was done for the out-migration analysis (Haynes, Poston, and Schnirring, 1973). Both the number of return migrants and the distance were transformed into logarithmic functions to satisfy the linearity requirements of regression analysis (Taylor, 1971). The slopes or beta values of the regression equations for the 61 state economic areas in the three depressed regions were then compared using a oneway analysis of variance. The F-ratio of .9100 was not significant at the .05 level. There were no differences among the three depressed regions with respect to distances of return migration.

TABLE 3
Analysis of Variance of Distance of
Return Migration

Region	Mean	S.D.	N
INDUSTRIAL[1]	-.3040	.2901	23
RESOURCES[2]	-.3299	.2120	19
AGRICULTURAL[3]	-.3984	.1509	19

Analysis of Variance

Source	df	ss	ms	f
Between	2	.0963	.0482	.9100
Within	58	3.0700	.0529	
Total	60	3.1664		

p > .05   No two regions were significantly different

[1]INDUSTRIAL is Declining Industrial Region
[2]RESOURCES is Rich in Natural Resources but Exploited Region
[3]AGRICULTURAL is Depressed Agricultural Region

CONCLUSIONS

The results of this research showed that the distances of the out-migration from regions with different levels of development were dissimilar. The region with the migrants who were the most constrained financially had out-migrations of greater distance than the region whose migrants had fewer financial constraints. A mitigating factor may be the amount of chain migration and the use of informal sources of information in the selection of a destination. Distance can be substituted for destination expenses because of the help available during out-migration from family and friends when chain migration is conducted. Hence the distance of out-migration can be longer for origin areas of more severe financial constraints.a:

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