RETURNS TO SOUTHERN MIGRATION

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I. INTRODUCTION

The importance of geographic mobility of labor is well recognized in the literature on regional economic growth (4, 19). From a broader perspective, the need for such mobility is evident in a dynamic national economy, and the rather extensive body of literature that formulates and tests theories of labor mobility (3, 7, 10, 11, 16) is evidence of the concern over human population movements. In general, available empirical work provides support for a classical or a human-capital theory of geographic labor mobility. But despite the fact empirical work shows that earnings differentials among geographic labor mobility. But despite the fact empirical work shows that earnings differentials among geographic area cause labor to move, there is little evidence on how migration affects earnings. Said differently, although there is substantial support for the hypothesis that earnings differentials cause migration, there is little or no empirical support for the hypothesis that migration increases the earnings of the migrants.

Effects of migration are an especially interesting issue in the case of migration to and from the South. Since earnings levels tend to be low in the South relative to other regions, it has not been surprising in the past to find net out-migration from the area. As Fein (9) observed, however, not only was there gross migration to the South of both whites and Negroes between 1955 and 1960, there was net in-migration of white males. Was this migration in response to earnings opportunities, or did it represent an aberration in the process of resource allocation?

The major purpose of this paper is to estimate returns to Southern migration for the period 1960-1966. Like Fein (9), we find net in-migration of white males and net loss of Negroes in Southern migration patterns. Our concern, however, is with the returns to the gross movements of labor to and from the region. In the next section we cast migration in the framework of an investment decision. Section III covers some issues in measuring returns to migration, and the data used in this paper are discussed in Section IV. Empirical results and a brief summary make up the two final portions of the paper.

RETURNS AND THE DECISION TO MIGRATE

If we assume that households attempt to maximize their wealth, that price levels are constant across regions, and that no differences in psychic income occur among regions, a person living in region i will move to region j if the net present value of his investment in migration is positive. Symbolically, net present value is expressed.

$$(1) \quad NPV = \sum_{t=1}^{n} (E_j, t - E_i, t)/(1+r)^t - c_{ij},$$

where   NPV = net present value;

E_j, t, E_i, t = earnings of the migrant in j and i;

r = rate of discount;

n = number of periods of work remaining in the life of migrant;

t = time period;

C_{ij} = cost of moving from i to j.

For a potential migrant considering the possibility of moving to alternative j's, the optimum investment is that j with the highest net present value. Since the j's are mutually exclusive investments, the region offering the highest internal rate of return--the k that makes $\sum_{t=1}^{n} (E_j, t - E_i, t)/(1+K)^t = C_{ij}$-- is not necessarily the best investment, for it need not provide the largest increment to the migrant's wealth.[1]

Our formulation of the migration decision suggests net present value as a method of measuring returns to migration, and we shall use that technique here. Alternatively, internal rate of return is one of the most common methods of assessing returns to investments in human capital.[2]

The first term on the right side of equation (1) can be labeled gross private returns to interregional migration. In the absence of externalities, such as congestion or economies of agglomeration, private returns will also measure a gross benefit to society from investments in migration. The earnings differential in gross returns is a real difference by assumption, and the time subscripts on the E's allow the differential to vary over time because of productivity change or the effects of age on earnings.

If we define a capital value as a discounted stream of future earnings, then gross returns can also be called a human-capital value formed by migration. Viewed in the context of Harry Johnson's (14) "capital accumulation approach" to economic growth, future returns to this human capital augment national income and thus reflect a form of economic growth. In the context of an aggregate production function, human capital formed by interregional migration can be viewed as an improvement in the "quality" of labor.[3]

Costs of investment in migration are a subtraction from gross returns in the calculation of net present value. These costs include the resources necessary to transport the migrant, his family, and belongings; opportunity costs of time spent traveling; additional living costs incurred during the move; and psychic costs of the move itself. The last of these probably forms a large part of private costs, even though they do not require economic resources.[4] Because of the difficulties of measurement and because human-capital formation can be defined separately from costs of moving, we shall omit moving costs from consideration in this paper. Thus our focus will be on gross returns, rather than net present values.

MEASURING RETURNS TO MIGRATION

Much of the work on migration apparently assumes that earnings of migrants to region j will be equal to average earnings of persons in j with the same characteristics. This assumption is implicit in the common practice of using average earnings in j and i as explanatory variables in regression equations that attempt to explain migration flows from i to j, although there

is often little discussion of the assumption. [5] In one of the few attempts to measure effects rather than causes of migration, Lansing and Morgan address specifically the issue of earnings of migrants relative to non-migrants:

> ... If mobility tends to increase income, one would expect people who have moved since their first job to have higher earnings than those who have not moved ... (15, p. 453).

> ... Ideally, to estimate the effect of mobility one would like to be able to compare the income of people who have moved with the income of people who are identical in potential earnings capacity but did not move ... (15, p. 450).

In their empirical analysis, however, Lansing and Morgan do not feel strong support for the hypothesis that mobile workers have higher earnings. Indeed, until education was held constant mobility was associated with lower earnings in their sample. They did find earnings gains for persons who moved from rural to urban areas and away from the Deep South when earnings of migrants were compared with earnings of persons who did not leave those places.

In theory, Lansing and Morgan expect migration to be a bestower of superior earnings positions are removed or mitigated. In other words, rather than conferring superior earnings of the mover, migration may remove some or all of earnings disadvantages associated with specific workers. Seen from this perspective mobile workers would not necessarily have higher earnings than non-mobile persons of similar characteristics. Migrants could have lower earnings than nonmovers, and yet migration could pay handsome rewards because of the earnings gains made through mobility.

The opportunity for migration to eliminate earnings disadvantages rather than bestow superior earnings positions is seen when we examine evidence on the predictive power of the obvious variables that explain income. Mincer (17, pp. 17, 18) reviews several studies that attempt to explain individual earnings with variables such as education, age, race, region, city size, occupation, industry, indices of ability and motivation, and others. The explained variance in these regressions ranges from about 35 to 50 percent of the variation in wages. Thus, characteristics that are commonly thought to be the more important determinants of earnings leave considerable unexplained variance in wages among individuals.

If we think of the regression plane that would be predicted from the explanatory variables listed above, our contention is that migration may be a means for a person to increase his earnings from below the predicted relationship. The Lansing-Morgan view says that migration is a way to move from a point on the regression plane to a point above it. Since we expect the residuals from the predicted relationship to be random, only if migrants tend to come from persons above the predicted relationship in a greater proportion than from below would the Lansing-Morgan hypothesis hold. If migration is also a way to mitigate or eliminate inferior earnings positions, however, earnings histories of migrants are required to assess accurately the returns to mobility.

THE DATA

Data from the one-percent sample maintained by the Social Security Administration allows one to trace earnings and location histories of a worker, because the same social security numbers are included in the sample each year. Information in the sample includes age, race, sex, earnings, and region of residence. Since the Social Security Program covers above 90 percent of the labor force (8), the sample[7] provides an important body of information despite some limitations on coverage and completeness of the data.[8]

The data for this paper cover the period 1960-1966. Interregional migration is defined as moves among the eight major regions of the United States as defined by the Office of Business Economics. Our definition of Southern migration is migration to and from the Southeast, as defined by OBE.[9] Persons entering or leaving employment covered by the Social Security Program are excluded from the analysis, as are military personnel. Male workers were classified into two race[10] (Negro; Whites and others) and three age (under 25; 25-44; 45-64) groups, giving six age-race cells.

Calculation of gross returns requires E_j and E_i for each age-race group. E_j is calculated as mean earnings in 1966 for interregional migrants in their 1966 region of residence. Earnings in the region of origin for these migrants is a 1960 figure, however. Thus, it is necessary to adjust these earnings levels to a value that would represent earnings in 1966 if no migration had occurred between 1960 and 1966.

For this adjustment we assume that in the absence of migration a migrant's earnings would have risen at the same rate as earnings of nonmigrants in the same age-race group in the migrant's 1960 region of residence. More specifically our estimate of $E_i{}^{11}$ is

(2) $$E_i^{66} = E_{si}^{66}/E_{si}^{60} \times E_i^{60}$$

where E_i^{66}, E_i^{60} = earnings of migrant in his region of 1960 residence for 1966 and 1960 assuming no migration;[12]

E_{si}^{66}, E_{si}^{60} = earnings of stayers in region i, 1966 and 1960.

This adjustment of migrants' 1960 earnings for earnings growth experienced by nonmigrants will remove from our measure of returns to migration such things as increased hours of work, additional training, and so forth, so long as migrants and nonmigrants experienced the changes to the same degree. Hurd's (13) work on wage changes between 1959 and 1967 indicates that rates of wage change were not correlated with educational levels, so the fact that census data indicates migrants tend to be better educated than nonmigrants should not bias our estimate of returns to migration.

Two problems that may bias our measure of returns must be recognized: First, some migrants may have become unemployed in their region of 1960 residence and unable to find new employment. For these people, our measure of E_i understates the return to migration. The magnitude of this bias increases with the proportion of migrants who moved because they could find no work or could find work only at earnings below their 1960 wages.

A second problem is return migration. Some of the migrants may return to region i because they find j unattractive for other than economic reasons. Earnings differentials are capitalized until retirement age in this paper, and return migration would cut short the stream of earnings differentials.

EMPIRICAL FINDINGS

Migrants and Their Earnings

Between 1960 and 1966 an estimated 847.8 thousand workers--including white and Negro females--moved to the Southeast and 929.5 thousand moved away, giving a net out-migration of 81.7 thousand persons. Within these totals, 540.1 thousand white males moved to the Southeast while 501.6 thousand moved away.[13] For Negro males the comparable figures are 60.5 thousand in- and 165.9 thousand out-migrants. Thus, the Southeast gained 38.5 thousand white males and lost 105.4 thousand Negro males for a net loss of 66.9 thousand male workers.

Table 1 shows average earnings levels in 1966 for Southern migrants and nonmigrants. With the exception of white males 25-44 and 45-64 in-migrants had lower earnings than nonmigrants, and with the exception of white males 45-64 and Negro males under 25, in-migrants had higher earnings than out-migrants.[14] Except for white males 45-64, out-migrants' earnings were lower than those of nonmigration.

Gross Returns

Our major concern here is with the gross returns to Southern migration decisions. Tables 2 and 3 show average gross returns (in 1960 dollars) for migration to and from the Southeast by age. Gross returns in both tables have been calculated with the first term on the right side of equation (1). Future earnings streams were capitalized at five percent, allowing for the growth and decline of earnings with age. The adjustment for the effects of age on earnings was made using the age-earnings profile of nonmigrants in each racial group, and age 65 was assumed for retirement.

Looking first at migration of white males to the Southeast, we find earnings differentials of $709 for white males under 25, $2,407 for those 25-44, and a negative return of $-998 for persons 45-64.

Migration out of the Southeast for white males shows much higher returns than in-migration. We estimate gross returns of $18,329 for white males under 25, $15,743 for those 25-44, and $3,460 for those 45-64.

Figures for Negro males in Table 3 show somewhat the same pattern as those in Table 2, although we now find negative returns of $-2,677 and $-1,126 to in-migration in the 25-44 and 45-64 age groups. The $4,699 return to in-migration for Negro males under 25 is the largest payoff for any group of in-migrants, however.

For migration out of the Southeast, the returns on the right side of Table 3 are remarkable. In the lower two age groups, migration investments paid estimated gross returns of $19,000-20,000. These figures are high not only relative to comparable figures for white males, but also in absolute terms. After adjustment for price level changes,[15] Hansen's (12) estimate of additional income from 4 years of college for a white male at age 14 is $21,392. The gross returns to migration investments out of the Southeast by young Negro males compare favorably, then, with investment in college education.[16]

For comparative purposes we display in Table 4 average gross returns to interregional migration nationwide, without regard to region of origin or destination. In the case of Negro males, however, we should be aware that migration out of the Southeast accounted for just over half of their total interregional movements. Thus, the values in Table 4 are influenced greatly

by the values in Table 3. For both whites and Negroes, migration out of the Southeast shows high gross payoffs relative to the comparable figures for all migration. Migration to the Southeast, however, shows very low returns relative to the figures in Table 4. Furthermore, gross returns to migration to the Southeast are in most cases so low as to cast serious doubt on the hypothesis that the decisions were made in the framework of an investment decision, such as equation (1). Indeed, one is forced to look for other explanations for migration to the Southeast when he remembers that costs of moving must be subtracted from the gross returns in Tables 2 and 3.

The lack of realism is one of the assumptions of our migration decision model was brought to light recently by the work of Coelho and Ghali (6). Addressing the often explored subject of North-South wage differentials, they compared wages in manufacturing in selected metropolitan areas in the North and South, after adjustment for industry structure. Nominal wages were found to be about 12 percent lower in the South (6, p. 934) than the country as a whole. This figure is in the ballpark with other studies of the North-South differential. When nominal wages were adjusted by indices of budget costs for a standard of living, however, manufacturing wages in the South were not significantly lower than the national average.

Casual examination of the estimates of budget costs published by the Bureau of Labor Statistics (BLS) (5) suggests that we cannot ignore differences in costs of living between the South and the rest of the nation in our attempt to measure returns to migration. With this in mind we turn to an adjustment of the estimates of gross returns for differences in living costs.

Returns and Costs of Living

BLS estimates (5) of the cost of a city worker's budget for a given standard of living are available for 1966. These estimates are given for selected metropolitan areas in the four major regions defined by the Bureau of Census and for nonmetropolitan areas[17] in the same region. A striking feature of these budgets (expressed as an index of the national average) is that both metropolitan and nonmetropolitan areas in the south show much lower costs of living than other sections of the county.

Cost of living indices for OBE regions were constructed from the BLS data by placing the metropolitan areas for which living costs are available in the appropriate OBE region. Then a weighted average of the indices for the selected cities was calculated to represent the metropolitan-area index in each OBE region. Finally, a weighted average of the metropolitan area index and the nonmetropolitan area index was calculated for each OBE region, using 1970 Census figures on SMSA and non-SMSA population as weights.[18]

A need for nonmetropolitan-area indices required us to use the same Census-region index for two OBE regions in several cases, since the BLS data covered only four regions. This means, for example, that we applied the nonmetropolitan-area index for the South to both the Southeast and Southwest OBE regions. Arizona and New Mexico, which are part of the Southwest definition but not part of the Census definition of the South, were subject in this analysis to an index of living costs for nonmetropolitan areas that was estimated for a region in which those states were not located. This problem arises for several other states as well, and the only justifications for this practice are that the nonmetropolitan areas got smaller weights than major cities and that the states involved often tended to be small.[19] While these problems obviously cause us to be cautious about the adjusted estimates of returns to migration. It is not at all clear that the crudity of the cost of

living indices makes the adjusted estimates inferior to the unadjusted figures.

Table 5 and 6 show estimated returns to migration for white and Negro males after earnings levels in the regions of origin and destination of the migrants were adjusted for the cost of living in those areas. Compared with the unadjusted returns in Tables 2 and 3, the adjusted returns change sharply. Not only do returns to in-migration increase impressively, they rise relative to returns to out-migration, which fall from their levels in Tables 2 and 3. For white males under 25, returns to in-migration from all regions ($9,824) are only slightly less than gross payoffs to out-migration ($9,987). For white males 25-44, gross returns of $13,349 exceed the discounted streams of earnings differentials accruing to out-migration in that group. In the 45-64 age group returns to out-migration to all regions become negative, a condition that raises some suspicion that we might have over-adjusted for the effects price levels.

For Negro males the payoff to in-migration rises sharply from values in Table 3, although returns to in-migration for the younger two groups continue to be below returns to out-migration. In the under-25 group payoffs in excess of $10,000 to migration in our out of the Southeast exceed the returns for white males in the same group.

Referring again to my adjustments of Hansen's (12) estimates of discounted present values of additional income from education (viewed at age 14 for white males), we find gross returns of $8,045 and $9,116 to four years of high school and two years of college. For most white and Negro males under 45, our estimates of gross returns to migration in or out of the Southeast compare favorably with gross returns to investments in education.

An interesting relationship is seen between returns and net migration. While males under 25 showed net out-migration from the Southeast between 1960-1966, while the 25-44 and 45-64 groups had net movement into the region. These patterns are consistent with the slightly better payoff to migration out of the Southeast than to in-migration for white males under 25, and the reverse for the two older groups. Negro males on balance moved out of the Southeast in every age group, and this too conforms to relative returns to in- and out-migration, except for the 45-64 group, where relative returns would suggest net in-migration. In this case, however, the rate of net out-migration was markedly lower (1.8 percent of the 1960 work force) than rates in the younger two groups (26.9 percent in the under 25 and 11.7 percent in the 25-44 groups).

II. SUMMARY

We have shown that until regional differences in the cost of living are considered gross migration to the Southeast between 1960 and 1966 probably cannot be explained as an investment in human capital. Once cost of living differences are accounted for, gross returns to migration both to and from the Southeast appear large enough in most cases to justify substantial investment in moving, especially for persons under 45. Moreover, differences in gross returns to in- and out-migration correlate roughly with the net magnitudes in Southern migration patterns.

For migrants under 45 our estimates of real returns suggest rather significant gross benefits from interregional migration. With respect to policy it would be interesting and worthwhile to know (1) whether there are potential migrants who lack either knowledge or access to capital necessary to

capture such returns, and (2) whether the costs of migration--both resource and psychic--are sufficiently high that average gross returns are reflecting decisions that are equating private gross returns and costs at the margin.

TABLE 1. AVERAGE EARNINGS[a] OF SOUTHERN MIGRANTS
AND NONMIGRANTS[b]

Age-Race	In-Migrants	Out-Migrants[c]	Nonmigrants
White Males			
under 25	$3,553	$3,253	$3,678
25-44	5,977	5,359	5,645
45-64	6,346	6,466	5,727
Negro Males			
under 25	2,111	2,283	2,486
25-44	2,669	2,507	3,048
45-64	2,580	2,489	2,907

[a]1966 earnings levels in 1960 dollars.
[b]Calculated from one-percent sample.
[c]Earnings of out-migrants estimated with equation2.

TABLE 2. AVERAGE GROSS RETURNS (in 1960 dollars),
MIGRATION TO AND FROM THE SOUTHEAST, WHITE MALES[a]

Age	Migration to Southeast	Migration from Southeast
under 25	709	18,329
25-44	2,407	15,743
45-64	-998	3,460

[a]Calculated from one-percent sample.

TABLE 3. AVERAGE GROSS RETURNS (in 1960 dollars),
MIGRATION TO AND FROM THE SOUTHEAST, NEGRO MALES[a]

Age	Migration to Southeast	Migration from Southeast
under 25	4,699	20,348
25-44	-2,677	19,037
45-64	-1,126	2,960

[a]Calculated from one-percent sample.

TABLE 4. AVERAGE GROSS RETURNS (in 1960 dollars),
INTERREGIONAL MIGRATION NATIONWIDE[a]

Group	Gross Returns
White Males	
under 25	7,700
25-44	11,695
45-64	1,531
Negro Males	
under 25	19,145
25-44	12,214
45-64	882

[a]Calculated from one-percent sample.

TABLE 5. AVERAGE GROSS RETURNS, MIGRATION TO AND FROM
THE SOUTHEAST, WHITE MALES ADJUSTED FOR COSTS OF LIVING[a]

Age	Migration to Southeast	Migration from Southeast
under 25	9,824	9,987
25-44	13,349	5,894
45-64	4,696	-2,534

[a]Calculated from one-percent sample and adjusted by BLS data on city workers' budgets.

TABLE 6. AVERAGE GROSS RETURNS, MIGRATION TO AND FROM THE
SOUTHEAST, NEGRO MALES, ADJUSTED FOR COSTS OF LIVING[a]

Age	Migration to Southeast	Migration from Southeast
under 25	10,466	13,186
25-44	2,846	13,545
45-64	1,334	459

[a]See note to Table 5.

FOOTNOTES

[1]This point in another context is found in Baumol (1).

[2]For more on this see Blaug (2).

[3]I am thinking here of the approach taken by Nelson (18).

[4]See Sjaastad (20).

[5]Bowles (3) is an exception to this statement.

[6]They do not find evidence of this, of course, as mentioned above.

[7]All sample values were multiplied by 100 to convert them to estimates of population values.

[8]The more important omissions include federal government workers, persons covered by railroad retirement plans, physicians, and domestic service workers. (Some are excluded by option.) Earnings in excess of the taxable limit ($7,800 in 1970) are estimated according to the quarter in which the limit was reached.

[9]W.Va., Va., N.C., S.C., Ky., Tenn., Ga., Fla., Miss., Ark., and La.

[10]Racial minorities other than Negro have been classified with whites. Since these groups are small, we shall refer to the classification as white.

[11]Earnings levels in i are specific to age-race groups. We have not added another subscript to E for notational simplicity.

[12]All 1966 earnings levels were calculated in 1960 dollars.

[13]These estimates are from the one-percent sample.

[14]Bear in mind that earnings levels of out-migrants are estimated earnings in absence of migration. If we look at out-migrants' earnings in their new locations we find them higher than the levels in Table 1.

[15]I adjusted Hansen's figure that was given in 1949 dollars for changes in the consumer price level between 1949 and 1966.

[16]We emphasize, of course, that neither gross returns to education nor to migration show the desirability of the respective investments, for important costs have not been subtracted from gross returns.

[17]Nonmetropolitan in this case means cities from 2,500-50,000 population.

[18]Values of the indices ranged from 89 in the Southeast and Southwest to 106 in New England. It should be noted that the BLS index of living costs is not a fixed-weight statistic. Both prices and amounts of goods and services in the standard of living can vary therefore among regions.

[19]The state of Maryland is included in the South by Census definition and the Mideast by OBE. In this case, however, Baltimore and the D.C. area have been included in the Mideast Cities index, and these areas contain a large share of the population of Maryland.

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