



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

RELATIVE INCOME CHARACTERISTICS OF INTERREGIONAL MIGRANTS*

Charles E. Trott, Roger A. Matson, and Wesley G. Smith**

Migration viewed as investment in human capital has become increasingly popular in the literature [1]. The human capital argument generally reduces to the expected positive association between migration and the present value of the discounted stream of income differences between the origin and destination areas, as summed over the expected working life of the prospective migrant [2]. Workers will move geographically in order to capitalize on perceived income gains, assuming that such gains more than cover the costs of moving. Because the hypothesis refers to a future income stream which is uncertain, workers can be assumed to be maximizing while not reaching optimal solutions in their decision to migrate or in their choice of destinations. That is, a rational move simply is one which results in a positive gain in income.

Implicitly, the human capital argument allows for variation in the occupational characteristics and work force experience of each potential migrant or migrating group. A move geographically will occur if there are regional variations in wages with respect to occupations and experience in the work force, and/or if there are variations in the rate of increase in wages by regions, by occupation, by experience in the work force. This suggests that the hypothesis can be tested by using regional wage differentials as predictors. An adequate test of the hypothesis using such differentials, however, presupposes regional wage data by occupation and age. Such detailed data have not been available in migration research. Instead, wages are presumed to be adequately measured by prevailing regional wage rates or levels as averaged over all workers in all occupations, in all or selected industry groupings. Consequently, to test the capitalization hypothesis as a predictor of migration it has been necessary to work with differences in gross regional average wages and to assume homogeneity within and among migrating group. Confirmation of the hypothesis is found when a positive net migration exists with areas of high-average income and net outflows with areas of low-average income.

Studies structured in the above manner overlook the problem posed by the gross flows of which the nets are the balances. People migrate both to and from

*The authors wish to acknowledge the assistance of John Byorni in completing the analyses necessary for this paper. Data used in this paper were derived from computer tapes originating with the Social Security Administration. The authors did not at any time have access to nor did they receive any information relating to specific individuals.

**Associate Professor, Department of Geography, Northern Illinois University; Assistant Professor, Department of Economics, University of Wyoming; and Agricultural Economist, Tennessee Valley Authority.

regions of low-average wages as well as regions of high-average wages. In either instance, the migrations are responses to individual incentives the rationality of which should be tested with information on the before and after incomes of individual migrants. Using net data can lead to improper inferences, such as that net movements from high-wage to low-wage regions are "wrong-way" moves. With the use of earnings data taken on a before and after migration basis on interregional migrants, this paper examines the income rationality of migrations. Special attention is given to the goodness of the homogeneity assumption discussed above and to alternative means of expressing the income gain resulting from migration.

The data used in this study are derived from the Continuous Work History Sample (CWHs) of the Social Security Administration. The CWHs includes data on the age, sex, and race of 1 percent of all persons possessing social security numbers. In addition, for each covered job held since 1957 by persons included in the sample, the CWHs details the industry and county of employment as well as income earned with each job (occupational data are not included). Inasmuch as the sample is taken on a continuing basis, longitudinal files can be constructed on individual workers, and changes in income can be related to interindustry moves or geographic changes in place of employment, or both. Thus, earnings characteristics are known both before and after migration. Data from the CWHs for the period 1960-1965 on male migrants aged 25-44 are used in the analyses of this study.

Pre-Migration Earnings Characteristics of Migrants

To what extent are workers moving to low-wage or high-wage areas? Separate gross interregional exchanges of white and black male workers aged 25 to 44 are detailed in Tables 1 and 2, respectively. The problem in using net data and in evaluating wrong-way moves becomes immediately apparent by comparing the corresponding outmigrant and inmigrant flows.

Only two regions had net inflows between 1960 and 1965, the Far West and the Southeast. The latter, of course, considered a low-average income region. Examining the regions from which the inmigrants to the Southeast originated (the Southeast column), 60 percent came from the Mideast and Great Lakes regions, both high-average income regions. It has been suggested that migrants to the Southeast are return migrants, implying that they are returning from a previously unsuccessful migration from the South [6].

Considering the gross exchanges of black male workers, a familiar pattern is observed. Outmigrating blacks originating in the Southeast primarily moved to the Mideast and Great Lakes areas. On the other hand, the Southeast was the second largest receiving area of black migrants, dominantly of migrants from the Mideast. Again, a return migration argument could be appealed to.

Earnings data for 1960 are presented in Tables 3 and 4, which have been con-

TABLE 1: Gross Interregional Flows of White Male Migrants, Ages 25-44, 1960-1965
(thousands of migrants)

Regions of Origina	Regions of Destination								Total Outmigrants
	NE	ME	GL	PL	SE	SW	RM	FW	
NE	-	49.5	12.6	4.1	14.7	2.6	1.1	15.2	99.8
ME	47.0	-	73.2	12.7	82.9	15.6	4.8	58.2	294.4
GL	11.8	77.7	-	49.9	95.3	26.9	8.9	74.1	344.6
PL	3.9	16.3	52.2	-	25.6	25.6	17.0	35.5	176.1
SE	12.0	80.6	84.7	17.5	-	41.0	4.7	38.5	279.0
SW	3.1	17.2	19.5	21.8	42.8	-	13.1	52.6	170.1
RM	1.1	5.0	7.9	11.7	7.9	14.2	-	37.5	85.3
FW	7.1	37.6	29.6	25.0	28.8	34.8	23.4	-	186.3
Total									
Inmigrants	86.0	283.9	279.7	142.7	298.0	160.7	73.0	311.6	1,635.6

^aNE (New England) - ME, NH, VT, MA, CT, RI
 ME (Mideast) - NY, NJ, PA, DE, MD, DC
 GL (Great Lakes) - MI, OH, IN, IL, WI
 PL (Plains) - MN, IA, MO, ND, SD, NE, KS

SE (Southeast) - VA, WV, KY, TN, NC, SC, GA, FL,
 AL, MS, LA, AR
 SW (Southwest) - OK, TX, NM, AZ
 RM (Rocky Mountain) - MT, ID, WY, CO, UT
 FW (Far West) - WA, OR, NV, CA, AK, HI

TABLE 2: Gross Interregional Flows of Negro Male Migrants, Ages 25-44, 1960-1965
(thousands of migrants)

Regions of Origin	Regions of Destination								Total Outmigrants
	NE	ME	GL	PL	SE	SW	RM	FW	
NE	-	2.3	0.2	-	1.3	0.2	-	0.4	4.4
ME	3.7	-	5.3	0.9	20.5	0.6	-	2.4	33.4
GL	0.6	6.4	-	2.2	7.4	0.9	0.1	5.3	22.9
PL	-	0.5	4.5	-	2.0	0.6	-	1.6	9.2
SE	5.1	43.2	23.2	2.9	-	7.1	0.4	10.3	92.2
SW	0.1	1.4	1.1	1.6	4.2	-	0.3	6.1	14.8
RM	-	0.2	0.3	0.4	0.5	0.2	-	0.6	2.2
FW	-	3.0	1.2	0.9	1.4	2.0	0.1	-	8.6
Total Inmigrants	9.5	57.0	35.8	8.9	37.3	11.6	0.9	26.7	187.7

TABLE 3: Average Annual Earnings of White Males, 25-44, 1960

(dollars)

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	RM	FW
NE	(4719)	4534	4156	4126	4381	5937	6219	4108
ME	5049	(5094)	5366	5622	4580	4784	4929	5148
GL	5332	5349	(5261)	4761	4102	4698	4331	4472
PL	4530	4788	3946	(4534)	4182	4015	3824	3744
SE	3775	4381	3262	3945	(3983)	3630	3593	3952
SW	4389	4992	3735	3718	3983	(4271)	4146	3812
RM	2454	4024	3420	3401	4501	3972	(4607)	3848
FW	4908	5298	4682	4171	4341	4057	4561	4108
								(5200)
Inmigrant Average	4818	4848	4168	4345	4272	4142	4274	4284

TABLE 4: Average Annual Earnings of Black Males, 25-44, 1960

(dollars)

Regions of Origin	Regions of Destination						Outmigrant Average
	NE	ME	GL	PL	SE	SW	
NE	(3508)	3136	-	-	1758	-	2638
ME	2280	(3105)	2567	-	1958	-	2172
GL	-	2577	(3565)	2470	1858	-	2411
PL	-	-	1569	(3126)	1938	-	1797
SE	1614	1677	1497	2188	(1998)	1923	1683
SW	-	2236	1462	1969	1558	(2236)	1847
FW	-	2763	2781	-	2278	2258	2544
Immigrant Average	1894	1911	1709	2228	1896	1997	2245

structured in the same origin/destination manner as in Tables 1 and 2.¹ The bracketed averages on the main diagonal are the earnings of nongeographic movers (stayers). Reading across a row identifies the 1960 premigration average earnings of outmigrants with respect to each receiving or destination area. Reading down a column presents the earnings averages of immigrants with respect to each sending region. The marginal averages are weighted average earnings, with the weights determined by the gross numbers of migrating workers as shown in Tables 1 and 2. The reader is reminded that the averages in Tables 3 and 4 identify earnings characteristics prior to migration.

Several observations based on the data in Table 3 are in order. First, for each receiving region, the immigrant group with the highest initial average earnings originated either in the Northeast, Mideast, or Great Lakes. Second, comparing the weighted average outmigrant earnings (the last column) with that of stayers for each respective origin, it will be seen that on the average each region is sending its lower income workers to other regions. Third, all immigrating groups to the Southeast had average earnings greater than the Southeast stayer average. Thus, workers who moved to the Southeast tended to be below-average earners in their respective regions of origin but were above-average with respect to their destination.

Distribution of Gains

In all cases, except for movement of black males from the Far West to the Southeast, the average absolute gains in earnings of migrants between 1960 and 1965 are positive (Tables 5 or 6). While these positive additions to current income can be considered as support for the human capital hypothesis in general, such a conclusion must be qualified by examining whether or not the migrants' gains exceed the average gains of stayers in the respective regions of origin. To make the comparisons, it is necessary to assume that if the migrants had stayed they would have received the average earnings gains of the stayers (read across rows in Tables 5 and 6).

With the exception of white male migrants from the Far West, the outmigrant average earnings gains exceed the stayers' average gains in the respective regions of origin. Among white male outmigrants, the largest average absolute income gains accrue to those leaving the Northeast and Mideast, followed by those from the Southeast. On the immigrant side, the largest average absolute earnings gains were realized by those migrating to the high-income areas of the Mideast, Northeast, Great Lakes, and Far West, in that order. Of interest is the rather poor performance of outmigrants from the Far West. Nearly consistently, the gains received by outmigrants from the Far West, whether white or black, were the lowest of all immigrating groups to each of the respective regions. Perhaps

¹Data on black migrants to and from the Rocky Mountains region have been dropped from Table 4 and subsequent tables. In general, all cells in Tables 1 or 2 with fewer than 10 observations (1.0 in Tables 1 and 2) are not used for further estimation purposes.

TABLE 5: Absolute Gain in Average Earnings of White Males, 1960-1965
(dollars)

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	RM	FW
NE	(1968)	3652	3100	2357	1958	1907	1198	2569
ME	3376	(2348)	3535	3365	2108	2331	2363	3161
GL	3160	3433	(2219)	2364	1423	1565	2458	2650
PL	2424	4291	2861	(1885)	1925	2066	1896	2711
SE	3113	3061	2644	2025	(1833)	2512	2253	3022
SW	1763	3194	2548	2059	2066	(1810)	1134	2384
RM	5169	4013	3088	1734	966	1866	(1679)	2569
FW	1244	2665	2424	1927	1068	1598	1285	(2219)
Immigrant Average	3056	3309	2921	2237	1729	2000	1675	2740

TABLE 6: Absolute Gain in Average Earnings of Black Males, 1960-1965
(dollars)

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	FW	
NE	(1445)	941	-	-	1391	-	-	1104
ME	1138	(1326)	866	-	549	-	1258	754
GL	-	1234	(1637)	1216	465	-	1211	959
PL	-	-	1812	(1315)	324	-	951	1256
SE	2596	1823	2352	1498	(1059)	943	1790	1918
SW	-	1708	1763	1628	398	(948)	1700	1318
FW	-	1446	1121	-	-413	194	(1298)	722
Immigrant Average	1983	1697	2000	1437	496	778	1548	

these Far West outmigrants are the return migrants rather than those moving South.

Among black male outmigrants, only those leaving the Southeast and Southwest had average absolute gains greater than those realized by stayers. Blacks moving to the Southeast averaged gains well below those received by stayers in the Southeast (\$496 compared to \$1059).

White males migrating to the Rocky Mountains and the Southeast between 1960 and 1965 tended to receive the smallest average absolute gains of all immigrating groups.

Two other points should be noted in Tables 5 and 6. First, that except for white males migrating from the Far West, the weighted average gains in earnings of outmigrants from each region exceeded the gain in earnings of stayers in each region. This would tend to support the hypothesis that migration is profitable and that for white males at least, the migrants made rational moves. Similarly, except for immigrants to the Southeast and Rocky Mountains, the average weighted gain in earnings of immigrants exceeded the gain in earnings of stayers. This means that on the average not only did migrants increase earnings more than stayers in their region of origin, but also more than stayers in their region of destination.

A very different picture emerges with respect to outmigrant black males. In five out of the seven regions, the weighted average gain in earnings of outmigrants was less than that of stayers in their region of origin. Only black males migrating from the Southeast and Southwest increased earnings on the whole more than did stayers. However, this does not necessarily mean that black migrants made wrong-way moves, since the average gain in earnings of black immigrants exceeded that of stayers in each region of destination, except in the case of immigrants to the Southeast and Southwest. This would imply that blacks moving to the Southeast and the Southwest made "wrong-way" moves.

It was pointed out earlier that on the average each region was exporting its lower paid workers to other regions, i.e., stayers had higher 1960 earnings than outmigrants. It is, therefore, of interest to examine the post-migration earnings of stayers and migrants (1965) to determine whether in 1965 the earnings of migrants were still below that of stayers, either in their region of origin or destination. (Recall that in all regions except the Southeast, average 1960 earnings of immigrants were less than those of stayers.) Tables 7 and 8 show the 1965 incomes of stayers and migrants.

Several interesting facts can be observed. First, except in the Great Lakes and Far West, the average weighted 1965 earnings of white male outmigrants were greater than that of stayers, again emphasizing the fact that white male outmigrants, on the whole, made rational moves. The opposite picture is seen in the case of black male outmigrants. In each case, except for the Southeast, the weighted 1965 incomes of black male outmigrants were less than that of stayers in their region of origin; and in many regions it was considerably less. Moreover, the 1965 average weighted income of black immigrants was less than that of stayers in each region of destination, including the Southeast.

TABLE 7: Average Earnings of White Males, 25-44, 1965

(dollars)

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	RM	FW
NE	(6687)	8186	7256	6483	6339	7844	7417	6677
ME	8425	(7442)	8901	8987	6688	7115	7292	8309
GL	8492	8782	(7480)	7125	5525	6263	6789	7122
PL	6954	9079	6807	(6419)	6107	6081	5720	6455
SE	6888	7442	5906	5970	(5816)	6142	5846	6974
SW	6152	8186	6283	5777	6049	(6081)	5280	6232
RM	7623	8037	6508	5135	5467	5838	(6286)	6677
FW	6152	7963	7106	6098	5409	5655	5846	(7419)
Immigrant Average	7874	8157	7089	6582	6001	6142	5949	7024
								6917

TABLE 8: Average Earnings of Black Males, 25-44, 1965

(dollars)

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	RM	FW
NE	(4953)	4077	-	-	3149	-	-	-
ME	3418	(4431)	3433	-	2507	-	-	4216
GL	-	3811	(5202)	3686	2323	-	-	4169
PL	-	-	3381	(4441)	2262	-	-	3221
SE	4210	3500	3849	3686	(3057)	2866	-	3647
SW	-	3944	3225	3597	1956	(3184)	-	3695
RM	-	-	-	-	-	-	-	-
FW	-	4209	3902	-	1865	2452	-	(4737)
Inmigrant Average	3877	3608	3709	3665	2392	2775	-	3793
								3253

On the whole, therefore, it would seem that white male migrants not only improve their incomes through migration, but that they in fact often end up with higher incomes than stayers--even though earlier their incomes in their regions of origin were lower than those of stayers. For black males the picture is opposite. Even though black males increased their earnings through migration and therefore made rational moves, it is clear that migration by blacks is not nearly as profitable a means of improving income as it is for whites.

Relative Gains in Income of Migrants

Thus far we have concerned ourselves only with the absolute dollar gains in earnings associated with migration. The fact that a person may realize an increase in his dollar earnings through migration may be illusory if his cost of living in the new region greatly exceeds his cost of living in his region of origin. This may be particularly applicable to black males migrating from a rural area in the Southeast to say an SMSA in the Far West where living costs may be much higher. In this context, migrants to the Southeast may be making rational moves compared to say migrants to the Far West, even though migrants to the Far West experience larger dollar gains than those to the Southeast.

In lieu of consistently defined regional cost-of-living data, an alternative measure has been used to relate absolute earnings gains to regional differentials. Recognizing that a gain in absolute income may only enable individuals to retain their standing in a distribution of incomes when all incomes have risen, it is suggested here that people will migrate not only to capitalize on perceived income gains (absolute) but also to improve their relative income position as well. This, of course, is an expression for using real income data when none exist. A ratio termed relative income has been constructed in this paper in order to compare migrants' earnings with those of nonmigrants or stayers. If migrants' earnings exceed those of stayers, then the migrants are considered above-average wage earners. Conversely, if migrants' earnings are less than that of stayers, they are below-average wage earners and in the lower portions of the overall income distribution.

Thus, the calculation of the relative income position is from the simple ratio of:

$$(1) \quad Y_{R, 60} = (\bar{E}_{mi} / \bar{E}_{si})_{60},$$

$$(2) \quad Y_{R, 65} = (\bar{E}_{mj} / \bar{E}_{sj})_{65}$$

where Y_R is relative income position and

$$Y_R \leq 1.00 \leq Y_R$$

\bar{E} is average absolute earnings,

m,s reference migrants and stayers, respectively, and

i,j reference origin and destination, respectively.

Results of the calculations using the above ratios are summarized in Table 9. Considering the interval of .96-1.05 as average, then only 7 percent of the white male migrants had relative income positions above average in 1960. After migration, in 1965, 36 percent had incomes greater than average. In 1960, 65 percent of the white male migrants held a below-average income position; after migration, in 1965, this percentage had dropped to only 42 percent. Distinctly, white male migrants improved their relative income positions by moving.

The relative gains by blacks are less apparent. It should be noted here that because of the disparity between the average earnings level of blacks and whites, the earnings of black migrants are compared to the earnings of black stayers. Thus, the relative income position of black male migrants refers to their position within the community of black workers. On the upper end of the income distribution, black migrants lost position between 1960 and 1965. Ninety-four percent of the black males who migrated between 1960 and 1965 were below-average earners, and half of these were 25 percentage points or more below average. By 1965, the proportion of black male migrants below average increased to over 99 percent. Nonetheless, the proportion in the lowest relative position indicated in Table 9 dropped from 46 percent to 27 percent.

These summarized results only partially address the question of the rationality of the migrations. Using the relative income ratios above, a second measure is taken to consider the change in relative income position as a result of the migration. The ratio simply is the after relative position to the before relative position:

$$(3) \quad Y_{R,65} / Y_{R,60} = (\bar{E}_{mj} / \bar{E}_{sj})_{65} / (\bar{E}_{mi} / \bar{E}_{si})_{60}$$

where a calculated value of unity would represent no change in relative position. As a double ratio, $Y_{R,65} / Y_{R,60}$ measures the relative change in relative income position, taking explicitly into account the regional differential that exists between regions i and j . The values in Tables 10 and 11, which are centered on unity, denote the percentage change in relative income position. A value greater than unity indicates that the migrants' gains are in excess of the regional differential; conversely, a value less than unity suggests that the gains have failed to compensate for the regional differential. White male migrants moving from the Mideast to the Northeast (Table 10) improved their relative standing by 27 percent. In contrast, blacks moving from the Mideast to the Northeast were unable to satisfy the existing regional differential and, consequently, dropped by 7 percent in their relative position.

In that stayer averages (which are unity) are being used as references, the data in Tables 10 and 11 suggest the effect on relative earnings of the absolute gains by the migrants. The experiences of migrants to and from the Southeast illustrate these effects. The small absolute gains experienced by white male migrants to the Southeast (Table 5) translate into relative income position gains averaging 20 percent. The largest relative income gains were by blacks moving to the Southeast. It is recalled from Table 6 that average absolute gains by blacks moving to the Southeast of only \$496 were by far the smallest gains

TABLE 9: Relative Income Positions of Male Migrants

Income Position Relative to Stayers	1960 % Distribution in Origins		1965 % Distribution in Destinations	
	Whites	Blacks	Whites	Blacks
> 1.25	0.2%	0.0%	4.5%	0.0%
1.16-1.25	1.1	0.0	11.5	0.0
1.06-1.15	5.7	1.6	19.9	0.0
.96-1.05	28.1	4.8	22.2	.8
.86- .95	38.9	12.7	30.7	15.6
.76- .85	24.7	35.3	11.0	56.7
<.76	1.3	45.6	0.0	26.9

1960

\bar{E} (white male migrants) = \$4380
 \bar{E} (black male migrants) = \$1861

1965

\bar{E} (white migrants) = \$6917
 \bar{E} (black migrants) = \$3253

TABLE 10: Relative Gain in Relative Income Positions of White Male Migrants, 1960-1965

Regions of Origin	Regions of Destination								Outmigrant Average
	NE	ME	GL	PL	SE	SW	RM	FW	
NE	-	1.15	1.10	1.16	1.17	1.02	.89	1.03	1.12
ME	1.27	-	1.13	1.27	1.28	1.24	1.20	1.11	1.20
GL	1.25	1.16	-	1.22	1.22	1.16	1.32	1.13	1.19
PL	1.04	1.16	1.05	-	1.14	1.14	1.08	1.05	1.09
SE	1.08	.91	.98	.93	-	1.11	1.02	.95	.98
SW	.89	.95	.95	1.03	1.12	-	.87	.93	.99
RM	2.15	1.24	1.18	1.08	.96	1.10	-	1.01	1.07
FW	.98	1.05	1.06	1.17	1.14	1.19	1.06	-	1.10
Immigrant Average	1.20	1.06	1.05	1.14	1.20	1.15	1.07	1.04	

TABLE 11: Relative Gain In Relative Income Positions of Black Male Migrants, 1960-1965

Regions of Origin	Regions of Destination							Outmigrant Average
	NE	ME	GL	PL	SE	SW	FW	
NE	-	1.02	-	-	1.91	-	-	1.34
ME	.93	-	.80	-	1.30	-	.94	1.15
GL	-	1.18	-	1.19	1.46	-	1.06	1.25
PL	-	-	1.27	-	1.19	-	.94	1.19
SE	1.06	.95	.99	.75	-	.94	.66	.93
SW	-	.89	.95	.92	.91	-	.87	.90
FW	-	1.19	.93	-	.92	1.17	-	1.09
Immigrant Average	1.01	.99	.99	.94	1.29	.99	.84	

experienced by any of the immigrating groups. Yet in relative terms they improved their standing by moving South.

The opposite picture emerges for those who left the Southeast. White males moving from the Southeast averaged absolute increases that were less than \$300 from the top gainers from the Northeast. Yet the effect of moving from a low-average income region to a high-average income region resulted in relative changes that were slightly negative. Black migrants from the Southeast averaged the highest absolute gains among all black outmigrants (\$1918), but the calculated relative gains are negative (Table 11).

These absolute versus relative gains seem to be contradictory, i.e., the smallest absolute dollar gains translate into the highest relative income gains and vice versa. At the base of these apparent contradictions is the assumption of the homogeneity of the migrating workers. Migrating workers typically are treated as a pool of workers with undifferentiated economic skills and characteristics. If earnings data can be used to index labor skills, then clearly the sharp disparity between the earnings of black and white male workers, as well as the gains associated with their migrations, precludes the inclusion of both groups in migration data. To include both would be a clear violation of the homogeneity assumption. But can white male workers originating in the Southeast be considered homogeneous vis-a-vis workers originating in other regions?

Tests of Significance

An effort has been made to evaluate the validity of the homogeneity assumption through appropriate statistical tests. In addition to race, age and sex are factors that are controlled in the tests. Dependent variables are the before and after migration earnings and the absolute and relative gains.

A random effects model of the analysis of variance (ANOVA) was applied to each of the above-mentioned criterion origin/destination matrices. The ANOVA model has been applied only to the white male matrices because of the sizeable proportion of empty cells in the black male matrices.

Results of the tests on white male migrants are summarized in Table 12. In each case, origin effects are significant. That is, with control exercised on race, sex, and age the white male outmigrants cannot be considered as a homogeneous pool of workers. However, it can be argued that the significant variation in mean outright earnings simply reflect the existing regional wage differentials. Moreover, the lack of significance in the mean immigrant earnings in 1960 would seem to suggest that because of the mixing of high- and low-average earning migrants into each column of immigrants the resulting pool of workers is homogeneous across regions.

The remaining significant effects argue against this interpretation. The distribution of gains, both absolute and relative, differ according to the origin of the migrants. Differences in the mean outmigrant gains for each pairing of origins were tested for significance. The low absolute gains realized by migrants from the Far West were found to be significantly below those realized

TABLE 12: Summary of ANOVA Results on Origin and Destination Effects:
White Male Migrants, Aged 25-44, 1960-1965

Criteria	F-Ratios		Degrees of Freedom
	Origin	Destination	
Average Earnings, 1960 (Table 3)	6.802**	1.062	7, 49
Average Earnings, 1965	6.593**	9.938**	7, 49
Absolute Gain in Average Earnings (Table 5)	3.024*	8.504**	7, 42
Relative Gain in Rel. Inc. Pos. (Table 10)	2.536*	1.544	7, 42

*Significant at the 95% confidence level.

**Significant at the 99% confidence level.

by migrants from the Northeast, Mideast, and Southeast. Inasmuch as the out-migrants initially are different with respect to their earnings levels and given that these outmigrants receive earnings increases which differ significantly according to the migrants' origins, then it is concluded that the outmigrants do not compete in the job/earnings market uniformly and consequently are nonhomogeneous workers.

The fact that the origin effects are significant in both of the matrices measuring gains may appear as being contradictory. On the one hand, it says that particular groups, especially those from the Northeast, Mideast, and Southeast, received especially high-average absolute earnings increases. On the other hand, it says that these gains in part were losses when adjustments are made for the different prevailing income levels and distributions existing between the regions of origin and destination. These two findings are not necessarily contradictory. Rather, they may reflect a "money illusion" on the part of migrants from lower income regions or perhaps the need to distribute or count gains over a longer period of time than for those who leave higher income regions. The latter suggests regionally differentiated discount rates in the present value of future earnings calculations.

Concluding Comments

The purpose of this paper has been to assess the income rationality of work force migrations and to question an assumption underlying many migration studies, namely the homogeneity of migrating workers. Migration data for males aged 25-44 years based on the Continuous Work History Sample data of the Social Security Administration formed the data basis for the study. Flows of migrants between the eight major geographic regions of the U. S. were traced for the period between 1960 and 1965. The 1960 and 1965 incomes of migrants and non-migrants were compared on two bases to determine whether, if in fact, migrants appear to have made rational decisions in moving. Analysis of variance was employed to verify the assumption of homogeneity.

Analysis of the data showed that: (1) Using net flows of migrants rather than gross flows may lead to erroneous conclusions regarding the income rationality of certain migrations; (2) People move to low-average income areas as well as high-average income areas; (3) On the average, each region is sending its lower income workers to other regions; (4) The notion of non-South to South moves being wrong-way moves in terms of income relations is not borne out by the CWHs data; (5) In all cases, except for black males moving from the Far West to the Southeast, the average absolute gains in earnings of migrants between 1960 and 1965 were positive regardless of region of destination. Additionally, in the case of white males, the increases in earnings between 1960 and 1965 averaged higher for migrants than for stayers in their region of origin or destination. In the case of black males, increases were greater for stayers than for movers. It would appear, therefore, that white male migrants not only improve their income position through moving, but that they become part of the economic main stream of the receiving area and often end up with higher incomes than stayers. For black males the picture appears to be opposite. Even though black male migrants increased incomes through migration, which would imply a rational move, they appear to have greater difficulty in getting

into the economic main stream of the receiving area since their gains as well as their 1965 earnings levels tended to be considerably lower than those of nonmigrant blacks; (6) Significant differences were found by analysis of variance in both mean outmigrant earnings and gains in earnings as a result of migration which would argue against the homogeneity of migrants. That is, outmigrants do not form a pool of homogeneous workers; and (7) When gains in income were measured in relative terms (as a proxy to take account of differences in cost of living between regions), it was found that migrants leaving the South did less well than those leaving other regions presumably due to lower costs of living in the South than in the receiving regions. Likewise, it was found that while the absolute gains in earnings of immigrants to the Southeast averaged below those received by migrants to other regions, when measured in relative terms, they were among the highest, particularly for male Negroes. Movement against the differentials in prevailing regional average incomes is indeed a rational move.

The conclusions reached in this study are of necessity preliminary. Cell means were used for the ANOVA tests since within cell variation was not available. The analyses have not benefited from formal testing and were conducted in terms of current income changes rather than in terms of discounted income streams.² Nonetheless, it is believed that the CWS data source upon which this study has been based provides a much better basis for evaluating migration-income hypotheses than does secondary regional average income data or data on net flows of persons between regions.

²There is some question as to whether or not individuals attempt to capitalize on their entire future income stream when they move. The strong association between migration propensity and early work force age distinctly raises this problem. If individuals migrated but once, the problem would not exist. Rather, people who move once have a high probability of second and third moves, suggestive of a capitalization process that occurs in stages and most likely involving several regions in the process. The issue is clouded by the presence in migration data of involuntary moves associated with intra-company transfers where moving costs are corporately financed. Such problems seem to suggest that changes in current income may be as appropriate as present value estimates in serving as inducements to migration. See comments by Apgar, [1].

REFERENCES

1. Appgar, William. "Migration as Investment: Some Further Considerations," Program on Regional and Urban Economics, Discussion Paper No. 64. Cambridge: Harvard University, May 1970.
2. Bowles, Samuel. "Migration as Investment: Empirical Tests of the Human Capital Approach to Geographical Mobility," Review of Economics and Statistics, (1970), 356-362.
3. Huiston, Alan. The Analysis of Variance. New York: Hafner Publishing Co., 1966.
4. Matson, R. A., C. E. Trott, and W. G. Smith. "The Development of Industrially Differentiated Rates for the Southeast, 1960-70," Review of Regional Studies, forthcoming.
5. Schuessler, Robert. "Migration--A Multiregional Approach: A Critique of Net Migration Studies," Program on Regional and Urban Economics, Discussion Paper No. 76. Cambridge: Harvard University, December 1972.
6. Sjaastad, Larry. "The Cost and Returns of Human Migration," The Journal of Political Economy, 70 (1962), 80-93.
7. Smith, W. G. and R. A. Matson. "The Mobility of the Tennessee Valley Labor Force, 1957-1963," TVA Bulletin Y-23. Muscle Shoals, AL.: Tennessee Valley Authority, 1971.
8. Trott, Charles E. "An Analysis of Outmigration," Proceedings, Business and Social Statistics Section, American Statistical Association (1971), 192-200.
9. Wertheimer, R. F. The Monetary Rewards of Migration Within the U. S., Washington, D. C.: The Urban Institute, 1970.