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ABSTRACT

Although in-migration and out-migration levels of communities or counties are usually positively correlated, little work has been done on the correlation between in-migration and out-migration within population subcategories. Using a special 1980 data source from the U.S. Census Bureau, this paper examines migration patterns in 30 age/education categories of the adult population in the 653 counties of Arkansas, Illinois Louisiana, Kentucky, Mississippi, Missouri, and Tennessee. The categories crossed five age groups with six educational levels. The correlation between in-migration and out-migration was not very strong in itself, but was strongly affected by the relative educational levels of in-migrants and out-migrants, and only very weakly affected by their relative ages. When educational levels were the same, correlations were positive and reached as high as .60. When educational levels of in-migrants and out-migrants differed, in either direction, correlations became negative. Counties that were destinations for highly educated persons also lost many such persons, and also lost significantly fewer of their people with low levels of education. For counties with colleges or universities, the highest average correlation at the same levels of education was .38 when in-migrants were one age category younger than out-migrants. Counties characterized by simultaneous in-migration and out-migration of persons with low educational attainment were mostly rural Kentucky counties in or near Boone Nc onal Forest. Contains six statistical tables and four figures. (SV)

Correlation Between Age and Education Specific
In and Out Migration Rates

by

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Abstract

Recent work on migration has tended to emphasize the weaknesses of net migration, and to advocate analyzing in-migration and out-migration separately. However, data sources available for this are very limited, and, when geographical units of analysis, such as communities or counties, are used, in-migration and out-migration are usually positively correlated. Since the relationship between in-migration and out-migration results from the complicated, concrete processes of human capital formation and utilization, specific patterns should emerge. However, partly because of data limitations, relatively little has been done on the correlation between in-migration and out-migration within sub-categories of the population. Using a special data source from the U. S. Census bureau, and examining the 653 counties found in the seven states making up the Lower Mississippi Delta region, we examine these correlations in detail, focusing upon 30 age and educational level categories of the population. Although in-migration and out-migration are correlated, with an overall average of about +.11, it is the patterns which are the most interesting. Differences in educational levels of in-migrants and out-migrants substantially affect the correlations. When educational levels are the same, correlations are positive and reach as high as .60. When educational levels are different, in either direction, these correlations become negative. To examine this pattern further, we isolate communities with colleges and universities, presumably experiencing both in-migration and out-migration of people with higher levels of education. We also try to isolate those counties with high levels of in-migration and out-migration of people with the lowest levels of education, and find most of them to be rural counties in Kentucky, along a line defined by the Boone National Forest in Eastern Kentucky.

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A very large proportion of the work on internal migration uses net migration, usually calculated as a residual. At the same time, a substantial literature critical of the use of net migration rates (see Galle, et al., 1993) has developed. This literature usually advocates the use of in-migration and out-migration rates separately. Also both the prevailing "Push and pull" perspective and the "human capital" approach to migration imply the need to examine in-migration and out-migration separately, since one implies that different community characteristics attract different people, and, perhaps, repel others and the other implies that, throughout the life cycle, preferred destinations and origins will vary substantially (Voth, Killian, and Farmer, forthcoming). It is well known, though, that, when geographical entities are the units of analysis, in-migration and out-migration tend to be positively correlated, sometimes quite highly. This generalization is quite consistent with what is known about migration streams and counter-streams. Galle, et al. have recently attempted to "resurrect" net migration, as well as several other measures, such as the "turnover rate,", etc. in a brief article which examines the relationships among the various measures of migration (1993). They focus, in part, upon the mathematical relationships between the measures of association of in-migration, out-migration, and net (or other combined) measures of migration with various "determinants" of migration.

One important aspect of these interrelationships among measures of migration is the nature of the (usually) positive empirical relationship between in-migration and out-migration. In the form of the county-to-county migration flow tapes for 1980 and similar data soon to be available for 1990, data are now available which allow detailed empirical analysis of these relationships. Here we demonstrate some of these relationships for the 653 counties of the seven states included in what is referred to as the Lower Mississippi Delta Region (Arkansas, Illinois, Louisiana, Kentucky, Mississippi, Missouri, Tennessee), focusing upon a detailed classification of migrants by age and educational level. These counties range in size from Cook county in Illinois to the many very small rural counties found in these seven states. 100 of the counties are metropolitan, the rest are non-metropolitan.

Migration rates were calculated for each of the 30 age and educational level groups for each of the 653 counties. The age and educational level categories are shown in Table 1. Because of the existence of some empty denominators in small counties, the denominators used to calculate the 30 rates for each county were, throughout, all persons in the respective age category. Thus, all educational level groups among those 18-24 years of age had the same denominator. A 30 by 30 correlation matrix was calculated among these rates. This correlation matrix is presented in Table 2. To facilitate interpretation, Table 2 includes the ranks of these correlation coefficients within columns, that is within each of the 30 out-migration rates. The ranks are from lowest correlation to highest.

The patterns that emerge include the following: First, the main diagonal is always positive, and sometimes relatively large. The .60 for the out-migration and in-migration of 18-24 year-olds who have completed college (OUTRAT5 and INRAT5) is the highest on the main diagonal, followed by the .56 for the out-migration and in-migration of those 35-44 with advanced college degrees (OUTRAT18 and INRAT18). Interestingly, the lowest correlation on the main diagonal is for the in-migration and out-migration of those with some college, but who have not completed college (OUTRAT4 and INRAT4), the immediate neighbor of OUTRAT5 and INRAT5 above, which is the highest on the main diagonal. Second, the overall average of all 900 correlations is positive, but low (.11). Third, each column has negative correlations, the greatest of which are in the range of -.20 to -.28. The greatest negative is between the out-migration of 25-34 year-olds with 1-3 years of college (OUTRAT10) and the in-migration of 25-34 year-olds with the lowest level of eduction (INRAT7). Finally, the main diagonal, while it ranks quite high, is not the highest correlation in most columns. See, for example, the columns for OUTRAT5 and OUTRAT6.

Table 3 was calculated as averages of sub-groups of these 900 correlation coefficients to explore the patterns of correlation between in-migration and out-migration more closely focusing, of course, upon the age/education matrix. The horizontal axis of Table 3 represents the relationship between in-migration rates and out-migration rates by educational level, ranging from those where the educational level of in-migrants and out-migrants was the same (0), to those with in-migrants from five categories[2] less education than out-migrants (-5), to those with in-migrants with five categories more education than out-migrants (+5). The vertical axis similarly represents age level differences among in-migrants and out-migrants. The mid-point again represents average correlations between categories in which in-migrants and out-migrants were of the same age. Since there were only five categories of age, the maximum differences are, of course, four categories in the negative direction (in-migrants younger than out-migrants) and in the positive direction (in-migrants older than out-migrants).

Selected components of Table 3 are displayed in Figures 1 to 3. Figure 1 shows the average correlations between in-migration and out-migration at the negative extreme (in-migrants five categories less education, at the mid-point (in-migrants and out-migrants at the same level of education), and at the positive extreme (in-migrants five categories older). Figures 2 and 3 show the relationship between age differences and the average correlation between in-migration and out-migration, illustrating, as it were, the third dimension of Figure 1. Figure 2 shows the relationship between age differences at all negative education differences up to zero, Figure 3 shows the relationship between age differences at all positive education differences from zero to five.

The pattern on the education dimension is very distinct. It is symmetrical, is highest when educational levels of in-migrants and out-migrants are the same, declines as these levels diverge in both directions, and ultimately becomes negative when the educational difference among in-migrants and out-migrants exceeds three categories.

The highest average correlation coefficient is not, however, at the center of the matrix, where both age and education levels are the same (the main diagonal of Table 2). The correlation at the center is .30, whereas the highest average correlation is for those cases where

[2] We arbitrarily used the categories of educational level and age from Table 1, rather than trying to convert these to years of education and years of age. It should be noted, of course, that the categories are not of the same length.

in-migrants are one age category less than out-migrants, while education is the same (.33, Table 3).

The age dimension has a lesser impact upon the correlation between in-migration and out-migration, and the pattern is quite biased. The highest average correlation is found where in-migrants are two age categories younger than out-migrants (.14).

A two-way analysis of variance was performed with the correlation between the in-migration and out-migration rates as the dependent variable and the education and age categories as the factors. It is presented in Table 4. The first frame of Table 4 shows it for all 653 counties taken together (All counties). Education differences explained about 44% of the variance in the correlation coefficients, and age differences only about 2% (Table 4).

Thus, it appears that (1) educational levels are more important in the correlation between in-migration and out-migration, (2) at the same levels of education, in-migration and out-migration are positively correlated, whereas at substantially different levels, in-migration and out-migration are negatively correlated, (3) by age, in-migration of somewhat younger people tends to be associated with the out-migration of somewhat older people, and (4) hardly any of these correlations are high enough to allow predicting or estimating one from the other (in-migration from out-migration or vice-versa).

These patterns of correlation between out-migration and in-migration by educational level might well summarize several significant underlying dynamics. One which is almost certainly operative is higher education. A key aspect of the communities of both origin and destination, especially when migration is seen as part of a human capital development and exploitation process, is the existence of higher education institutions. Thus it seems likely that, to a significant extent, the pattern of correlations associated with differences in educational level might result from this human capital development process. Counties with colleges or universities presumably both receive and lost more relatively highly educated persons.

At the other end of the continuum, some counties may be characterized by the "circulation" of people with low levels of education. Presumably these might be, for example, rural counties with on-going streams of out and return migration to specific urban areas for employment, streams such as those out of Kentucky (Brown, etc.).

First we examined the possible effect of the presence of colleges or universities. Figure 4 shows the pattern of average correlations for two groups of counties by educational differences for those that had colleges or universities and those that did not. It is clear from Figure 4 that the pattern of in-migration and out-migration being correlated along similar educational levels is more pronounced when colleges or universities are present. However, it also exists for counties without these institutions, indicating there is more involved than merely migrating for post-highschool education and training. The analyses of variance of these counties are also shown in Table 4. Educational level differences for counties without colleges and universities still account for 32 percent of the variation in the correlation between in-migration and out-migration.

We then examined those counties which showed the highest values on migration factors representing the in-migration of people with low levels of education and the in-migration of people with the same characteristic. These factors were created from the 30 in-migration and out-migration rates (Voth, et al., 1993). Table 5 shows the 12 counties showing simultaneously the highest rates of out-migration <u>and</u> in-migration of people with the lowest levels of education (the criterion was an arbitrary +1.5 or more on both factors). Remarkably, 9 of these counties are in Kentucky, all are rural, and only 2 are in the Lower Mississippi Delta region, where one might have expected this pattern of migration. Most part they are very small rural counties. Perhaps the most interesting aspect of the 9 found in Kentucky is that 6 (Lewis, Menifee, Powell, Wolfe, Jackson, and Whitley) either contain parts of, are in close proximity to the Daniel Boone National forest. Four (Menifee, Powell, Wolfe, and Jackson) are in the area covered in the early studies of migration patterns, kinship ties affecting migration, and assimilation carried out by Schwarzweller (1963), Brown, et al (1963). Similar rural-urban migration patterns are also discussed in Fuller (1970), who summarizes the very interesting work on migration streams done by Eldon Smith in his Ph. D. Dissertation (1956).[3]

To examine the stability of the correlations between in-migration and out-migration for the 30 age/educational level groups in Table 2 a correlation matrix was calculated among the seven Lower Mississippi delta states, the overall of all states combined, and those counties with and without colleges or universities. This correlation matrix is shown in Table 6. All correlations are, of course, statistically significant at the .001 level. Most are high, in the range of .65 and above. Arkansas stands out with a relatively low correlation with the total of all states combined, and, of course, also with the other states. Other than Arkansas, however, Table 6 indicates a high degree of stability among the correlations between in-migration and out-migration of the 30 age/educational level categories, at least for the states of the Lower Mississippi Delta region, suggesting a certain amount of generalizability for the empirical relationships shown here.

In summary, the correlation between in-migration and out-migration which is not, by itself, very strong, is strongly affected by the relative educational levels of the in-migrants and out-migrants, and only very weakly affected by their relative ages. Counties that are destinations for highly educated persons also lose many such persons. These counties, in turn, lose significantly <u>fewer</u> of their people with low levels of education. For counties with colleges or universities, the highest average correlation at the same levels of education is .38 when in-migrants are one category younger than out-migrants. Although this pattern is partly the consequence of the human capital formation function of communities which have colleges or universities, it prevails elsewhere as well. For some reason Kentucky has nearly all of the counties characterized by the lower end of this correlation, the simultaneous in-migration and out-migration of persons with very low levels of education. In Kentucky these counties tend to either contain or be close to a major national forest.

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[3] It seems evident, then, that the role of dependance upon forestry, national forests, timber production, recreation, or some combination of these, or, perhaps, even long-standing social organizational and cultural patterns associated with counties where any or all of these things prevail, should be examined as a possible "cause" of the "circulation" of persons with very low levels of education. That can, of course, be done with this data set. Perhaps additional work will be completed by the time the paper is presented.

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Table 1
Age/Educational Level Groups
for which Migration Rates are Calculated

| Education/Age-> | 18-24 | 25-34 | 35-44 | 45-64 | 65+ |
|---|---|---|---|---|---|
| Elementary | Group 1 | Group 7 | Group 13 | Group 19 | Group 25 |
| 1-3 H./School | Group 2 | Group 8 | Group 14 | Group 20 | Group 26 |
| 4 High School | Group 3 | Group 9 | Group 15 | Group 21 | Group 27 |
| 1-3 College | Group 4 | Group 10 | Group 16 | Group 22 | Group 28 |
| 4 College | Group 5 | Group 11 | Group 17 | Group 23 | Group 29 |
| 5+ College | Group 6 | Group 12 | Group 18 | Group 24 | Group 30 |

## Table 2
## Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | OUTRAT1 | Rank1 | OUTRAT2 | Rank2 | OUTRAT3 | Rank3 | OUTRAT4 | Rank4 | OUTRAT5 | Rank5 | OUTRAT6 | Rank6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INRAT01 | 0.1924 | 27 | 0.1290 | 17 | -0.0217 | 5 | -0.1078 | 4 | -0.1936 | 5 | -0.0854 | 7 |
| INRAT02 | 0.1305 | 26 | 0.2528 | 23 | 0.2568 | 24 | 0.0863 | 12 | -0.1042 | 7 | -0.0399 | 10 |
| INRAT03 | -0.0475 | 13 | 0.0522 | 14 | 0.1763 | 17 | 0.1357 | 17 | 0.4373 | 27 | 0.3667 | 26 |
| INRAT04 | -0.1477 | 5 | -0.1638 | 2 | -0.1694 | 1 | 0.0836 | 11 | 0.7613 | 30 | 0.6550 | 30 |
| INRAT05 | -0.1971 | 1 | -0.2029 | 1 | -0.0803 | 3 | 0.1589 | 21 | 0.6015 | 29 | 0.5529 | 29 |
| INRAT06 | -0.1234 | 7 | -0.1498 | 3 | -0.1115 | 2 | 0.1076 | 13 | 0.4812 | 28 | 0.4705 | 28 |
| INRAT07 | 0.2017 | 28 | 0.2073 | 20 | -0.0275 | 4 | -0.2614 | 2 | -0.2231 | 4 | -0.1842 | 2 |
| INRAT08 | 0.1038 | 25 | 0.3204 | 29 | 0.2746 | 25 | -0.0741 | 5 | -0.2528 | 2 | -0.2175 | 1 |
| INRAT09 | -0.0404 | 14 | 0.3085 | 28 | 0.4431 | 30 | 0.1223 | 16 | -0.0819 | 8 | -0.1022 | 5 |
| INRAT10 | -0.1622 | 4 | 0.0144 | 10 | 0.1953 | 21 | 0 2565 | 29 | 0.1911 | 22 | 0.1112 | 19 |
| INRAT11 | -0.1922 | 2 | -0.0846 | 5 | 0.1149 | 12 | 0.2806 | 30 | 0.2088 | 23 | 0.1278 | 23 |
| INRAT12 | -0.1753 | 3 | -0.0985 | 4 | 0.0144 | 7 | 0.2163 | 27 | 0.4133 | 25 | 0.3621 | 25 |
| INRAT13 | 0.2757 | 30 | 0.2971 | 26 | 0.0513 | 8 | -0.2669 | 1 | -0.2629 | 1 | -0.1339 | 3 |
| INRAT14 | 0.0376 | 22 | 0.3071 | 27 | 0.2392 | 23 | -0.0413 | 6 | -0.1527 | 6 | -0.0656 | 8 |
| INRAT15 | -0.0280 | 17 | 0.2888 | 24 | 0.3622 | 29 | 0.0822 | 10 | -0.0357 | 11 | -0.0394 | 11 |
| INRAT16 | -0.0829 | 10 | 0.1094 | 16 | 0.2019 | 22 | 0.1706 | 24 | 0.0826 | 16 | 0.0575 | 17 |
| INRAT17 | -0.1045 | 8 | 0.0048 | 9 | 0.0561 | 9 | 0.1901 | 25 | 0.1641 | 21 | 0.1200 | 21 |
| INRAT18 | -0.1327 | 6 | -0.0723 | 5 | 0.0087 | 6 | 0.2111 | 26 | 0.4160 | 26 | 0.3718 | 27 |
| INRAT19 | 0.2493 | 29 | 0.3457 | 30 | 0.1756 | 16 | -0.2405 | 3 | -0.2371 | 3 | -0.1269 | 4 |
| INRAT20 | 0.0689 | 23 | 0.2920 | 25 | 0.3300 | 28 | 0.0046 | 7 | -0.0785 | 9 | -0.0542 | 9 |
| INRAT21 | -0.0109 | 18 | 0.2382 | 22 | 0.3162 | 27 | 0.1654 | 23 | -0.0069 | 12 | 0.0034 | 13 |
| INRAT22 | -0.0387 | 16 | 0.1456 | 19 | 0.1799 | 18 | 0.1608 | 22 | 0.0487 | 14 | 0.0336 | 16 |
| INRAT23 | -0.0099 | 19 | 0.0462 | 12 | 0.0730 | 10 | 0.1494 | 20 | 0.1238 | 18 | 0.1223 | 22 |
| INRAT24 | -0.0982 | 9 | -0.0412 | 8 | 0.0942 | 11 | 0.1150 | 14 | 0.2478 | 24 | 0.2236 | 24 |
| INRAT25 | 0.0991 | 24 | 0.2188 | 21 | 0.1826 | 19 | 0.0047 | 8 | -0.0441 | 10 | -0.0904 | 6 |
| INRAT26 | 0.0120 | 21 | 0.1408 | 18 | 0.1901 | 20 | 0.1486 | 18 | 0.0012 | 13 | -0.0159 | 12 |
| INRAT27 | -0.0615 | 12 | 0.0946 | 15 | 0.2945 | 26 | 0.2239 | 28 | 0.0690 | 15 | 0.0252 | 15 |
| INRAT28 | -0.0735 | 11 | 0.0502 | 13 | 0.1577 | 15 | 0.1211 | 15 | 0.1245 | 19 | 0.0626 | 18 |
| INRAT29 | -0.0399 | 15 | 0.0286 | 11 | 0.1363 | 14 | 0.0759 | 9 | 0.1510 | 20 | 0.1146 | 20 |
| INRAT30 | 0.0025 | 20 | -0.0493 | 7 | 0.1270 | 13 | 0.1492 | 19 | 0.1087 | 17 | 0.0078 | 14 |
| Average | -0.0131 | | 0.1013 | | 0.1414 | | 0.0809 | | 0.0986 | | 0.0878 | |

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Table 2 (Cont.)
Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | OUTRAT7 | Rank7 | OUTRAT8 | Rank8 | OUTRAT9 | Rank9 | OUTRAT10 | Rank10 | OUTRAT11 | Rank11 | OUTRAT12 | Rank12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INRAT01 | 0.1860 | 27 | 0.0635 | 18 | -0.0105 | 5 | -0.0626 | 5 | -0.1789 | 5 | -0.1255 | 5 |
| INRAT02 | 0.0633 | 25 | 0.1197 | 23 | 0.3589 | 28 | 0.2107 | 14 | -0.0402 | 7 | -0.0464 | 10 |
| INRAT03 | -0.1734 | 8 | -0.0584 | 11 | 0.3297 | 27 | 0.5095 | 30 | 0.5299 | 27 | 0.4995 | 25 |
| INRAT04 | -0.2090 | 3 | -0.2175 | 2 | -0.0895 | 1 | 0.3828 | 24 | 0.8205 | 30 | 0.8252 | 30 |
| INRAT05 | -0.2616 | 2 | -0.2251 | 1 | 0.0028 | 6 | 0.4016 | 26 | 0.6751 | 29 | 0.7439 | 29 |
| INRAT06 | -0.1928 | 5 | -0.1684 | 3 | -0.0266 | 4 | 0.3002 | 20 | 0.5557 | 28 | 0.7192 | 28 |
| INRAT07 | 0.2638 | 29 | 0.1705 | 26 | -0.0326 | 3 | -0.2873 | 1 | -0.2539 | 1 | -0.2444 | 2 |
| INRAT08 | 0.1185 | 26 | 0.2003 | 28 | 0.1892 | 18 | -0.0801 | 4 | -0.2377 | 3 | -0.2459 | 1 |
| INRAT09 | -0.1052 | 13 | 0.1063 | 22 | 0.5081 | 30 | 0.2180 | 15 | -0.0113 | 10 | -0.1092 | 7 |
| INRAT10 | -0.1992 | 4 | -0.0978 | 7 | 0.2981 | 26 | 0.4582 | 29 | 0.2823 | 22 | 0.2234 | 22 |
| INRAT11 | -0.2622 | 1 | -0.1159 | 6 | 0.2225 | 21 | 0.4314 | 28 | 0.2993 | 23 | 0.2468 | 23 |
| INRAT12 | -0.1890 | 6 | -0.1647 | 4 | 0.1156 | 12 | 0.4189 | 27 | 0.4997 | 26 | 0.5446 | 27 |
| INRAT13 | 0.3049 | 30 | 0.1216 | 24 | -0.0466 | 2 | -0.2194 | 2 | -0.2538 | 2 | -0.2391 | 3 |
| INRAT14 | 0.0619 | 24 | 0.2114 | 29 | 0.1592 | 16 | -0.0483 | 6 | -0.1132 | 6 | -0.1222 | 6 |
| INRAT15 | -0.0618 | 17 | 0.1000 | 21 | 0.3592 | 29 | 0.2088 | 13 | 0.0262 | 11 | -0.0117 | 11 |
| INRAT16 | -0.1561 | 10 | -0.0217 | 14 | 0.2909 | 25 | 0.3051 | 21 | 0.1658 | 18 | 0.1215 | 16 |
| INRAT17 | -0.1307 | 11 | -0.0689 | 10 | 0.1322 | 14 | 0.3131 | 22 | 0.2415 | 21 | 0.2176 | 21 |
| INRAT18 | -0.1859 | 7 | -0.1201 | 5 | 0.1159 | 13 | 0.3959 | 25 | 0.4978 | 25 | 0.5289 | 26 |
| INRAT19 | 0.2507 | 28 | 0.2593 | 30 | 0.0407 | 7 | -0.2120 | 3 | -0.2191 | 4 | -0.2067 | 4 |
| INRAT20 | 0.0377 | 22 | 0.1845 | 27 | 0.2415 | 22 | 0.0484 | 9 | -0.0232 | 9 | -0.0755 | 8 |
| INRAT21 | -0.0657 | 15 | 0.0874 | 20 | 0.2715 | 24 | 0.1855 | 10 | 0.0714 | 12 | 0.0066 | 12 |
| INRAT22 | -0.0620 | 16 | 0.0335 | 17 | 0.2031 | 20 | 0.2751 | 19 | 0.1247 | 14 | 0.1056 | 15 |
| INRAT23 | -0.0552 | 18 | -0.0465 | 12 | 0.0724 | 9 | 0.2333 | 17 | 0.1755 | 19 | 0.1551 | 19 |
| INRAT24 | -0.1636 | 9 | -0.0760 | 8 | 0.1073 | 11 | 0.2662 | 18 | 0.3510 | 24 | 0.3133 | 24 |
| INRAT25 | 0.0381 | 23 | 0.1544 | 25 | 0.1689 | 17 | 0.0163 | 7 | -0.0258 | 8 | -0.0574 | 9 |
| INRAT26 | -0.0523 | 19 | 0.0651 | 19 | 0.2004 | 19 | 0.2032 | 11 | 0.0752 | 13 | 0.0089 | 13 |
| INRAT27 | -0.1127 | 12 | 0.0011 | 15 | 0.2482 | 23 | 0.3194 | 23 | 0.1277 | 15 | 0.0711 | 14 |
| INRAT28 | -0.0772 | 14 | 0.0066 | 16 | 0.1324 | 15 | 0.2236 | 16 | 0.1664 | 17 | 0.1316 | 18 |
| INRAT29 | -0.0137 | 20 | -0.0302 | 13 | 0.0978 | 10 | 0.2055 | 12 | 0.1757 | 20 | 0.1678 | 20 |
| INRAT30 | -0.0060 | 21 | -0.0717 | 9 | 0.0528 | 8 | 0.1432 | 9 | 0.1281 | 16 | 0.1267 | 17 |
| Average | -0.0470 | | 0.0134 | | 0.1571 | | 0.1921 | | 0.1545 | | 0.1424 | |

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Table 2 (Cont.)

Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | OUTRAT13 | Rank13 | OUTRAT14 | Rank14 | OUTRAT15 | Rank15 | OUTRAT16 | Rank16 | OUTRAT17 | Rank17 | OUTRAT18 | Rank18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INRAT01 | 0.1673 | 27 | 0.0827 | 18 | -0.0198 | 4 | -0.0108 | 6 | -0.0782 | 6 | -0.1267 | 5 |
| INRAT02 | 0.1043 | 25 | 0.0948 | 19 | 0.3341 | 26 | 0.1866 | 12 | 0.0402 | 9 | -0.0047 | 9 |
| INRAT03 | -0.1349 | 11 | 0.0104 | 12 | 0.4139 | 30 | 0.4071 | 27 | 0.2574 | 22 | 0.4478 | 25 |
| INRAT04 | -0.1480 | 6 | -0.1308 | 2 | 0.0777 | 5 | 0.2620 | 20 | 0.3330 | 25 | 0.6539 | 30 |
| INRAT05 | -0.2165 | 3 | -0.1483 | 1 | 0.1208 | 10 | 0.3511 | 24 | 0.4182 | 30 | 0.6500 | 29 |
| INRAT06 | -0.1483 | 7 | -0.0934 | 5 | 0.0855 | 6 | 0.2495 | 18 | 0.3712 | 28 | 0.6253 | 28 |
| INRAT07 | 0.2467 | 28 | 0.0442 | 16 | -0.1421 | 1 | -0.1900 | 2 | -0.2256 | 1 | -0.2199 | 3 |
| INRAT08 | 0.1098 | 26 | 0.1677 | 30 | 0.1303 | 12 | -0.0702 | 4 | -0.1474 | 4 | -0.1997 | 4 |
| INRAT09 | -0.0484 | 19 | 0.0956 | 20 | 0.4064 | 29 | 0.2117 | 16 | 0.0579 | 12 | -0.0043 | 10 |
| INRAT10 | -0.1839 | 4 | -0.0500 | 8 | 0.3779 | 28 | 0.4182 | 29 | 0.2691 | 24 | 0.3159 | 22 |
| INRAT11 | -0.2609 | 1 | -0.0866 | 6 | 0.2988 | 22 | 0.4300 | 30 | 0.3440 | 26 | 0.3421 | 23 |
| INRAT12 | -0.2246 | 2 | -0.1125 | 4 | 0.2348 | 19 | 0.4109 | 28 | 0.3815 | 29 | 0.5839 | 27 |
| INRAT13 | 0.2524 | 29 | 0.0678 | 17 | -0.1266 | 2 | -0.1898 | 3 | -0.1[illegible] | 3 | -0.2240 | 2 |
| INRAT14 | 0.0742 | 22 | 0.1101 | 24 | 0.1109 | 9 | -0.0650 | 5 | -0.1096 | 5 | -0.0948 | 6 |
| INRAT15 | -0.0488 | 18 | 0.1191 | 26 | 0.3566 | 27 | 0.2059 | 14 | 0.0481 | 10 | 0.0660 | 13 |
| INRAT16 | -0.1477 | 9 | -0.0018 | 11 | 0.3028 | 23 | 0.3780 | 25 | 0.1619 | 19 | 0.2265 | 20 |
| INRAT17 | -0.1483 | 4 | -0.0592 | 7 | 0.2154 | 13 | 0.3495 | 22 | 0.2673 | 23 | 0.3010 | 21 |
| INRAT18 | -0.1564 | 5 | -0.1129 | 3 | 0.1957 | 16 | 0.3851 | 26 | 0.3682 | 27 | 0.5619 | 26 |
| INRAT19 | 0.2952 | 30 | 0.1318 | 27 | -0.0703 | 3 | -0.2090 | 1 | -0.1983 | 2 | -0.2248 | 1 |
| INRAT20 | 0.0175 | 22 | 0.1456 | 29 | 0.1911 | 15 | -0.0076 | 7 | -0.0694 | 7 | -0.0396 | 8 |
| INRAT21 | -0.0321 | 21 | 0.1078 | 23 | 0.3046 | 24 | 0.1320 | 9 | 0.0499 | 11 | 0.0563 | 12 |
| INRAT22 | -0.1119 | 12 | 0.0379 | 15 | 0.2451 | 21 | 0.2816 | 21 | 0.1523 | 18 | 0.1593 | 15 |
| INRAT23 | -0.0465 | 20 | 0.0215 | 14 | 0.1301 | 11 | 0.3015 | 22 | 0.2094 | 21 | 0.2191 | 18 |
| INRAT24 | -0.1435 | 10 | -0.0179 | 10 | 0.1584 | 14 | 0.2582 | 19 | 0.1928 | 20 | 0.3614 | 24 |
| INRAT25 | 0.0774 | 24 | 0.1014 | 22 | 0.0971 | 7 | 0.0248 | 8 | -0.0563 | 8 | -0.0482 | 7 |
| INRAT26 | -0.0700 | 16 | 0.1329 | 28 | 0.2444 | 20 | 0.1866 | 13 | 0.0661 | 13 | 0.0353 | 11 |
| INRAT27 | -0.0780 | 15 | 0.1150 | 25 | 0.3225 | 25 | 0.2414 | 17 | 0.0820 | 14 | 0.1044 | 14 |
| INRAT28 | -0.1055 | 13 | 0.0199 | 13 | 0.2066 | 17 | 0.2062 | 15 | 0.1113 | 17 | 0.2037 | 17 |
| INRAT29 | -0.0697 | 17 | 0.0962 | 21 | 0.1532 | 13 | 0.1555 | 11 | 0.0856 | 15 | 0.2208 | 19 |
| INRAT30 | -0.0944 | 14 | -0.0273 | 9 | 0.1186 | 9 | 0.1381 | 10 | 0.0892 | 16 | 0.1885 | 16 |
| Average | -0.0425 | | 0.0287 | | 0.1825 | | 0.1810 | | 0.1093 | | 0.1712 | |

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Table 2 (Cont.)

Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | OUTRAT19 | Rank19 | OUTRAT20 | Rank20 | OUTRAT21 | Rank21 | OUTRAT22 | Rank22 | OUTRAT23 | Rank23 | OUTRAT24 | Rank24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INRAT01 | 0.2346 | 26 | 0.0312 | 6 | -0.1246 | 3 | -0.0488 | 3 | -0.0403 | 4 | -0.0202 | 7 |
| INRAT02 | 0.1532 | 23 | 0.0653 | 9 | 0.1493 | 11 | 0.1187 | 11 | 0.0248 | 9 | 0.0710 | 13 |
| INRAT03 | -0.0438 | 10 | 0.0667 | 10 | 0.3128 | 24 | 0.3307 | 24 | 0.2193 | 25 | 0.3695 | 25 |
| INRAT04 | -0.1356 | 5 | 0.0248 | 5 | 0.1086 | 7 | 0.2461 | 7 | 0.2502 | 17 | 0.5088 | 30 |
| INRAT05 | -0.1888 | 2 | 0.0202 | 4 | 0.2120 | 12 | 0.3288 | 12 | 0.3255 | 24 | 0.4851 | 29 |
| INRAT06 | -0.1361 | 4 | 0.0039 | 2 | 0.1460 | 10 | 0.2502 | 10 | 0.2466 | 18 | 0.3799 | 26 |
| INRAT07 | 0.2596 | 27 | 0.0052 | 3 | -0.2205 | 1 | -0.2067 | 1 | -0.1134 | 2 | -0.1576 | 3 |
| INRAT08 | 0.2801 | 28 | 0.1660 | 22 | 0.0339 | 5 | 0.0349 | 5 | -0.0632 | 6 | -0.1474 | 4 |
| INRAT09 | 0.0802 | 21 | 0.2496 | 30 | 0.3750 | 26 | 0.2447 | 26 | 0.1204 | 16 | 0.0453 | 10 |
| INRAT10 | -0.1028 | 7 | 0.1987 | 25 | 0.4203 | 30 | 0.4025 | 30 | 0.3378 | 29 | 0.2564 | 22 |
| INRAT11 | -0.1932 | 1 | 0.1354 | 19 | 0.4036 | 28 | 0.3910 | 28 | 0.3360 | 28 | 0.3296 | 24 |
| INRAT12 | -0.1665 | 3 | 0.1569 | 21 | 0.3040 | 23 | 0.4405 | 23 | 0.4144 | 30 | 0.4550 | 28 |
| INRAT13 | 0.3829 | 30 | -0.0329 | 1 | -0.1633 | 2 | -0.2206 | 2 | -0.1664 | 1 | -0.1887 | 1 |
| INRAT14 | 0.2242 | 25 | 0.0784 | 12 | 0.1069 | 6 | 0.0404 | 6 | -0.0215 | 7 | -0.0792 | 5 |
| INRAT15 | 0.0734 | 20 | 0.2076 | 26 | 0.3040 | 22 | 0.2176 | 22 | 0.1520 | 14 | 0.0625 | 12 |
| INRAT16 | -0.0334 | 13 | 0.1268 | 18 | 0.2911 | 20 | 0.2878 | 20 | 0.2688 | 21 | 0.2103 | 20 |
| INRAT17 | -0.0958 | 8 | 0.1129 | 13 | 0.2521 | 17 | 0.3272 | 17 | 0.3499 | 23 | 0.2368 | 21 |
| INRAT18 | -0.1078 | 6 | 0.0545 | 8 | 0.2260 | 13 | 0.3666 | 13 | 0.3460 | 27 | 0.4046 | 27 |
| INRAT19 | 0.3750 | 29 | 0.0695 | 11 | -0.0784 | 4 | -0.1672 | 4 | -0.1971 | 3 | -0.1582 | 2 |
| INRAT20 | 0.1524 | 22 | 0.2341 | 28 | 0.2388 | 15 | 0.1167 | 15 | 0.0155 | 8 | -0.0162 | 8 |
| INRAT21 | 0.0506 | 19 | 0.2487 | 29 | 0.3908 | 27 | 0.2248 | 27 | 0.1403 | 15 | 0.0617 | 11 |
| INRAT22 | -0.0088 | 15 | 0.1805 | 24 | 0.3436 | 25 | 0.3349 | 25 | 0.2194 | 26 | 0.1282 | 14 |
| INRAT23 | -0.0384 | 11 | 0.1164 | 15 | 0.2451 | 16 | 0.3754 | 16 | 0.2471 | 22 | 0.1893 | 19 |
| INRAT24 | -0.0706 | 9 | 0.1178 | 16 | 0.2766 | 18 | 0.2823 | 18 | 0.2756 | 20 | 0.2643 | 23 |
| INRAT25 | 0.1903 | 24 | 0.1478 | 20 | 0.1307 | 8 | 0.0292 | 8 | -0.0210 | 5 | -0.0236 | 6 |
| INRAT26 | 0.0490 | 18 | 0.1729 | 23 | 0.2936 | 21 | 0.1838 | 21 | 0.1482 | 11 | 0.0170 | 9 |
| INRAT27 | -0.0048 | 17 | 0.2122 | 27 | 0.4095 | 29 | 0.2805 | 29 | 0.1662 | 19 | 0.1501 | 18 |
| INRAT28 | -0.0084 | 16 | 0.1264 | 17 | 0.2795 | 19 | 0.2048 | 19 | 0.1573 | 13 | 0.1363 | 16 |
| INRAT29 | -0.0353 | 12 | 0.1143 | 14 | 0.2271 | 14 | 0.1965 | 14 | 0.1193 | 12 | 0.1463 | 17 |
| INRAT30 | -0.0221 | 14 | 0.0471 | 7 | 0.1375 | 9 | 0.1502 | 9 | 0.1018 | 10 | 0.1318 | 15 |
| Average | 0.0371 | | 0.1153 | | 0.2011 | | 0.1905 | | 0.1447 | | 0.1416 | |

Table 2 (Cont.)

Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | OUTRAT25 | Rank25 | OUTRAT26 | Rank26 | OUTRAT27 | Rank27 | OUTRAT28 | Rank28 | OUTRAT29 | Rank29 | OUTRAT30 | Rank30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INRAT01 | 0.1759 | 21 | -0.0227 | 2 | -0.0406 | 3 | -0.0511 | 1 | -0.0141 | 2 | -0.0625 | 3 |
| INRAT02 | 0.2359 | 26 | 0.1046 | 10 | 0.0798 | 6 | 0.0330 | 5 | 0.0793 | 10 | -0.013 | 5 |
| INRAT03 | 0.0592 | 16 | 0.1142 | 13 | 0.1734 | 16 | 0.1478 | 17 | 0.1196 | 18 | 0.1351 | 13 |
| INRAT04 | -0.0924 | 3 | 0.0151 | 4 | 0.0946 | 7 | 0.0674 | 8 | 0.0492 | 8 | 0.1996 | 26 |
| INRAT05 | -0.1172 | 1 | 0.0681 | 7 | 0.1670 | 14 | 0.0913 | 10 | 0.1471 | 4 | 0.2368 | 28 |
| INRAT06 | -0.1082 | 2 | 0.0226 | 5 | 0.1393 | 10 | 0.0930 | 11 | 0.0940 | 13 | 0.1846 | 23 |
| INRAT07 | 0.1592 | 19 | -0.0656 | 1 | -0.1116 | 1 | -0.0467 | 2 | -0.0323 | 1 | -0.1324 | 1 |
| INRAT08 | 0.2857 | 29 | 0.0651 | 6 | 0.0266 | 5 | 0.0728 | 9 | -0.0028 | 3 | 0.0051 | 7 |
| INRAT09 | 0.2538 | 28 | 0.2434 | 26 | 0.2582 | 23 | 0.2662 | 30 | 0.0982 | 14 | 0.0984 | 10 |
| INRAT10 | 0.0588 | 15 | 0.2682 | 28 | 0.3100 | 28 | 0.2062 | 25 | 0.1666 | 28 | 0.2297 | 27 |
| INRAT11 | -0.0559 | 5 | 0.1080 | 11 | 0.2716 | 26 | 0.2132 | 26 | 0.1283 | 20 | 0.1960 | 25 |
| INRAT12 | -0.0402 | 6 | 0.1316 | 15 | 0.2604 | 24 | 0.1873 | 23 | 0.1543 | 26 | 0.3080 | 30 |
| INRAT13 | 0.2378 | 27 | -0.0104 | 3 | -0.0712 | 2 | -0.0374 | 3 | 0.0009 | 4 | -0.0928 | 2 |
| INRAT14 | 0.2104 | 25 | 0.1210 | 14 | 0.0970 | 8 | 0.0671 | 7 | 0.1457 | 23 | -0.0116 | 6 |
| INRAT15 | 0.1671 | 20 | 0.2688 | 29 | 0.1695 | 15 | 0.2157 | 27 | 0.1473 | 25 | 0.1086 | 12 |
| INRAT16 | 0.0194 | 11 | 0.2077 | 23 | 0.1842 | 18 | 0.1845 | 22 | 0.1857 | 30 | 0.1682 | 21 |
| INRAT17 | 0.0060 | 9 | 0.2066 | 22 | 0.1544 | 12 | 0.1434 | 15 | 0.1557 | 27 | 0.1678 | 20 |
| INRAT18 | -0.0672 | 4 | 0.1094 | 9 | 0.1551 | 13 | 0.1571 | 20 | 0.0908 | 12 | 0.2454 | 29 |
| INRAT19 | 0.3288 | 30 | 0.0899 | 8 | -0.0042 | 4 | 0.0042 | 4 | 0.0031 | 5 | -0.0400 | 4 |
| INRAT20 | 0.1974 | 23 | 0.2542 | 27 | 0.1761 | 17 | 0.1430 | 14 | 0.1052 | 15 | 0.0944 | 9 |
| INRAT21 | 0.1929 | 22 | 0.3360 | 30 | 0.3445 | 29 | 0.2515 | 28 | 0.1734 | 29 | 0.1459 | 16 |
| INRAT22 | 0.0403 | 13 | 0.1969 | 20 | 0.2713 | 25 | 0.2029 | 24 | 0.1297 | 21 | 0.1357 | 14 |
| INRAT23 | 0.0134 | 10 | 0.2083 | 24 | 0.2209 | 20 | 0.1442 | 16 | 0.1446 | 22 | 0.1373 | 15 |
| INRAT24 | -0.0314 | 7 | 0.1318 | 16 | 0.2741 | 27 | 0.1652 | 21 | 0.1153 | 17 | 0.1953 | 24 |
| INRAT25 | 0.2049 | 24 | 0.1137 | 12 | 0.1189 | 9 | 0.0491 | 6 | 0.0247 | 7 | 0.0403 | 8 |
| INRAT26 | 0.1104 | 18 | 0.2104 | 25 | 0.2118 | 19 | 0.1133 | 12 | 0.0196 | 6 | 0.1050 | 11 |
| INRAT27 | 0.0976 | 17 | 0.1971 | 21 | 0.3635 | 30 | 0.2569 | 29 | 0.1216 | 19 | 0.1481 | 17 |
| INRAT28 | -0.0155 | 8 | 0.1629 | 18 | 0.2482 | 22 | 0.1547 | 18 | 0.0668 | 9 | 0.1533 | 18 |
| INRAT29 | 0.0454 | 14 | 0.1772 | 19 | 0.2227 | 21 | 0.1560 | 19 | 0.1060 | 16 | 0.1542 | 19 |
| INRAT30 | 0.0248 | 12 | 0.1342 | 17 | 0.1483 | 11 | 0.1205 | 13 | 0.0880 | 11 | 0.1695 | 22 |
| Average | 0.0866 | | 0.1386 | | 0.1638 | | 0.1257 | | 0.0937 | | 0.1137 | |

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Table 2 (Cont.)

Correlation Matrix of All In-migration Rates with All Out-Migration Rates

| | Average |
|---|---|
| INRAT01 | -0.0120 |
| INRAT02 | 0.0956 |
| INRAT03 | 0.2035 |
| INRAT04 | 0.1669 |
| INRAT05 | 0.1746 |
| INRAT06 | 0.1459 |
| INRAT07 | -0.0660 |
| INRAT08 | 0.0187 |
| INRAT09 | 0.1352 |
| INRAT10 | 0.1804 |
| INRAT11 | 0.1555 |
| INRAT12 | 0.1959 |
| INRAT13 | -0.0462 |
| INRAT14 | 0.0422 |
| INRAT15 | 0.1302 |
| INRAT16 | 0.1416 |
| INRAT17 | 0.1357 |
| INRAT18 | 0.1772 |
| INRAT19 | -0.0100 |
| INRAT20 | 0.0909 |
| INRAT21 | 0.1416 |
| INRAT22 | 0.1370 |
| INRAT23 | 0.1272 |
| INRAT24 | 0.1392 |
| INRAT25 | 0.0554 |
| INRAT26 | 0.1032 |
| INRAT27 | 0.1463 |
| INRAT28 | 0.1117 |
| INRAT29 | 0.1102 |
| INRAT30 | 0.0780 |
| Overall Average | 0.1069 |

Table 3
Average Coorelations by differences
in Education and Age Categories
for In-migration and Out-Migration rates

| | | | Educational Differences | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | In-migrants less than out-migrants | | | | | Same | | In-migrants more than out-migrants | | |
| Age Diff. | N | Total | -5 | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 | +5 |
| Total | 900 | .109737 | -.126928 | -.087048 | -.011968 | .103381 | .204812 | .261897 | .200502 | .112198 | .021076 | -.062878 | -.110276 |
| -4.0 | 36 | .072372 | -.062500 | -.013700 | .054433 | .077900 | .098180 | .142167 | .126000 | .083575 | .038333 | -.047300 | -.108200 |
| -3.0 | 72 | .131792 | -.076300 | .000875 | .065733 | .126412 | .183630 | .224100 | .211050 | .178013 | .076300 | -.027300 | -.088150 |
| -2.0 | 108 | .140637 | -.125700 | -.059067 | .052167 | .131725 | .227593 | .282750 | .237847 | .159492 | .056322 | -.039967 | -.127333 |
| -1.0 | 144 | .138864 | -.143525 | -.099838 | .010892 | .149006 | .253770 | .327388 | .236390 | .132388 | .027650 | -.087438 | -.139150 |
| .0 | 180 | .115133 | -.134340 | -.110460 | -.039067 | .107660 | .221408 | .301097 | .218704 | .108325 | .001427 | -.077600 | -.102920 |
| 1.0 | 144 | .091145 | -.167925 | -.132313 | -.071275 | .045550 | .182545 | .273750 | .213445 | .102675 | -.002508 | -.074263 | -.131700 |
| 2.0 | 108 | .082012 | -.129600 | -.107350 | -.054700 | .072275 | .180433 | .229733 | .169487 | .074017 | .004300 | -.067500 | -.130233 |
| 3.0 | 72 | .083603 | -.092150 | -.077050 | -.025500 | .104788 | .202050 | .186925 | .129900 | .057200 | .007850 | -.034125 | -.052100 |
| 4.0 | 36 | .076617 | -.090400 | -.030000 | .010367 | .115700 | .174380 | .135717 | .089780 | .068550 | .030700 | -.044600 | .002500 |

Age Differences:
Negative: In-migrants younger than out-migrants
0: Same age
Positive: In-migrants older than out-migrants

Table 4
Anova, effect of education/age differences

All Counties:

| Source of Variation | Sum of Squares | DF | Mean Square | F | Signif of F |
|---|---|---|---|---|---|
| Main Effects | 13.911 | 18 | .773 | 40.407 | .000 |
| POS1 | 13.374(44%) | 10 | 1.337 | 69.924 | .000 |
| POS2 | .537( 2%) | 8 | .067 | 3.511 | .001 |
| 2-way Interactions | .867 | 80 | .011 | .567 | .999 |
| POS1 POS2 | .867 | 80 | .011 | .567 | .999 |
| Explained | 14.779 | 98 | .151 | 7.884 | .000 |
| Residual | 15.320 | 801 | .019 | | |
| Total | 30.099 | 899 | .033 | | |

Counties without colleges or Universities:

| Source of Variation | Sum of Squares | DF | Mean Square | F | Signif of F |
|---|---|---|---|---|---|
| Main Effects | 5.055 | 18 | .281 | 25.489 | .000 |
| POS1 | 4.639(32%) | 10 | .464 | 42.103 | .000 |
| POS2 | .416( 3%) | 8 | .052 | 4.722 | .000 |
| 2-way Interactions | .449 | 80 | .006 | .510 | 1.000 |
| POS1 POS2 | .449 | 80 | .006 | .510 | 1.000 |
| Explained | 5.504 | 98 | .056 | 5.098 | .000 |
| Residual | 8.825 | 801 | .011 | | |
| Total | 14.329 | 899 | .016 | | |

Counties with colleges or universities:

| Source of Variation | Sum of Squares | DF | Mean Square | F | Signif of F |
|---|---|---|---|---|---|
| Main Effects | 20.009 | 18 | 1.112 | 38.682 | .000 |
| POS1 | 19.655(44%) | 10 | 1.965 | 68.394 | .000 |
| POS2 | .355( 1%) | 8 | .044 | 1.542 | .139 |
| 2-way Interactions | 1.523 | 80 | .019 | .663 | .989 |
| POS1 POS2 | 1.523 | 80 | .019 | .663 | .989 |
| Explained | 21.533 | 98 | .220 | 7.646 | .000 |
| Residual | 23.019 | 801 | .029 | | |
| Total | 44.552 | 899 | .050 | | |

POS1: This represents In-migrant/Out-migrant differences in educational level.
POS2: This represents In-migrant/Out-migrant differences in age.

T.ble 5

| COUNTY | STATE | OUTFACT4 | INFACT5 | DELTA | POP70 | POP80 |
|---|---|---|---|---|---|---|
| GALLATIN | Kentucky | 2.41531 | 2.16197 | .00 | 4134.00 | 4842.00 |
| JACKSON | Kentucky | 1.50388 | 1.93527 | .00 | 10005.00 | 11996.00 |
| LEWIS | Kentucky | 1.80401 | 1.54720 | .00 | 12355.00 | 14545.00 |
| MENIFEE | Kentucky | 3.91784 | 3.94831 | .00 | 4050.00 | 5117.00 |
| OWEN | Kentucky | 1.50735 | 2.27062 | .00 | 7470.00 | 8924.00 |
| POWELL | Kentucky | 1.60690 | 2.57295 | .00 | 7704.00 | 11101.00 |
| ROBERTSON | Kentucky | 3.92092 | 2.00459 | .00 | 2223.00 | 2265.00 |
| WHITLEY | Kentucky | 1.81764 | 1.51035 | .00 | 24145.00 | 33396.00 |
| WOLFE | Kentucky | 2.83543 | 3.48101 | .00 | 5669.00 | 6698.00 |
| SUNFLOWER | Mississippi | 2.77916 | 3.00676 | 1.00 | 37047.00 | 34844.00 |
| LAKE | Tennessee | 2.31749 | 1.51565 | 2.00 | 7896.00 | 7455.00 |
| POLK | Tennessee | 2.11103 | 4.30441 | .00 | 11669.00 | 13602.00 |

OUTFACT4: This factor is made up almost entirely of the out-migration rates of those with the lowest levels of education (elementary school or less) for all ages up to 64.

INFACT5: This factor is made up almost entirely of the in-migration rates for those with the lowest levels of education (elementary school or less) for ages 18 through 44.

DELTA: .00 Non-delta rural counties; 1.00 Core delta counties; 2.00 Fringe delta counties

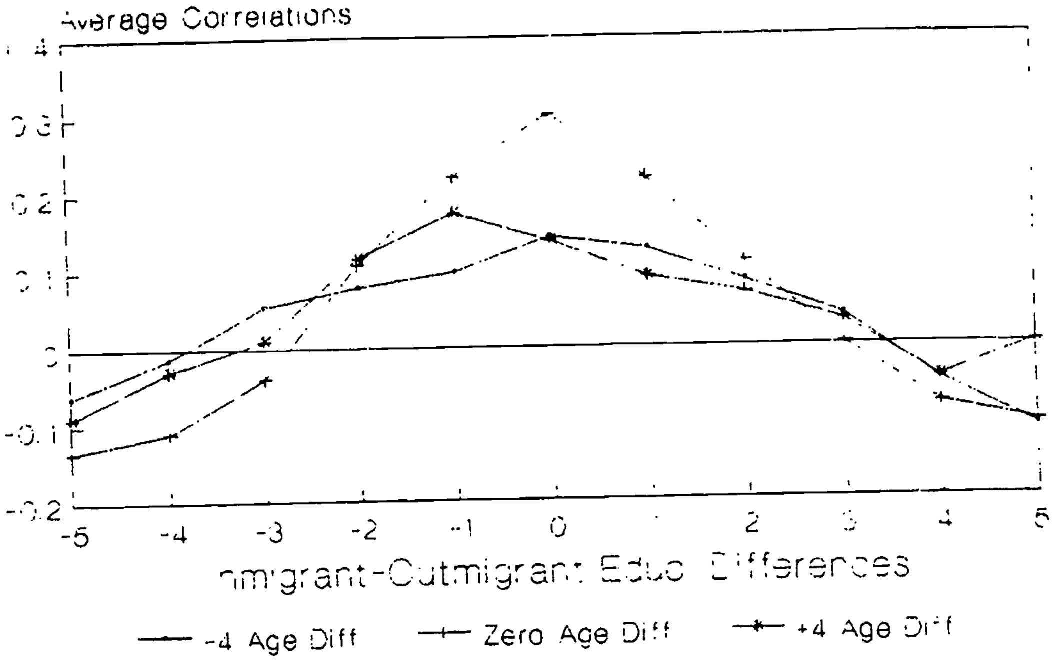
## Table 6

Correlation matrix of the 900 in/out migration correlations for all counties, each of the delta states, and the counties with and without colleges

| Correlations: | TOTAL | NOCOL | COLLEGE | ARKANSAS | ILLINOIS | KENTUCKY | LOUSIANA | MISSISSI | MISSOURI | TENNESS |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | 1.0000 | .7927** | .9468** | .6768** | .8130** | .8429** | .7610** | .8104** | .8713** | .9968** |
| NOCOL | .7927** | 1.0000 | .6570** | .5251** | .4582** | .6663** | .6542** | .5296** | .6587** | .7965** |
| COLLEGE | .9468** | .6570** | 1.0000 | .5933** | .8197** | .8130** | .7181** | .7810** | .8123** | .9403** |
| ARKANSAS | .6768** | .5251** | .5933** | 1.0000 | .5704** | .4350** | .4365** | .5403** | .6053** | .6924** |
| ILLINOIS | .8130** | .4582** | .8197** | .5704** | 1.0000 | .6416** | .5890** | .6970** | .7312** | .8107** |
| KENTUCKY | .8429** | .6663** | .8130** | .4350** | .6416** | 1.0000 | .6772** | .7112** | .6466** | .8328** |
| LOUSIANA | .7610** | .6542** | .7181** | .4365** | .5890** | .6772** | 1.0000 | .5855** | .5904** | .7554** |
| MISSISSI | .8104** | .5296** | .7810** | .5403** | .6970** | .7112** | .5855** | 1.0000 | .6712** | .8113** |
| MISSOURI | .8713** | .6587** | .8123** | .6053** | .7312** | .6466** | .5904** | .6712** | 1.0000 | .8819** |
| TENNESSE | .9968** | .7965** | .9403** | .6924** | .8107** | .8328** | .7554** | .8113** | .8819** | 1.0000 |

N of cases: 900 1-tailed Signif: * - .01 ** - .001

# Figure 1: Average Correlations By Age and Education Differences

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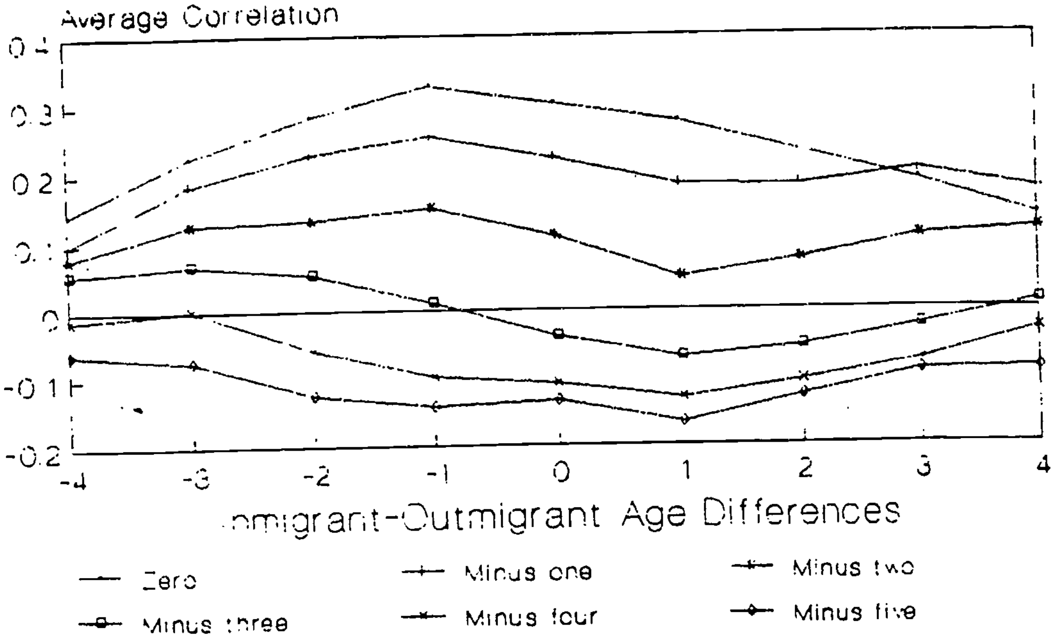
# Figure 2: Average Correlations by Educ. and Age diff.

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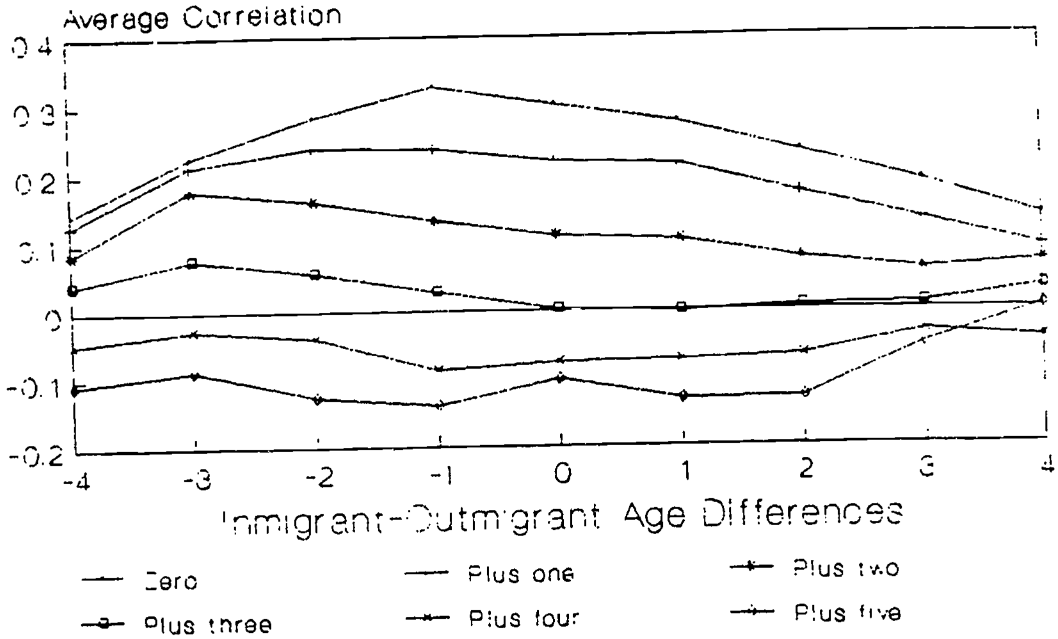
# Figure 3: Average Correlations by Educ. and Age diff.

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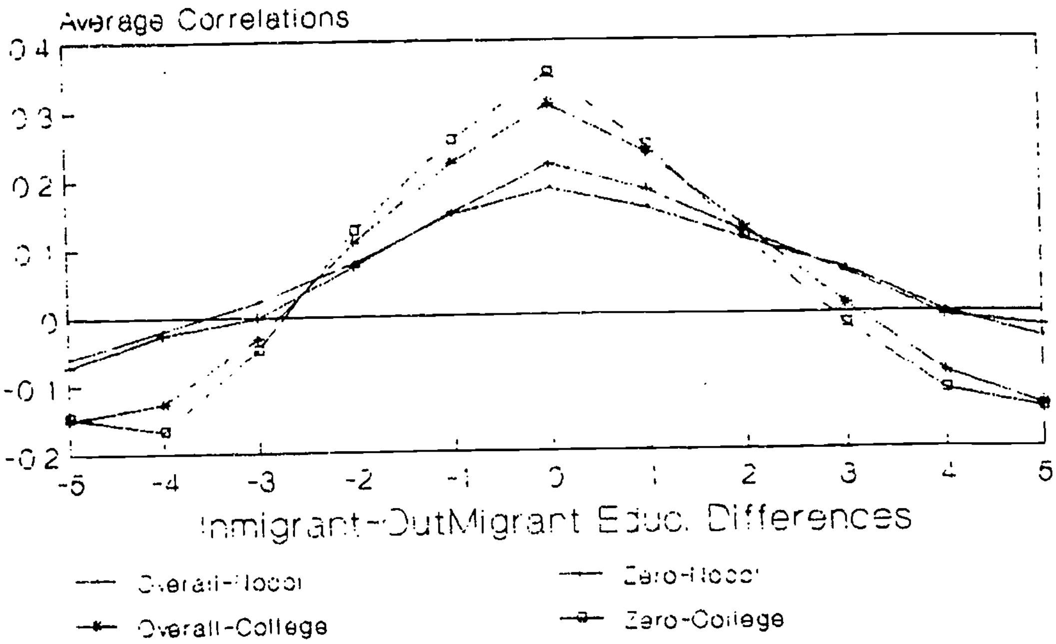
# Figure 4: Average Correlations By Age and Education Differences

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