DISCUSSION

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The three papers in this session all have an "area" focus in that the authors are primarily concerned with how migration affects areas and not how migration affects individuals. All three papers, therefore, have a strong "ecological" orientation. Both perspectives--the ecological and the individual--are needed in order to understand migration processes.

The first paper, by Bowles and Oh, concerns educational levels and migration to and from the South and is based on data from the 1967 Survey of Economic Opportunity, a nationwide sample of about 35,000 households. Their paper contains numerous good ideas and a great deal of enthusiasm, but it contains no data and hence no concrete findings. I'm sure they will produce the data in good form, and I hope that they will publish their cross-tabulated data and not just the summary measures (various contingency statistics) which they say they will produce. Publication of cross-tabulated data serves the dual purpose of letting people see what one has done and letting other researchers use for their own purposes the raw data one has produced.

But the most important omission from the paper is a statement of hypotheses. The authors state that "It is hoped that this technique (utilization of various contingency statistics) will provide insights into the relationships between education and migration beyond those which can be gained from the cross-tabulated data themselves." The question is, "How?" The authors can make a significant contribution by identifying what is not known about how education affects migration, what they expect to find from their study, and why they expect some patterns and not others.

The next paper, by Kathryn Nelson, is a study of migration to and from Atlanta between 1962 and 1967 and is based upon the 1% Continuous Work History Sample maintained by the Social Security Administration. The advantages of such longitudinal data are obvious and have been so for almost as long as there has been a social security system in this country. From this source, one obtains nearly continuous data on county of employment, amount of income subject to social security withholding, industry of employment, age, sex, and race of persons paying into the social security system each year. The limitation is that one does not know any more than that. One does not know county or city of residence, occupation of the person, his education, or his family status; and, of course, one does not know anything about people not covered by social security, including federal workers and many state and local government employees, some self-employed persons, and very low-wage workers mostly in agriculture and private household employment. Also troublesome are the numerous persons who enter and leave the system, leaving incomplete records.

I think that the most interesting conclusions reached by Nelson are: 1) movers are more likely to change industry than stayers, and 2) those who changed industry also had greater increases in incomes than those who did not change industry. With respect to the first finding, it would be very interesting to ask what is the strength of the relationship when type of move is controlled for. With the data, I believe that it would be possible to control for at least three types of moves: nonmetropolitan to metropolitan, metropolitan to nonmetropolitan, and inter-metropolitan. Is the relationship between probability of moving and changing industry equally strong for all three types of moves?

With respect to the second point above, it would be interesting to relate frequency of moving to income changes. At least one study based on tax records reported greater income increases for persons who changed occupation or city of residence [1]. At some point, however, frequency of moving probably comes to interfere with orderly income advancement, and it would be useful to utilize the longitudinal records to investigate the potentially negative effects of excessively frequent moving.

The third paper, by Bohm and Patterson, attempts to assess the effect of interstate highways on 1960-70 population change in counties. Their method is to use rate of 1960-70 population change in counties as the dependent variable in multiple regression equations for each of nine regions of the county. Each regression equation consists of ten independent variables, three of which are continuous (1940-50 rate of population change, 1950-60 rate of population change, and percent of the county that was urban in 1960), with the other independent variables being scored in dummy fashion to represent whether or not a county had an interstate highway completed as of 1968, whether or not a county had an intersection of interstate highways, whether or not a county was adjacent to either of the two preceding types, whether or not the county was in an SMSA, and whether or not the county was adjacent to an SMSA.

The authors show that interstate highways have their strongest effects in the South Atlantic, the West South Central, the West North Central, and Mountain regions (divisions) of the country. The authors say that the effect was greatest in these areas because they previously lagged behind the rest of the country in the development of highways. Had the regressions been run for the country as a whole and not for specific regions, the overall effect of interstate highways would probably have been muted. Their results show that the effect of interstate highways is significant and varies from region to region.

What is surprising to me is that when other things are held constant, percent urban has either a non-significant effect or actually has a negative effect on 1960-70 rate of population change; i.e., the higher the percent urban, the lower the rate of 1960-70 population change, other things being equal. What may be confounding the result is the behavior of counties that are 100 percent urban, many of which lost population between 1960 and 1970. It is quite possible that counties begin to behave quite differently as they approach 100 percent urban, thereby violating the assumption of linearity underlying the regression analysis.

In addition to investigating the effect of interstate highways, the authors also seem to be trying to maximize the amount of explained variance in the rate of 1960-70 population change, somewhat in the fashion of Tarver and Gurley [2] and Kariel [3]. If this is their purpose, they can, as they are aware, explain more variation simply by increasing the number of independent variables. With more than 3,000 counties in the United States, they are not likely to run out of degrees of freedom. But is 1960-70 population really what they want to explain? Shouldn't net migration be more sensitive to economic changes than total population change? Of course, when the study was being done, the authors did not have data on net migration, but they might consider using rate of net migration as the dependent variable now that the data are available. Otherwise, they might try using rate of change in population 20-29 years old rather than change in total population, in view of the high degree of age-selectivity of migration. The authors might even consider using data on commuting as their dependent variable. The 1970 Census asked each person working the address of his place of employment, and the authors might consider investigating how interstate highways affect not only place of residence but place of employment.

Finally, Bohm and Patterson might want to give greater attention to explaining why their model does a much better overall job of accounting for population change in the North and East than in the South and West. Their values of R^2 vary from .037 in the Mountain region to .662 in the Middle Atlantic region.

REFERENCES

[1] Schroeder, Larry and David, Martin, "Long- versus Short-Term Impacts of Mobility on Income and Earnings", in Proceedings of the Social Statistics Section (1970), American Statistical Association, pp. 354-360.

[2] Tarver, James D. and Gurley, William R., "The Relationship of Selected Variables with County Net Migration Rates in the United States, 1950 to 1960", Rural Sociology, 30 (March 1965), 3-13.

[3] Kariel, Herbert G., "Selected Factors Areally Associated with Population Growth due to Net Migration", Annals of the Association of American Geographers, 53 (June 1963), 210-223.