AN ANALYSIS OF THE RELATIONSHIP OF SELECTED VARIABLES TO LAND USE DEVELOPMENT AT INTERSTATE INTERCHANGES: COMMENTS

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In this paper on land use, Mason and Moore are concerned with the pattern of land uses before and after interstate interchange construction and with an analysis of such changes with respect to certain variables. This comment considers certain shortcomings in the Mason-Moore (hereafter M-M) paper.

M-M hold that there is no standardized definition of an "interchange area of influence." Thus, they accept the Alabama Highway Department's definition as "...a distance of one-half mile along each approach road to the interchange."[1] But, there are at least three approaches which can be used to define a "region": the homogeneity approach, the nodality approach, and the policy oriented approach.[2] It seems that at least one of these approaches could be applied to the case of interchanges. Each of the several interchanges should considered thusly and the "interchange area of influence" accordingly should be determined for each interchange.

Another point concerns the analysis by M-M of the effects of certain variables on land use changes. When initially listing these variables, they explicitly ignore the variable "distance from urban areas." Now, one may argue that M-M relate interchange development to distance from the nearest community with a population of 2500 or more. Although one may define an urban area in this way, one may very easily question the relevance and significance of such a definition.

A final point concerns the empirical testing in the paper. M-M related interchange development to a number of variables; however, their statistical investigation consisted of relating interchange development to each of the variables on a one-by-one, one-at-a-time basis. M-M failed to control for interrelationships among the various independent variables.[3] M-M should have considered the joint impact of all the various independent variables on interchange land use changes. To appreciate this point, consider that M-M are concerned (in Table 2) with the effects of three types of intersecting roads: U.S. Highway, State Highway, and County Road. M-M are also concerned (in Table 8) with whether interchanges were located in urban or rural areas. But, might not the variables in Table 2 and 8 be significantly interdependent? Is it not likely that the type of intersecting road at an interstate interchange depends upon whether (at least in part) the interchange is located in a rural or in an urban area? Clearly, some form of multivariate analysis should have been run. Otherwise, it is unknown whether the results of the M-M paper are at all meaningful.

FOOTNOTES

[1]Photographic Comparison of Land Use Areas Adjacent to Interchange Limits of the Interstate System (Montgomery, Alabama, Alabama Highway Department and U.S. Bureau of Public Roads, 1965), p. ii.

[2]John R. Meyer, "Regional Economics: A Survey," American Economic Review, Vol. 53 (1963), pp. 19-54. See also J. L. Fisher, "Concepts in Regional Economic Development Programs," Papers and Proceedings of the Regional Science Association, Vol. 1 (1955), pp. W1-W20; Walter Isard, Methods of Regional Analysis (Cambridge, Massachusetts: M.I.T. Press, 1960); or Rutledge Vining, "Delimitation of Economic Areas: Statistical Conceptions in the Study of the Spatial Structure of an Economic System," Journal of the American Statistical Association, Vol. 48 (1953), p. 44-64.

[3]See Arthur S. Golberger, Econometric Theory (New York: John Wiley & Sons, 1964); J. Johnston, Econometric Methods (New York: McGraw-Hill, 1963); Edward J. Kane, Economic Statistics and Econometrics (New York: Harper & Row, 1968); or A.A. Walters, An Introduction to Econometrics (New York: W. W. Norton, 1970).