MODELING DIVERSE LIVELIHOOD STRATEGIES IN PEASANT LIVELIHOOD SYSTEMS USING ETHNOGRAPHIC LINEAR PROGRAMMING

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1. Introduction

Individual households in peasant livelihood systems are highly variable and not well suited to being averaged into typical or representative cases such as is often used in analyzing them in development studies. Adding to this diversity is that these households are first homes, not businesses, so goals are different from those commonly used in economic analyses. Economic analyses of business enterprises consider that all resources contribute to the production of the business product or products and the basic objective of the firm is profit maximization. Because the peasant household is first a home, there are many more objectives to be considered than just that of "profit." Further, in peasant households, a significant portion of household resources are consumed in *reproduction* activities, so are not available for *production* activities. Reproduction activities are those involving the maintenance of the home, the household and its members. Included in most households are such tasks as food preparation, child care, washing clothes, fetching water and firewood, collecting wild plants for food or medicine, and tending small animals and home gardens. These tasks are often, but not exclusively those of women and children, and time required will vary with household composition. For this reason, these activities must be explicitly accounted for in the household models.

In our context, a *livelihood system* is considered to be the composite of all activities available to all households in the system from which to choose to secure their livelihoods. Livelihood systems are not synonymous with communities or regions. Different households within a community may have available different activities for reasons of wealth, religion or caste. It is important to recognize these differences and to create models that are livelihood-system specific. The activities that an individual household selects from among those available in its livelihood system are the *livelihood strategies* of that household and are household specific.

Because most people who undertake economic analyses are not from peasant households, the first function of modeling these systems is to *understand* 1) what is done, 2) who does what, 3) when it is done, 4) why it is done, and 5) how it is done. Assumptions, commonly used in economic modeling to substitute for missing data (or knowledge), inevitably lead to erroneous solutions and conclusions because the assumptions are based on an inadequate understanding of the system being modeled. In ethnographic linear programming (ELP), ethnographic methodologies for data collection reduce or eliminate the need for making assumptions. When models do not conform to what is being observed in the field, the modeler works with the households being modeled to ascertain what has created the unrealistic results and adjustments are made based on the new ethnographic data (knowledge) rather than on assumptions, which often artificially adjust the model so results conform to preconceived concepts of what the system should be.

With the wide availability of laptop computers, modelers can take the models to the field to validate and calibrate the models directly with the subjects involved. Once the model or models are calibrated and validated, that is, they reflect the reality found in the field, they can be used for testing alternatives such as improved infrastructure, different policies or new technologies. But because of the diversity among peasant households and their limited resource base, the use of averages seriously overestimates aggregated potential response. For this reason, different household compositions found in the livelihood system are built into the model(s) so that results more accurately reflect the diversity found in the livelihood system. Conclusions, then, will be based on the differential response of households to the different alternatives being tested rather than extrapolating from averages.