

Bridging the Gap between Economics and Anthropology: The Use of Ethnoscience in Economic Analyses of Indigenous Economies

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Introduction

As an economist studying indigenous economies in an African context, I found myself somewhere between the economics discipline which provides quantitative methods from which generalities can be drawn, and economic anthropology which provides insights on relevant variables and units of analysis.

While economics focuses on factors of production and their allocation in the production process, economic anthropology is concerned with the people using the factors and making decisions on how to allocate them. Economists focus on measuring variables and their trends, economic anthropologists are interested in identifying the relevant variables through understanding the way people view their system of economic organisation. Economists tend to generalize, economic anthropologists focus on the particular. The study of indigenous economies can greatly benefit from both of these two perspectives. However, economics and economic anthropology have remained quite separate. This paper explores one way to bring these disciplines to bare on each other in the study of indigenous economies in a developing country context by using cognitive anthropology (or ethnoscience) to define variables in economic methodologies. Ethnoscience has already been extended to various disciplines so that it is possible to find studies in ethnobotany, ethnopedology, ethnoforestry, ethnoveterinary medicine, and ethnoecology. (Furbee 1989; Mathias-Mundy and McCorkle 1992; Mathias-Mundy et al. 1992; Inglis 1993). However, I have yet to find a source on ethnoeconomics.

Sources that came up from bibliographical searches on indigenous economies were of two kinds: economic studies on indigenous economic systems and techniques, and anthropological studies on indigenous economic organization. The following two sections of this paper discuss how these two kinds of studies take indigenous economies into consideration, respectively. In conclusion the paper suggests ethnoeconomics as a way to bring anthropological insights to bare on economic analyses as well as discusses some difficulties with this methodology.

Economic studies of indigenous systems

The words indigenous economic systems result quite seldom in economic literature. It is the general belief of economists that this is a subject of study for anthropologists. However, there are two types of economic studies that take indigenous economies indirectly into account, both part of the farming systems research (FSR) school. The first are FSR studies conducted in the 1970s and 1980s. The second are more recent and less frequent than the first type. These studies focus on indigenous technologies¹.

The first type of study takes indigenous systems of economic organisation as the starting point for its analysis (see Eicher and Baker (1982) for a compilation of such studies). Schultz (1964) was one of the first development economists to argue the need for economic studies of indigenous agriculture. In the next two decades hundreds of FSR studies were conducted on indigenous agriculture however their focus was not the indigenous system per se but rather the changes that needed to be brought to the system in order to allow for more economically efficient production. Therefore indigenous systems in these kinds of studies are compared to western forms of economic organisation and are seen as the non-presence of western-style credit markets, the malfunctioning of the marketing system, or the absence of rural infrastructure. The perspective of FSR economic studies is from a western, market oriented model of organisation and the indigenous system is seen in terms of the constraints that it poses to obtaining such a model. More recently, FSR studies are interested in the effects indigenous systems of economic organisation have on production or sustainability objectives. Influential economists such as Hayami and Ruttan (1985) point to the need to include institutional and cultural variables in economic analyses to gain an understanding of third world development processes. Thus FSR studies have become more focused on gaining an understanding of the indigenous systems in and of themselves rather than as systems missing something in order to attain a more western model. An example is the work by Matlon (1988) who analyses the effects of indigenous land tenure arrangements on farmers' soil management activities. He finds, contrary to the conventional wisdom created from the earlier type of studies, that land tenure arrangements in Burkina Faso do not act as a disincentive to invest in soil conservation activities.

The second type of economic studies looks at indigenous technologies. These sort of studies are a consequence of the realisation that despite the advances in scientifically developed technologies, the large majority of African farmers continue to use indigenous technologies². These studies evaluate local technologies in terms of economic efficiency or sustainability criteria. An example of such a study is Kaboré et al. (1993) who compare zaï, an indigenous soil fertility improvement technique in central Burkina Faso, to rock bunds and mulching. The study concludes with criteria that explain why zaï is a favourable technique in terms of labour and capital investments and risk minimisation and it identifies the major constraints to applying zaï in similar areas as being availability of labour and manure.

¹ Indigenous technology is a technique or a practice that has been developed locally or adopted or adapted from elsewhere and is actively used or stored by local inhabitants.

² The indigenous technologies may have been adapted as a consequence of people being exposed to scientific technologies but the latter are seldomly adopted in their original form. Examples of studies on the non-adoption of scientific technologies include Frankel (1971), Gladwin (1979), Jahnke et al. (1987), and Mazzucato and Ly (1994).

Despite their differences, both types of economic studies have in common their analysis of indigenous economies (as exemplified by economic systems of organisation or techniques) through western criteria. Their methods pre-determine the kinds of variables that are included in the economic analysis. Inputs and outputs are largely defined in terms of material goods and valued in terms of money, land valuation is still dominated by the western concept of private property, labor is often valued in terms of money as opposed to, for example, prestige or security. And overall the idea of 'the more the better' dominates economic definitions of 'rational' objectives so that anything that impedes this objective is referred to as a constraint. While these sorts of studies are useful for comparative purposes in that the same criteria are applied for different systems around the globe, as well as possibly for forecasting trends at a macro level, they do not provide insights on the decision-making processes that farmers use (Gladwin 1979; Nelson and Winter 1982). To adequately answer the question 'why do farmers do what they do?' economic analysis needs to be based on concepts that are relevant to the farmers making the production decisions.

Similarly to what philosophers of science argue about the social moorings of science (Kuhn 1962; Latour and Woolgar 1979; Bourdieu 1990; Pickering 1992; Funtowicz and Ravetz 1993), one can argue about economics. Economies are social constructions (Polanyi 1944; Gudeman 1986). Orthodox economic methods that are employed to analyse economies derive from our western experience in market oriented society. Thus to understand forms of economic organisation in other societies it is appropriate to use methods more socially relevant to those societies.

Anthropological studies of indigenous economies

Economic anthropologists study indigenous economies through their analysis of people's economic reasoning, their notions of wealth, labour, and capital, and how to manage, invest and preserve them through time, i.e. the processes of decision making. Through the ethnographic approach, they formulate the cultural logic behind decisions, i.e. they identify the factors most relevant to decision making for the people being studied. Hill (1972), Barlett (1980), Plattner (1984), Gudeman (1986), Toulmin (1991), and Enzminger (1992), are all good examples of this.

Economic anthropology, however, is anthropology applied to economic topics. It is largely descriptive and quantitative analyses are often limited to descriptive statistics³. Few attempts are made at searching for generalities which go beyond the immediate particularities of the system under investigation. This is why, although recognising the worth of economic anthropological studies, I believe there is still a gap between economic anthropology and economic studies that can be addressed in a sensible way. An attempt should be made to conduct anthropological economic studies, that is, studies that maintain the generalisability of economic methodologies but incorporate the insights from anthropology to make them more grounded in the reality of the system being studied. One way anthropologists elicit indigenous criteria is through cognitive anthropology, also called ethno-science, developed in the 1960s. Cognitive anthropology is the study of people's perceptions of their surroundings through their use of language. The taxonomies that result from such analyses reveal categories

³ Just as with all generalities, there are always exceptions: see for example Plattner (1975).

according to locally relevant criteria. An example is from the founding father of ethno-science, Harold Conklin (1954) who argued against the belief at the time that swidden agriculture was irrational, economically unproductive, and an example of 'backward' agriculture. By understanding farmers' attitudes towards their environment through ethno-science, Conklin was able to explain the rationale behind swidden systems, making it apparent that they were in fact quite rational systems.

Ethno-economics as a way to bridge the gap between economics and anthropology

Ethno-science has been used in many different disciplines in order to find taxonomies of soils, livestock diseases and cures, plants, engineering techniques, etc., but its spread did not reach the economics discipline. I argue in this section that one way to try to incorporate anthropological insights into economic models is through the use of ethno-economics to define economic variables and units of analysis in economic methodologies.

Ethno-economics makes use of ethno-science methodology to gain an understanding of how a society perceives economic phenomena through its use of economic terms. This means developing an indigenous classification system of economic terms such as benefits, costs, insurance, interest, profits, security, and risk. The classification system and the insights gained from the ethno-economic methodology can then be used to define the variables in an economic analysis. For example, in a simple benefit cost (B/C) analysis, one could measure the benefits in terms of the farmers' definition of benefits. This may mean looking at revenues as traditionally done by economists but it may also include things such as social status, security, risk insurance, and other culturally defined variables. The same with costs which may not be in terms of input costs but damaged reputation, or weakening of claim to land. Or, for example, after eliciting an economic folk taxonomy it may become apparent that a B/C analysis is not the correct tool with which to explain the choice of a technology. It may indicate the need for another more relevant method.

It is perhaps best to illustrate this with an example. In a rather unique article, Bellon and Taylor (1993) analyse the effects of heterogeneous land qualities on the adoption or partial adoption of new maize seed varieties. They elicited from farmers the different types of soils on their fields, what characteristics they attributed to each soil type, and how they ranked the soils in terms of their suitability for maize production. Their hypothesis was that farmers' perceptions of soil qualities on their farms significantly affects the adoption of technology. They used a traditional economic tool, i.e. econometrics, but included an 'untraditional' independent variable in their equation, i.e. folk taxonomy categories of soils. Their estimation showed that the perceptions of land qualities did affect the adoption of new seed varieties.

Economic studies already exist which include farmer preferences in econometric analysis, however their methods for eliciting farmer preferences limit themselves to yes or no answers or asking farmers to scale their preferences from one to five in a questionnaire. The Bellon and Taylor study differs because it gets at farmers' perception of their environment through their own classification of soils. This type of analysis can be taken one step further and base economic methods on variables identified as relevant through ethno-science techniques.

This approach presents some difficulties. One such difficulty is how to represent certain locally defined variables in economic models especially as these variables will surely have non-marketed components. I argue that with the developments made in other fields of economics such as environmental economics where ways to represent non-marketed variables have been found (such as contingent valuation and total factor productivity), solutions to such problems in indigenous economics can be found. What it takes is some interest on the part of economists. A further difficulty with this approach is the issue of comparability in space. One may argue that with locally defined variables every economic analysis will be location specific. There is certainly great variety in indigenous economies. However, if greater numbers of detailed studies of indigenous economics are conducted, it may become possible to identify certain similarities between the economic behaviour of different systems (Hill (1986) for example compares Nigerian and Indian dry grain farming systems).

Another issue is that of comparability through time. The criteria people use to make decisions change over time meaning that the variables used with this methodology are time dependent. For example, as a society becomes more integrated into a market economy, certain market criteria may become important in making a decision which were not a consideration at an earlier point in time. Therefore, this methodology is limited to explaining the present rather than forecasting the future. A note of caution to all interested in 'non-orthodox' economic methods: incorporating non-traditional variables in economic analyses may make economic models internally inconsistent, i.e. that the assumptions upon which the model is built are broken. To avoid this requires a thorough understanding of the models and their assumptions. Certainly one is setting oneself up for criticism from both economists and anthropologists alike.

By way of concluding I refer to Hill's (1966) article entitled 'A plea for indigenous economics' written 30 years ago. Much like at the time of Polly Hill's writing, there are only few economists who show an interest in indigenous economics. This paper argues that more economic studies in this field should be conducted. Economists should join forces with anthropologists and amend their models to incorporate the insights from anthropology to identify the relevant variables and units of analysis. This paper suggests ethno-economics as a way to take into consideration culturally specific definitions of economic terms. After all that is what we economists have been doing since the beginning of our discipline: applying our culturally specific definitions to our models. It is now time to look at indigenous economies through indigenously defined criteria.

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