

Barter and Cash Sale on Lake Titicaca: A Test of Competing Approaches¹

by Benjamin S. Orlove

THE COEXISTENCE OF BARTER AND CASH SALE offers an intriguing theme for economic anthropologists to explore. Two examples of this pattern are found in southern highland Peru. In the marketplaces, villages, and fields around Lake Titicaca, some vendors sell fish for cash and others barter them for potatoes and grains. In the snowcapped cordilleras that ring

the lake, herders load their llamas and donkeys with dried meat, wool, and textiles and travel from the high grasslands to agricultural valleys often a number of days away and thousands of meters below to barter their products for maize and other agricultural foodstuffs.

The presence of barter in a peasant economy may not seem unusual, but close inspection of these cases raises questions. In the case of exchange of fish, why is barter concentrated among the poorer peasants and in the area adjacent to the lake? Why are native fish bartered more often than introduced species? The herders appear more difficult to understand, since they derive income from the sale of wool and could purchase needed foodstuffs. They complain of the rigors of their trips, whether through muddy insect-infested canyons to the upper reaches of tributaries of the Amazon or across bleak arid wastes to the oasis valleys in the Pacific coastal desert. They could obtain more maize with less difficulty by selling instead of bartering more of their products. Why do they reject this opportunity? An explanation might also be sought for the persistence of barter in the face of the expansion of marketplace systems in the highland Andes in the last several decades. Pryor (1977:158) points out one difficulty of barter by stating that "as trade expands, it becomes increasingly difficult for a person wishing to barter A for Z to find another person wishing to barter Z for A, a problem enshrined in the phrase 'the double coincidence of wants.'" The advantages of money as a medium of exchange are numerous: it is divisible and storable and can be exchanged for a wide variety of goods. Why has barter continued at all? Is it to be explained solely as a relic, an example of cultural lag?

Economic anthropology offers several ways to examine cases such as these. This article adopts a double task: to explain the patterning of barter and cash sale in the Andes and to use this patterning to evaluate rival approaches in economic anthropology. The latter endeavor is relatively unusual, since debate within economic anthropology has tended to be carried out at a theoretical rather than an empirical level. The particular case in hand, the exchange of fish for money and foodstuffs in the Lake Titicaca area in Peru, is of interest because it lends itself well to the testing of rival explanations. Before undertaking the comparison, this article reviews briefly some developments in economic anthropology that have made such efforts infrequent. It explains the formation of the competing hypotheses. Then it presents some background information on the Lake Titicaca region, discusses data collection, tests the hypotheses, and offers some evaluations of the different approaches.

¹ The research presented in this article was funded by National Science Foundation grants BNS-78-15409 and BNS-83-07728. Earlier versions of this paper were presented at the symposium "Indian Participation in Markets: The Central Andes in the Colonial and Republican Periods" at the 44th International Congress of Americanists, Manchester, England, September 1982, and at the symposium "Economic Behavior in Market Contexts" at the 4th annual meeting of the Society for Economic Anthropology, Davis, Calif., U.S.A., April 1984.

I am grateful for the support of the NSF and for the collaboration of the Peruvian Marine Institute, particularly Eufrazio Bustamante and Hugo Treviño. Dominique LeVieil has been of great assistance throughout the collection and analysis of the data. Peter Hunter, Rod Thompson, Michael Borden, and Abbas Ahmadi provided assistance in programming and data analysis, and Michael Miller gave useful suggestions on the statistical techniques. Sharon Lynch's word-processing skills were invaluable in reworking various drafts of this paper.

I am particularly indebted to two fellow Andeanists: Deborah Caro, whose comments (1978) on earlier statements that I made on barter and cash sale (1977:39-41) stimulated this article, and Stephen Brush, who gave me many useful suggestions on the final draft. I received valuable comments and suggestions from a number of other people: Gordon Appleby, Florence Babb, Peggy Barlett, David Boyd, Ronald Cohen, Jesús Contreras, Linda Crissman, William Davis, Ricardo Godoy, Gary Hamilton, Catherine Julien, Frank Salomon, Marianne Schmink, Martin Scurrah, M. Estelle Smith, Judith Tendler, and Miriam Wells. Any errors remain my responsibility.

BENJAMIN S. ORLOVE is Professor in the Division of Environmental Studies, University of California, Davis (Davis, Calif. 95616, U.S.A.). Born in 1948, he was educated at Harvard College (B.A., 1969) and the University of California, Berkeley (M.A., 1970; Ph.D., 1975). He has taught at Davis since 1974. His research interests are economic anthropology, ecological anthropology, political economy, and Latin American peasantries. His publications include *Alpacas, Sheep, and Men* (New York: Academic Press, 1977), "Integration through Production: The Use of Zonation in Espinar" (*American Ethnologist* 4:84-101), "Ecological Anthropology" (*Annual Review of Anthropology* 9:234-73), and, with Glynn Custred, the collection *Land and Power in Latin America: Agrarian Economies and Social Process in the Andes* (New York: Holmes and Meier, 1980). The present paper was submitted in final form 10 VII 85.

BACKGROUND: COMPETING APPROACHES IN ECONOMIC ANTHROPOLOGY

Many observers have found the field of economic anthropology relatively polemical. For several decades, most work centered around a single debate, whose opposed participants were labelled formalists and substantivists (Cook 1966). The former, following the precepts of microeconomics, explained behavior in terms of the maximization of utility through the allocation of scarce resources to a set of ranked alternative ends (Schneider 1974). The latter, drawing from institutional economics, viewed economies as means for societies to meet their material needs; it described the institutions that carried out this endeavor, placing emphasis on patterns of exchange (Dalton 1969). Each side claimed full dominion of the field. Empirical research was conducted by members of both schools, the substantivists studying, for example, the use of money and media of exchange and the formalists the response to technological innovation. Most individuals acknowledged neither the strengths of the work of their opponents nor the limitations of that of their fellows. There were few efforts to test the two approaches.

Frustrated by this intellectual stalemate, a few proposed theoretical syntheses of the two approaches (Cancian 1966, Salisbury 1968), but these efforts were not widely followed. The stimulus for new work arose in the 1970s with an interest in production, linked in part to the growth of ecological anthropology (Orlove 1980). Both formalists and substantivists had tended to focus on exchange, but their different views on the allocation of goods and services in exchanges could be extended to the allocation of factors of production (Salisbury 1973). The work of French structural Marxist anthropologists, especially Meillassoux and Godelier, also attracted attention as the influence of Marxist perspectives grew throughout the social sciences. Both formalists, such as Firth, and substantivists, including Sahlins, were interested in the application of Marxist ideas to economic anthropology (Smith 1982, Hart 1983). It appeared for a while that economic anthropologists, accustomed to polarization, would recast their field as a polemic opposing emphases on production and on exchange, the latter advocated by many formalists and substantivists and the former by others from those schools and some Marxists. Reconciliation became another possibility as a few attempts at synthesis appeared; the work on the allocation of labor within households, following Chayanov and Sahlins, for instance, drew on all three approaches.

Instead, three schools emerged. A neo-Marxist approach coalesced from the interest in Marxism. Influenced by the work of the structural Marxist Althusser, the neo-Marxists favored a reworking of the concept of mode of production. The earlier Marxist view of human history as a rigid succession of modes was rejected. Other aspects of the concept, also present in later works of Marx, were retained: the importance of base and superstructure as the elements of a mode of production, the possibility of the simultaneous articulation of several modes of production in a single social formation, the determination of a social formation by the base, and the potential for domination of other aspects of a social formation by elements of the superstructure as well as of the base.

Changes occurred in the formalist and substantivist schools, each being overtaken by a new approach that developed its principles in new directions. Although some research continues to follow the formalist approach and use that label, other work adopts a perspective that I will call decision theory. Its aim, stated in the broadest possible terms, is to examine the ways in which cultural, social, and material contexts influence the choice by individuals among behavioral alternatives. Adherents of this school look at a wider range of decisions than the formalists. Stimulated by developments in cognitive anthropology, they consider the process of decision making as

well as examining the outcome of decisions (Ortiz 1983). The development of actor-based models in ecological anthropology (Orlove 1980) is another source for this school. Rather than viewing themselves as the heirs of the formalists alone, decision theorists claim to draw on both the formalist interest in choice and the substantivist emphasis on the cultural specificity of preferences (Barlett 1980a:7-8). They also include some individuals who had not entered directly into the formalist-substantivist debate and who have brought influences from other fields, particularly geography (Smith 1977a:147-78; 1977b).

This new approach can be most clearly distinguished from formalism by its use of a more diverse set of more precise models of decision making (Plattner 1974); the influence of cognitive anthropology may again be noted here. Decision theory has drawn on the explorations by formalists of the notions of rationality and moved from marginal utility and maximization to concepts such as optimization. A greater concern for the use of native categories and perceptions is demonstrated in several ways: by an effort to make realistic assumptions about information processing (Ortiz 1983), by an examination of the mental activities of individuals as they make decisions (Quinn 1978), and by the study of the influence of previous decisions on current ones (Barlett 1982). The decision theorists tend to take preferences as givens, perhaps explaining them as adaptations to material conditions (Chibnik 1981). They also emphasize variation among individuals more than the formalists did (Plattner 1982). They have used formal models more than the formalists themselves and have more consistently sought empirical verification. In some instances, they have tried to carry out an implicit task of formalism: to explain institutional arrangements such as spheres of exchange (Ortiz 1973), land tenure patterns (Rutz 1977), and market systems (Smith 1977a, b) as the outcome of many individual decisions.

The adoption of a new label is warranted by the ways in which current work differs from formalism and by the desire of these individuals not to be labelled formalists (Barlett 1980a). However, decision theory continues two important emphases of the formalists: the adoption of the individual as the unit of analysis and the emphasis on choices.

Some work continues along well-established substantivist lines (Halperin and Dow 1977, Dalton and Köcke 1983), but the earlier contributions of the substantivists have been reworked and integrated into a new perspective that I will call the culturalist approach (cf. Sahlins 1972:xiii). This approach examines a wider range of links between economy and society than substantivism and places more emphasis on production. In some instances, it has a stronger quantitative orientation (Gudeman 1978b, Gregory 1982). It also draws on the work of some economically oriented anthropologists who remained uninvolved with the classic formalist-substantivist debate. It has been influenced by ecological research in anthropology, in which adaptationist and systemic perspectives have also led to a study of populations and institutions and to an examination of the relationship between economy and culture (Orlove 1980).

The culturalist school is represented by the works of such individuals as Gudeman, Sahlins, Douglas, and Goody. Two statements by Gudeman, who has termed this approach "anthropological economics," indicate its general lines: he claims that "anthropology's greatest contribution . . . lies in its capacity to elucidate different economies as systems" (1978a:373) and that it is important to "deny that an economy . . . is reducible . . . to individual volition" (1978b:2).

The culturalists' emphasis on economies as systems usually extends to an examination of correspondences between economic and social systems of particular societies. In this regard it draws on the tradition of French social thought, including that of Durkheim, Mauss, Lévi-Strauss, and Dumont.

Sahlins's (1965) work on the relationship of reciprocity and social distance is one instance, and his treatment of the relation of political organization to surplus extraction (1972) is another. Douglas's (1962) well-known contrast of the Bushong and the Lele demonstrates parallels between economic patterns of work organization and consumption levels, on the one hand, and social patterns of kinship and politics, on the other (Gudeman 1978a:368). Goody (1967) shows that contrasts between Africa and Eurasia in patterns of division of labor and exchange of goods at marriage correspond to other social, economic, and technological differences. This interrelation of economic and social structures at the societal level is also apparent in Gudeman's (1978a, b) discussion of distribution, taken as the allocation of output between subsistence and surplus. Gregory (1982) presents two types of societies in highland New Guinea, each with corresponding and interrelated patterns of exchange, marriage, and political authority. In some instances, several economic and social systems are seen as coexisting in a particular society (Sahlins 1972, Gudeman 1978b).

Culturalists examine the economy from the perspective of collectivities rather than that of individuals. Unlike the decision theorists, who tend to treat preferences as inputs into models of choice and often accept prices as measures or indices of value, the culturalists are interested in the place of value with relation to the social order as a whole (Geertz 1979). Gudeman discusses the value of rice and sugarcane to Panamanian peasants not by discussing prices or nutrients but by locating these crops in different economic systems with different types of social relations (1978b); he also shows that the cultural construction of land, with implications for its ownership and use, varies in these different systems (1979). Douglas shows that different types of social structures can lead to different patterns of consumer preferences (Douglas and Isherwood 1979) and to different perceptions of risk (Douglas and Wildavsky 1982). Sahlins (1976) has claimed that preferences for different types of meat and cloth in Western society reflect underlying cultural patterns. His work on the response of native Hawaiian society to contact with Europe and North America also suggests that such underlying cultural patterns are demonstrated not only in the eagerness of Hawaiians to engage in trade but in the preferences of individuals of different rank and gender for different imported goods (1981:31, 41).

The adoption of a new label is warranted by the ways in which current work differs from substantivism and by the desire of these individuals not to be labelled substantivists (Gudeman 1978a). However, the culturalist school continues two important emphases of the substantivists: the adoption of the society as the unit of analysis and the emphasis on cultural attribution of value.

The successors of the formalists and the substantivists do not debate openly and sharply in the fashion of earlier decades. In part this lack of direct opposition reflects some convergences between the two new approaches. The decision theorists' emphasis on decision making has brought them closer to the culturalists' concern with value than the formalists, focusing on maximization of utility, could ever have come. Unlike the relatively static and taxonomic substantivists, the culturalists examine structural tensions and social dynamics, and this focus allows them to share with decision theorists a view of social process as negotiation and an interest in patterned variation among individuals. Thus an important culturalist emphasizes the importance of decision making in daily life in his discussion of social conduct as improvisation which occurs within structured systems (Bourdieu 1977). Both schools could be located within the broad set of concerns in contemporary anthropology that Ortner (1984) calls "the practice approach."

Despite these commonalities, a synthesis of these competing approaches would have to overcome profound differences. The actor-based and the societal perspective (Gudeman and Whitten's [1982:224] "micro-view" and "macro-view") may prove

difficult to integrate. The use of surveys and standardized interviews by the decision theorists differs from the culturalists' reliance on comparative and historical methods. This difference in methodology is not coincidental; it reflects distinct understandings of human action, as Leach (1983) shows in his summary of different interpretations of the kula exchange. These incompatibilities surface on occasion (Gudeman 1978a), but the two schools are more prone to ignore each other. Both schools differ from the neo-Marxist orientation. Some similarities can be found between constrained choice within decision theory and the neo-Marxist interest in the reproduction of units of production (Kahn 1978, Smith 1982). The neo-Marxist emphasis on social formations and the relationship between base and superstructure parallels the culturalist interest in systems and the correspondences between subsystems (Gudeman 1978b). However, the neo-Marxists differ from both decision theorists and culturalists in their emphasis on production and in their direct or indirect adherence to the labor theory of value. These incompatibilities lead to occasional displays of the earlier sort of rancor. Geertz's (1984) review of studies of economic change in rural Java, for instance, led him to a defense of culturalism and a rejection of the other two approaches, which he termed "Neomaxist" and "Neoclassical."

This article seeks to compare and evaluate the decision-theorist, culturalist, and neo-Marxist approaches by choosing a case that each might attempt to explain, elaborating the hypotheses that correspond to each, and testing them with empirical data. The approaches are shown to vary in their success in accounting for the results of the research.

Such comparisons and tests are rare in economic anthropology. Efforts to evaluate different approaches have been carried out in other ways. Many of these, however, apply only one of them in detail. For example, a study of Philippine markets contrasts formalist and substantivist approaches but gives fuller treatment to the former (Davis 1973), and an examination of changing patterns of exchange in highland New Guinea, after reviewing different approaches, focuses on a culturalist presentation (Gregory 1982). The studies that test competing hypotheses tend to be located within one approach. Gladwin (1975, 1979) compares models of decision making which differ in terms of the importance of risk and the evaluation of external constraints, and Barlett (1980b) reviews different types of cost/benefit analysis. The culturalist Pryor (1977), reporting on research conducted with Graburn, tests views of reciprocity corresponding to Mauss, Leach, and Sahlins by examining data on gift exchanges in an Eskimo village. Smith's (1983) study of marketplace organization in western Guatemala evaluates competing neo-Marxist positions. Cancian (1972) offers a limited synthesis by showing that substantivist factors (position within society) influence decision making (willingness to face uncertainty). Greenwood (1976), though phrasing his study in terms of formalism and substantivism, adopts decision-theorist and culturalist perspectives in seeking to explain the abandonment of farms in the Basque region of Spain at a time when nonagricultural incomes are low and agricultural incomes, because of changing production and marketing, are high. The answer lies partly in the difficulties of labor recruitment and inheritance that stem from kinship patterns and the growing incongruence between presumably fixed Basque values and changing rural life. The decision-theory side is supported by the careful management of farms by peasants and the culturalist approach by the importance of kinship patterns and values. This detailed study is unique in juxtaposing and selectively combining two of the three approaches.

Although this confrontation of competing approaches is fundamental to the development of economic anthropology, it is unlikely that it will be sufficient to resolve disputes. One objection may be noncomparability—that each approach consti-

tutes a theory whose concepts have meaning only in that context; from this point of view, attempting to set up competing hypotheses is like trying to ask the same question in two languages so different that no translation can be adequate. Two other objections may emerge from problems in the elaboration of testable hypotheses; it may be difficult to operationalize some variables or to construct a situation in which an approach can be falsified. The followers of such an approach would claim that their views had other demonstrable strengths, such as analytical coherence and success in explaining certain phenomena. These objections, though not wholly without merit, are minor. Some important concepts in social science, such as class and power, are difficult to operationalize, and it seems fairly clear that the work of some individuals, such as Freud, has contributed immensely to social science even though their ideas cannot readily be falsified. Without the possibility of presenting evidence to settle debates in favor of one side or another, however, preference for any approach will be a matter of taste rather than objective knowledge.

Where a comparison favors one approach over another, the adherents of the rejected approach need not simply admit defeat. They may argue that the case is not a representative one or that their approach can be modified to account for the apparently anomalous results. Economic anthropology would benefit from a willingness on the part of individuals to acknowledge the failure of their approach to explain certain data. Efforts to account for these cases would lead to a clarification of their position and allow it to be more readily judged against others. Intransigence, however, would also be counterproductive. To draw a parallel with astronomy in this century, the movements of the planets Mercury, Uranus, and Neptune challenged explanation by the dominant Newtonian mechanics. Efforts were made to explain apparent anomalies within the approach by attributing them to the presence of unseen planets. In the case of the latter planets, this led to the discovery of Pluto and the confirmation of the established perspective. The failure to locate the hypothesized planet Vulcan in the case of Mercury contributed to the emergence of Einsteinian relativity.

THE CONTEXT OF THE RESEARCH

Lake Titicaca, located on the border between Peru and Bolivia in the central Andes, is both large (8,128 km²) and high (3,820 m above sea level). It lies in a closed basin known as the altiplano. The lands closest to the lake are best suited to agriculture and have the highest population densities. Even in this area, however, agriculture is risky. Farther from the lake is a zone of mixed agriculture and pastoralism. Higher and still farther from the lake are exclusively pastoral areas, which extend up into the high mountains. The native species of fish consist of only two genera, *Trichomycterus*, represented by a single species of catfish known locally as *suche* or *mauri*, and *Orestias*, which contains a variety of species, including the tiny anchovy-like *ispi*, the small, bony *carachi*, the larger *boga*, and the *umantu*, now extinct (Richerson, Widmer, and Kittel 1977). The rainbow trout, *Salmo gairdnerii*, was introduced in 1940, and the *pejerrey* or silverside, *Basilichthys bonariensis*, migrated into the lake around 1955. The former once supported a commercial fishery; five canneries operated around the lake in the 1960s but closed due to declining trout yields stemming from overfishing and competition from silverside.

The Peruvian annual catch is about 6,000 metric tons, an increase over the 1972 figure, which was approximately 5,000 metric tons. Fish are widely consumed by the population near the lake. Nylon gill nets are the most important gear, accounting for over 90% of the catch on the lake, though some fishermen use traditional trawls, dip nets, and seines. Wooden boats and balsas are roughly equal in numbers. There are more

than 3,000 fishermen on the Peruvian side of the lake. Virtually all of these are members of lakeside communities and also own fields, although many of them have less land than other individuals. Although some women occasionally enter the lake with dip nets to catch *carachi*, fishing is almost exclusively a male activity, perhaps because gill nets were introduced as male property and perhaps because women are often preparing food during the hours when most fishing takes place. By contrast, most fish marketing is carried out by close female kin of the fishermen, usually members of the same household.

Barter and cash sale occur both within marketplaces and outside them. Of the total catch, about 70% is distributed through marketplaces. Another 17% is consumed directly by the fishermen and members of their households and extended families, and 13% is exchanged within villages on the lake-shore by door-to-door sale and other forms of nonmarketplace exchange. Of the marketplace distribution, about 90% is sale and 10% is barter. Barter has a larger role in the nonmarketplace exchange, about 69%. The amount of fish sold in marketplaces and outside them is 67% of the total catch; barter accounts for 16%.²

A number of markets are held weekly in the towns and rural areas of the altiplano. They form a well-integrated system through which nonhighland foods and manufactured goods flow to rural homes and rural produce flows to urban areas, particularly La Paz in Bolivia and Puno and Juliaca in Peru. The Peruvian marketplace system is well-described (Appleby 1977a, b, 1978, 1982; SINAMOS 1974).

HYPOTHESES

The three competing approaches can be evaluated by the testing of characteristic hypotheses against empirical data. Construction of such hypotheses is possible by reference to the assumptions and products of each approach. The case of barter and cash sale in highland Peru lends itself particularly well to the examination of these approaches because adherents of all three have written on this topic in this area. This fortunate availability of sources is not surprising. The straightforward alternatives of cash sale and barter appeal to economic anthropologists who wish to examine processes of decision making. Culturalists are drawn to the region because of the presence, stronger than in most other parts of Latin America, of a socially, culturally, and linguistically distinct peasant society and economy in the context of a modern nation-state and market economy. For the neo-Marxists, the difficulties of claiming that highland Andean peasants and fishermen operate either as capitalists or as proletarians call forth a discussion of the articulation of modes of production. To phrase the alternatives in the briefest form, barter and cash sale would be viewed by the decision theorists as alternatives between which individuals would choose, by the culturalists as distinct economic and social systems, and by the neo-Marxists as the expression of distinct though articulated modes of production.

Decision theory examines choice. The selection of alternatives by individuals is shaped by their goals and resources and influenced by constraints in a variety of decision-making processes. Income and security are common goals. Decisions can be influenced by the availability of information. The hypoth-

² An important consequence of this pattern is that marketplace exchange accounts for 94% of the fish that is sold but only 44% of the fish that is bartered. An analysis of the survey of market vendors thus offers a description of most of the individuals who sell for cash but less than half of the barterers. No surveys were conducted of individuals who sell or barter fish outside marketplaces, although some information was gathered on exchange of fish outside marketplaces by vendors who also sell in marketplaces. Some inferences about such nonmarketplace exchange may be drawn from the catch and consumption surveys.

eses corresponding to this approach would present cash sale and barter as two forms of exchange. Individuals may choose between them to obtain goods. They have, in effect, two different sorts of currencies they can use and will select one or the other on some regular basis. An example of this approach is the discussion of marketing patterns in West Africa (Quinn 1978, Gladwin 1975, Schwimmer 1979, Trager 1981).

The culturalist approach examines economies as systems which are interrelated with social systems. Culturalists see values as linked to these systems. In many instances, they see particular societies as containing two or more economic systems, each with a corresponding pattern of social organization and criteria for establishment of value. In the case of the peasants and fishermen around Lake Titicaca, subsistence and commercial economic systems could be distinguished, barter exchange of foodstuffs and artisanal products being part of the former and cash sale of these goods part of the latter. It is important to emphasize that subsistence production need not be restricted to a set of autonomous households (Donham 1981); households can exchange goods, as well as labor and land, but the social relations of the parties in the exchange and the value of the items exchanged are different from those of commercial exchange (cf. Ortiz 1973, Gudeman 1978b). In this fashion, culturalists would view cash sale and barter as parts of two distinct economic subsystems which differ in their means of assigning values and in their forms of organization. Bourdieu (1977:186) makes a similar contrast between "the impersonal exchanges of the market" and "the world of reciprocity relationships." This position is consistent with the acceptance by culturalists of the notion of "spheres of exchange" (although they explain the presence of these spheres differently from earlier writers on the topic; compare Bohannan 1955, Barth 1967, and Chapman 1980 with Gudeman 1978b:165, n. 2). These views would be enough to distinguish them from the decision theorists. In general, decision theorists would expect barter and cash sale to be similar and culturalists would expect them to be different. It will be shown that culturalists would also expect barter to be more personal and ruled by social norms.

Since Marx made few references to barter, it is difficult to use his writings directly as a basis for the neo-Marxist position on barter and cash sale; even his discussion of simple commodity circulation involves the intervention of money. In the *Grundrisse*, he stresses the early appearance of money in human history and its importance as a measure and medium of exchange; in his discussion of commodity fetishism, he emphasizes that money is not a measure of true value, and he also shows that it can play very different economic roles in different modes of production. His treatment of use value and exchange value in the *Grundrisse* and the first volume of *Das Kapital* are more useful, particularly when they are related to the notion of modes of production, which presents economic activity as determined by the structure of the means and relations of production. (One important neo-Marxist examines barter from this perspective, though for the very different setting of highland New Guinea [Godelier 1971].)

A neo-Marxist analysis of this case might best be derived from the emphasis on modes of production, particularly the articulation of precapitalist and capitalist modes (Rey 1971). Meillassoux, who first presented the Guro as an autonomous, self-sufficient group uninvolved with capitalist production (1964), offered a self-criticism in a later book (1975) in which he emphasizes the importance in West Africa of the articulation of precapitalist and capitalist modes. Other recent neo-Marxist work, relatively independent of the French structural Marxist tradition, also emphasizes the importance of modes of production (Wolf 1982). Granted the variation of positions among neo-Marxists and their concern to avoid the vices of circulationism and empiricism, one might expect them to begin their discussion of the subject with a characterization of the

Lake Titicaca region as one in which the bulk of the population operates within a petty commodity mode of production which is articulated with a capitalist mode of production. In the former, the production units, predominantly peasant households, own their means of production (land, capital) and use only the labor of household members. They are able to reproduce themselves partly through home-based subsistence production and partly through the sale of items which they produce. The purchasers of their goods lie primarily within the capitalist mode of production. The cash that they obtain allows them the purchase of subsistence items and tools but not, to any significant degree, the accumulation of capital. (For discussion by anthropologists of the petty commodity mode of production, see Clammer 1978.) By contrast, the capitalist mode of production is characterized by the separation of capital and labor. Since workers do not own the means of production, they must seek employment by capitalists. The capitalists earn profits by paying low wages (which tend towards the level of subsistence) and selling at higher prices. The hypotheses corresponding to this approach would present the fishermen as engaged in the petty commodity mode of production. The barter of fish would be seen as similar to home consumption of fish, as a subsistence activity within this mode; the sale of fish for money would be seen as resembling other cases of articulation of the petty commodity with the capitalist mode of production. Specific hypotheses about barter and cash sale might be derived from the analysis of the two modes of production and their articulation. Cash sale rests on exchange value; use value is more important in the case of barter (Cook and Diskin 1976:255).

The implications of these three approaches can be further elaborated by a review of work within each approach on barter and cash sale in highland Peru. Decision theorists would expect the Lake Titicaca fish vendors to be income maximizers. One adherent of this approach has made this point more generally for market vendors in the Peruvian altiplano (Appleby 1977a, b, 1978). Others have shown West African fish vendors to optimize income with regard to both absolute levels and risk (Gladwin 1975, Quinn 1978). These vendors face a number of objective risks, including the possibility of being unable to repay debts, the uncertainty of prices in distant markets, and the possibility of fish gluts (Schwimmer 1979). The Lake Titicaca fish vendors, by contrast, are rarely in debt and live close to markets, where price information is more readily obtained. They are seldom left with unsold fish. (Only 3.7% of all vendors report that in the current week they had unsold fish left at the end of the market day; the comparable figures are 4.5% for the previous week and 12.9% for ever having had fish left unsold.) They also have other sources of income as buffers against risk. Decision theorists might also expect the fishermen to focus exclusively on maximization of revenues from the exchange of their catch, since they are also free from these risks. It need not be assumed that fishermen seek to maximize their income overall; it may simply be that they want as high a return as possible from any catch. Consumers, who also have ready access to fish in markets, might similarly aim for low prices rather than steady supplies from any individual vendor.

The culturalist position on barter in highland Peru is most fully expressed by Mayer (1972, 1974; Alberti and Mayer 1974); Salomon (1982:81-82) reviews this position more generally. Mayer views Peruvian society as characterized by two distinct economic and social systems. The indigenous peasant system contains specific institutions, such as reciprocal labor exchange, community assemblies, and communal control of factors of production, which structure economic activity and social relations. Barter belongs to this system, distinct from the more individualistic and profit-oriented national system. Mayer argues that present-day barter resembles barter and exchange under the Incas, when markets were few or absent

and profit making was unimportant. The ultimate aim of barter is the assurance of meeting basic subsistence needs. The ties between individuals who engage in barter are personal ones, governed by reciprocity and maintained by moral sanctions. Cash sale, a Western introduction, seeks profit maximization. Less based on personal ties, it is also not governed by moral sanctions. Other culturalists make similar arguments for other parts of the world (see Bohannan and Dalton 1962).

The extensive neo-Marxist literature on highland Peru (Montoya, Silveira, and Lindoso 1979, Sánchez 1983) tends to focus on relations of production and patterns of extraction of surplus. Its treatment of barter and sale tends to be sketchy. Montoya's (1980) discussion of peasant barter of products of different ecological zones, for instance, is skimpy compared with his treatment of the relations of communities, haciendas, and traders. One recent article, however, addresses directly the question of barter and cash sale (Golte and de la Cadena 1983). It states that peasant households within the petty commodity mode of production are involved in nonmonetary exchanges of goods and labor which are fundamental to their reproduction and to the production of food. It argues that crises in the capitalist mode of production could lead peasants to withdraw from involvement in cash sale and to barter more with one another. Other neo-Marxists make similar arguments (Bradby 1982).

The three schools can be contrasted along four dimensions of the exchange of fish. Although the problem of noncomparability mentioned above can be avoided, there are a few instances of the problems of nonoperationalizability and nonfalsifiability. The possibility of bias—of selecting dimensions which would favor a particular approach—was addressed by reviewing the literature in detail and by allowing adherents of all three approaches to comment on earlier drafts of this article.

1. *Permanence of ties.* Do fishermen maintain long-term relations with their exchange partners (whether fish vendors or consumers), and do fish vendors maintain long-term relations with their customers (whether other vendors or consumers)? The decision-theorist position would be noncommittal on this question, since the answer depends on the specific advantages of maintaining and shifting ties. The culturalist position would be that impersonal ties in the cash sale mode would change frequently and barter ties would be much more stable. The neo-Marxist position would be, similarly, that the links in the cash mode would be unstable, because of competition and the high rate of turnover of small-scale capitalist enterprises, whereas ties in the barter mode, geared towards subsistence, might be more stable. They might expect the degree of instability in the cash mode to increase in times of capitalist crisis. If the duration of ties cannot be directly observed, one might substitute the social basis of kin as a measure. Ties between kin, especially close kin, might be expected to last longer than those with nonkin.

2. *Purpose.* What are the goals of the participants in the exchange of fish? Decision theorists like Appleby (1978) view cash sale and barter as alternative means of obtaining material goods or money to buy such goods and vendors and consumers as choosing between them. They would expect individuals to be willing to barter fish for a wide array of commodities. For culturalists, cash sale and barter form part of different economic systems; barter is oriented towards subsistence, and therefore fish would be expected to be bartered only for foodstuffs to be consumed at home. In this case, again, the neo-Marxists would reach much the same conclusion by a different route; if barter is part of the reproduction of households involved in petty commodity production, then fish would be expected to be exchanged only for necessary commodities, such as food. However, they would not maintain this as strongly as the culturalists; whereas the culturalists would say that fishermen would be unwilling to exchange for goods other than

food, the neo-Marxists would say that they would be unlikely to do so. The neo-Marxists would also more readily admit variation in different periods and different households, arguing that households in the petty commodity mode of production may have occasional surpluses of foodstuffs and may therefore barter for other goods as well.

3. *Prices.* Are the prices for fish in the two modes the same or different? Phrased differently, this question consists of comparing the cash values of fish and items for which they are bartered. The decision-theorist position would be that the prices in the two sectors would be the same at any particular time and place but would vary temporally and spatially, equilibrium being maintained by the movement of individuals into the mode in which they could sell at a higher price or purchase at a lower one. Fluctuations in local availability of fish might cause prices to vary in different localities, and inflation would drive fish prices up. For the culturalist, since barter is part of a relatively fixed subsistence economic system, exchange rates, established by custom, would be expected to change very slowly or not at all. Market prices, by contrast, would be expected to fluctuate with shifting supply and demand, and consequently the two sets of rates would differ. The neo-Marxists would reach a similar conclusion by a different route, arguing that barter exchanges within the petty commodity mode of production are determined predominantly by use values, which are relatively fixed, and cash prices exclusively by exchange values, which vary.

If barter prices and cash prices differ, one will need to examine whether they fluctuate to the same extent. Fish prices tend to be volatile because of the high premium placed on freshness and the short-term fluctuations in catch. Differences in the degree of fluctuation might lead individuals to choose the securer mode. The most likely form for this pattern would be for individuals to barter fish at a lower but less uncertain rate.

4. *Long-term trends of the relation between the two modes.* Is barter becoming less common, remaining at a constant level, or growing? The decision theorist would again tend to be relatively neutral on this point, perhaps arguing that cash sale would slowly gain ground over barter because, as the newer mode, it contained more entrepreneurial opportunities or because money is a more convenient medium of exchange than fish. The culturalist approach, though more institutional than the decision-theorist view, would not necessarily focus on change. It would tend to view each mode as relatively self-contained and to expect cash sale to gain slowly as the more dynamic national economy squeezes out the native economy and as individuals who participate in both become acculturated to Western norms. The neo-Marxist approach is the one that focuses most directly on historical process through its examination of capital accumulation. The motor of change would be the accumulation of surplus, whether by transfers within the capitalist mode of production (caused by the retention of surplus value by the capitalists) or by transfers from the petty commodity mode to the capitalist mode (caused by unequal exchange in which petty commodity producers sell their products cheaply and purchase items from the capitalist sector at high prices). Although the latter type of transfer might at times be favored over the former, the capitalist mode of production, because of the greater efficiency stemming from its accumulated capital, would tend to drive out the petty commodity mode of production. However, during the periodic crises of the capitalist mode of production, demand falls off in that mode, causing unemployment for workers in it and leading producers in the petty commodity mode to withdraw from exchanges with the capitalist mode until the latter recovers. The neo-Marxists would thus predict that the importance of barter might be constant or declining but that in periods of crisis it could increase.

These competing hypotheses are evaluated primarily by quantitative data from surveys applied to fishermen, fish vendors, and fish consumers. Documentary sources and anecdotal observations are also used. This section examines the fishermen, the fish vendors, and the fish consumers in that order. It then discusses the relative prices of fish in the two modes and the long-term trends in the relations between barter and cash sale.

METHODS

Data for this article were collected from 1979 to 1981. The Puno laboratory of the Division of Inland Waters Research of the Peruvian Marine Institute kindly provided me access to a census of fishermen that it had conducted in 1976. This census provided a basis for selecting a sample of fishermen to provide catch and economic data. In collaboration with two biologists from the laboratory, Eufrazio Bustamante and Hugo Treviño, I estimated catches both by training a random sample of 50 fishermen to report their own and by independently measuring catches through a coverage check survey. We also collected household economic data and information on investment in fishing gear and craft from the collaborating fishermen and other lakeside households. FAO fisheries personnel assisted in the design of the project. The Puno branch of the Peruvian navy generously gave access to its registration records for fishermen and boats. Market censuses were conducted to update previous market studies (Appleby 1978, SINAMOS 1974); some individuals were sampled from the set of fish vendors for detailed surveying. Consumers of fish were also surveyed. It was more difficult to ensure randomness in this sampling, because of the much larger set of potential interviewees and the lack of an obvious spatial and social context, corresponding to lakeside villages for the fishermen and markets for the vendors, in which to interview them. In the survey results reported here, totals vary from table to table because of missing data or problems with coding in the field. To complement these survey data sources, archival materials were examined, employees of government agencies were interviewed, frequent visits were made to fishing villages, and a community study was conducted by Peruvian research assistants in Llachón on the Capachica Peninsula. Parallel research was conducted in Bolivia at the same time but is not reported here.

FISH PRODUCTION, DISTRIBUTION, AND CONSUMPTION

A total of 13,264 recorded fishing trips of the 50 collaborating fishermen were analyzed. A fisherman was considered to have employed a particular channel (cash sale, barter, home consumption) on a particular trip if he allocated at least 500 g of one species of fish to that channel on that trip. On only 33.9% of the trips did a fisherman allocate all of his catch to one of the three channels. Furthermore, individual fishermen used different channels to dispose of fish on different days. All 50 of the fishermen engaged in both sale and barter, as well as consuming some of their catch. Both sale and consumption were quite common; fishermen consumed at least part of the catch on 80.4% of the trips and sold some fish from 79.9% of the trips. Barter, though less frequent, was not rare; it occurred on 24.4% of the trips.

The marketplace vendors can be clearly divided into two groups, one relying almost exclusively on cash sale and the other using barter for the majority of the fish. In the first group, 2 of 225 mentioned that they had at some time bartered fish that had remained unsold at the end of the day. Most members of the second group were willing to accept cash as well as products for their fish. Of 25 such vendors, only one did not state a price for the fish she was selling, and virtually all

said that they would sell for cash on occasion. Although data on the proportion of fish sold by vendors of this group are not available, it appears to be quite small, well under 10% of the total. During the several hundred hours we spent in marketplaces such exchanges were rarely noted, and vendors in this group stated that they would often not sell any fish for cash at a particular market. It thus seems quite reasonable to follow local practice and distinguish between the two groups. The second group, known locally as *chalaqueras*, will be called barter vendors; the first group will be called cash vendors, although locally they are known by the general term for all vendors, *comerciantes*.

Barter vendors are different from cash vendors in several ways (see tables 1–3). They are concentrated more heavily in the immediate lakeside zone. Of the fish vendors interviewed in detail, 69.6% are located in the lakeside zone; 90.9% of the barter vendors are located there. (This difference is significant at the 0.02 level.)³ Barter vendors concentrate on native species of fish, particularly the small, bony carachi. This was the primary or exclusive category of fish for all 23 barter vendors but for only 68.7% of the cash vendors. (This difference is significant at the 0.0002 level.) None of the barter vendors deal in the introduced species, trout and silverside, although 14.0% of the cash vendors do. (This difference is significant at the 0.05 level.) Although most (64.7%) fish vendors are women,⁴ the proportion among barter vendors (91.7%) is significantly higher ($p < 0.005$).

In some ways the two types of vendors are similar. The average amount of fish they handle does not differ greatly, 18.7 kg for cash vendors and 24.1 kg for barter vendors, and the difference is even smaller if only the cash vendors who deal in carachi are considered; their average is 21.1 kg. Barter and cash vendors obtain fish from the same sources, primarily relatives. Fewer sale vendors (7.5%) than barter vendors (12.5%) obtain fish from other vendors, but this difference is not significant (see table 4). The two types of vendors report similar frequencies of having fish left unsold (see table 5).

Finally, the results of the consumption survey may be examined, although they must be treated with some care because of the problems in sampling. Among the individuals who had eaten fish at least once in the previous week, the ones who bartered for fish were poorer than those who purchased fish, as indicated by the smaller percentages of individuals who wore watches or shoes.⁵ (Because of the difficulty of interviewing

TABLE 1
TYPE AND LOCATION OF VENDOR

LOCATION	TYPE OF VENDOR		
	Cash	Barter	Total
Lakeside	141	20	161
Other	80	2	82
Total	221	22	243

$p < .02$; exact test

³ An exact binomial distribution was used here and in other instances for a test of significance in tables 1–3, 6, and 9; chi-square tests were used elsewhere.

⁴ The explanation for the greater concentration of women among barter vendors lies in the patterns of labor allocation within households, a topic that will be discussed in another setting.

⁵ These differences are significant when male and female consumers are separated. Thus, although men tend to wear shoes and watches more than women, male consumers who wear watches and shoes are more likely to purchase fish with cash than those who do not, and the same is true of women consumers.

TABLE 2
FISH SPECIES HANDLED BY VENDOR TYPE

VENDOR TYPE	SPECIES						TOTAL
	Introduced		Native				
	Trout	Pejerrey	Carachi	Ispi	Suche	Boga	
Cash	20	14	166	15	4	2	221
Barter	0	0	25	0	0	0	25

NOTE: Species listed are the ones that account for largest proportion by volume for each vendor
 $p < .0002$; exact test

TABLE 3
SEX OF VENDOR BY TYPE

	CASH	BARTER	TOTAL
Male	82	2	84
Female	132	22	154
Total	214	24	238

$p < .005$, exact test

individuals about income or wealth, nonobtrusive measures were used.) Poorer consumers tend to prefer barter (Brush 1977:110). These relations are significant at the 0.10 level. It should be noted that the percentage of individuals wearing watches and shoes seems unusually high, a fact that suggests that a disproportionate number of well-off individuals were interviewed for the consumption survey and that the results should be viewed with caution. Similar relations hold for the barter vendors, but these results are not statistically significant (see tables 6, 7).

Consumers also switched between barter and cash sale. Of the 32 individuals who stated that they had consumed fish more than once in the previous week, 25% used more than one means to obtain fish (see table 8). The link between barter and native species is also generally supported by the consumption data, although this relation is not statistically significant. Similarly, the consumption data show barter to be more heavily concentrated in the lakeside region than cash sale, but this result is also not statistically significant (see table 9).

TABLE 6
WEALTH OF CONSUMERS BY PRESENCE OF ITEMS
AND CONSUMER TYPE

	PURCHASE	BARTER	TOTAL
Barefoot or sandals	155	12	167
Shoes	100	2	102
Total	255	14	269
No watch	135	11	146
Watch	113	3	116
Total	248	14	262

for each comparison, $p < .10$; exact test

TABLE 7
WEALTH OF VENDORS BY PRESENCE OF ITEMS AND VENDOR TYPE

	CASH	BARTER	TOTAL
Barefoot or sandals	202	23	225
Shoes	16	1	17
Total	218	24	242
No watch	175	18	193
Watch	9	0	9
Total	184	18	202

TABLE 4
SOURCE OF FISH BY VENDOR TYPE

	RELATIVE	SELF	OTHER VENDOR	FISHERMAN ^a	SPOUSE	MIXED: RELATIVE, VENDOR	MIXED: FISHERMAN, ^a VENDOR	TOTAL
Cash	121	52	16	12	1	10	2	214
Barter	13	1	3	4	1	0	2	24
Total	134	53	19	16	2	10	4	238

^a The "fisherman" reply is unclear, since it can refer to unrelated fishermen and fishermen who are relatives

TABLE 5
USE FOR UNSOLD FISH BY VENDOR TYPE

	NEVER HAVE UNSOLD FISH	GIVE TO FAMILY MEMBERS TO EAT	DRY FISH TO SELL	SELL FISH AT LOWER PRICE ANOTHER DAY	BARTER FISH	TOTAL
Cash	197	14	7	5	2	225
Barter	20	2	1	0	1	24
Total	217	16	8	5	3	249

TABLE 8
SOURCE OF FISH FOR FREQUENT CONSUMERS

SOURCE OF SECOND FISH	SOURCE OF FIRST FISH			TOTAL
	Purchase	Barter	Caught by self	
Purchase.....	17	1	2	20
Barter.....	4	0	0	4
Caught by self.....	1	0	7	8
Total.....	22	1	9	32

NOTE Information for individuals who reported consuming fish on more than one occasion in the previous week, data for two most recent occasions on which fish was consumed.

TABLE 9
TYPE OF FISH AND LOCATION OF CONSUMPTION BY TYPE
OF CONSUMER

	PURCHASE	BARTER	TOTAL
Introduced species.....	19	1	20
Native species.....	175	13	188
Total.....	194	14	208
Lakeside.....	106	12	118
Other.....	83	2	85
Total.....	189	14	203

DIMENSIONS OF FISH EXCHANGE

Permanence of ties. In all types and locations of exchange, fish vendors are usually close female relatives of the fishermen, usually wives of married fishermen and sisters or mothers of unmarried ones. In these instances, where the fish are sold either by the fishermen themselves or by members of the household of the fishermen, one cannot really speak of fish as being exchanged between the fisherman and the vendor. Although the incomes of the fisherman and the coresident vendor are not directly pooled, they do form part of the same household budget. These characteristics apply generally to exchange outside the marketplace as well. Most vendors there are female relatives of fishermen, and one often sees a fisherman disposing of his own catch.

In both marketplace and nonmarketplace exchanges, the relation between fish vendors and customers may vary in degree of permanence. In both barter and sale, permanent acknowledged ties, called *casera* links, may be established. Customer and vendor will give each other preference over other individuals. The vendor will be likely to provide better-quality fish and a more generous *yapa*, or bonus, and to ensure the customer fish in times of scarcity. In return, the customer does not obtain fish from other vendors. Such ties resemble those described for petty marketing elsewhere in the world, such as Haiti (Mintz 1961), the Philippines (Davis 1973), and Nigeria (Trager 1981). In the somewhat unusual case of the less common fish, particularly long-lasting ties develop between fishermen and market vendors who sell rather than barter fish. Vendors will develop standing contracts with fishermen who supply them with high-priced fish, particularly large trout, and scarce species, such as boga and suche. The term *casera* is usually associated with marketplace exchange, but a similar tie can be found between neighbors in the case of exchanges outside marketplaces.

Purpose. The goals of vendors can be examined indirectly by looking at the items for which fish are bartered. Fresh and freeze-dried potatoes are the products most commonly exchanged for fish, accounting for well over half the cases. Grains, particularly barley but also the native *quinoa*, are second. Fish are occasionally bartered for broad beans. No other

barter items were observed or reported by vendors or consumers. These goods are consumed in the households of the vendors. The only significant exception is quite localized. Traders from fishing villages around the towns of Carabuco and Ancoraimes on the northwest shore of the lake in Bolivia barter fish for maize in nearby valleys in the upper portion of the Amazon drainage. No other lands low enough for extensive maize cultivation lie so close to the lake (Instituto 1980). In this case, the maize may be sold, bartered again for other products, or given as meals to peasants who are paid wages to work the lands of the vendors, but such instances are unusual. Barter of fish is rarely used to accumulate products for resale. It does not form part of the mechanisms by which rural agricultural foodstuffs are shipped to towns. In this way, it differs from other types of barter. Fish vendors are unlike the women, described in detail by Appleby (1977a:172-75; 1978:349-57), who travel to smaller markets from major market towns with manufactured items such as matches, extra-local agricultural products such as peppers and oranges, and other goods that they barter for potatoes or barley to be sold to wholesalers. Nonetheless, for the decision theorist the fact that barter vendors receive only foodstuffs that they consume does not prove their subsistence orientation; these goods might simply be the ones that their customers have in abundance to offer. Nor should the acceptance of money by cash vendors indicate a profit orientation, since much of their monetary income goes to the purchase of foodstuffs as well. These possibilities illustrate both the difficulty of operationalizing subjective states such as "purpose" and the nonfalsifiability problem.

Prices. It is difficult to obtain precise quantitative information on fish prices. One problem is that fish are not sold in standard units. In most rural marketplaces and open-air marketplaces in towns, vendors tend to sell fish that weigh less than 30 g or so by the heap, which may vary in size. They sell larger fish at a certain price per fish. In many district capitals, municipal regulations require that foodstuffs be sold in metric units. These rules are strictly followed in the roofed markets in large towns such as Puno and Juliaca and may also be followed in the case of very large fish, such as trout and silverside. Most fish vendors, and many customers, strongly dislike selling fish by weight and resist the introduction of scales. Such opposition to standardized weights and measures, characteristic not only of fish exchange but of the exchange of many other commodities, may be explained along culturalist lines by pointing to the fact that such weights are closely associated with urban markets, where townspeople influence municipal councils to set prices below those which fishermen and fish vendors would like. This conflict over prices may recall the efforts of townspeople to block the establishment of marketplaces in rural portions of the department in earlier decades of this century. Peasants sought rural markets to buy and sell goods with greater convenience and without the frequent interference, ranging from insistence on lowering prices to outright theft, of the townspeople. The strong unwillingness to use scales or

even to allow ethnographers to weigh purchases of fish after transactions had been completed may thus have something of an ethnic character, and it could be read as the desire of Indian peasants to retain control of their economy. Such arguments have been made in the case of a late 19th-century Brazilian movement in which peasants smashed the metric weights which had been recently introduced into marketplaces (Barmann 1977). Decision theorists might prefer an explanation which stresses the disadvantages of fixed weights, which reduce the advantages of skills in astutely judging quantity and thereby exclude one dimension of bargaining. Purchasers also run a greater risk of being cheated through the falsification of weights. These issues of metrology (Kula 1980), since they are hard to operationalize, might be trickier cases on which to resolve debates between competing approaches than more directly quantifiable matters. In particular instances, the different views might all have something to offer, as Humphreys (1985) shows in her discussion of measurement in Nepal. Whatever the reason, fish are rarely sold by weight.

An effort to establish prices of fish is limited not only by difficulty in measuring quantity but also by variability in quality. Fish are prone to spoil, even in the cold, dry altiplano. There are also different varieties of fish; at least four types of carachi are recognized. Thus, when some carachi are sold in the same market at three for ten soles and others at four for ten, the former could be larger, fresher, or of a preferred variety. When the two prices are reported for different markets, it is unclear whether or not the prices really differ. These difficulties in establishing monetary prices are multiplied in the case of barter exchange by the problems in measuring the quantity and quality of the item exchanged for fish.

Despite these difficulties in obtaining exact prices, it can be shown that cash and barter prices tend to be very close. In the majority of cases, both vendor and buyer calculate explicitly in handfuls or heaps of potatoes or grain, counting them out exactly as coins or bills would be counted to make up the price of the fish.⁶ In such instances, cash price and barter price are the same. In other instances, both parties act as if they were applying current cash prices, although the item bartered for fish is not measured as precisely as in the former case; either party can refer to shifts in price if they are bargaining or asking for *yapa*. Further evidence comes from the fact that both cash and barter prices offered for fish fluctuate greatly both spatially and temporally. The evidence for the fluctuation of both cash and barter prices, resting on information from fish vendor surveys, is clearest for carachi. Cash prices for ispi can vary by as much as a factor of seven over several months. Cash prices of more expensive and scarce fish, such as trout, pejerrey, boga, and suche, are particularly volatile. If barter exchange rates were fixed by custom and cash prices fluctuated, the two could not remain the same.

In a few cases, the parties used customary barter exchange rates that differed from the cash prices. On March 3, 1979, for instance, a fisherman came to the market in Socca in the district of Acora and bartered fish at the established rate of one carachi for one heap of barley. At that time the heaps of barley sold for one sol apiece and carachis for three soles. The fisherman could have gotten much more barley if he had sold his fish and purchased barley with cash; the peasant in Socca was getting fish cheaply. Even if the carachi had been small, not fresh, and of one of the less preferred varieties, their cash price would have been about two soles apiece. This case might

be taken to support the culturalist argument about discrete spheres of exchange. Other factors make the case exceptional, however. The fisherman was one of the people called *k'api* in Quechua and Aymara and *uru* in Spanish—an inhabitant of the floating islands near the city of Puno. Unlike the other fishermen of the lake region, they do not own agricultural fields. These fishermen thus have a greater need to establish a secure supply of agricultural foodstuffs than other fishermen, who purchase or barter for foodstuffs to supplement their own production. For this reason they are likely to be willing to accept a lower price in order to lay claim to peasant agricultural harvests in bad years and to ensure a supply. This tendency may have been particularly acute at that time of year, when stocks of barley are low until the new crop has been harvested, threshed, and winnowed and other foodstuffs are scarce as well. This case is thus the sort of exception that decision theorists would find least troubling.

Long-term trends. The general trend in this century has been for cash sale to replace barter. The sale of foodstuffs by peasants for cash in markets and fairs goes back for centuries, but the sale of fish for cash was restricted to occasional purchases by townspeople of the higher-quality fish, particularly boga and the now extinct umantu. Most exchange of fish was conducted between peasants. According to travelers' accounts (Post 1912:100) and more scholarly sources (Tschopik 1946: 537–81; La Barre 1948:151; Vellard 1963:66), barter of fish predominated over cash sale through the 1940s. With the general expansion of marketing after the 1950s and the growth of the trout fishery, cash sale virtually replaced barter. Two independent detailed surveys of marketplaces conducted in Puno in 1972 and 1973 treat the exchange of fish exclusively in terms of cash sale, although they both discuss the importance of barter in the exchange of grains, tubers, legumes, and cheese (Appleby 1978:348–57, 369; SINAMOS 1974:51, 79). The SINAMOS study accords the sale of fish a larger portion of its discussion than Appleby, but both make reference to it (Appleby 1978:341, 437, 441, 457; SINAMOS 1974:95–109). Appleby reports that barter accounts for “nearly 5 percent of all regional staples sold in the department [of Puno]” (p. 356), defining regional staples (pp. 251, 437) as the tubers and grains produced in the department. This figure of 5% is lower than our 1979–81 figures for fish, according to which barter accounts for 19% of all fish exchanged, 16% of all fish caught, and 10% of all fish exchanged in marketplaces. The SINAMOS study does not report what proportions of any commodity were exchanged through barter and cash sale. It is unlikely that both studies would have entirely missed observing barter or decided not to include it in their discussion if it had been as common in 1972–73 as it was in 1979–81; it may be assumed to have been less than the 5% which Appleby reported for tubers and grains at that time.

The reasons for the increase in barter of fish lie in the economic crisis in Peru which began around 1975. The annual rate of inflation increased from below 10% before 1973 to over 100% in 1981 because of the growing foreign debt, the sluggish performance of the agricultural sector, and global increases in inflation due in part to rising energy prices. Accompanying this inflation was a series of dramatic devaluations of the sol, which made inflation even higher for imported goods and goods produced with imported inputs. This economic crisis led to the bankruptcy of many firms, a decline in industrial output, and widespread decline in standards of living (Thorp 1983). Faced with urban discontent, government agencies sought to prevent the rapid increase of food prices. Subsidies at the national level have kept basic items such as bread, rice, and cooking oil less expensive than they otherwise would have been (Painter 1983). (One study shows that over 85% of these subsidies were allocated to imported foods in the mid-1970s [Alvarez 1980:60].) The national government established price controls for foods, which it enforced through its increased control of the market-

⁶ Heaps of grain are treated as equivalent to decimal units of the national Peruvian currency. In the period of study they were set at ten soles; Appleby (1978) reports them as equal to one sol in the early 1970s. Informants recounted that in earlier decades they were worth one real, a ten-centavo unit equal to one-tenth of a sol. Whether this pattern reflects a retention of Inca decimal usage or an approximation to national currency, it does indicate constraints on the size of heaps.

ing of foodstuffs. Municipal councils in the highlands have kept locally produced items, such as barley and potatoes, at even lower levels. (These items also tend to be less influenced by inflation and devaluation; wheat and oilseeds are imported, and rice production entails greater investment in pesticides and fertilizer than production of barley and potatoes.) Thus, although all prices rise, inflation rates are greatest for urban and industrial goods, less for nonhighland foodstuffs such as bread, rice, and cooking oil, and lowest for highland foodstuffs such as potatoes and barley. It seems likely that the inflation rate for fish will either be close to that for other highland foodstuffs or slightly higher, because of the costs of boats and gear, particularly imported nets (see table 10). These rates of inflation have complex effects on peasant consumption patterns.

Appleby, who restudied the Puno marketing system in 1979, documents that this economic crisis led peasants to reduce their consumption of nonhighland foodstuffs, and this shift in consumption reduced the flow to urban areas of rural produce, particularly the grains and potatoes that were bartered for these items in rural marketplaces. He reports that "*chala*—the system of wholesale bulking through barter—has all but disappeared because the old equivalences have changed in favor of the urban commodities. . . . Country people simply will not participate when the cost of urban commodities has risen so much faster than the value of their produce" (1982:7–8). In fact, the same factors that have led to the decline of one type of barter—rural produce for nonhighland foodstuffs—have led to the increase of the proportion of fish bartered.

This apparent contradiction could be explained generally in neo-Marxist terms. As the capitalist economy enters into a crisis, petty commodity producers withdraw from the capitalist sector in two ways. First, they receive fewer goods from and offer less food to the urban sector, which is more tightly linked to the capitalist mode of production than the rural sector. Secondly, they rely on barter, based primarily on use values, for exchanges within the petty commodity sector rather than using cash sale, based on exchange values, for exchange with the capitalist sector. Peasants thus barter less for urban goods and more for fish. This phenomenon is important for general understandings of subsistence economies. It suggests that such economies are resilient and may expand rather than decline in the face of capitalist crisis and that households in such economies can expand their subsistence not only by selling less within the nonsubsistence economy but by exchanging more within it.

A decision-theorist explanation of peasant behavior under these conditions can augment the neo-Marxist explanation. In-

flation and devaluation affect three aspects of the disposition of harvest and consumption by nonfishing peasants: the quantity of produce that they exchange for nonpeasant goods, the mix of goods that they receive in return, and the mode of exchange. First, while the economic crisis causes relatively small fluctuations in harvests, it reduces the proportion of the harvest that peasants exchange. That harvests are not affected can be understood in the local context of low levels of capitalization and high population densities. If peasants relied more extensively on purchased inputs, inflation could reduce their harvests more significantly;⁷ if labor were scarcer, economic crises might raise yields more by increasing the labor available to agriculture as peasants returned to their villages from cities, mines, and agricultural areas on the coast. These effects, though present, are not dramatic, and fluctuations in harvest are influenced more by climate than by economic conditions. However, as the prices of other goods rise relative to the prices of local harvests, peasants retain more of their harvests and allocate a smaller portion to sale or barter for other goods.

The crisis also influences the mix of goods that they obtain, since the rate of inflation is not constant for all commodities. If two commodities rise in price at different rates, consumers will tend to consume more of the item that has become relatively cheaper and less of the other. Thus, as the price of fish declines relative to that of nonhighland foodstuffs and manufactured goods, peasants will consume more fish relative to these other items. Consumption is also influenced by the price and income elasticities of demand, which presumably are relatively independent of the economic crisis but are in turn influenced by a wide variety of factors. Some goods, such as salt, plows, and matches, are virtual necessities and have low elasticities; others, such as rubber sandals and beer, are culturally highly valued; still others, such as oranges and radios, are desired to lesser degrees and have higher elasticities. Although data on elasticities are difficult to collect, some evidence does suggest that for fish elasticities are relatively low. One source which draws on a large sample of household economic data for highland Peru shows that income elasticities (taking total expenditures as a proxy for income) are highest for nonfood expendi-

⁷ Figueroa (1982:143) shows that for the lakeside village of Jacantaya, 75% of the households purchase fertilizer and 64% buy pesticides. The total investment is low, however, and there are relatively few tools—for the average family, 2.29 picks and shovels and 2.83 hoes (p. 136).

TABLE 10
NATIONAL INFLATION AND PRICE OF FISH IN LAKE TITICACA

	PRICE OF CARACHI (soles/kg)	INDEX (1972 = 100)	ANNUAL PERCENTAGE CHANGE	CONSUMER PRICE INDEX (1972 = 100)	ANNUAL PERCENTAGE CHANGE
1972	13.2	100	...	100	...
1973 . . . . .	...	...	...	109.5	9.5
1974 . . . . .	...	...	...	128	16.9
1975	13.0	98.2	-0.6 ^a	158.2	23.6
1976	17.0	128.2	30.5	211.2	33.5
1977	20.5	154.9	20.6	291.6	38.1
1978	35.0	264.4	70.7	460.3	57.8
1979	70.0	529.0	100.0	771.7	67.7
1980	73.7	556.9	6.0	1,228.3	59.2
1981	148.4 ^b	1,121.6	101.4	2,851.3	132.1

SOURCES: For prices, 1972, SINAMOS (1974); 1975–79, Ministerio de Pesquería, 1980–81, our surveys; for consumer price index, Becker (1983), *Actualidad Económica*.

^a Average percentage increase for 1972–75.

^b Extrapolated from January–April 1981 figures (128.3 soles/kg, 74.0% increase)

tures, intermediate for nonhighland foods such as rice and vegetable oil, and lowest for highland foods (Ferroni 1980:184). Thus, as households allocate less of their harvest to the acquisition of other goods, the proportion of items with lower income elasticities, including highland foods such as fish, should rise. Price-elasticity data, obtained by surveying consumers at different points in time, are even more difficult to collect, but it could be assumed that price elasticities of demand for staple foods in the Lake Titicaca area resemble those in many other areas in tending to be lower than those for nonstaple foods and other, nonfood commodities. Cross-elasticities of demand could lead staple consumption to increase as staples are substituted for nonstaple foods.

Finally, the crisis affects the mode of exchange, favoring barter over cash sale. As peasants retain more of their harvest and have less to sell or barter, agricultural products become relatively abundant for them and cash becomes scarcer. Since transaction costs impede the conversion of small quantities of foodstuffs to cash, they will become more reluctant to pay cash and will try to use it only when they have no alternative, such as when paying truck fares or purchasing notebooks for their children in school. Thus, although barter and cash sale prices for fish may be the same both before and during the crisis, peasants will prefer to barter more strongly during the crisis than before. They will also prefer items for which they can barter over ones that they can only obtain with cash and therefore will consume more fish relative to other goods.

To summarize these arguments, fish consumption will decline more slowly than that of other goods, including the nonhighland foods which Appleby discusses, because the price of fish declines in relation to the price of these other goods and because it has a lower income elasticity of demand. It may even rise, if the proportion of fish in the consumption of the peasants increases faster than the total consumption declines and if the cross-elasticity of demand causes a substitution of fish for other nonhighland foods. The preference for barter increases strongly. In these terms, the importance of the economic crisis is confirmed both by the increase of barter for fish and by the decrease of barter for nonhighland foods. In the case of fish, the increase in barter is not offset by a decline in total demand. In the case of nonhighland foods, the decline in demand more than offsets the potential increase in barter.

DISCUSSION

It may appear difficult to understand why anyone would want to barter at all. In addition to the problem of the "double coincidence of wants," there is the lack of some of the potential advantages of barter in this case; barter prices are neither lower nor less volatile, and barter does not even seem to offer a more secure supply of fish. The main advantage of barter is that it allows individuals, particularly fish consumers, to conserve their supplies of cash, which are more limited than their stocks of foodstuffs. (Other analysts have also emphasized the relation between the importance of barter and limitations of the supply of money [Humphrey 1985].) This advantage is particularly salient because of the transaction costs involved in converting small amounts of foodstuffs into cash. Since barley or potatoes cannot be changed into currency without effort or loss, the relative abundance of cash and foodstuffs is a matter of some importance. The lakeside consumers have a greater abundance of foodstuffs relative to money than other consumers, because the latter have smaller and less reliable harvests and better access to a marketable product, wool. The poorer consumers would insist more strongly on barter, since their supplies of cash are particularly limited in relation to foodstuffs. Although consumers give the same price for fish whether they purchase it or barter goods for it, they differ in the relative amounts of money and foodstuffs they have. Stud-

ies of highland peasant communities (Figuerola 1984) have shown that, while wealthier households have both larger harvests and higher cash incomes than poorer households, the gap is much larger in the case of cash incomes. (This fact is due to the virtual absence of completely landless households in the southern highlands.) Thus, for poorer households, cash is not only absolutely scarcer than it is for richer households but relatively scarcer in relation to foodstuffs to barter. Thus the poorer households, which tend to consume the cheaper carachi, will barter, and the richer households, which consume both carachi and the more expensive trout, will use cash to make purchases.

The fish species that require the most capital to catch are more often sold for cash, because of the higher cash needs of the fishermen. Trout fishermen have more costly nets and use outboard motors more often. The one fisherman who was seen to barter trout lives on Isla Soto, and the exchange took place near there in Conima, close to the Bolivian border. Some fishermen in that area smuggle trout directly into Bolivia by selling their fish to Bolivian vendors who meet them in the middle of the lake, but such contraband is risky. The fishermen who land their catches could sell them in Conima, where the municipal council maintains low prices. They could take them to urban markets in Huanacané or Juliaca, but the relatively great distance from Conima makes fares higher and the risk of spoilage greater. Furthermore, Isla Soto has poor soils, and the harvests of the fishermen are often low. In this case, the cash prices the fisherman would have received for his trout would have been lower than in other cases, and his need to ensure a food supply was greater than for most other fishermen. Similarly, away from the lake exchanges less frequently involved barter. For the consumers, cash is less scarce relative to foodstuffs in that region, less favorable for agriculture. For the vendors, higher travel costs, particularly truck fares, make them press more strongly for cash payment.

The data permit an evaluation of the three competing approaches. The hypothesis section presented the views these three schools would hold on four dimensions of the exchange of fish in the Lake Titicaca region. The nonfalsifiability problem presents itself in a few instances, but not as severely as might have been anticipated.

1. *Permanence of ties.* The data on this dimension are not conclusive. Since barter and cash vendors do not differ greatly in the type of persons from whom they obtain fish, they probably do not differ greatly in the permanence of their ties to these people. Personalistic *casera* links between vendors and consumers are found in both modes. These results contradict the expectations of the culturalists and neo-Marxists and support the rather weak claims of the decision theorists.

2. *Purpose.* The culturalist position is confirmed by the fact that fish are bartered only for foodstuffs and that the foodstuffs tend to be consumed by the vendors and other members of their households. Although decision theorists, edging close to claiming that their view is nonfalsifiable, could argue that this emphasis on subsistence within barter exchange does not contradict their view, their position would be more strongly supported if the vendors who bartered for fish behaved as some other Andean barter vendors do. Mayer (1972), for instance, describes individuals who barter maize that they produce for potatoes, which they sell rather than consume; other sources (Burchard 1974, Concha Contreras 1975) present complex sequences of transactions in which peasants first sell their produce to obtain goods, then barter these goods for other foodstuffs, and finally sell these other foodstuffs.

The neo-Marxist position had also anticipated this outcome but did not argue for it as strongly. However, it could explain the greater frequency of barter among carachi vendors and cash sale among trout vendors by stressing the importance of production. The trout fishermen have higher fixed and variable costs.

3. *Prices.* Price data support the decision-theorist position, since barter exchange rates correspond to the cash prices of fish and other goods. Decision-theorist arguments also seem able to explain the few cases in which fish have a lower price in the barter mode than in the cash mode.

4. *Long-term trends of the relation between the two modes.* The neo-Marxist approach is the most successful of the three in explaining both the general decline of barter and its recent resurgence. Decision-theorist arguments complement the neo-Marxist position.

These results could be interpreted in several ways. The most immediate approach is simply to recognize that the data do not unequivocally favor any of the three positions, although the decision-theorist is supported more frequently than the others. Each approach is strongly confirmed once—the culturalist in the second, the decision-theorist in the third, and the neo-Marxist in the fourth case. None is strongly confirmed in the first case. The decision-theory approach receives weaker confirmation in the first and fourth cases and the neo-Marxist in the second. The importance of wealth in influencing choices of consumers and of capital in affecting choices of fishermen also supports both decision theory, which examines the influences of resources on decision making, and neo-Marxism, which emphasizes the inequality of control of factors of production.

A second approach is to examine ways in which the approaches complement rather than compete with one another. Because the neo-Marxist and culturalist hypotheses are similar (Dalton and Köcke 1983, Gudeman 1978a), greater intellectual innovation will come from linking these approaches to decision theory than to each other. The neo-Marxist position can be combined with decision theory in two ways: by emphasizing the importance of access to the factors of production (as seen in the contrast between trout and carachi vendors) and by stressing the dynamic of the articulation between capitalism and the petty commodity mode of production (Long and Roberts 1978). The insights which the culturalist approach has to offer to decision theory appear less rich. In the case of the Lake Titicaca fisheries, they might be limited to noting a not very startling cultural set of preferences: people seek to obtain adequate stocks of food before acquiring other goods.

This apparent weakness of the culturalist perspective can be more fully examined by a third approach to the data: to ask in what ways this particular case is unique and to what extent these unique characteristics have shaped the performance of the three approaches. Several aspects of the Lake Titicaca fisheries deserve mention. First, fish are produced frequently and in small quantities; the 50 fishermen who were sampled averaged over 200 trips per year, with an average catch of about 10 kg. The frequency of catches means that fish must also be allocated frequently; thus the emphasis of decision theory on choice making is particularly appropriate in this case. The emphasis in decision theory on the ease of alternating between barter and cash sale is also supported by the small average size of the catch, which reduces the risk of severe loss in each allocation. This lack of barriers to switching modes is also supported by a second feature, the spatial proximity of the fishermen and the fish consumers, since the risk of loss and the potential for information blockages are lower.

A third characteristic is the role of fish and agricultural foodstuffs in the patterns of household production and consumption. Virtually all fishermen own agricultural plots and consequently do not rely on exchange for their entire supply of agricultural foodstuffs. Although local people enjoy fish and derive calories, protein, and scarce vitamin A from it, fish is not a staple in the way that potatoes and grain are. The absence or scarcity of fish in their diet would cause displeasure rather than hardship. For this reason, neither group is as concerned about guaranteeing access to the other's products as it would be if these products constituted necessities.

At this point, we can return to the other case of barter

mentioned in the introduction: that involving the herders of sheep, llamas, and alpacas in the grassland areas above the upper limit of agriculture. According to the reports of a number of ethnographers (Flores 1977, Caro 1980, Cipolletti 1984), this case conforms more closely to the hypotheses of the culturalists. The exchange rates in the barter mode are different from cash prices; if herders sold their meat and bought maize at market prices, they would obtain more maize than by bartering (Mayer 1972). Nonetheless, both parties are unwilling to abandon the barter exchanges. The ties between barter partners are very strong, at times lasting for generations. The exchanges serve to assure both parties of a steady supply of the other's products, even in times of scarcity. The participants in these relations state that they are maintained by moral sanctions—by the belief that it is wrong to end them—as well as by self-interest.

The exchange between herders and maize growers differs in the three ways mentioned above from the exchanges of fish and agricultural products (Orlove 1981). Both maize and dried meat are produced in large quantities once a year, since the annual cycle of the seasons constrains the timing of the maize harvest and the production of dried meat (Orlove 1977b). The long distances separating the grasslands from the valleys make it important for each party to anticipate the activities of the other. Finally, the herders require agricultural foodstuffs in their diet, and the valley peasants greatly relish meat. For all these reasons, the participants maintain barter and cash sale as discrete spheres of exchange in a way that lakeside dwellers do not.

This case offers another useful contrast among the three approaches in economic anthropology. The culturalists would claim that exchange of meat and maize supports their view of barter and cash sale as distinct. A decision-theorist counterposition might be that risk is a more important factor in this case than in the Lake Titicaca fisheries. Herders are willing to obtain less maize through barter because they do not produce agricultural foodstuffs at all and thus want to ensure a minimum supply; they also want to maintain strong claims on maize in years of poor harvest. Transaction costs are also high for the herders; their lengthy trips might take even more time and effort if they had to make two exchanges, meat for cash and cash for maize. The participation of the maize producers in these exchanges does not challenge the decision-theory hypotheses, since they obtain a steady supply of inexpensive meat.

Presented in these terms, it might be difficult to choose between the two approaches. The decision theorists could claim that the participants acted as if they were optimizing income and risk in a situation of uncertainty, and the culturalists would say that the exchanges formed part of a social and economic system with distinct social norms. The culturalists would argue that the herders and peasants were not making choices between forms or rates of exchange but following strongly held beliefs. They would suggest that herders gave meat to their barter partners much as they gave it to their children, because it was what they thought they should do, without considering how to increase the good or service that they would receive in exchange (whether maize or care when they were old). Once again, empirical data may be cited to clarify these views. The studies have not been conducted as tests of competing hypotheses, and consequently scattered data can be brought on both sides. The decision theorists could draw support from the fact that some ethnographers (Mayer 1972, Concha Contreras 1975) report barter rates to shift slowly in the direction of cash prices and that some herders and peasants complain that their exchange partners occasionally fail to appear. The culturalists could point to the considerable inconvenience of barter exchange for the herders, some of

whom obtain large steady incomes from the sale of alpaca wool (Caro 1985). The sale of wool involves them directly with a major export economy that arose with the mechanization of textile production during the Industrial Revolution and has continued to the present (Orlove 1977a). Decision theorists might have to contrive complex arguments to explain why wealthy herders take long and difficult journeys to obtain relatively small amounts of maize when they could easily and securely purchase other foodstuffs (Flores 1983). The culturalist position might well draw strong support from this case, if it is true that the partners in these barter relations are insensitive to changing external constraints, if the exchanges reflect uniquely Andean preferences for particular goods, and if these ties are structured by their embeddedness in characteristic Andean institutions. It is harder to make these claims for barter in the case of Lake Titicaca fisheries.

The nature and scale of the cash incomes of the herders might also make it difficult for the neo-Marxists to explain this barter. They might expect to find competition among herders induced both by their high incomes and by the nature of animals as capital, capable of purchase, sale, reproduction, and loss. An increasing link with the capitalist mode of production would favor the wealthier herders, who might purchase the animals and hire the labor of the poorer herders in times of crisis. Under these circumstances, some poor herders might include the maintenance of barter relations in their attempts to avoid further impoverishment and dispossession, but such efforts could not delay this process indefinitely.

This case would be a fruitful one for quantitative investigation. Recent studies of barter among herders give some support to the decision-theorist and culturalist hypotheses and suggest that the neo-Marxist forecast is not being borne out, but the absence of explicit hypotheses and the scarcity of quantitative data prevent more definitive evaluations. The case of the herders would present some methodological difficulties, since the production and exchange of meat take place less frequently than in the case of fishing and the much more widely and thinly dispersed populations would be difficult to sample. This case also has certain advantages, in particular the greater ease in establishing barter equivalencies and in examining the links to a capitalist economy.

The contrast between the two cases shows the importance of such hypothesis testing. The examination of the Titicaca fisheries gave support to decision theory and weaker credit to the culturalist and neo-Marxist approaches. The study of the barter between herders and peasants is more anecdotal and does not permit ethnographers to speak with the same degree of conviction. As more studies are conducted with greater rigor, the competing approaches will be able to agree on each other's strengths and weaknesses. Such exchanges will strengthen the field of economic anthropology and help it to fulfill the promise of analytical development and methodological precision that has marked the period since the decline of the formalist-substantivist debate.

Comments

by JAMES M. ACHESON

Department of Anthropology, University of Maine at Orono, Orono, Maine 04469, U.S.A. 7 x 85

Orlove has two ambitious goals in this paper: to explain the persistence of barter in the Andes and to assess three competing explanatory approaches. I will direct my commentary to the first.

Orlove deserves a good deal of credit for presenting such an interesting case study on so important and relatively unstudied a topic as barter. He is breaking new ground. However, his discussion omits any mention of what is, in my opinion, one of

the most critical issues pertaining to the persistence of barter, namely, transaction costs.

It is generally accepted in economics that the primary advantage of market exchange over barter is that it entails lower transaction costs (Mayer, Duesenberry, and Aliber 1984:5). It is difficult, time-consuming, and costly to find someone else who has the exact thing one wants to exchange in the amounts that one wishes to exchange. It is far easier to use money, a universal medium of exchange. The fact that barter is continuing in the Andean highland area reported on by Orlove suggests that the transaction costs of barter in that region are relatively low compared with those of the market. What could lower the transaction costs of barter? Orlove provides no definitive answers to this question, but he does give enough information to raise some interesting possibilities.

First, Orlove tells us that "poorer consumers tend to prefer barter." Is it possible that poorer peasants, who presumably have insufficient land to farm, have far more spare time? If this is the case, the costs of barter will not be as high for them.

Second, the goods most frequently bartered are grain, potatoes, and fish. Potatoes and grain are the dietary staples in the region, and apparently large amounts of fish are consumed as well. The costs of exchanging such ubiquitous goods through barter will presumably be relatively low. If there are multiple vendors for such products in every town and market, then the cost of finding potential trading partners will be low, and it should not be difficult to get information on prices or exchange rates either.

Third, in many parts of the world buyers and sellers develop long-standing ties which involve giving each other preferential treatment. Such agreements are especially common in fish markets, where permanent ties help to ensure the speedy exchange of a highly perishable product. In this regard Orlove, in talking of herders, says that "ties between barter partners are very strong, at times lasting for generations. The exchanges serve to assure both parties of a steady supply of the other's products, even in times of scarcity." Do those bartering other products have similar long-standing personal ties which reduce uncertainty? Is this an additional motive to barter as opposed to entering into cash exchange? Orlove's information on this point is inconclusive, although he is certainly aware of the issue.

In another vein, I wonder whether the nonmarket exchanges Orlove describes are true barter. Barter involves actively seeking another person who has some product one wishes to exchange and negotiating an exchange rate. It is not simply an exchange without money. Apparently in the Andes many of the nonmarket exchanges occur in organized markets and involve market vendors. In this regard, Orlove says that "marketplace vendors can be clearly divided into two groups, one relying almost exclusively on cash sale and the other using barter for the majority of the fish." When a large group of people is gathered in a location to buy and sell products and the same vendor will accept either money or goods for the product he wishes to sell, many of the conditions usually associated with barter are not met. In such situations the high costs of obtaining partners and establishing "prices" are not incurred. Such exchanges appear to be barter only in the most mechanical sense of the term. If Orlove's paper does nothing else, it points up the need for a more rigorous definition of "barter" in economic anthropology.

by JOHN CLAMMER

Department of Sociology, National University of Singapore, Kent Ridge Rd., Singapore 0511. 29 VIII 85

Orlove has raised a question of central epistemological importance in anthropology: How does one verify competing explanations of the same event or process, especially when those explanations derive from very different theoretical perspec-

tives? Although Orlove is correct in pointing out that it is unusual to find rival approaches tested in the comparative empirical way that he proposes, I nevertheless want to focus on certain broader and more theoretical issues that he raises. In particular I want to raise the question of how far, in fact, it is possible to test rival approaches in economic anthropology by way of this kind of case study.

On the positive side, Orlove succeeds in showing that empirically there is a lot of vitality left in the barter mode of exchange, that certain classical notions such as that of spheres of exchange still have validity, and that the psychology of exchange is important in understanding economic transactions. But from this point on, one must raise some questions. First, by putting mechanisms of exchange back into the central position, Orlove begs the very question to be answered—whether the centrality of exchange can be assumed. Clearly barter and cash sales exist—that is not in dispute; the theoretical question is what position they occupy in economic life. Orlove attempts to maintain a mask of neutrality in a situation where this is not a viable option; the way his comparisons are structured presupposes a preference. The fundamental issue, in other words, is how one resolves disputes based exactly upon such theoretical differences, and this is where Orlove is at his weakest.

It is not true, for example, as Orlove claims, that the problems of comparing competing explanations are minor or that the issue is simply a matter of presenting evidence to resolve disputes which will otherwise remain at the level of “taste rather than objective knowledge.” For years now there has been discussion of comparing systems of rationality, of validating Freudian explanations of behaviour, of verifying Marxist arguments, and of assessing the relative merits of alternative structuralist explanations. The point is precisely that choice between such competing explanations is only up to a point and secondarily empirical. What Orlove does not seem to have grasped is the ideological, symbolic, communicative, and tentative nature of these kinds of broad theoretical positions. This is why conversations between, say, a Marxist and a Freudian or between either and an empiricist positivist sound remarkably like the old conversations between theologians and scientists; they are actually occupying distinct spheres of discourse and groping for common ground. The old debate between substantivists and formalists was sterile exactly because it was a conversation of this kind and was carried on in the false belief that there was a straightforward empirical solution to the dispute.

That this is so is very clearly revealed by Orlove's argumentation. We are continually told what neo-Marxists would say or what a culturalist might argue, even though Orlove does admit the great variations within any of these broad theoretical categories. Similarly, it is startling to be told that, for example, neo-Marxist and culturalist hypotheses are “similar” or that neo-Marxism can be “combined” with decision theory. Either Orlove is a thorough empiricist or he has not understood the fundamental theoretical issues that divide these positions, whatever their superficial similarities. Once again, then, we come back to the view that advance in economic anthropology is dependent on grappling with the epistemological questions (at a fairly sophisticated level) and not with the piling up of either data or “comparisons.”

Unwittingly perhaps, Orlove does point to one way out of this problem. In the early part of his paper he discusses some of the differences between the positions that he compares. What this suggests to me is the real need for a detailed analytical history of economic anthropology, a kind of “sociology of economic anthropology.” This would be of immense value in understanding why, how, and when these various theoretical positions arose. Relating them to their origins and social context would be much more fruitful than comparing ready-made systems the initial stimulus for the development of which has now mostly been forgotten.

by THOMAS CRUMP

Antropologisch-Sociologisch Centrum, Universiteit van Amsterdam, Vakgroep CANSA, Sarphatistraat 106 A, 1018 GV Amsterdam, The Netherlands. 2 x 85

Although Orlove's comparison of three approaches to the study of the economic institutions of traditional societies is often instructive, a number of relevant factors have been largely disregarded, and the perspective from which the article is written is too narrow.

On the purely monetary side, such obvious factors as liquidity, credit, and inflation are hardly discussed. True, liquidity, at least by implication, is mentioned at the beginning of the “Discussion,” but there is no consideration of the seasonal circulation of money between centre and periphery comparable to Keynes's (1913:36–37) analysis relating to India. Moreover, the suggestion that cash sales have high transaction costs runs counter to any economic analysis (Keynes 1936:233). Orlove should also have considered whether the inadequate supply of reasonably cheap credit affected liquidity. My own research (Crump 1976) demonstrates that institutionalised credit can emerge within the confines of the local monetary circuit. Was this ever the case on the shores of Lake Titicaca? Inflation is important because it does justify the preference of barter to sale, particularly for any section of the economy whose monetary position is essentially defensive (Crump 1981:254). Barter is one means of counteracting the monetary instability characteristic of inflation in such a way as to protect the “moral economy of the peasant” (Scott 1976). And even if Scott's analysis is rejected, his essential point, that a marginal peasant economy can little tolerate any abnormal disruption, must still be taken into account.

As for perspective, it would be useful to know how the fishers and farmers of Lake Titicaca themselves conceive of money. In other words, what is the cognitive base of their monetary policy? Are there any traditional narratives about money such as those Gossen (1974:294, 306) records for Chamula? It is almost unthinkable that money is not talked about, and what is communicated about it constitutes a “culture of money.” “Thick description” (Geertz 1973:chap. 1) cannot be left out of account in the analysis of traditional economic institutions. Even Keynes (1936:383)—no anthropologist by profession—recognised how the economic world is ruled by ideas. If Orlove were to be more explicit about the “ideas” that rule the local economies of Lake Titicaca, this would go a long way towards solving the problem he poses.

by STEPHEN GUDEMAN

Department of Anthropology, University of Minnesota, Minneapolis, Minn. 55455, U.S.A. 16 ix 85

Orlove presents economic anthropologists with an intriguing puzzle: How are we to understand the existence and role of barter within a fully market economy? On the Peruvian side of Lake Titicaca, barter is a nonmonetary transaction—involving the swap of goods such as fish for potatoes or maize—in which the rate of exchange is governed by the money prices of the items. Barter is a market act, yet cash is not an intermediary; money serves as the measuring device but not the medium of exchange. For fish transactions, the ratio of returns in cash to returns in kind is two to one. The general problem, then, is how barter and cash sales are linked.

Although Orlove provides an extremely thoughtful essay showing how various anthropological views help elucidate this practice, the type of “cultural economics” that I advocate (Gudeman 1986) needs a partially different presentation.

1. I assume that people make, put together, or culturally

construct their ways of gaining a livelihood. Such “local models” of livelihood cannot be derived or deduced from the axioms or typologies of neoclassicism or institutionalism (Gudeman and Penn 1982). Orlove recognizes this but then identifies the cultural perspective with the rather passive view of the human held by substantivists. According to him, the culturalist assumes that behavior is an enactment of “strongly held beliefs,” that there are “fixed economic systems,” and that barter prices—unlike market prices—are always sticky. What the right hand giveth to the culturalist, the left hand taketh away.

2. People seldom make projects of livelihood, however, within conditions of their own choosing. The fishermen of Lake Titicaca live within a capitalist system in that private property exists, productive “factors” are for sale, markets are found, and there is a separation between “capital” and labor. At the same time they are situated outside the “Ricardian margin” or beyond the “production-possibility frontier” of this system in that many of their productive activities cannot meet the ongoing and competitive rate of profit. The small fishermen and agriculturalists occupy a liminal position, living both within and without the local yet powerful construction of capitalism. Like many others of Latin America, they are truly “marginal” peoples, constrained to live within a political and juridical formulation of capitalism which defines them as lying at the edge and beyond the margin of its profitable ventures.

(A very long parenthetical explanation is needed here. In brief, my proposal fits none of the prevailing views. The neo-classical or marginal model literally reaches its own behavioral and theoretical boundary at the production-possibility frontier. The production-possibility frontier describes the maximum set of outputs that can be obtained given the current evaluations placed upon inputs. It also marks the Ricardian margin, at which marginal profit is zero. Although some “renegades” such as Leibenstein (1966) have suggested that output does not always reach the production-possibility frontier, in few of the models spawned over the last 150 years is economic activity beyond the profit margin envisioned or considered, except as irrational, misinformed behavior. Because the production-possibility frontier marks the boundary of both profit and explanation in the marginalist model, it is “local” to capitalist actors. It is a reflexive construction which has no way of discussing what happens outside its frontier, although clearly a large portion of the world’s population is now constrained to live “beyond the profit margin” of different capitalist systems.)

My understanding of the Lake Titicaca context also differs from that of the “modes-of-production” and “circulationist” Marxists. The former would assume that fishing, barter, and home production of foodstuffs constitutes an original and separate mode of production that is now “articulated” with capitalism; by contrast, I think that the fishermen’s practices are formulated as part of, and in relation to, a capitalist system beyond whose self-defined profit boundaries they are forced to live. The circulationist Marxists focus upon surplus accumulation by the core, whereas I do not assume unequal exchange to be a defining condition. Perhaps unequal exchange occurs, but sometimes it does not. I must close all these arguments, however, with the knowledge that they need elaboration.)

3. Because they are forced to live beyond the margin, a key feature of the fishermen’s situation is their lack of command over “capital,” which is made evident in the “simple” equipment they use. The small-scale fishermen and agriculturalists also have little control over money as a reservoir or store of wealth; lacking this, some of them—at least some of the time—engage in barter. Around Lake Titicaca, then, barter is a market practice that takes place beyond the reach and beyond the margin of liquid capital. Indeed, as Orlove reports, barter is undertaken for use, not recirculation or immediate profit. Furthermore, I suspect that the fishermen’s cultural project of making a livelihood is to “sustain” or “maintain”

themselves and to “advance” when possible; they are not capital accumulators. But these features comprise part of the local cultural construction, and the data for this type of analysis have not been fully presented.

Still, coming to an understanding of how such local economies are made by a peasantry—are they “reactions” to externalities, reformulations of historical models, de novo constructions, or combinations of all three?—remains the problem of problems. For example, the local practice of barter may itself be a conjuncture of capitalist-presented possibilities and historical formulations: on the one hand, barter is a capitalist practice, but Orlove also cites Mayer’s conclusion that barter was a traditional Inca mode of exchange. In this connection it is worth noting that cash vendors are known by the Spanish term *comerciantes* while those who practice barter are given the local term *chalaqueras*.

4. I have reservations about the entire methodology of formulating hypotheses either to “verify” them à la Carnap or “falsify” them à la Popper, for there are other ways of looking at social practices, namely, through model building. Orlove’s approach is consistent with the traditional method of seeking causal explanations, a topic on which I have already disagreed with Plattner (Gudeman 1980). But given this caveat, let me address the four hypotheses Orlove uses to “test” the “models”:

Hypothesis 1. Because barter in this region is a market transaction, I would not expect ties between barter partners to be more permanent than those between cash sellers and their customers. Therefore, I do not find Orlove’s results—that permanency of ties varies independently of cash and barter—to contradict the perspective which I advocate.

Hypothesis 2. For the reasons explained, I would not speak of “different economic systems,” but I would expect the cultural projects of livelihood of barter and cash sellers to be different; as Orlove reports, the culturalist expectation is confirmed, because fish are bartered only for foodstuffs that are consumed in the home.

Hypothesis 3. I would certainly expect barter and money prices to be the same; otherwise there would be arbitrage between the two, and this “unequal exchange” by a few operators would hardly go unnoticed by others. The divergence between my view and what Orlove imputes to the culturalist is due to the fact that here he equates cultural economics with substantivism. It is true that for Polanyi market prices shift with supply and demand while barter prices—being part of a subsistence pattern—are established by custom. I do not agree, however, with Polanyi’s tendency to assign fixed features to given types of economies.

Hypothesis 4. With respect to long-term trends between subsistence producers and capitalists, I have proposed a way of looking at what happens “at” and “beyond” the capitalist margin in terms of local models of livelihood, those of the capitalists and those of the marginalized. I do not assume that the capitalist frontier is fixed, and for this reason what happens at the margin will be ever changing. More broadly, my own view is that by looking at the “development of underdevelopment” as ethnography rather than through the lenses of Western models, anthropologists can make a unique contribution to the understanding of world processes.

But this leads to a tag line: the emphasis on cultural models is an attempt to restore some hegemony to the people we study rather than impose our Western categories of knowledge upon them. Western words such as “barter” (like “lineage,” “descent group,” and other chestnuts) should be used with care. I suspect, for example, that “barter” among the lakeside fishermen is not the same as the “barter” between the pastoralists and maize growers which Orlove also describes. Both are non-monetary exchanges (as are the *tee* and the *kula*), but fish barter takes place within the context of a capitalist, market system, and perhaps the latter does not.

by DAVID GUILLET

Department of Sociology, University of Missouri-Kansas City, Kansas City, Mo. 64110, U.S.A. 7 x 85

Orlove's paper is a refreshing attempt to take stock of new directions in economic anthropology and subject them to empirical evaluation through operationalization and hypothesis testing. His classification of contemporary approaches seems reasonable, and the case in question, the simultaneous occurrence of cash sale and barter in the Andean highlands, is a good choice. Orlove is correct in pointing to the 1975 agrarian crisis as producing a retreat into "peasant" behavior. In the Colca Valley, on the periphery of the Lake Titicaca region, it led to an increase in barter of traditional crops for nonhighland products. Valley agriculturalists were reluctant during the same period to barter their maize and barley for the meat, wool, and other upland products they had traditionally received, preferring sugar and rice, which had increased dramatically in price. Llama caravaners were forced to sell their products in upland markets to purchase rice and sugar, which they then brought down to the valley to barter for maize and barley.

To understand the agrarian crisis and historical patterns of production and exchange in general, particularly in assessing neo-Marxist approaches, it helps to give attention to the environment. Caballero (1981), in his analysis of the economy of the Andean highlands, argues that because of environmental constraints it would be very difficult to obtain sufficient returns to capital investment to reproduce labor fully. While Caballero relies on statistical data aggregated at the regional level, which tend to gloss over important local variations, his point merits consideration, especially as an antidote to overly deterministic neo-Marxist analysis. Moreover, this post-1975 economic crisis paralleled an ecological crisis due to a major drought which afflicted the southern Peruvian highlands and wreaked havoc on agricultural and pastoral production (Claverías and Manrique 1983). Many shifts in production, such as an increase in the cultivation of the drought-resistant crop quinoa, and undoubtedly in exchange can be attributed to drought management strategies. More research on environmental potential and short-, middle-, and long-term environmental trends will contribute to a better understanding of these historical patterns.

Aside from new insights into cash and barter transactions in the Andean highlands, which are several and rich, the major benefit of this exercise is to show the complementarity of competing approaches in economic anthropology. This is not eclecticism but a recognition of the many "black boxes" that litter each of the approaches now current. For example, too often neo-Marxist researchers, in coming to a situation such as the economy of the Andean highlands, focus entirely on identifying the mechanisms of surplus appropriation. Once these mechanisms are isolated, the further analysis of the economic logic of household behavior becomes trivial. It should now be clear that by combining approaches one can obtain a richer and more intuitively satisfying result.

by OLIVIA HARRIS

Department of Anthropology, Goldsmiths' College, University of London, London SE 14, England. 10 x 85

Orlove's stimulating discussion is particularly welcome in not treating barter as a specific stage in economic evolution (see Humphrey 1985 for a cogent argument against this perspective). However, it still treats barter as a unitary category, as though the mere fact of exchanging one product for another had some transcendental significance. "Barter" as a classification tells us nothing, as indeed Orlove's argument implies. Even the presence of money has to be contextualised in terms of the particular circuits of exchange and the forms and levels of accumulation before conclusions can be drawn. (This is, for

Orlove: BARTER AND CASH SALE

example, the importance of the distinction between commodity production and petty commodity production to which Orlove refers.)

The choice of "schools" of economic anthropology and of authors to represent them is necessarily selective and tendentious. However, given his own conclusions, it is curious that Orlove does not mention the world-systems approach inspired by Frank and Wallerstein and represented in anthropology by writers such as Kahn (e.g., 1981), since it is concerned precisely with the effects on local economic structures of crisis and fluctuation in the capitalist sector.

His conclusion broadly in favour of decision theory derives, of course, from the problem he has chosen to discuss. This he tacitly acknowledges in his final comparison with the exchange circuits of highland herders. As he notes, decision theorists take preferences as givens; much recent work in Andean anthropology has been devoted precisely to uncovering Eurocentric assumptions about "peasant" behaviour and elucidating the logic of Andean "preferences" (e.g., Murra 1975, Lehmann 1982). Decision theorists presumably derive "preferences" either from introspection (obviously unsatisfactory) or from studying the culture in question (the culturalist approach) and its role in the world economy at a given time (the world-systems and perhaps the neo-Marxist approach).

If Orlove's assumption is correct that in 1972, before the present crisis, there was no significant barter in fish, then several things need explaining. Why is the distinction between barter and cash vendors so clear-cut? The implied explanation of table 7, that barter vendors are poorer, begs the question; his criterion for poverty in fact more accurately indicates levels of participation in monetary circuits. The factors he considers responsible for a return to barter could equally have led to a diversification in transaction forms by a *majority* of vendors rather than by a distinct minority. Further, why is barter restricted to the native carachi? (This fact emerges clearly in table 2 but is never made explicit in the text.)

by HENRY J. RUTZ

Hamilton College, Clinton, N.Y. 13323, U.S.A. 25 ix 85

Orlove sets forth the assumptions of each competing approach and then deduces hypotheses *consistent* with those assumptions. His analysis proceeds by way of what some adherents of each approach have said and his own imputations to others. While he presents the data and assesses the strength of competing approaches, his analysis and conclusions remain true to this initial exercise in classification: the "facts" don't unequivocally support any one approach, but they support three out of four hypotheses of decision theory, two hypotheses of neo-Marxist theory, and one hypothesis of culturalist theory. He leaves himself open to criticism on two fronts. On the one hand, any one group of adherents can claim that he has not fully taken into account the range of assumptions and hypotheses consistent with their approach. For example, decision theorists might complain that Orlove chooses only one decision rule, maximization, and only one unit of analysis, the individual, when the literature shows clearly that decision theory is neutral with regard to the particular rule that defines rationality and that social-choice theory is as concerned with the decisions of collectivities as with those of individuals. On the other hand, the beliefs or assumptions of rival approaches are so vague and imprecise that it is unclear to what extent one is distinct from another. Orlove alludes to these problems, but he is committed to the view that they are rivals.

Another approach would be to build a model and test it. Since Orlove concludes that decision theory performs best, it might be useful to begin here and see what elements of each

approach are consistent with a model that appears to account for the "facts." There is insufficient space to fill out this picture, but the elements of one model latent in Orlove's analysis might be outlined as follows:

1. The decision unit is the household, not the individual fisherman, vendor, or consumer ("In all types and locations of exchange, fish vendors are usually close female relatives of the fishermen. . . . Although the incomes of the fishermen and the coresident vendor are not directly pooled, they do form part of the same household budget").

2. Households establish more or less permanent ties with other households in ways which affect household income and consumption ("In both marketplace and nonmarketplace exchanges, the relation between fish vendors and customers may vary in degree of permanence. In both barter and sale, permanent acknowledged ties, called *casera* links, may be established").

3. The decision rule for households is to maximize "total household income" (produced in combinations of market and nonmarket goods combined with the time of household members who are fishermen, vendors, and consumers).

4. Household production is constrained by a culturally defined division of labor which may or may not allow for efficient household production.

5. Household production is constrained by the size and composition of households.

6. The maximization of "total household income" is subject to the absolute and relative scarcity of cash, which is a necessary component of every household's income, though this varies from one household to another ("The main advantage of barter is that it allows individuals, particularly fish consumers, to conserve their supplies of cash, which are more limited than their stocks of foodstuffs").

In addition to the usual neoclassical resource constraints that go to make up an orthodox production-and-consumption function, there are the culturalist ones of obligatory ties once these become customary and the neo-Marxist constraints of ensuring reproduction through self-consumption and barter of fish for foodstuffs before selling the "surplus" for cash.

Orlove's data strongly suggest that all households need cash and participate in some way in the market but also that all produce foodstuffs and find it economic to engage in some form of self-subsistence. Therefore barter and cash sale represent a single mixed strategy for maximizing total household income, subject to constraints which affect households in varying ways. A sample of households should be stratified by income and varying combinations of barter and cash sale correlated with total household income. In this model, aggregate patterns of barter and sale are the outcome of household decisions which combine production, exchange, and consumption activities utilizing both market and nonmarket goods and services. Other variables, such as permanence of household ties, the purpose of barter or sale, the effect of prices, and long-term trends, can be put in the form of hypotheses consistent with the model. Data can be adduced in support or refutation of particular hypotheses, which may or may not lead to abandonment of the model. And because the model incorporates *some* of the general beliefs of *more than one* of the "competing" approaches, rejection of any one may or may not lead to the rejection of part or all of any one world view.

Reply

by BENJAMIN S. ORLOVE
Davis, Calif., U.S.A. 15 XI 85

I thank the discussants for their thoughts and criticisms. The range of views which they express and the strength with which they hold them seem to confirm my opinion that economic

anthropology is characterized by vigorous debate over basic issues of theory and method. I will respond first to the more general concerns and then to more specific questions.

Several of the commentators raise objections to my efforts to evaluate different theoretical perspectives on the basis of their ability to account for a single body of data. Clammer presents the most fundamental claim of the limitations of such efforts, comparing them to "old conversations between theologians and scientists" and to "conversations between . . . a Marxist and a Freudian or between either and an empiricist positivist." This claim, which I termed "noncomparability," is more widely known in the philosophy of science as "incommensurability" (Shapere 1964, 1966; Feyerabend 1975). It resembles the anthropological view that individuals give order to experience on the basis of their cultures, which are coherent, distinct systems between which translation is difficult; it also resembles Kuhn's (1962) presentation of development in science as a series of revolutionary shifts from one paradigm to another rather than as the gradual accumulation of knowledge and explanation. It may well be appropriate for the sort of theologians and scientists to which Clammer appears to refer—the ones for whom the problem of incommensurability is most severe, rather than the scientists who experience no incompatibility between their profession and their belief in God or the theologians who find in science evidence of a divine design. Some scientists and theologians do indeed have radically different conceptions of the nature and the source of knowledge and understand words such as "belief," "proof," and "truth" very differently, sharing little more than a language and the idea that the universe displays some orderliness. Like representatives of distinct cultures, such theologians and scientists not only do not share views but also in many cases are incapable of making sense of the views of the other. There are theologians and scientists who quite literally could not imagine having the beliefs of the other.

This claim of incommensurability is still somewhat appropriate, though less so, to the case of the Marxist, the Freudian, and the empiricist positivist. This example is somewhat less straightforward, since the empiricist positivist does not contrast directly with the Marxist and the Freudian. The latter two both attempt to account for a wide range of phenomena by developing models which begin with simple, general structures and processes, though they differ in the structures and processes which they hold to be basic. The former differs from the latter two in method rather than in theory; in fact, there are cases of empiricist positivist tests of Marxist theory (Smith 1983). I will thus restrict my discussion to the Marxist and the Freudian. (A less satisfactory alternative would be to replace the empiricist positivist with a proponent of a theory such as Skinnerian psychology, which is simultaneously distinct from and analogous to Marxism and Freudian theory and more tightly linked to empiricist positivist methods.)

The example of the Marxist and the Freudian presents more complex issues than that of the theologian and the scientist. The Marxist and the Freudian study different subject matters within different analytical frameworks but share some topics of empirical concern and some standards for the linkage of observable phenomena to theoretical framework. More specifically, they have certain areas of empirical overlap, such as the origins of patriarchy, the reasons for the existence of beliefs in supernatural beings, and the structure of the family. It is possible to imagine debates between a Marxist and a Freudian on each of these topics. However, many areas of concern are distinctive to one or the other, and in fact these areas are more crucial to each approach. It is hard to conceive of a Freudian explanation of the transition from feudalism to capitalism or a Marxist position on infantile sexuality. The reasons that the Marxist and the Freudian consider their own views correct have more to do with these areas than with the areas of overlap. Nonetheless, insofar as both are committed to the explana-

tion of topics within the area of overlap, they must be willing at least to consider, and therefore to admit the possibility of evaluating, each other's explanations. The success or failure of each in accounting for phenomena in this area does not imply the overall success or failure of the rival theories because of the importance of the areas of concern in which they do not overlap. (These issues are more fully developed by Lakatos [1970], Levin [1979], and Hacking [1983].) A related issue is that both the Marxist and the Freudian employ methodologies developed for the entire range of their studies rather than only for their areas of overlap and derived in part from applied but nonexperimental work. They offer diagnoses and possible solutions to problems (exploitative social orders and neurotic personalities, respectively) whose nature makes it difficult to evaluate their recommendations. It is these specific methodological issues that make the comparison of the two difficult, rather than the more general potential for nonfalsifiability to which Clammer appears to allude when he states that "choice between competing explanations is only up to a point and secondarily empirical."

Economic anthropologists, however, are quite different from Clammer's two examples. The three schools, when extended to include the broader sets of theory in anthropology beyond economic anthropology, do have certain areas of concern that do not overlap, but these are less extensive than those of the Freudian and the Marxist. The problem of the degree of overlap is not a serious one in any case. When the adherents of the three approaches write as economic anthropologists, they have adopted a common ground. While each school may be convinced of the superiority of its own approach in areas in which the approaches do not overlap and in areas of overlap other than economic anthropology, this conviction cannot be the basis for a claim to superiority in economic anthropology. In addition, because they work within the single academic discipline of anthropology, their epistemological standards are less diverse. Furthermore, they do not face the difficulty of a methodology which draws strong support from its ability to offer diagnoses. The concern of many economic anthropologists is not that the claims of competing approaches are implausible or irrelevant but rather, often to their distress and distaste, that they are plausible and relevant.

To recapitulate, Clammer sees representatives of different approaches "groping for common ground." I distinguish two aspects of this groping in the case at hand. Adherents of the different approaches in economic anthropology have implicitly agreed on a common empirical ground in that they examine an area where the ranges of phenomena covered by their theories overlap. (Thus, no commentator suggests that barter and sale are inappropriate topics for study; they differ only on which aspects they consider most important.) On this empirical common ground, economic anthropologists can proceed both by examining particular cases within their approaches and by comparing approaches. In this way—unlike the theologian and the scientist—they will have common theoretical ground as well. (Thus, no commentator suggests that any of the approaches is incapable of offering explanations of the patterning of barter and sale; they differ only on the specific content and the value of the explanations.) They can then decide to retain their theories, modify them, reject them, or link them. Linkage requires, rather than a simple mixture, the creation of some theoretical structure into which portions of both can be incorporated. (Rutz's comments provide one example of such a creation.) In practice, many economic anthropologists choose theories primarily by their performance in areas that do not overlap or in areas of overlap other than economic anthropology; nonetheless, as one area of clear overlap, economic anthropology is a fruitful empirical common ground on which theories may be compared and evaluated.

In this context, it is appropriate to comment on Clammer's call for a "sociology of economic anthropology." I have made

some efforts in that direction, and I agree that it would be quite interesting to pursue them further. In fact, I deleted an earlier section of the paper, on the advice of several colleagues who thought that it touched on excessively sensitive matters, in which I pointed out the political implications of the three views. To oversimplify that already oversimplified summary of the history of the field, I indicated that the rural inhabitants of the Lake Titicaca basin tended to be viewed by decision theorists as farmers, by neo-Marxists as peasants, and by culturalists as Indians. The three approaches also tended to differ in corresponding ways in their views on politics in Peru and in the relations of Latin America to advanced industrial nations and might subscribe to different ways of addressing the glaring inequalities in both settings. Such political concerns may well account in part for the tenacity with which individual economic anthropologists hold to their views. However, such efforts in the sociology of knowledge are at best a complement to the direct empirical evaluation of different approaches rather than a substitute for it. Stated in simple terms, the reasons that individuals have for holding a belief generally do not serve to indicate whether or not that belief is correct. (I recognize that political bias and economic interest distort many people's views and that social origins shape many people's perspectives and choices of questions to study. These facts do not remove the necessity for empirical research and in any case should not serve as a basis for evaluation of research. Whereas an economic anthropologist may privately reject a colleague's work because of that colleague's social origins, political views, educational background, or university affiliation, it is quite correctly unacceptable in public circles if for no other reason than that they serve to evaluate a piece of research independent of its content or, in the extreme case, before it is written.)

I do agree with Clammer about the difficulty of resolution and synthesis of different approaches within economic anthropology, and I mentioned several reasons for this, including the long history of strident debate and certain analytical differences between the schools. I also agree that an understanding of the social origins and organization of economic anthropology could help to explain this difficulty. However, as I have stated, I do not agree with him on the incommensurability of the schools.

One general epistemological issue remains: the question of falsifiability. I do not propose the narrow sorts of standards which Popper and Carnap held and which Gudeman attributes to me. I do believe that it is fundamental to be able to draw explanations of specific phenomena from general theories and to have criteria for evaluating these explanations—in short, to know when a theory is working and when it is in trouble. (Sometimes, but not always, this evaluation of explanations will take the form of hypothesis testing. Many detailed accounts of specific cases can also support theories in useful ways without hypothesis testing; I cite a number of such works in the first section of my article.) My view is closer to that of Lakatos (1970), who argues that theories develop in response to evidence which challenges them as well as in response to evidence which supports them and that in this process some theories prosper and others dwindle and fail. The presentation of the example from the history of astronomy, the discussion of the instance of barter and cash sale among pastoralists, and the concluding paragraph of the article all reflect my position on this concern.

Having rejected all these suggestions that the task I have chosen is impossible or nearly so, I can now move on to the criticisms of the manner in which I executed the task. These criticisms can be separated, somewhat artificially, into two related classes: the presentation of the theoretical positions of the different approaches and the handling of empirical topics related to barter and sale.

Harris recognizes that my choice of approaches and authors is necessarily selective and tendentious; I appreciate her suggestions to discuss the world-systems approach more fully and to include certain specific works, such as writings of Kahn other than the one I cited.

Gudeman suggests that I equate culturalism with substantivism. I made some effort to show the relations between them, indicating both commonalities and differences. In the presentation of the specific hypotheses, I drew on the writings of authors who were more representative of the newer culturalism as opposed to the older substantivism. (Gudeman also seems to call for a reformulation of my presentation of neo-Marxism, the school which I presented as diverse. His long parenthesis is quite suggestive, though somewhat elusive; I will only point out that his description of the Lake Titicaca region suggests a much more open market for land and much less constraint on the use of property than in fact exists.)

Crump suggests that I omit important aspects of what I call a culturalist analysis by not presenting a Geertzian thick description and by omitting a presumed "culture of money." I agree that there might well be such a "culture of money"; however, as I stated in the article, I was much more struck by what could be grandiosely called a "culture of measure," or, more simply, by the fact that local people placed much more importance on the units by which fish were measured than on whether they were exchanged for money or goods. I also note my inclusion of Geertz as a culturalist economic anthropologist.

Several commentators query my treatment of specific empirical topics. Acheson and Crump question my statement that transaction costs are lower for barter than for cash sale. I agree that this position is the reverse of the more common relation between the two, and I acknowledge that my treatment of this topic could have been more extensive. Transaction costs can operate in unexpected ways (Williamson 1981). As I indicate, a peasant with a small amount of potatoes to be disposed of would find barter an easier way than cash sale to obtain fish. The transaction would be completed immediately at the moment of barter. To use cash would require two interactions, finding first a buyer who would purchase the potatoes and then a cash vendor of fish. In the case of nonmarketplace exchange, the first would be difficult; even in the case of marketplace exchange, buyers of small quantities of potatoes, particularly ones with whom the peasant had already established relations and from whom he or she could receive better prices, might not be present. It is also true that a fish vendor, particularly one not in a marketplace, who wished to obtain a small amount of potatoes or barley might find it more convenient to obtain these crops directly from individuals who wanted fish than to receive cash from those individuals and buy the crops later. Furthermore, vendors who peddle fish door-to-door are likely to meet peasants who have some potatoes or barley with which they can part but who have much more limited cash resources.

Crump also seeks additional information on liquidity, inflation, and credit. In contrast to his suggestions, I found no significant seasonal variation in the relative importance of barter and cash sale. Since barter and cash prices are the same, the role of inflation is not important in the direct sense that he mentions, although it does have a major indirect influence, as I discuss in the section on long-term trends. Both local and extralocal credit are important to the fisherman for the purchase of boats and nets but do not seem to play an important role in the petty sums involved in the purchase and sale of fish. As I mentioned, fish vendors are rarely in debt.

Guillet suggests a fuller treatment of environmental factors. More particularly, he mentions a severe drought in the Lake Titicaca region and neighboring areas. This drought, though unquestionably important, occurred after the period of study reported in this article. I examine the impact of this drought and of flooding in later years in a paper currently in preparation.

Acheson, Gudeman, and Harris all raise the question of the definition of barter. I did not intend to provide a single definition for all cases, and I recognize the wide range of patterns of exchange. I think that comparison of cases can be useful, as can specific studies. It also seems to me that barter is a less problematic term than many others. The potential difficulties in establishing precise definitions of terms even more basic to anthropology than barter, such as "marriage" and "agriculture," do not prevent these terms from being understood and widely used. I do not find it difficult to subscribe simultaneously to the claims that the levels of ambiguity in definition do not present major obstacles to comparative research and that the examination of such ambiguity can prove illuminating.

I find Rutz's alternative model interesting and in fact discussed households at several points (see n. 4; see also Orlove and Custred 1980). However, households are not easy to define, particularly in the Lake Titicaca region, where migration and remittance incomes are important (Collins 1986). As I stated in the "Hypotheses" section, I do not assume that fishermen—or, by extension, households—are simple income maximizers. (I made a much narrower claim—that fishermen wanted to maximize the return from any catch, as did vendors from the sale or barter of a stock of fish.) In addition, Rutz does not fully synthesize the three approaches. By reducing culture and household reproduction to simple constraints, he does not give adequate treatment to the culturalist (Yanagisako 1979) and neo-Marxist (Friedmann 1980) approaches. In addition, his views tend to neglect the complex dynamics within households.

I share Harris's interest in questioning the origins of preferences, a theme that is of great importance both to economic anthropology and to Andean studies and one on which she has done some important research (1982). She is quite correct in challenging the validity of my measures of wealth, the wearing of shoes and watches, since they indicate "levels of participation in monetary circuits" rather than some absolute wealth which could be measured across all such levels. An explanation for the association of barter with native fish species is found in the first two paragraphs of the "Discussion" section.

The commentators have helped me refine the details of my argument and reflect on my position on certain epistemological issues. They support my initial view that economic anthropology can grow not only through the independent development of distinct intellectual traditions but also through the encounter of these traditions.

References Cited

- ALBERTI, GIORGIO, and ENRIQUE MAYER. 1974. "Reciprocidad andina: Ayer y hoy," in *Reciprocidad e intercambio en los Andes peruanos*. Edited by G. Alberti and E. Mayer, pp. 13–33. (Serie Perú-Problema 12.) Lima: Instituto de Estudios Peruanos.
- ALVAREZ, ELENA. 1980. *Política agraria y estancamiento de la agricultura 1969–1977*. Lima: Instituto de Estudios Peruanos.
- APPLEBY, GORDON. 1977a. "The role of urban food needs in regional development, Puno, Peru," in *Regional analysis*, vol. 1, *Economic systems*. Edited by C. A. Smith, pp. 147–78. New York: Academic Press.
- . 1977b. "Export monoculture and regional social structure in Puno, Peru," in *Regional analysis*, vol. 2, *Social systems*. Edited by C. A. Smith, pp. 291–307. New York: Academic Press.
- . 1978. Exportation and its aftermath: The spatioeconomic evolution of the regional marketing system in highland Puno, Peru. Ph.D. diss., Stanford University, Stanford, Calif.
- . 1982. Price policy and peasant production in Peru: Regional disintegration during inflation. Paper presented at the annual meeting of the American Association for the Advancement of Science, Washington, D.C.
- BARLETT, PEGGY. 1980a. "Introduction: Development issues and economic anthropology," in *Agricultural decision making*. Edited by P. Barlett, pp. 1–16. New York: Academic Press.

- . 1980b. "Cost-benefit analysis: A test of alternative methodologies," in *Agricultural decision making*. Edited by P. Barlett, pp. 136–76. New York: Academic Press.
- . 1982. *Agricultural choice and change: Decision making in a Costa Rican community*. New Brunswick: Rutgers University Press.
- BARMAN, RODERICK. 1977. The Brazilian peasantry reconsidered: The implications of the Quebraquillo Revolt, 1874–1875. *Hispanic American Historical Review* 57:401–24.
- BARTH, FREDRIK. 1967. "Economic spheres in Darfur," in *Themes in economic anthropology*. Edited by R. Firth, pp. 149–74. (Association of Social Anthropology Monographs 6.) London: Tavistock.
- BECKER, DAVID G. 1983. *The new bourgeoisie and the limits of dependency*. Princeton: Princeton University Press.
- BOHANNAN, PAUL. 1955. Some principles of exchange and investment among the Tiv. *American Anthropologist* 57:60–70.
- BOHANNAN, PAUL, and GEORGE DALTON. 1962. "Introduction," in *Markets in Africa*. Edited by P. Bohannan and G. Dalton, pp. 1–26. Evanston: Northwestern University Press.
- BOURDIEU, PIERRE. 1977. *Outline of a theory of practice*. Cambridge: Cambridge University Press.
- BRADY, BARBARA. 1982. "Resistance to capitalism in the Peruvian Andes," in *Ecology and exchange in the Andes*. Edited by D. Lehmann, pp. 97–122. Cambridge: Cambridge University Press.
- BRUSH, STEPHEN B. 1977. *Mountain, field, and family*. Philadelphia: University of Pennsylvania Press.
- BURCHARD, RODERICK. 1974. "Coca y trueque de alimentos," in *Reciprocidad e intercambio en los Andes peruanos*. Edited by G. Alberti and E. Mayer, pp. 209–51. (Serie Perú-Problema 12.) Lima: Instituto de Estudios Peruanos.
- CABALLERO, JOSÉ M. 1981. *Economía agraria de la sierra peruana*. Lima: Instituto de Estudios Peruanos. [DG]
- CANCIAN, FRANK. 1966. Maximization as norm, strategy, and theory: A comment on programmatic statements in economic anthropology. *American Anthropologist* 68:465–70.
- . 1972. *Change and uncertainty in a peasant economy*. Stanford: Stanford University Press.
- CARO, DEBORAH. 1978. Review of: *Alpacas, sheep, and men*, by Benjamin Orlove (New York and London: Academic Press, 1977). *Anales* 33:1214–16.
- . 1985. Those who divide us: Resistance and change among pastoral ayllus in Ulla Ulla, Bolivia. Ph.D. diss., Johns Hopkins University, Baltimore, Md.
- CHAPMAN, ANN. 1980. Barter as a universal mode of exchange. *L'Homme* 20(3):33–83.
- CHIBNIK, MICHAEL. 1981. The evolution of cultural rules. *Journal of Anthropological Research* 37:256–68.
- CIPOLLETTI, MARIA S. 1984. Llamas y mulas, trueque y venta: El testimonio de un arriero puneño. *Revista Andina* 2:513–38.
- CLAMMER, JOHN. Editor. 1978. *The new economic anthropology*. New York: St. Martin's Press.
- CLAVERÍAS, RICARDO, and JORGE MANRIQUE. Editors. 1983. *La sequía en Puno: Alternativas institucionales tecnológicas y populares*. Puno: Instituto de Investigaciones para el Desarrollo Social del Altiplano. [DG]
- COLLINS, JANE. 1986. The destruction and maintenance of peasant kinship: Household and non-household productive relationships in southern Peru. *Comparative Studies in Society and History* 28. In press.
- CONCHA CONTRERAS, JUAN DE DIOS. 1975. Relación entre pastores y agricultores. *Allpanchis* 8:67–132.
- COOK, SCOTT. 1966. The obsolete "anti-market mentality": A critique of the substantivist approach to economic anthropology. *American Anthropologist* 68:323–45.
- COOK, SCOTT, and MARTIN DISKIN. Editors. 1976. *Markets in Oaxaca*. Austin and London: University of Texas Press.
- CRUMP, THOMAS. 1976. Boundaries in the functions of money: Internal and external debt in selected Mexican communities. Ph.D. diss., University of London, London, England. [TC]
- . 1981. *The phenomenon of money*. London: Routledge and Kegan Paul. [TC]
- DALTON, GEORGE. 1969. Theoretical issues in economic anthropology. *CURRENT ANTHROPOLOGY* 10:63–102.
- . Editor. 1971. *Studies in economic anthropology*. (Anthropological Studies 7.) Washington, D.C.: American Anthropological Association.
- DALTON, GEORGE, and JASPER KÖCKE. 1983. "The work of the Polanyi group: Past, present, and future," in *Economic anthropology: Topics and theories*. (Monographs in Economic Anthropology 1.) Edited by Sutti Ortiz, pp. 21–50. Lanham, Md., New York, and London: University Press of America.
- DAVIS, WILLIAM G. 1973. *Social relations in a Philippine market*. Berkeley: University of California Press.
- DONHAM, DONALD L. 1981. Beyond the domestic mode of production. *Man* 16:515–41.
- DOUGLAS, MARY. 1962. "Lele economy compared with the Bushong: A study of economic backwardness," in *Markets in Africa*. Edited by P. Bohannan and G. Dalton, pp. 211–33. Evanston: Northwestern University Press.
- DOUGLAS, MARY, and BARON ISHERWOOD. 1979. *The world of goods*. New York: Basic Books.
- DOUGLAS, MARY, and AARON WILDAVSKY. 1982. *Risk and culture*. Berkeley: University of California Press.
- FERRONI, MARCO. 1980. The urban bias of Peruvian food policy. Ph.D. diss., Cornell University, Ithaca, N.Y.
- FEYERABEND, PAUL. 1975. *Against method*. London: Verso.
- FIGUEROA, ADOLFO. 1982. "Production and market exchange in peasant economies," in *Ecology and exchange in the Andes*. Edited by D. Lehmann, pp. 123–56. Cambridge: Cambridge University Press.
- . 1984. *Capitalist development and the peasant economy in Peru*. Cambridge: Cambridge University Press.
- FLORES, JORGE. 1977. *Pastores de puna, uywamichiq punarunakuna*. Lima: Instituto de Estudios Peruanos.
- . 1983. Pastoreo de llamas y alpacas en los Andes: Balance bibliográfico. *Revista Andina* 1:175–218.
- FRIEDMANN, HARRIET. 1980. Household production and the national economy: Concepts for the analysis of agrarian formations. *Journal of Peasant Studies* 7:158–84.
- GEERTZ, CLIFFORD. 1973. *The interpretation of cultures*. New York: Basic Books. [TC]
- . 1979. "Suq: The bazaar economy in Sefrou," in *Meaning and order in Moroccan society*. Edited by C. Geertz et al. Cambridge: Cambridge University Press.
- . 1984. Culture and social change: The Indonesian case. *Man* 19:511–32.
- GLADWIN, CHRISTINA H. 1975. "A model of the supply of smoked fish from Cape Coast to Kumasi," in *Formal methods in economic anthropology*. Edited by S. Plattner, pp. 77–127. American Anthropological Association Special Publication 4.
- . 1979. Production functions and decision models: Complementary models. *American Ethnologist* 6:653–74.
- GODELIER, MAURICE. 1971. "Salt currency and the circulation of commodities among the Baruya of New Guinea," in *Studies in economic anthropology*. Edited by G. Dalton, pp. 52–73. Washington, D.C.: American Anthropological Association.
- GOLTE, JÜRGEN, and MARISOL DE LA CADENA. 1983. La codeterminación de la organización social andina. *Allpanchis* 22:7–34.
- GOODY, JACK. 1967. *Production and reproduction*. Cambridge: Cambridge University Press.
- GOSSEN, GARY H. 1974. *Chamulas in the world of the sun*. Cambridge: Harvard University Press. [TC]
- GREENWOOD, DAVYDD. 1976. *Unrewarding wealth: The commercialization and collapse of agriculture in a Spanish Basque town*. Cambridge: Cambridge University Press.
- GREGORY, C. A. 1982. *Gifts and commodities*. New York: Academic Press.
- GUDEMAN, STEPHEN. 1978a. Anthropological economics: The question of distribution. *Annual Review of Anthropology* 7:347–77.
- . 1978b. *The demise of a rural economy*. London: Routledge and Kegan Paul.
- . 1979. "Mapping means," in *Social anthropology of work*. Edited by S. Wallman, pp. 229–47. London: Academic Press.
- . 1980. Candid or crafty: A reply to Plattner. *American Ethnologist* 7:572–74. [SG]
- . 1986. *Economics as culture*. London: Routledge and Kegan Paul. [SG]
- GUDEMAN, STEPHEN, and M. PENN. 1982. "Models, meanings, and reflexivity," in *Semantic anthropology*. Edited by D. Parkin, pp. 89–106. London: Academic Press. [SG]
- GUDEMAN, STEPHEN, and NORMAN WHITTEN, JR. 1982. Introduction to the special issue on economic and ecological processes in society and culture. *American Ethnologist* 9:223–29.
- HACKING, IAN. 1983. *Representing and intervening*. Cambridge: Cambridge University Press.
- HALPERIN, RHODA, and JAMES DOW. Editors. 1977. *Peasant livelihood*. New York: St. Martin's Press.
- HARRIS, OLIVIA. 1982. "Labour and produce in an ethnic economy, northern Potosi, Bolivia," in *Ecology and exchange in the Andes*. Edited by D. Lehmann, pp. 70–96. Cambridge: Cambridge University Press.
- HART, KEITH. 1983. "The contribution of Marxism to economic anthropology," in *Economic anthropology: Topics and theories*. Edited by S. Ortiz, pp. 105–44. Lanham, Md.: University Press of America.

- HUMPHREY, CAROLINE. 1985. Barter and economic disintegration. *Man* 20:48-72.
- INSTITUTO FRANCÉS DE ESTUDIOS ANDINOS. 1980. *Ambaná: Tierra y hombres*. Lima.
- KAHN, JOEL S. 1978. "Marxist anthropology and peasant economics," in *The new economic anthropology*. Edited by J. Clammer, pp. 110-37. New York: St. Martin's Press.
- . 1981. "Mercantilism and the emergence of servile labour in colonial Indonesia," in *The anthropology of pre-capitalist societies*. Edited by J. S. Kahn and J. R. Llobera, pp. 185-213. London: Macmillan. [OH]
- KEYNES, J. M. 1913. *Indian currency and finance*. London: Macmillan. [TC]
- . 1936. *The general theory of employment, interest, and money*. London: Macmillan. [TC]
- KUHN, THOMAS S. 1962. *The structure of scientific revolutions*. Chicago and London: University of Chicago Press.
- KULA, WITOLD. 1980. *Las medidas y los hombres*. Mexico: Siglo XXI.
- LA BARRE, WESTON. 1948. *The Aymara Indians of the Lake Titicaca plateau, Bolivia*. American Anthropological Association Memoir 68.
- LAKATOS, IMRE. 1970. "Falsification and methodology of scientific research programmes," in *Criticism and the growth of knowledge*. Edited by I. Lakatos and A. Musgrave, pp. 91-196. Cambridge: Cambridge University Press.
- LEACH, JERRY W. 1983. "Introduction," in *The kula: New perspectives on Massim exchange*. Edited by J. W. Leach and E. Leach. Cambridge: Cambridge University Press.
- LEHMANN, DAVID. 1982. Editor. *Ecology and exchange in the Andes*. Cambridge: Cambridge University Press. [OH]
- LEIBENSTEIN, HARVEY. 1966. Allocative efficiency vs. "x-efficiency." *American Economic Review* 56:392-415. [SG]
- LEVIN, MICHAEL. 1979. On theory-change and meaning-change. *Philosophy of Science* 46:407-24.
- LONG, NORMAN, and BRYAN R. ROBERTS. Editors. 1978. *Peasant cooperation and capitalist expansion in central Peru*. Austin: University of Texas Press.
- MAYER, ENRIQUE. 1972. "Un carnero por un saco de papas: Aspectos del trueque en la zona de Chaupiwara, Pasco." *Actas y Memorias del XXXIX Congreso Internacional de Americanistas, Lima, 1970*, vol. 3, pp. 184-96.
- . 1974. "El trueque y los mercados en el imperio incaico," in *Los campesinos y el mercado*. Edited by E. Mayer, T. Altamirano, and I. Prado Pastor, pp. 13-50. Lima: Pontificia Universidad Católica del Perú.
- MAYER, THOMAS, JAMES S. DUESENBERY, and ROBERT Z. ALIBER. 1984. *Money, banking, and the economy*. New York: Norton. [JMA]
- MEILLASSOUX, CLAUDE. 1964. *Anthropologie économique des Gouro de Côte d'Ivoire*. Paris: Mouton.
- . 1975. *Femmes, greniers, capitaux*. Paris: Maspéro.
- MINTZ, SIDNEY. 1961. *Pratik: Haitian personal economic relationships*. (Proceedings of the American Ethnological Society.) Seattle: University of Washington Press.
- MONTAÑA, RODRIGO. 1980. *Capitalismo y no capitalismo en el Perú*. Lima: Mosca Azul.
- MONTAÑA, RODRIGO, MARÍA JOSÉ SILVEIRA, and FELIPE JOSÉ LINDOSO. 1979. *Producción parcelaria y universo ideológico: El caso de Puquio*. Lima: Mosca Azul.
- MURRA, JOHN V. 1975. *Formaciones económicas y políticas del mundo andino*. Lima: Instituto de Estudios Peruanos. [OH]
- ORLOVE, BENJAMIN. 1977a. *Alpacas, sheep, and men: The wool export economy and regional society in southern Peru*. New York and London: Academic Press.
- . 1977b. Integration through production: The use of zonation in Espinar. *American Ethnologist* 4:84-101.
- . 1980. Ecological anthropology. *Annual Review of Anthropology* 9:235-73.
- . 1981. Native Andean pastoralists: Traditional adaptations and recent changes. *Studies in Third World Societies* 17:95-135.
- ORLOVE, BENJAMIN, and GLYNN CUSTRED. 1980. "The alternative model of agrarian society in the Andes: Households, networks, and corporate groups," in *Land and power in Latin America: Agrarian economies and social processes in the Andes*. Edited by B. Orlove and G. Custred, pp. 31-54. New York: Holmes and Meier.
- ORTIZ, SUTTI. 1973. *Uncertainties in peasant farming*. New York: Humanities Press.
- . Editor. 1983. *Economic anthropology: Topics and theories*. Lanham, Md.: University Press of America.
- ORTNER, SHERRY. 1984. Theory in anthropology since the sixties. *Comparative Studies in Society and History* 26(1):126-66.
- PAINTER, MICHAEL. 1983. Agricultural policy, food production, and multinational corporations in Peru. *Latin American Research Review* 18:201-18.
- PLATTNER, STUART. Editor. 1974. Formal models and formalist economic anthropology: The problem of maximization. *Reviews in Anthropology* 1:572-82.
- . Editor. 1975. *Formal methods in economic anthropology*. American Anthropological Association Special Publication 4.
- . 1982. Economic decision making in a public marketplace. *American Ethnologist* 9:399-420.
- POST, CHARLES JOHNSON. 1912. *Across the Andes: A tale of wandering days among the mountains of Bolivia and the jungles of the upper Amazon*. New York: Outing Publishing Company.
- PRYOR, FREDERIC L. 1977. *The origins of the economy*. New York: Academic Press.
- QUINN, NAOMI. 1978. Do Mfantse fish sellers estimate probabilities in their heads? *American Ethnologist* 5:206-22.
- REY, PIERRE-PHILIPPE. 1971. *Colonialisme, néo-colonialisme et transition au capitalisme*. Paris: Maspéro.
- RICHESON, PETER J., CARL WIDMER, and TIMOTHY KITTEL. 1977. *The limnology of Lake Titicaca (Peru-Bolivia), a large, high-altitude tropical lake*. University of California, Davis, Institute of Ecology Publication 14.
- RUTZ, HENRY. 1977. Individual decisions and functional systems: Economic rationality and environmental adaptation. *American Ethnologist* 4:156-74.
- SAHLINS, MARSHALL. 1965. "On the sociology of primitive exchange," in *The relevance of models for social anthropology*. Edited by M. Banton. London: Tavistock.
- . 1972. *Stone Age economics*. Chicago: Aldine-Atherton.
- . 1976. *Culture and practical reason*. Chicago: University of Chicago Press.
- . 1981. *Historical metaphors and mythical realities*. Ann Arbor: University of Michigan Press.
- SALISBURY, RICHARD. 1968. "Anthropology and economics," in *Economic anthropology*. Edited by E. LeClair and H. Schneider, pp. 477-85. New York: Holt, Rinehart and Winston.
- . 1973. Economic anthropology. *Annual Review of Anthropology* 9:85-94.
- SALOMON, FRANK. 1982. Andean ethnology in the 1970s: A retrospective. *Latin American Research Review* 17:75-128.
- SÁNCHEZ, RODRIGO. 1983. Economía familiar y subordinación capitalista. *Alpanchis* 22:93-101.
- SCHNEIDER, HAROLD K. 1974. *Economic man*. New York: Free Press.
- SCOTT, JAMES C. 1976. *The moral economy of the peasant*. New Haven: Yale University Press. [TC]
- SCHWIMMER, BRIAN. 1979. Market structure and social organization in a Ghanaian marketing system. *American Ethnologist* 6:682-701.
- SHAPER, DUDLEY. 1964. Review of *The structure of scientific revolutions*, by Thomas Kuhn (Chicago and London: University of Chicago Press, 1962). *Philosophical Review* 73:383-94.
- . 1966. "Meaning and scientific change," in *Mind and cosmos: Explorations in the philosophy of science*. Edited by R. Colodny, pp. 41-85. Pittsburgh: University of Pittsburgh Press.
- SINAMOS. 1974. *Diagnóstico de mercados del eje Juliaca-Desaguadero*. Puno. Sistema Nacional de Apoyo a la Movilización Social.
- SMITH, CAROL A. Editor. 1977a. *Regional analysis*. Vol. 1. *Economic systems*. New York: Academic Press.
- . Editor. 1977b. *Regional analysis*. Vol. 2. *Social systems*. New York: Academic Press.
- . 1982. Is there a new economic anthropology? *Reviews in Anthropology* 9(1):63-75.
- . 1983. "Regional analysis in world-system perspective: A critique of three structural theories of uneven development," in *Economic anthropology: Topics and theories*. Edited by S. Ortiz, pp. 307-59. Lanham, Md: University Press of America.
- THORP, ROSEMARY. 1983. "The evolution of Peru's economy," in *The Peruvian experiment reconsidered*. Edited by C. McClintock and A. Lowenthal, pp. 39-61. Princeton: Princeton University Press.
- TRAGER, LILLIAN. 1981. Customers and creditors: Variations in economic personalism in a Nigerian marketing system. *Ethnology* 20:133-46.
- TSCHOPIK, HARRY, JR. 1946. "The Aymara," in *Handbook of South American Indians*, vol. 2. Edited by J. Steward, pp. 501-73. Washington, D.C.: U.S. Government Printing Office.
- VELLARD, J. 1963. *Civilisations des Andes: Evolution des populations du haut-plateau bolivien*. Paris: Gallimard.
- WILLIAMSON, OLIVER E. 1981. The economics of organization: The transaction cost approach. *American Journal of Sociology* 87:548-77.
- WOLF, ERIC R. 1982. *Europe and the people without history*. Berkeley: University of California Press.
- YANAGISAKO, SYLVIA. 1979. Family and household: The analysis of domestic groups. *Annual Review of Anthropology* 8:161-205.