A Cross-Cultural Examination of Chayanov's Theory

Michael S. Chibnik

University of Iowa
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Department of Anthropology, University of Iowa, Iowa City, Iowa 52242, U.S.A. 27 XI 83

Over half a century ago, the Russian economist A. V. Chayanov developed a controversial theory aimed at explaining the allocation of land and labor by peasant farmers. According to Chayanov, the number of consumers (C) and workers (W) in a peasant household strongly affects its total volume of production (P). The number of consumers influences the minimal output that a household must produce, while the consumer-worker ratio influences the amount each household produces beyond a socially defined "consumption standard."

Although anthropologists have long been interested in the operations of kin-based rural households, they largely ignored Chayanov's theory until two decades ago, when some of his most important work was translated into English (Chayanov 1966 [1920s]). Since that time there has been an upsurge of interest in Chayanov's ideas. Sahlin has discussed them in two influential publications (1971, 1972), and numerous anthropologists (e.g., Minge-Kalman 1977, Durrenberger 1980, Lewis 1981, Stier 1982) and other social scientists (e.g., Harison 1975, Hunt 1979, Patnaik 1979) have tested the theory in different locales. These writers, however, have differed greatly in their interpretations and tests of Chayanov's ideas. Moreover, social scientists examining Chayanov's theory intraculturally (e.g., Durrenberger n.d.) or cross-culturally (e.g., Sahlin 1971) have used data from at most three or four communities. For these reasons, little is known about the extent to which Chayanov's ideas are generally applicable.

1 Chayanov did have some influence on work done by Japanese and Dutch social scientists in the 1930s.
This brief paper is an attempt to operationalize Chayanov’s theory and to test it in a variety of societies. Six hypotheses derived from Chayanov’s theory are tested using 12 data sets collected by social scientists and census takers. These data sets support Chayanov’s central idea that the economic behavior of family farms is influenced by their numbers of consumers and workers but suggest that he may have erred in the relative emphasis he placed on different aspects of household demography.

Chayanov’s theory concerns the economic behavior of partially monetized family farms that do not hire labor (Chayanov 1966 [1920]:51). The theory is based on detailed studies of Russian farms carried out by Chayanov and others from 1870 to 1920. Chayanov contended that 90% or more of the farms in Russia at that time used only unpaid family labor and thought his model stood for the most typical farm in what was one of the largest peasant countries in the world (p. 112).

According to Chayanov (pp. 78, 105–6), peasant households that do not use hired labor aim above all at producing enough to attain the minimal locally acceptable standard of living. Chayanov noted (pp. 105–6) that this socially defined “consumption standard” varies from community to community but was not explicit about what determines the consumption standard in any particular community. It seems reasonable to assume, however, that in most peasant communities, the “consumption standard” is somewhat higher than the standard of living of the poorest inhabitants.

Chayanov claimed (pp. 53, 230) that the minimal output a peasant farm family must produce to attain the consumption standard is determined by the number of consumers in the household and the amount of rent and taxes they must pay.

The volume of economic activity of households having trouble attaining the consumption standard thus depends “on the number of consumers and not at all on the number of workers” (p. 78). If a sizable percentage of households (the “poor”) in a particular peasant community have difficulty producing enough to attain the minimal socially acceptable standard of living, there should be a positive relationship between C and P. Since Chayanov asserts (pp. 79, 106) that consumption demands are ordinarily one of several factors influencing the total output of household workers, he evidently thought that in most peasant communities many households do have some difficulty attaining the socially defined “subsistence requirement.”

**Hypothesis 1:** C and P will be positively correlated.

Chayanov argued that household production beyond that necessary to satisfy the minimal socially defined subsistence requirement is determined by subjective comparisons of the marginal utility of each additional unit of output with the “drudgery” (marginal disutility) associated with each additional unit of labor input. Chayanov assumed (following classical economics) that the marginal utility of each additional unit of output decreases, while the drudgery associated with each additional unit of labor input increases. When a household reaches the point at which the utility of an additional unit of output is outweighed by the drudgery associated with more labor, it ceases production (p. 83).

Chayanov thought (p. 105) that when labor productivity is low and households have difficulty attaining the consumption standard, the number of consumers is the major demographic determinant of interhousehold variations in production per worker. When socially defined subsistence needs can be met fairly easily, however, the consumer-worker ratio is the major demographic determinant of those variations. Since workers in households with high consumer-worker ratios must spend relatively large amounts of time attaining the consumption standard, the drudgery (marginal disutility) associated with their labor inputs beyond “subsistence” is higher than that of household with lower consumer-worker ratios. Households with high consumer-worker ratios therefore produce relatively small surpluses. This argument makes the debatable assumption that the marginal utilities of output beyond the consumption standard are unrelated to a household’s consumer-worker ratio.

Sahlins (1971:34) has interpreted Chayanov as claiming that

\[ P/W = KC/W, \]

where K is the average amount of production necessary to support a consumer at a socially acceptable standard of living. Since \( K = (P/W)/(C/W) = P/C \), this interpretation (which Sahlins calls “Chayanov’s rule”) implies that P/C will be constant for households within any particular community. As Smith (1979:478) points out, this assumption of an “inert norm of domestic livelihood” ignores Chayanov’s ideas about the effects of drudgery on household production. Smith (1979:478) and Harrison (1975:399) more plausibly conclude that Chayanov’s theory implies that as consumer-worker ratio rises, output per worker will also rise but output per consumer will fall. Households with increasing consumer-worker ratios must increase their production per worker in order to prevent production per consumer from dropping below the consumption standard.

**Hypothesis 2:** P/W and C/W will be positively correlated.

Since households adjust production per worker to prevent production per consumer from dropping below the consumption standard, P/W should vary more between households than P/C.

**Hypothesis 3:** The coefficient of variation (standard deviation divided by mean) of P/W will be greater than that of P/C.

The relatively large amounts of drudgery associated with labor inputs beyond “subsistence” for households with unfavorable consumer-worker ratios suggests that, other things being equal, their production per consumer will be relatively low. Chayanov himself, however, was not altogether clear about what he expected to be the relationship between C/W and P/W. He rather ambiguously wrote (p. 79): “it is exceedingly significant and entirely of a pattern that an increase in worker’s output caused by an increase in number of consumers does not cause a parallel increase in well-being and in some budget inquiries (Novgorod) even leads to a reduction in it.”

**Hypothesis 4:** C/W and P/C will be negatively correlated.

Although Chayanov recognized that the number of workers in a household places a ceiling on total possible production (p. 53), his theory places little emphasis on how the number of producers affects economic behavior. He did briefly note, however, that in households with many producers, returns per unit of labor may increase because of the possibility of “complex cooperation in work” (p. 60). The greater efficiency of households with many workers means that the drudgery associated with each additional unit of their output is relatively low. This implies that for two households with the same number of consumers, the one with the greater number of workers will produce more.

1 These six hypotheses use the terminology of modern statistics. Since Chayanov did not ordinarily use this terminology, I cannot be entirely certain that he would have accepted all these hypotheses. Although it might be argued that these problems of “translation” (operationalization) preclude a definitive test of Chayanov’s theory, an examination of the extent to which these hypotheses hold in different societies provides at the minimum some important cross-cultural evidence about the economic effects of household demography.

2 This argument will not hold if in a particular community all households can attain the consumption standard rather easily. In such circumstances, Hypotheses 2, 3, and 4 would also not be expected to hold. My argument about the way consumption standards are ordinarily set suggests that communities of this type are uncommon.

3 It is possible for the direction of correlation between C/W and P/W to differ from that between C and P (see, for example, the Lahu data set, table 3). This does not imply that the correlation between C/W and P/W is independent of that between C and P. Schuessler (1973) and Stier (1982) have discussed the complex subject of ratio variables in some detail.
**Hypothesis 5:** $W$ and $P$ will be positively correlated.

**Hypothesis 6:** The correlation between $C$ and $P$ will be greater than that between $W$ and $P$.

In recent years there has been considerable controversy over where Chayanov's theory can be expected to be useful. Several anthropologists (e.g., Durrenberger 1980) have applied the theory in communities where farmers hire some labor, while others (e.g., Sahlins 1971, 1972) have argued that Chayanov's ideas help explain household economic behavior in nonmoneitized communities. A number of writers (e.g., Harrison 1975, Patnaik 1979), however, claim that Chayanov's theory has greatly overemphasized the economic effects of household demography even in early 20th-century Russia. These writers agree with Lenin (1956 [1899]) that class differentiation is the most important cause of intracommunity variations in production in peasant societies.

The 12 data sets assembled for this paper (see tables 1 and 2) allow a preliminary assessment of the extent to which Chayanov's theory is generally applicable. All major world areas except Latin America are represented, and the level of socio-cultural complexity ranges from relatively isolated New Guinea horticulturalists to commercial Swiss farmers.

Three data sets (Kenya, Bambara, Swiss) were found by an examination of recent anthropological journals and a search of the 139 articles citing Chayanov listed in the Social Sciences Citation Index from 1975 to 1981. Another three (Tonga, Ka-
The data provide no support for the remaining two hypotheses derived from Chayanov’s theory. The theory implies that correlations between C and P will be greater than those between W and P (Hypothesis 6). In many data sets these two correlations are quite similar because of high correlations between C and W. Nevertheless, in 7 of the 12 data sets the correlation between C and P is less than that between W and P. Chayanov’s theory also implies that P/W will be more variable than P/C (Hypothesis 3). In 7 of the 12 data sets, however, the coefficient of variation of P/W is less than that of P/C.

Table 4 shows that the data sets do not vary much in the extent to which they are “Chayanov-like.” None of the data sets support all six predictions derived from Chayanov’s theory. Five predictions hold up in six data sets, four predictions in five, and three in one.

The preceding analysis provides ammunition for both proponents and critics of Chayanov’s model of family farming. Although data from diverse societies support Chayanov’s basic argument that household composition influences the economic behavior of family farms, the effects of demographic factors on intracommunity variations in production are often rather modest. The data suggest, moreover, that Chayanov erred in the relative emphasis he placed on working capacity and consumption requirements as determinants of household economic activity. The cross-cultural materials also show that Chayanov underestimated the extent to which his theory applies to family farmers quite unlike his rather narrowly defined “peasants.”

Household demography and economic behavior. Even if demographic variables are the only determinants of variations in household economic behavior in a particular community, Chayanov’s theory does not imply that correlations between C and P, W and P, C/W and P/W, and W/C and P/C should equal 1.0. A Pearson correlation between variables X and Y will equal 1.0 only if the relationship between X and Y can be represented by the equation Y = aX + b, where a and b are constants (Blalock 1972:377). The hypotheses I have derived from Chayanov’s theory, however, are not stated in this “linear” form. For example, the hypothesis (1) that C and P will be positively correlated does not assert that “an equation of the form P = aC + b” will predict household production.” Although Hypothesis 1 is based on the argument that some (not all) households in a peasant community increase P in response to increases in C, no assumption is made that the relationship between C and P is linear. The small or nonexistent effect of C and P among households having little trouble attaining the consumption standard because of their favorable consumer-worker ratio also reduces the correlation between C and P.

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### TABLE 3

<table>
<thead>
<tr>
<th>Data Set</th>
<th>C and P</th>
<th>W and P</th>
<th>C and W</th>
<th>C/W and P/W</th>
<th>C/W and P/C</th>
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<tbody>
<tr>
<td>Tonga</td>
<td>.82*</td>
<td>.85*</td>
<td>.92*</td>
<td>.38*</td>
<td>-.51*</td>
</tr>
<tr>
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<td>.40*</td>
<td>.63*</td>
<td>.38*</td>
<td>.00</td>
</tr>
<tr>
<td>Bambara</td>
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<td>.95*</td>
<td>.97*</td>
<td>.23</td>
<td>-.69*</td>
</tr>
<tr>
<td>Kapauku</td>
<td>.67*</td>
<td>.67*</td>
<td>.96*</td>
<td>.30</td>
<td>-.01</td>
</tr>
<tr>
<td>Tsembaga Maring</td>
<td>.55*</td>
<td>.71*</td>
<td>.86*</td>
<td>.17</td>
<td>-.39*</td>
</tr>
<tr>
<td>Swiss</td>
<td>.36</td>
<td>-.68</td>
<td>-.56</td>
<td>.88*</td>
<td>-.23</td>
</tr>
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<td>.45*</td>
<td>.85*</td>
<td>.53*</td>
<td>.01</td>
</tr>
<tr>
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<td>.39*</td>
<td>.65*</td>
<td>.23</td>
<td>-.43*</td>
</tr>
<tr>
<td>Shan</td>
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<td>.59*</td>
<td>.94*</td>
<td>.29*</td>
<td>-.02</td>
</tr>
<tr>
<td>Lahu</td>
<td>.44</td>
<td>.55*</td>
<td>.94*</td>
<td>.38</td>
<td>-.51</td>
</tr>
<tr>
<td>Iowa 1880</td>
<td>.29*</td>
<td>.28*</td>
<td>.93*</td>
<td>.29</td>
<td>.06</td>
</tr>
<tr>
<td>Iowa 1870</td>
<td>.38*</td>
<td>.43*</td>
<td>.88*</td>
<td>.02</td>
<td>-.18*</td>
</tr>
</tbody>
</table>

* Significant at the .05 level

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![338 CURRENT ANTHROPOLOGY](image)
Nevertheless, correlations between \(C\) and \(P\), \(W\) and \(P\), \(C/W\) and \(P/W\), and \(W/C\) and \(P/C\) are sufficiently far from 1.0 in all data sets to suggest that demographic factors are not the only variables affecting the economic behavior of family farms in most communities. Although Chayanov (p. 69) recognized that factors other than household composition influence peasant economic behavior in Russia and elsewhere, he may still have overemphasized the importance of demographic variables. Because of limitations of the data, my analysis of the relationship between household demography and output in different locales does not control for intracommunity variation in wealth and class status. Patnaik (1979) has argued that many of the demographic effects reported by Chayanov for early 20th-century Russia are spurious because he did not control for such variation. According to Patnaik, for example, positive correlations between \(C/W\) and \(P/W\) do not necessarily support Chayanov’s theory. Patnaik asserts (pp. 381–88) that (1) richer peasants tend to have larger families because of lower mortality rates; (2) larger families tend to have higher consumer-worker ratios because they contain a greater proportion of children and old people; (3) richer peasants therefore tend to have higher consumer-worker ratios in their households; and (4) richer peasants also have relatively high output per worker because of their larger amounts of capital and land. Patnaik therefore concludes that correlations between \(C/W\) and \(P/W\) in early 20th-century Russia were not the result of the effects of consumption demands. Instead, both consumer-worker ratio and output per worker were positively correlated with class status and wealth.

Complex interrelationships of this sort may negate some of the significant correlations between household demography and output reported in this paper. Nonetheless, the cross-cultural consistency of these relationships in both stratified (e.g., Swiss, Iowa) and unstratified (e.g., Tsembaga Maring) societies tends to support Chayanov. Furthermore, an examination of the Iowa data sets (Chibnik 1983:23–25) casts doubt on the cross-cultural validity of Patnaik’s assertions about the relationship between wealth and household demography.

Relative effects of \(W\) and \(C\). The data suggest that Chayanov may have underestimated the effect of a household’s working capacity on its economic behavior and overestimated the effect of household consumption requirements. The correlation between \(W\) and \(P\) is higher than between \(C\) and \(P\) in 7 of the 12 data sets, and \(P/W\) is less variable than \(P/C\) in 7 of the 12 data sets.

One possible interpretation of the high correlations between \(W\) and \(P\) in many data sets is that most societies have norms specifying the minimum (and perhaps also maximum) amount of work that males and females of different ages should do. If in any particular community socially defined norms of work limit choice about labor inputs as much as socially defined norms of consumption, correlations between \(W\) and \(P\) should be as high as those between \(C\) and \(P\).

In some societies norms of minimal production are enforced by taxes in cash and kind. In other societies such norms are prerequisites for “Sahlins-like” social and political arrangements among households of varying consumer-worker ratios (see Sahlins 1971, 1972). In years of low crop yields, these norms enable households with unfavorable consumer-worker ratios to know that they probably can obtain “surplus” food from households with more favorable consumer-worker ratios.

Households faced with worsening consumer-worker ratios may be about as willing to lower their living standards as they are to increase work effort. This would explain why \(P/W\) is not more variable in the data sets than \(P/C\). An alternative interpretation of this result would be that households with unfavorable consumer-worker ratios keep consumption levels near community norms both by increasing \(P/W\) (while decreasing \(P/C\)) and by obtaining some food and income from households with more favorable consumer-worker ratios.

General applicability of Chayanov’s theory. Chayanov restricted his theory of peasant economy to partially monetized farms that sell some of their output but do not hire labor. The data sets examined here suggest that household demographic consumption affects the economic behavior of farm households both in societies in which crops are rarely sold (e.g., Tonga, Kenya) and in societies in which farmers hire considerable amounts of labor (e.g., Shan, Iowa, 1880). There is little difference in the relative importance of household composition as a determinant of economic behavior between the societies that come close to meeting the conditions of Chayanov’s model and those that do not.

Although Chayanov’s theory thus applies to a wide variety of family farms and societies, I would not expect it to be equally applicable everywhere. As he himself conceded (p. 112), his theory requires serious modification in situations in which farmers cannot readily acquire land (see also Thorner 1966:xxi–xxii). In such circumstances, as numerous critics (e.g., Harrison 1975, Patnaik 1979) have argued, class differences among rural residents and social and economic relations between family farmers and landlords strongly affect intracommunity variations in household production. Nevertheless, the data analysis presented here suggests that even in quite stratified societies (e.g., the Swiss and Iowa cases) household composition considerably influences family farm production.

References Cited

Toward Ethnographic Cartography: A Case Study

by Walter Dostal
Institut für Völkerkunde der Universität Wien, Universitätsstraße 7, A-1010 Vienna, Austria, 7 IX 83

In the field of ethnographic documentation, ethnographic cartography is clearly an important tool; I need only refer to the various European ethnological atlases to provide emphatic proof of this. I shall attempt here, on the basis of research carried out at the Institut für Völkerkunde in Vienna, to indicate some of the possibilities of this method, particularly for urgent anthropological research, and to provide some possible starting points for discussion of this broad theme.

Why is ethnographic cartography useful? In answering this question two facts must be taken into account. The first is that there are still today areas that are not yet ethnographically accessible or are virtually unknown. The second is that, as a result of the exploitation of raw materials needed for industry—for example, petroleum—traditional cultures are currently being exposed to far-reaching changes. The challenge to ethnologists is to document the traditional cultures that remain before they sink into oblivion. The choice of methods to be employed in this task will be determined by the terrific speed at which cultural changes are taking place. Certain methods of information-gathering cannot be used because they require too much time. The method chosen must, on the one hand, fulfill the ethnological imperative of researching the cultural phenomena in their own context and, on the other hand, permit the completion of documentation in a reasonable length of time. Ethnographic cartography seems to me to fulfill these criteria.

The Arabian petroleum-producing countries today are marked by a lack of extensive ethnographic knowledge and rapid cultural change. For this reason, during my stay in the Ra’s al-Khaymah Emirate, United Arab Emirates, in 1978, I undertook to examine and map the distribution of some surviving elements of the material culture (Dostal 1979, 1983b). On the basis of the experience gained, I developed a project entitled "Ethnographic Atlas of ‘Asir," which was carried out from 1979 to 1982 in cooperation with the Department of Archaeology and Museology of King Saud University, Riyadh (codirector of the project: A. R. al-Ansari), in the southwestern province of Saudi Arabia (Dostal 1983a, Gingrich 1981). Two factors were decisive in the choice of this region: it was one of the ethnographically least known areas of the country, and it is culture-historically significant in that it lies within the area of influence of the pre-Islamic southern Arabian high culture. In what follows I will briefly describe some aspects of the data-gathering process and offer a few preliminary examples of the kind of documentation this method can provide.

This kind of ethnographic documentation calls for data-gathering methods that permit precise definition of the spatial distribution of the phenomena in question to exhibit the sociocultural context of a local culture. With regard to distribution, field survey was necessary in this case, because the country has none of the infrastructural prerequisites for such information networks (teachers interested in ethnography, local interested groups) as were available, for example, in the preparation of the Austrian ethnological atlas (cf. Wolfram 1981, pt. 6, section 3). With regard to the cultural context, a questionnaire was developed to elicit data of the following kinds: (1) general (topography, type and structure of settlements, etc.); (2) economy—cultivation (types of fields, irrigation techniques, storage, crops, methods, division of labor by sex, agricultural calendar) and animal husbandry (types of animals, processing of animal products, division of labor by sex, etc.); (3) material culture—agriculture, animal husbandry, household, architecture, clothing, jewelry—including the origin of the people producing the objects and the method of acquisition; and (4) social structure (family organization, mode of marriage, residence, wedding customs, birth customs, kinship terms, social organization, customary law). The questionnaire was tested for reliability in a pilot study and modified accordingly. Being rather comprehensive, it had to be employed by a team of researchers each taking responsibility for a particular section.

Given the time pressure imposed by the very rapid pace of cultural change, we could not hope to become well acquainted with every settlement in the area. To record the spatial distribution of the cultural phenomena as accurately as possible, I therefore decided to gather information in two ways: through a "deep" sample and through a "checking" sample. The deep sample involved use of the questionnaire just described, augmented by collections of cultivated and useful wild plants and samples of the stone, wood, and earth materials used in house construction. The checking sample employed a list of questions prepared from the results of the deep sample to establish the spatial distribution of cultural phenomena covered by the latter, to record the extent of variation of these phenomena, and to present an assessment of the extent to which such variations should be considered deviations. The complexity of the deviant phenomena was taken as a criterion for this assessment. Where deviation was established by a checking sample, a new deep sample was required, and of course the interval between

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2 The Austrian members of the team were A. Gingrich, J. Heiss, and E. Stadler; the Saudi Arabian members were Abdul ‘Aziz al-‘Ashlan, Muhammad Ibrahim al-Hamam, and Abdullah Salim Ghaman al-Zahrani.