Anatomy of a Peasant Economy

A Rice Village in the Philippines

YUJIRO HAYAMI

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Y. HAYAMI in association with M. KIKUCHI,
P. F. MOYA, L. M. BAMBO, and E. B. MARCIANO

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Foreword

THE INTERNATIONAL RICE RESEARCH INSTITUTE'S primary mission is to improve rice production and quality for the benefit of people in Asia and other rice-producing countries. Our concern is not simply with rice yields, but also with their impact on the well-being of people both rural and urban and especially those with low incomes. IRRI recently organized a program on the economic consequences of new rice technology to assess the broad influences of technological change on society. A major focus of the program is on economic and social changes at the village level.

Analysis of the impact of new rice technology on the various facets of rural villages, such as employment and income distribution, requires considerably more information than mere input-output and cost-return relationships in rice farming. Typically, farmer households make decisions on production and consumption simultaneously. In the village community, rice farming depends on such nonfarmer households as those of landlords and landless laborers. The analysis of the full impact of rice production technology on rural society in Asia requires data on the complex of economic activities of both farmer and non-farmer households.

Dr. Yujiro Hayami and his associates approached the problem through an intensive case study of a typical rice village in the Philippines by using both household record keeping and interview surveys. Flows of income from rice farming and other enterprises among the classes of village households were monitored and corresponding changes in asset positions were ascertained. These sets of data are among the most comprehensive on the village economy that have yet been collected, assembled, and analyzed.

The study indicates the direction for research in assessing the full impact of new rice technology on the welfare of people living in Asian villages. I commend the authors for the important contribution they have made to our understanding of these complex socioeconomic relationships. The methods of analysis they developed facilitate the quantification of the integral parts of the village economic complex and add to our understanding of the influences of the modern rices and the associated technology on the quality of rural life in Asia.

N.C. BRADY
Director General

Acknowledgment

Barrio school and children.

CHAPTER 1

Approach to peasant economy

THE VITAL ROLE of the rural sector in the economic development process is gaining recognition but knowledge of the peasant economy — that encompasses the majority of mankind — is grossly insufficient for the effective design of rural development programs. Major questions, such as the impact of new rice technology on the welfare of rural people, remain unanswered because of lack of understanding of the peasant economic system.

PEASANT ECONOMY AND PEASANT ECONOMICS

A major difficulty in the analysis of the peasant economy is the inseparability of economic functions within a peasant household. In the urban sector, the *firm* typically engages in production and investment activities, while the *household* performs the consumption and saving activities. Product and factor markets serve as a link between the firms and households.

In the peasant sector, production, consumption, and investment activities are the result of a simultaneous family decision. For example, the amount of grain a family head reserves for seed or to exchange for a sickle is constrained by a wife's demand for home consumption. Thus, production, consumption, and investment decisions are not independent of each other, and major flows of products and factors do not pass through the market.

A further difficulty in analysis arises from the role of the *village* in the peasant economy. To a large extent, the village community in developing countries is self-contained. Typically, production activities are based on resources within the village to satisfy the demands of villagers; relatively few transactions are channeled through the market. Because of tradition, kinship, and need for cooperation for the sake of minimum security and survival, a high degree of interaction exists in the village. A choice of a villager is constrained by the choices of other villagers, so that one's welfare function depends on another's within the village community. Intricate mutual-help and patron-client relationships govern the economic activities according to specific class structures and value systems, as often described in sociological and anthropological literature (Hunter 1969; Rosen 1975; Scott 1976; Shanin 1971; Wolf 1966).

Modern economic theories, such as the theory of firm and the theory of consumer behavior, assume functional divisions among different economic agents who make independent choices. Divisions are more typical in the urban sector. The conventional approach to the analysis of the peasant economy has been to abstract independent producer, consumer, and investor from the complex of the peasants, and to apply the theories of modern economics separately. Such an approach is useful as a first approximation. But its effectiveness is limited because it is based on the unrealistic abstraction of different economic functions from the single peasant complex.

Since the classical work by Tschajanov (1923), there have been numerous attempts to develop a theory of peasant economy. The approach has been to incorporate the attribute of functional inseparability within a peasant family (Hymer and Resnick 1969; Nakajima 1969). The new *household economics* developed by Becker (1965) and Lancaster (1966) suggests the possibility of a breakthrough in this direction. No economic model has yet been created to incorporate the role of the village in the peasant economy, although Becker's theory of social interaction (1974) suggests a possible approach.

PURPOSE OF THE STUDY

Theoretical efforts have been paralleled by empirical studies, resulting in major advances in the understanding of peasant economic behavior (Clark and Haswell 1964; Hopper 1965; Massel 1967; Roumasset 1976; Schultz 1964; Yotopoulos 1968). Yet a serious constraint on the theoretical developments has been lack of a systematic collection of data amenable to the analysis of the peasant complex.

A large body of statistics on the peasant economy has been collected from farm management and production cost surveys as well as household income-expenditure surveys. Such data are appropriate for the piecemeal application of the theory of firm and the theory of consumer behavior, but they are inadequate to analyze complex interactions among economic activities within a household and within a village. To understand the peasant economy in its entirety, data must be collected simultaneously on production, consumption, investment, and transaction activities. Then the flow of goods and services in various activities, both within households and within villages, can be consistently documented.

The need for such data collection is not limited to academic interests. It should be the basis for effective design of rural development programs and national development policy. For example, a program such as the development and extension of a new rice technology could be evaluated by farm production surveys to indicate how the technology will affect farm outputs, costs, and returns. However, the program's impact on rural welfare through income distribution and consumption, and on local and national development through

capital formation cannot be evaluated without information on consumption and investment related to production at both the household and the village levels. No such data have yet been compiled, even though the need has been emphasized (Oshima 1965).

To fill this gap, we collected data from a village (barrio) in a major rice-producing area of the Philippines. We attempted to document the flow of goods and services among various activities in the households and in the village so they were consistent in terms of a system of economic accounts in a double-entry system.

ACCOUNTING THE PEASANT ECONOMY

The system we designed to document the economic activities of the village households and the village consists of seven completely articulated accounts:

1R.   Current rice production account
1N.   Current nonrice agricultural production account
2.   Current nonagricultural production account
3.   Income-expenditure account
4.   Fixed capital production account
5.   Capital finance account
6.   Transaction account

Because rice is so important in the economy concerned, the current agricultural production account is divided into rice production account (1R) and nonrice agricultural production account (1N). (For the accounting forms, see PA/C Tables in Chapter 4.)

The *current rice production account* (1R) identifies the total value of rice output and the total cost paid (or imputed or both) to the inputs applied to rice production. The *current nonrice agricultural production account* (1N) establishes the same identity with respect to other crops, livestock, and poultry.

Village households not only engage in farming but also run a wide spectrum of nonagricultural enterprises, including commerce, transportation, and manufacturing. The *current nonagricultural production account* (2) establishes the revenue-expenditure identity with respect to nonfarm production activities.

Values produced by the factors owned by the rural households, together with earnings of wages from outside employment, represent major sources of the household income. The *income-expenditure account* (3) records how the income thus generated was allocated to consumption and savings.

In addition to current production activities, the village households produce capital goods, such as building houses and digging irrigation ditches. The *fixed capital production account* (4) shows how much of the increase in the value of fixed capital is attributable to family-owned factors and how much of it was paid to external factors contributed from outside. The *capital finance account* (5) identifies the sources of fund for financing the investments, including fixed capi-

tal formation and investments in inventories and financial assets. The *transaction account* (6) puts together all household transactions with others within the village and with those outside the village.

Private economic accounts for individual households in the village are aggregated into social accounts of the village economy after deducting transactions within the village from private accounts.

Thus, our approach is to document the peasant economy in terms of private accounts of individual households and social accounts of the village.

DATA COLLECTION PROCEDURES

Basic data required are the detailed records on family labor allocations among current production and capital formation activities and on all transactions, either through market or not; this includes consumption of home-produced goods (which is considered as a transfer from the production sector to the consumption sector within a household). The daily record keeping by sample households in a peasant village was thus undertaken as a major task of our project.

The site chosen for the project was a typical rice village in the Province of Laguna, Philippines. Rice is, of course, the most important subsistence crop in the Philippines as well as in Asia. It is characterized by the peasant mode of production in contrast with that of tropical cash crops such as sugar and coconuts for which the plantation system prevails.

Sample selection
A benchmark survey in the village, 14–29 November 1974, enumerated all households. From that survey, we identified cooperators for the record-keeping project. We included households of both farm operators and landless farm workers in the sample. Unlike urban workers for which the labor market is well established, the landless farm worker represents an organic element of the peasant community.

We selected 12 cooperators from the 95 households in the village. However, the records of one small farmer were of low quality and were omitted from the analysis of sample averages. The remaining 11 were designated as A-K. Selection was not random, but was based on our judgment of ability and willingness to participate in the project. Use of such purposive sampling was necessary to make the record-keeping project feasible.

Included in the sample were the households of four large farmers (cultivating more than 2 ha), four small farmers (cultivating less than 2 ha), and four landless workers.

Some of the sample characteristics are compared with those of the village population in Table 1.1. In family and farm sizes, the sample and village averages were about the same. In levels of income and productivity, however, our sample seems significantly biased upward for large farmers and landless

Table 1.1. Characteristics of the village population and sample households, based on a benchmark survey, Laguna Province, Philippines. 1974.

		All households	Large farmers	Small farmers	Landless workers
Number of households					
Sample		11	4	3	4
Village		95	24	30	41
Average family size, persons					
Sample		5.9	7.5	5.3	4.8
Village		5.7	7.3	5.2	4.7
Average per-capita income, $/ha					
Sample		163	260	112	82
Village		131	209	132	70
Average farm size, ha					
Sample		2.0 [a]	3.2	1.3	0
Village		2.1 [a]	3.0	1.1	0
Average paddy yield, t/ha [b]					
Sample					
Wet	season	3.5	3.8	2.8	−
Dry	season	4.3	4.6	3.6	−
Village					
Wet	season	3.0	3.0	3.1	−
Dry season		3.9	3.8	3.9	−

[a] Average of farmers.
[b] Average of harvested area.

workers, and slightly downward for small farmers. We must be keenly aware of such direction and magnitude of sampling bias in the interpretation of the data produced from the record-keeping project.

During the course of the project, two landless workers subleased small parcels of paddy field (0.25 ha each) from other tenant farmers. From then on, their records included information on rice farming.

Daily record keeping

Cooperators kept daily records on economic activities in record books we provided. The record period was from 1 June 1975 to 31 May 1976. April and May 1975 were used as a test period. The record book consisted of labor sheets and transaction sheets (see Appendix A). The labor sheets were designed to record all labor uses (in hours worked), including that of family and hired and exchange workers. Only income-generating tasks in a conventional sense were recorded on the labor sheets. Household chores, such as cooking and sweeping, were not included. We checked cooperators' records twice a week (Tuesday and Friday). New record books were distributed and the completed books collected every Friday.

Assets survey

In addition to record keeping of current economic activities, we conducted assets surveys for the sample households, both at the beginning and at the end

of the record-keeping period. The surveys generated inventory data necessary to complete the economic accounts. Also, the information on the changes in asset positions served as a check on the investment data produced from the record keeping.

The first assets survey was conducted during March 1975. We revised the survey during the test period (April and May) and finalized the estimates of asset values as of the start of the record period (1 June 1975). During the record-keeping period, we continuously recorded additions to and reductions from the initial asset values. After the termination of the project, we recalculated the asset values as of the terminal date (31 May 1976).

We applied this procedure primarily to the fixed assets. For inventories and financial assets, we interviewed the cooperators and identified quantities and values at the beginning of every month. Those data were used as interim checks on the record-keeping data during the project period.

PLAN OF THE PUBLICATION

In this publication, we profile the village under study by describing its environmental and socioeconomic characteristics, based primarily on the results of the benchmark survey (Chapter 2).

With the labor-use records, we try to identify the pattern of family labor utilization. The nature of various economic activities using the labor of villagers within and outside the village, and the institutions governing their employment are clarified through analysis of the labor utilization pattern (Chapter 3).

The flow of goods and services within households is documented in terms of a set of private income accounts (Chapter 4), and the asset positions of the households are summarized by the balance sheets (Chapter 5). Those data are aggregated into a system of social accounts of the village that enable documentation of income flows within the village, transactions of the village with the outside world, and corresponding changes in the village asset positions (Chapter 6).

Finally, we summarize the findings, discuss policy implications, and suggest a possible direction of future research for understanding the complexity of the peasant economy (Chapter 7).

Throughout the publication, we express monetary values in US dollars and physical quantities in metric weights and measures. The data were collected originally in terms of local currency (*peso*) and local measure (*cavan*). The original figures were converted by assuming the exchange rate of ₱7:00 to US$1.00 and 1 *cavan* of rough rice equivalent to 45 kg.

The data presented in Chapters 4, 5, and 6 are inevitably complicated because they are assembled according to a completely articulated accounting system designed to describe the whole complex of peasant economic activities. Therefore, readers who are not interested in technical detail may wish to skip those three chapters and move directly from Chapter 3 to Chapter 7.

Irrigation gate and rice paddies in the village.

Pila poblacion, in front of municipal hall.

Road to the barrio. Houses hidden under the coconut grove.

The village profile

THE STUDY SITE was selected from the barrios (villages) in a rice-farming area in Laguna province, southern Luzon.

LAGUNA PROVINCE

The province provides the southern coast of the Laguna de Bay, the Philippines' largest lake (Fig. 2.1). A strip of irrigated lowland along the lake elevates to upland areas toward the surrounding mountainous provinces of Cavite, Batangas, and Quezon.

The lowland strip is the most productive rice-growing area in the Philippines. Development of rice farming in Laguna began in the early Spanish period and Laguna was a major rice supplier to Manila until the vast Central Luzon plain was brought into cultivation in the 19th century.

Irrigation systems are relatively well developed partly because the topography lends itself to water control and partly because the systems have been operated a long time. Dry season rice production is widely practiced in addition to being the major crop in the wet season. The rainy season occurs from May through November under the influence of the southwest monsoon. Rice production in Laguna is characterized by a high degree of technological development due to location within the province of major agricultural research centers — the International Rice Research Institute and the University of the Philippines College of Agriculture in Los Baños. The rice yield per hectare in Laguna has been substantially higher than the national average and the average of Central Luzon, the rice bowl in the Philippines (Table 2.1).

Rice is a typical peasant crop in Laguna based primarily on small-scale semi-subsistence family farming. This is in contrast with the practice for cash crops, such as sugar, coconut, and pineapple in the upland areas of Laguna, where large commercial operations are involved.

As in other irrigated rice areas in the Philippines, pervasive landlordism governs rice production in Laguna. According to the 1971 Census of Agriculture,
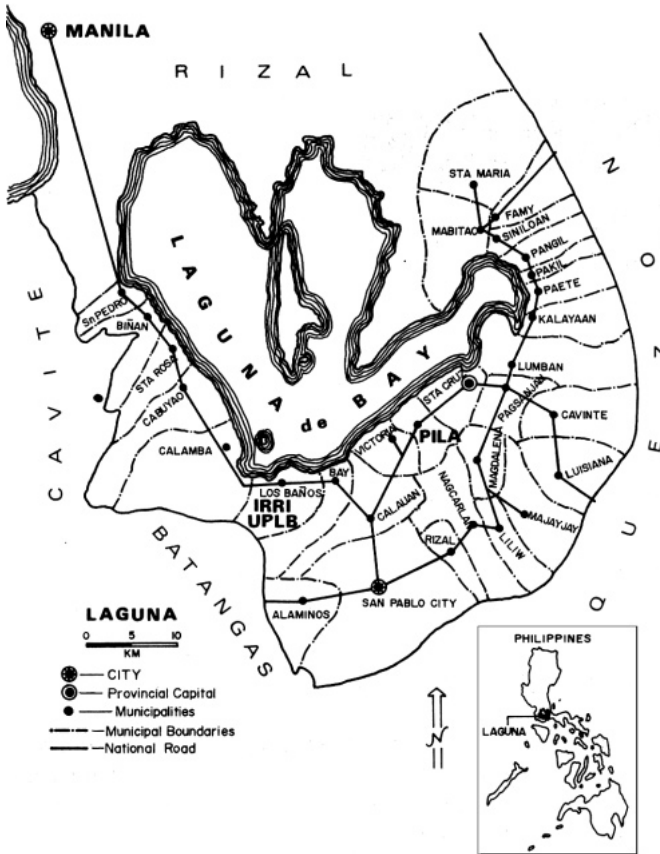
2.1. Laguna Province, Philippines.

only 36% of the farms were owner operated. This figure is high, compared to 24% for Central Luzon, but landlordism in the rice belt along the coast of Laguna de Bay is as pervasive as in Central Luzon. Land ownership in Laguna is rather fragmentary, typically around 10 ha or less, rarely exceeding 50, unlike the estates (*hacienda*) in Central Luzon that cover hundreds of hectares (Takahashi 1970; Umehara 1974).

Traditionally, the sharing of output and production cost on a 50:50 basis was the common form of tenancy, although there were many variations. However, due to a land reform program, the majority of the tenants have been converted into leaseholders at fixed rate in kind since around 1968. Land reform laws were strongly enforced after the declaration of Martial Law in 1972.

Road and highway networks provide relatively easy access to urban centers from most of the villages in the Laguna rice belt. The urban influence is especially large along the northwest coast of Laguna de Bay, where a large number of

Table 2.1. Rice production, area harvested, and yield per hectare in Laguna, Central Luzon, and the Philippines, 1971–75 averages.

	Laguna	Central Luzon[a]	Philippines
Total output (1000 t):			
Wet season (1)	69.7	573.7	3471.1
Dry season (2)	95.5	335.4	1914.6
Total (3)	165.2	909.1	5385.7
Harvested area (1000 ha):			
Wet season (4)	34.3	334.5	2262.6
Dry season (5)	28.1	129.1	1120.0
Total (6)	62.4	463.6	3382.6
Yield/ha of harvested area (t/ha):			
Wet season (1)/(4)	2.03	1.72	1.53
Dry season (2)/(5)	3.40	2.60	1.71
Total (3)/(6)	2.65	1.96	1.59
Yield/ha of net area (3)/(4)	4.82	2.72	2.38
Double-cropping ratio (6)/(4)	1.82	1.39	1.50

[a] Includes the provinces of Bataan, Bulacan, Nueva Ecija, Pampanga. Tarlac, and Zambales.
Source: Republic of the Philippines, Bureau of Agricultural Economics.

factories have been built recently. However, southern and eastern Laguna remain as essentially agricultural areas.

THE VILLAGE STUDIED

The village chosen for the study is Barrio Tubuan, Municipality of Pila, on the southern coast of Laguna de Bay. Tubuan is one of 13 barrios of Pila. It is connected to the Pila *poblacion* (urban district) by 2 km of narrow, unpaved road (Fig. 2.2). Common means of transportation are tractors and tricycles (three-wheel motorcycle taxis).

Pila developed in the early Spanish period. Within the municipality, Barrio Tubuan represents a newly developed area, inhabited since the late 19th century. The major area in the barrio had been left uncultivated and used as a common pasture for grazing carabaos until the beginning of this century. Because of that, Tubuan is also known as *Tanza* (grazing land). However, the whole cultivable area in the barrio is now well-developed paddy fields.

Tubuan is a relatively small barrio of 95 houses. The houses are hidden in a coconut grove, which looks like an island in the midst of an ocean of paddy field — a landscape typical of rice-producing areas in Southern Luzon. Laguna de Bay is on the northwestern side of the barrio. There is little difference in elevation between paddy fields and the lake and the fields are often flooded during the rainy season.

The barrio coconut grove is slightly elevated from the paddy fields. Villagers reside under coconut trees with the consent of the coconut owners who live outside the barrio. By custom, they are allowed to use the space below the trees for
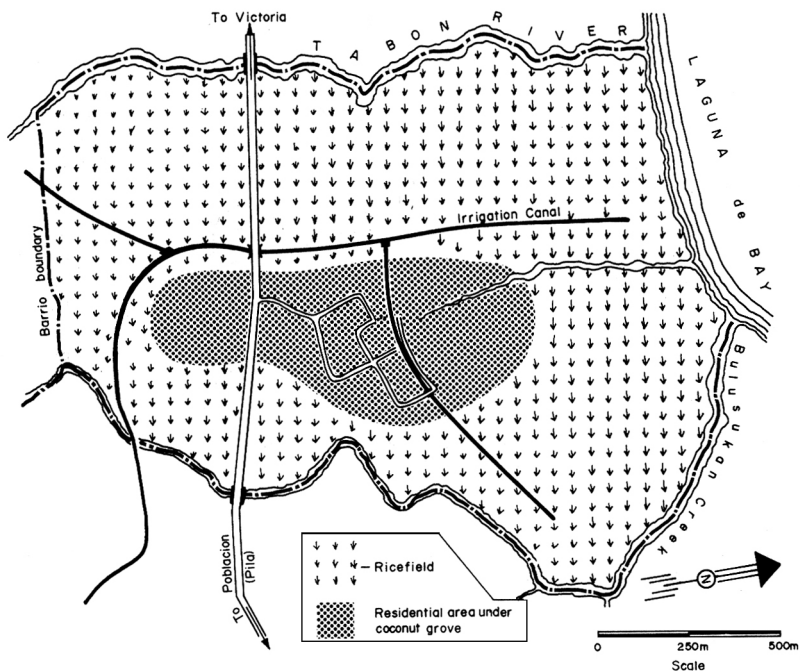
2.2 Barrio Tubuan, Laguna, Philippines.

fruits and vegetables or for raising livestock and poultry. In return, the villagers serve as caretakers by clearing undergrowth of the coconuts.

The barrio has a Catholic church and an elementary school. The school has two teachers and carries curricula through the fourth grade. Children above the fourth grade commute to the school in Pila.

Rice farming is by far Tubuan's most dominant enterprise. Coconut is a relatively minor source of income of villagers. Duck raising is a common sideline enterprise, using shellfish from Laguna de Bay as feed. Fishing is minor, primarily serving only home and village consumption. There are three family stores (*sari-sari*) from which villagers buy small daily needs. For major purchases, people go to markets and shops in Pila and in nearby towns such as Sta. Cruz and San Pablo. There are three tricycles in the barrio to transport villagers to Pila.

The village is administered by a barrio captain and a barrio council of six members. *Samahang Nayon* (a village association promoted by the Department of Local Government and Community Development) was organized with 28 members in 1974.

A major reason for the selection of this barrio for our study was that its socioeconomic conditions were fairly typical of the irrigated rice-farming areas in the Philippines. The barrio was relatively self-contained and not exposed directly to urban influences, but it was not too isolated. A survey of the barrio in 1966 by Umehara (1967) provided a useful benchmark for historical comparisons.

We will try to draw a socioeconomic profile of Tubuan, based primarily on the results of our benchmark survey of 14–19 November 1974, and on supplementary information from the Umehara survey of 1966. (Some of the Umehara data were revised according to the information obtained through our survey.)

We adopted a classification of village households into "large farmers" with operational landholdings of more than 2 ha, "small farmers" with less than 2 ha, and "landless workers" with no operational holding. Two hectares represents a mean of the farm-size distribution (exactly 2.1 ha). This classification will be used throughout this publication.

Population and households

The population in Tubuan and its distribution by age and sex during our survey period appear in Figure 2.3. Total population consisted of 549 persons, almost equally male and female. The age distribution was a typical triangular form reflecting the high rate of population growth. Forty-two percent of the total population were 12 years old or below, and 61% were below 21 years. Only 7% were above 50 years.

The population growth rate in the barrio was high. According to the Umehara survey, the population in 1966 was 392 persons. Thus, the
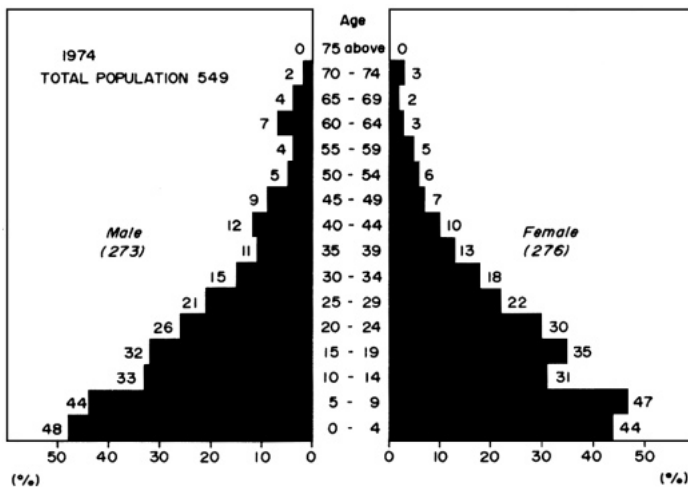
2.3. Age distribution of the population, Barrio Tubuan, Laguna, Philippines.

Table 2.2. Changes in population and households, Barrio Tubuan, Laguna, Philippines, 1966 to 1974.

	Population	Number of households[a]		
		Total	Farmers	Landless workers
1966	392	66	46	20
		(100)	(70)	(30)
1974	549	95	54	41
		(100)	(57)	(43)
Annual compound growth rate (%)	4.3	4.7	2.0	9.4

[a] Percentages in parentheses.

annual population growth rate from 1966 to 1974 reached 4.3%, which was substantially higher than the rate for the Philippines (3.1% between the 1961 and 1971 census years).

The high rate of population growth resulted from both natural reproduction and a net migration into the barrio. An economic force underlying the net population inflow was increased employment opportunities. This was due to the intensification of labor use in rice production upon improvement of the irrigation system and introduction of new rice technology.

The rapid increase in population was paralleled by the equally rapid increase in the number of households (Table 2.2). While both population and number of households increased rapidly, the area for rice cultivation remained almost constant from 1966 to 1974 (104 to 111 ha). The man:land ratio deteriorated sharply. A consequence was a dramatic increase in the number of landless farm workers. Landless households increased from 30 to 43%.

The rapid increase in the number of landless households is explained partly by the nuclear family system in this region. More than 80% of households in Tubuan were of the nuclear type, consisting of only one married couple (or widow). It was noted that when children marry, instead of living in parents' farms as part of extended families, they move to bamboo and nipa huts built by *bayanihan* (mutual-help work). They make a living as casual farm workers, although they are assisted extensively by parents and relatives in the provision of employment, grant, and credit.

Table 2.3. Distribution of households in Barrio Tubuan, Laguna, Philippines, showing nuclear and extended families by farm size, 1974.

	Total	Large farmers (2 ha & over)	Small farmers (below 2 ha)	Landless workers
Nuclear families	81	16	26	39
Extended families	14	8	4	2
Total	95	24	30	41

Table 2.4. Average family sizes by size class, Barrio Tubuan, Laguna, Philippines, 1974.

Age and sex	Size (no.)			
	Large farmers	Small farmers	Landless workers	Average
Below 13	2.5	2.2	2.2	2.4
13 or above	4.8	3.0	2.5	3.3
Total	7.3	5.2	4.7	5.7
Male				
Below 13	1.3	1.2	1.1	1.2
13 or above	2.1	1.7	1.2	1.6
Total	3.4	2.9	2.3	2.8
Female				
Below 13	1.2	1.0	1.1	1.2
13 or above	2.7	1.3	1.3	1.7
Total	3.9	2.3	2.4	2.9

There were cases of extended families, which were naturally more common for larger farmers, as shown in Table 2.3.

Family-size distributions were correspondingly different among the three classes in the barrio (Table 2.4). Family sizes in the majority of households of small farmers and landless workers were less than six persons, while the major- ity of large farmers had more than six family members.

Labor force and occupation
If a population between 13 and 65 years of age is assumed as "economically active" in the sense that they can participate in productive labor, the potential labor force in Tubuan was 312 persons — 151 male and 161 female. The educa- tional level of manpower in the village was relatively high, reflecting the com- pulsory education system in the rural areas of the Philippines. The mean number of years of schooling for the adult (above 20 years old) was 4.4 for both male and female.

About half of the economically active male population were engaged in rice farming as a major occupation (Table 2.5). Other major occupations were hired farm work (mostly rice work) and nonrice farming (duck raising).

Duck raising and hired farm work were also common sideline (minor) occu- pations. While the male labor force in farmer households were engaged in non- rice farming and hired work as the supplementary source of income, those in landless workers' households were engaged in nonrice farming and hired work as their major occupations.

More than half of the female labor force were primarily engaged in household work (Table 2.6). Rice farming and hired farm work were significant as both primary and secondary activities of female labor.

Table 2.5. Economically active male population (13–65years old) by major and minor occupations, Barrio Tubuan, Laguna, Philippines, 1974.

Minor occupation	Major occupation									
	Farming		Non-farm enter-prise	Hired labor		Sal-aried employ-ment	House-hold work	School-ing	None	Total
	Rice	Others		Farm work	Nonfarm work					
Farming:										
Rice		4						12		7
Others	19			6				1		26
Nonfarm enterprise	4			2						6
Hired labor:										
Farm work		9	81							18
Nonfarm work										
Salaried employment										
Household work										
Schooling										
None	41	10	1	22		4		16		94
Total	73	22	2	30		4		18	2	151

Table 2.6 Economically active female population (13–65years old) by major and minor occupations, Barrio Tubuan, Laguna, Philippines, 1974.

Minor occupation	Major occupation									
	Farming		Non-farm enter-prise	Hired labor		Sal-aried employ-ment	House-hold work	School-ing	None	Total
	Rice	Others		Farm work	Nonfarm work					
Farming:										
Rice				3			24			27
Others	2						7			9
Nonfarm enterprise							1			1
Hired labor:										
Farm work	9	1					11			21
Nonfarm work										
Salaried employment										
Household work	6	1	6	11		1		3		28
Schooling										
None	3		2	2		6	47	15		75
Total	20	2	8	16		7	90	18		161

Farmland and tenure relation

Total land area cultivated by villagers plus the coconut grove in which they live was 131 ha. The irrigated rice area consists of 111 ha and the rest is the coconut-growing area (Table 2.7). Absentee landlordism was pervasive.

Table 2.7. Land area and land use, Barrio Tubuan, Laguna, Philippines, 1974.

Land classification	Area for agricultural use (ha)				Area owned by villagers (%)
	Owned by villagers	Owned by absentees	Total		
			Area	%	
Rice area					
Irrigated	1.9	109.6	111.5	85.0	1.7
Rainfed	0	0	0	0	—
Upland	0	0	0	0	—
Coconut [a] 6.1	13.6	19.7	15.0		31.0
Total	8.0	123.2	131.2	100.0	6.1

[a] Residential area under coconut trees.

Table 2.8. Farm-size distribution, Barrio Tubuan, Laguna, Philippines, 1966 to 1974.

Size class [a]	1966				1974			
	Farmers		Rice area		Farmers		Rice area	
	No.	%	Ha	%	No.	%	Ha	%
Less than 1 ha	6	13	3	3	8	15	4	4
1 ha–1.9 ha	14	30	18	17	22	41	29	26
2 ha–2.9 ha	10	22	21	20	11	20	24	22
3 ha - 4.9 ha	13	28	45	44	11	20	40	36
5 ha or more	3	7	17	16	2	4	14	13
Total	46	100	104	100	54	100	111	100
Average rice area per farm (ha)			2.3				2.1	

[a] Farm size in terms of the operational holding of paddy field.

Villagers owned less than 2% of the rice land and 30% of the coconut land.

Size distribution of farms in terms of the operational holdings of the paddy field was relatively even. In 1974, about 60% were from 1 to 3 ha. The farms in this range occupied half of the total rice area (Table 2.8). Farms with cultivated land areas of less than 1 or more than 5 ha were relatively few.

The pressure of high population growth was reflected in changes in farm-size distribution. From 1966 to 1974, the number of farms of more than 3 ha declined and those with less than 2 ha increased sharply. Average farm size declined from 2.3 to 2.1 ha. Such changes suggest that the increased competition for land to cultivate resulted in a higher degree of fragmentation in operational landholdings.

The majority of farmers were tenants of landlords living outside the barrio. In 1974, only four farmers owned any land (Table 2.9). No one in the small farmer category owned rice land.

A marked change in the land-tenure system took place between 1966 and 1974. Share-tenants made up more than 70% of the farmers in the barrio in

Table 2.9. Changes in the distribution of farms by tenure status, Barrio Tubuan, Laguna, Philippines, 1966 to 1974.

Tenure class	Farms		Farming area		Av. area per farm (ha)
	No.	%	Ha	%	
	(1)		(2)		(2)÷(1)
1966:					
Owner	0	0	0	0	0
Owner/leasehold	2	4	10.3	10	5.2
Leasehold	7	15	18.0	17	2.6
Share	35	76	65.9	63	1.9
Share/leasehold	2	4	10.0	10	5.0
Total	46	100	104.2	100	2.3
1974:					
Owner	0	0	0	0	0
Owner/leasehold	4	7	11.4	10	2.8
Leasehold	34	63	54.4	49	1.6
Share	6	11	20.6	18	3.4
Share/leasehold	10	19	25.1	23	2.5
Total	54	100	111.5	100	2.1

1966, but less than 30% in 1974. Beginning in 1968, they were given leasehold titles through the Leasehold Operation in accord with the 1963 Agricultural Land Reform Code. It was reenforced by the 1971 Code of Agrarian Reform and, further, by Presidential Decree Nos. 2 and 27 after the declaration of Martial Law in 1972. The tenancy titles were strengthened by official written contracts, and the rent of leasehold land was fixed at 25% of the average output of 3 normal years prior to the conversion to leasehold tenancy.

However, a significant portion of farmers remain share-tenants. Their landlords were either relatives or friends and this deterred any legal action to change their tenure status.

Agricultural production
Agricultural production in Tubuan is a typical rice monoculture. The whole cultivated land area grows rice.

The most important change in the village economy over the past 20 years was extension of a national irrigation system to the barrio in 1958. Irrigation enabled dry season rice planting, thereby doubling the rice yield per unit of physical area. It also caused conversion of land previously used for upland crops into paddy field.

Since the mid-l960's, hand tractors have replaced carabaos in land preparation. According to the Umehara survey, 14 tractors were already in use by 1966; the number had increased to 21 by 1974. In contrast, the number of carabaos declined from 21 to 4 (Table 2.10).

A major change that began in the late 1960's was the introduction of modern

Table 2.10. Changes in the holdings of productive farm assets (in number), Barrio Tubuan, Laguna, Philippines, 1966 to 1974. [a]

Unit	Total		Large farmers		Small farmers		Landless workers	
	1966	1974	1966	1974	1966	1974	1966	1974
Machines and implements:								
Hand tractor	14	21	12	15	2	6	n.a.	0
Chemical sprayer	0	23	0	15	0	8	n.a.	0
Rotary weeder	45	103	26	51	19	29	n.a.	23
Animals:								
Carabao	21		413	3	8	1	n.a.	0
Hog	n.a.	82	n.a.	43	n.a.	19	n.a.	20
Duck	n.a.	5636	n.a.	678	n.a.	2311	n.a.	2847

[a] n.a. = not available.

Table 2.11. Changes in paddy yield per hectare of harvested area, Barrio Tubuan, Laguna, Philippines, 1966 to 1974. [a]

Season	Changes in paddy yield (t/ha)					
	Total		Large farms		Small farms	
	1966	1974	1966	1974	1966	1974
Wet	2.4	3.0	n.a.	3.0	n.a.	3.1
Dry	3.3	3.8	n.a.	3.8	n.a.	3.9
Total	5.7	6.8	n.a.	6.8	n.a.	7.0
Ratio (%), 1974/1966						
Wet	125		n.a.		n.a.	
Dry	115		n.a.		n.a.	
Total	119		n.a.		n.a.	

[a] n.a. = not available.

semidwarf rice varieties developed at the International Rice Research Institute and the University of the Philippines College of Agriculture. The Umehara survey indicated that no one in the barrio had tried modern varieties in 1966. In 1974, 100% of the farmers planted modern varieties, including IR8, IR1561-228, C4-63, and C4-137. Application of fertilizers and chemicals and adoption of improved cultural practices, such as intensive weeding and straight-row-planting, followed. Such improvements were reflected in dramatic increases in the number of chemical sprayers and rotary weeders owned by the villagers.

Rice yield increased by about 20% from 1966 to 1974 (Table 2.11). Although the interyear comparison may be subject to weather disturbances, there is little doubt that average yield increased significantly.

Considering the difficulty in raising land rent under the land reform regulations, it is reasonable to hypothesize that tenant farmers enjoyed substantial income gains, especially those who operated large holdings under the leasehold

Table 2.12. Average household income ($) [a] by source, Barrio Tubuan, Laguna, Philippines, 1974.

Source	Average household income ($)			
	Average	Large farmers	Small farmers	Landless workers
Farming:				
Rice	475	1288	457	0
Coconuts	19	70	4	0
Other	83	35	120	85
Nonfarm enterprises	36	47	40	27
Wage earnings:				
Farm work	108	28	55	194
Nonfarm work	24	56	11	15
Grant	4	0	0	9
Total household income	749	1524	687	330
Per capita income	131	209	132	70

[a] Income from rice farming for wet season is calculated by subtracting estimated payments to external factors; dry season's income is calculated by assuming the same ratio of paid cost to output value. Income from other sources includes the sales of nonrice farm products, wage earnings, and grants, either in cash or kind. Home consumption of home-produced products except rice is not included in income.

tenure. Tenancy titles began to command high prices — 25 to 35% of land Value.

As shown in Table 2.11, the 1974 average rice yield of large and small farms was similar. Because both modern varieties and fertilizers are adaptable to any size area, their adoption is not difficult for small producers, provided water control is adequate. The unanimous adoption of modern varieties in the barrio, together with the equal yield levels, adds to the evidence that the new rice technology is not affected by scale of operation (International Rice Research Institute 1975; Mangahas et al 1976).

Distribution of farm implements, livestock, and poultry among the three classes of the village community were highly skewed, as shown in Table 2.10. Large farmers owned most of the large machines and implements (tractors and sprayers). Small farmers and even landless workers had significant numbers of small implements (weeders). The landless workers owned weeders because that equipment gave them better opportunities for employment.

More than half of the hogs were raised on large farms. In contrast, duck raising was primarily the enterprise of small farmers and landless workers, as indicated by the distribution of duck holdings.

Income and level of living
It is hazardous to estimate household incomes based on an interview survey at one point of time. Admitting the data limitation, we have prepared the rough estimates of villagers' incomes (Table 2.12).

Incomes of the households in the barrio were distributed with a mean of about $750 ($130 per capita) and a mode of about $580 ($100 per capita).

Table 2.13. Types of houses, Barrio Tubuan, Laguna, Philippines, 1974.

Type of house	Total	Large farmers	Small farmers	Landless workers
Permanent[a]	16	11	4	1
Semi-permanent[b]	34	10	13	11
Temporary[c]	45	3	13	29
Total	95	24	30	41

[a] Made of concrete, wood, galvanized sheet iron materials.
[b] Does not include one of the materials used in the permanent house.
[c] Made of bamboo and leaf materials, using a minimum of lumber.

Table 2.14. Possession of major consumer durable goods, Barrio Tubuan, Laguna, Philippines, 1974.

Consumer durable goods	All households		Large farmers		Small farmers		Landless workers	
	No.	%[a]	No.	%[a]	No.	%[a]	No.	%[a]
Radio	67	69.8	17	68.0	21	70.0	29	70.7
Television	11	11.4	11	44.0	0	0	0	0
Refrigerator	8	8.3	8	32.0	0	0	0	0
Sewing machine	18	18.8	11	44.0	6	20.0	1	2.4
Bicycle	6	6.2	3	12.0	1	3.3	2	4.9

[a] Number of houses that own appliances divided by total number of houses.

There were large income differentials among the three classes in the barrio. The average household income of small farmers was less than one-half that of large farmers and that of landless workers about one-fifth. On a per-capita basis, large farmer income was about 60% higher than small farmer income and almost three times as much as that of landless workers.

Income sources also differed widely among the three major classes. Large farmers depended primarily on their own farming as the major source of income. More than 90% of large farmer income was produced from rice and coconut farming. Rice farming was an equally important income source for large and small farmers. However, small farmers earned little from coconuts — few owned coconut trees. On the other hand, duck raising and hired farm work were significant income sources for small farmers. Those two activities were the major income sources for landless workers.

Income differentials were also reflected in the levels of living. Large farmers tended to have more durable houses than the small farmers and landless workers (Table 2.13).

Electricity became available in 1973, but as of November 1974, only 32 houses had electricity. Major electrical appliances, such as TV and refrigerator, were limited to large farmer households (Table 2.14). Radio was the most common of consumer durable goods but most of them were battery operated. Electricity was primarily used for lighting.

Land preparation with power tiller.

CHAPTER 3
Pattern of labor utilization

THERE IS A SPECTRUM from landless workers to owner operators in the peasant village community, but family labor is invariably a major contributor to the income of peasant households. The nature and the characteristics of various economic activities in the village can best be understood through observation of the labor utilization pattern in the households. We attempt to identify here the pattern of family labor utilization among various tasks and over seasons, based on the records kept by the sample households.

LABOR FORCE AND PARTICIPATION

We first identify the population and the labor force existing in the sample households. Sample observations pertaining to family size and labor availability, together with farm characteristics, are shown in Table 3.1. During the record-keeping period, two landless workers subrented small parcels of paddy fields (0.25 ha each) from tenant farmers. In both cases, the sublease contracts applied only to the dry season in our project period. In summarizing the sample observations, Table 3.2 shows the distribution of family population in relation to the available labor force among the three size classes in the village community.

The average number of family members per household for the whole sample was 5.9, of which 3.5 belonged to the economically active population (13–65 years old) — the labor force potentially available. The labor force ratio is the economically active population divided by the total number of family members — 59% on the average, but slightly higher for females. The relatively low ratio in our sample is representative of the demographic pattern of the village; a large proportion of the population was less than 10 years old (Fig. 2.3).

The labor force ratio in landless worker households was significantly higher than in farmer households. One reason was inclusion of a newly married couple with no children, which was more common among landless than farmer households.

The rate of labor participation is measured as the ratio of working population to economically active population. The working population is family members working more or less full time during the periods of peak labor requirements (rice planting and harvesting). The average labor participation rate was 60% for male and female combined. But the rate was twice as great for male as for female, representing the difference in the occupational distribution by sex in this village (Tables 2.5 and 2.6).

The rate of labor participation of landless families was substantially higher than that of farmer families, especially for females. It appears that the higher participation rates for landless families reflect their greater need to earn income from the employment of their labor.

LABOR USE FOR RICE PRODUCTION

Rice farming demands the major share of labor by villagers. It is, therefore, necessary to understand both technological and institutional characteristics of labor employment for rice production to identify the pattern of family labor utilization in the village households. [1]

Seasonal pattern in rice-farming operations
The basic environmental condition governing the seasonal pattern of rice production is the southwest monsoon, which brings about heavy precipitation from

Table 3.1. Family and farm characteristics of sample households, Barrio Tubuan, Laguna, Philippines, 1 June 1975.

	Household head				Economically active (no.) [a]		Working(no.) [b]		Farm	
	Age	School (yr)	Family size (no.)	Male (no.)	Total	Male	Total	Male	Area (ha)	Tenure status [c]
Large farmer:										
A [d]	43	4	5	1	4	1	2	1	3.5	L(1.5), S(2.0)
B	38	3	11	6	5	2	2	2	3.3	L
C	56	0	8	3	7	3	5	2	3.0	L
D	31	10	6	3	2	1	1	1	3.0	L
Small farmer:										
E	38	3	6	3	2	1	2	1	1.0	L
F	28	11	3	1	2	1	1	1	2.0	S
G	39	6	7	5	3	1	1	1	1.0	S
Landless worker:										
H	43	6	9	4	5	2	4	1	0.25	ST [e]
I	40	10	4	1	4	1	2	1	0.25	ST [e]
J	25	4	4	1	2	1	1	1	0	−
K	32	6	2	1	2	1	2	1	0	−

[a] 13–65yr old.
[b] Working full time at rice planting and harvesting periods.
[c] L refers to leasehold tenancy, S to share tenancy. and ST to sub-tenancy.
[d] Letters represent individual farmers.
[e] Dry season only.

Table 3.2. Average family size, labor force, and labor participation in sample households, Barrio Tubuan, Laguna, Philippines.

	Family members per household (no.)			Labor force ratio(%) (2)÷(1)	Labor participation ratio(%) (3)÷(2)
	Total (1)	Economically active [a] (2)	Working[b] (3)		
All households:					
Male	2.6	1.4	1.2	54	86
Female	3.3	2.1	0.9	64	43
Total	5.9	3.5	2.1	59	60
Large farmer:					
Male	3.3	1.7	1.5	52	88
Female	4.2	2.7	1.0	64	37
Total	7.5	4.4	2.5	59	57
Small farmer:					
Male	3.0	1.0	1.0	33	100
Female	2.3	1.3	0.3	57	23
Total	5.3	2.3	1.3	43	57
Landless worker:					
Male	1.8	1.2	1.0	67	83
Female	3.0	2.0	1.2	67	60
Total	4.8	3.2	2.2	67	69

[a] 13–65 yr old.
[b] Working full time at rice planting and harvesting periods.

May through November (the rainfall distribution in Fig. 3.1).

The pattern of rice production has undergone drastic changes since the irrigation system was extended and the modern rice varieties were introduced. Irrigation enabled a rice crop in the dry season. Double-cropping was facilitated by the introduction of modern varieties characterized by early maturity and insensitivity to photoperiod. Compared with traditional varieties that require 150 to 180 days to mature, modern varieties need only 110 to 130 days. A dry-season crop to be harvested in April became possible with modern varieties, because flowering did not relate to day length. Also, the wet-season crop is harvested in October before the rainy season is over.

Seasonal sequences in rice farming operations commonly practiced today are as illustrated in Fig. 3.2. In the traditional pattern, land preparation, transplanting, and harvesting use a predominant portion of labor input. Hand tractors reduced the labor requirement for land preparation. The introduction of modern varieties and a high rate of fertilizer application increased the need for weeding. The labor requirement for harvesting and threshing also increased,

[a] For the general characteristics of rice economy in the Philippines, see Castillo (1975). Mears et al (1974), and Philippine Sociological Society (1972.)
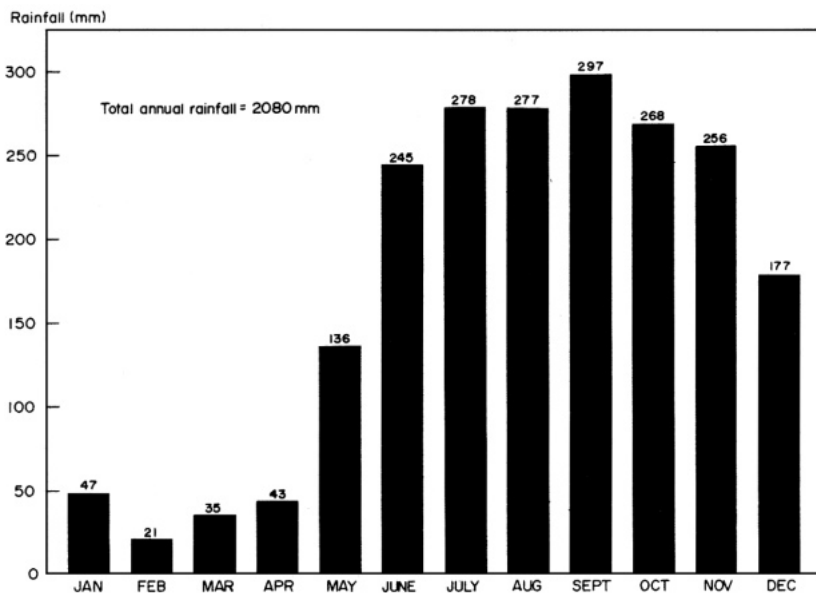
3.1. Average monthly rainfall in Sta. Cruz, Laguna, Philippines, for 1965–75.
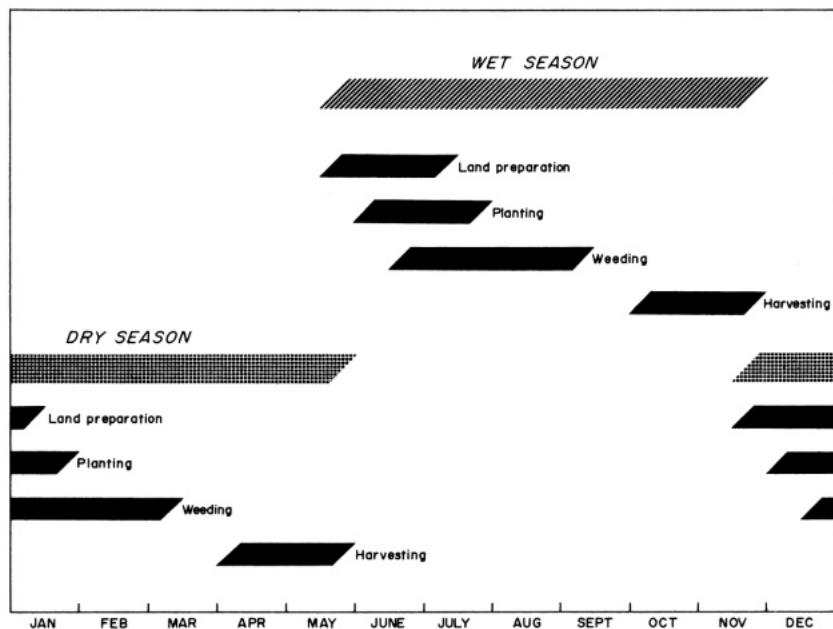
3.2. Seasonal sequence of rice-farming operations, irrigated areas, Laguna, Philippines.
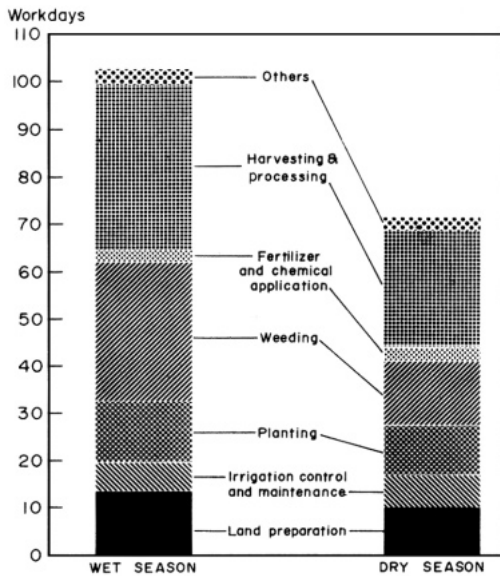
3.3. Average labor inputs for rice production per hectare (workdays) in sample households, 1974.

corresponding to the increased output. These changes were commonly observed in Laguna as well as Central Luzon (Barker and Cordova 1978).

In the distribution of labor input for rice production per hectare by tasks, based on the records of our sample farmers, harvesting and processing — threshing, cleaning, drying, and hauling — had the largest share of total labor input, followed by weeding (Fig. 3.3). Those two major tasks took about 60% of the total labor. Land preparation, which had traditionally used more than 20% of total labor input (Barker and Cordova 1978), required less than 15% in our sample.

On the whole, the wet-season labor requirements were considerably higher than those for the dry season; differences were particularly large for harvesting and weeding. Usually, wet fields are more difficult to work, especially for harvesting. Also, more intensive weeding is required in the wet season, because higher summer temperatures encourage weed growth during the early stage of the wet-season crop.

There was a distinct seasonality in the labor input for rice production per hectare, which determined the seasonal pattern in family-labor utilization in the village (Fig. 3.4). Labor requirements for production had four seasonal peaks. The highest peak was in October, which corresponds to the period of wet-season harvesting; the second highest was in June and July for land preparation, planting, and weeding in the wet season. Labor peaks for the dry season
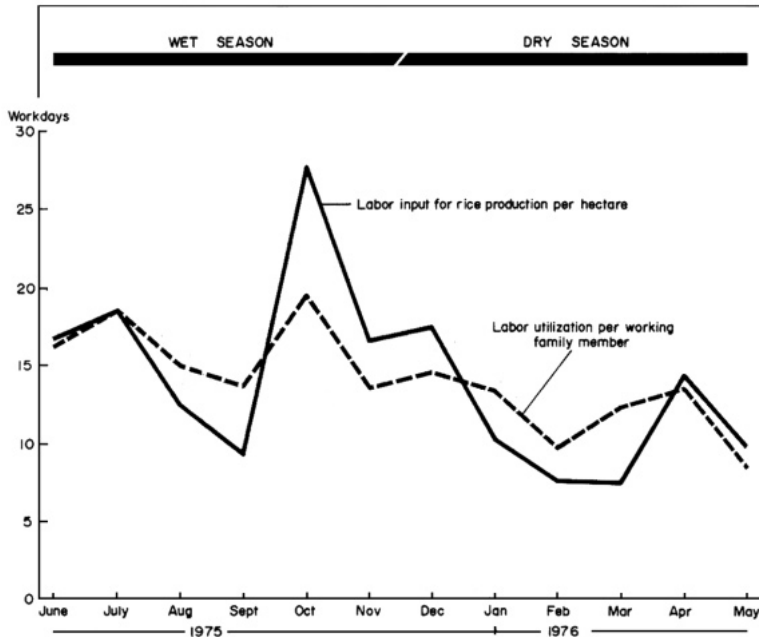
3.4 Monthly changes in labor input for rice production per hectare and labor utilization per working family member (workdays) in sample households, 1975–76.

(December–January for land preparation, planting, and weeding, April for harvesting) were much lower.

Despite the difference in labor-input level, yields per hectare were almost the same between wet and dry seasons (Table 3.3). As a result, labor productivity measured by rice output per workday was higher for the dry season, especially in the case of large farmers.

Output per workday for the wet season was substantially higher for small than for large farmers, primarily because of the good yields. However, overall there seems to be no significant difference in labor productivity between large and small farmers.

Forms of labor employment

Three categories of labor used for rice production are family labor, exchange or mutual-help labor, and hired labor.

Tables 3.4 and 3.5 show how total labor inputs for rice production were divided into those of family, exchange, and hired workers. More than half the total labor input was contributed by hired workers. The share of family labor was about 40%, exchange 7%.

DEPENDENCY ON HIRED LABOR. The high rate of dependency on hired labor was due to a system common in rice-producing regions in the Philippines. Farmers

Table 3.3. Labor inputs and labor productivities in rice production in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average	Large farmers	Small farmers
Rice output (kg/ha):[a]			
(1) Wet	3653	3212	4240
(2) Dry	3491	3415	3593
(3) Total (1)+(2)	7144	6627	7833
Total labor input (days/ha):			
(4) Wet	102.4	107.7	94.4
(5) Dry	71.1	68.6	74.9
(6) Total (4)+(5)	173.5	176.3	169.3
Family labor input (days/ha):			
(7) Wet	43.8	44.8	42.4
(8) Dry	28.2	24.3	34.3
(9) Total (7)+(8)	72.0	69.1	76.7
Total labor productivity (kg/day):			
Wet (1)÷(4)	36	30	45
Dry (2)÷(5)	49	50	48
Total (3)÷(6)	41	38	46
Family labor productivity (kg/day):			
Wet (1)÷(7)	83	72	100
Dry (2)÷(8)	124	141	105
Total (3)÷(9)	99	96	102

[a]Rice output in paddy terms.

were employed by other farmers — they employed each other in their farm operations. The system developed under the output and cost sharing tenancy (*kasama*) in an attempt by tenants to minimize the landlord's share (Takahashi 1970). In that system, even if the family labor income from rice production on their farm was reduced by the amount paid to neighbors, the reduction would be more than compensated for by the family's wage earnings from the neighbors. This resulted in a higher level of labor income for tenants in the village as a whole.

This system, which may be called "labor exchange with wage payments," is more beneficial for share-tenants than *bayanihan* in which labor is exchanged without payments. Even though a majority of share tenants have recently been converted into leaseholders, this system has not changed, partly because of social inertia and partly because of social compulsion within the community to employ landless members.

Not all the wage payments were considered as deductible costs in the traditional tenure arrangements. Usually, land preparation and crop-caring, such as fertilizer application and water control, are done by the tenant's own labor. Landlords and tenants are supposed to share the costs of transplanting and har-

vesting. Transplanting and harvesting, which require more precise timing, are more difficult to carry out by family labor alone.

Dependency on hired labor was highest for harvesting and next highest for planting. In contrast, the share of family labor was highest for "others," which

Table 3.4. Composition of family, hired, and exchange labor used for rice production per hectare (workdays) by tasks in sample households, Barrio Tubuan, Laguna, Philippines, wet season 1975.

Task, labor source	Labor used for rice production per hectare					
	Average		Large farmers		Small farmers	
	Days	%	Days	%	Days	%
Land preparation:						
Family	5.9	45	8.0	55	2.8	25
Exchange	1.3	10	1.3	9	1.4	13
Hired	6.0	45	5.3	36	6.9	62
Total	13.2	100	14.6	100	11.1	100
Planting:						
Family	4.2	33	5.8	42	1.8	16
Exchange	2.5	20	1.5	11	3.9	35
Hired	6.0	47	6.4	47	5.5	49
Total	12.7	100	13.7	100	11.2	100
Weeding:						
Family	15.6	52	18.8	53	10.7	51
Exchange	3.2	11	3.8	11	2.3	11
Hired [a]	10.9(5.1)	37	12.8(1.9)	36	7.9(7.9)	38
Total	29.7	100	35.4	100	20.9	100
Harvesting and processing:						
Family	9.6	28	7.7	22	12.6	38
Exchange	0.2	0	0.4	1	0	0
Hired	24.9	72	27.7	77	20.7	62
Total	34.7	100	35.8	100	33.3	100
Others:						
Family	8.5	70	4.5	55	14.5	81
Exchange	0.3	3	0.5	6	0	0
Hired	3.3	27	3.2	39	3.4	19
Total	12.1	100	8.2	100	17.9	100
Total:						
Family	43.8	43	44.8	42	42.4	45
Exchange	7.6	7	7.5	7	7.6	8
Hired	51.0	50	55.4	51	44.4	47
Total	102.4	100	107.7	100	94.4	100

[a] Figures in parentheses represent days of hired labor under the gama system.

includes irrigation control and fertilizer and pesticide applications. In land preparation, family labor was a major component for large farmers, but it was relatively minor for small farmers. This was because few small farmers owned tractors; they had to depend on custom work.

Table 3.5. Composition of family, hired, and exchange labor used for rice production per hectare (work-days) by tasks in sample households, Barrio Tubuan, Laguna, Philippines, dry season 1975.

Task, labor source	Labor used for rice production per hectare					
	Average		Large farmers		Small farmers	
	Days	%	Days	%	Days	%
Land preparation:						
Family	4.6	46	5.7	50	3.1	39
Exchange	2.5	25	0.9	8	4.7	59
Hired	2.9	29	4.7	42	0.2	2
Total	10.0	100	11.3	100	8.0	100
Planting:						
Family	2.9	28	2.2	23	4.0	35
Exchange	0.9	8	1.5	15	0.1	1
Hired	6.6	64	6.0	62	7.4	64
Total	10.4	100	9.7	100	11.5	100
Weeding:						
Family	5.5	40	5.1	35	5.9	49
Exchange	0.7	5	1.2	8	0	0
Hired[a]	7.4 (4.7)	55	8.4 (4.4)	57	6.1 (5.2)	51
Total	13.6	100	14.7.	100	12.0	100
Harvesting and processing:						
Family	5.2	21	4.4	19	6.6	25
Exchange	0	0	0	0	0	0
Hired	19.2	79	19.0	81	19.4	75
Total	24.4	100	23.4	100	26.0	100
Others:						
Family	10.0	79	6.9	73	14.7	84
Exchange	0.5	4	0.5	5	0.4	2
Hired	2.2	17	2.1	22	2.3	14
Total	12.7	100	9.5	100	17.4	100
Total:						
Family	28.2	40	24.3	35	34.3	46
Exchange	4.6	6	4.1	6	5.2	7
Hired	38.3	54	40.2	59	35.4	47
Total	71.1	100	68.6	100	74.9	100

[a] Figures in parentheses represent days of hired labor under the *gama* system.

Table 3.6. Monthly labor inputs per hectare for rice production in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Monthly labor inputs/ha for rice production								
	Average			Large farmers			Small farmers		
	Total days	Hired		Total days	Hired		Total days	Hired	
		Days	%		Days	%		Days	%
1975:									
June	16.7	8.8	53	17.9	10.8	60	15.2	6.2	41
July	18.3	7.7	42	20.9	9.4	45	14.8	5.5	37
Aug	12.4	3.8	31	14.1	3.7	26	10.1	4.0	40
Sept	9.2	4.1	45	9.2	3.6	39	9.2	4.7	51
Oct	27.5	16.0	58	27.5	19.7	72	27.5	11.1	40
Nov	16.5	6.9	42	18.5	9.2	50	13.8	3.8	28
Dec	17.6	11.0	63	14.7	8.6	59	21.4	14.2	66
1976:									
Jan	10.0	4.5	45	11.7	5.7	49	7.7	3.0	39
Feb	7.9	3.5	44	5.9	2.7	46	10.5	4.7	45
Mar	7.5	3.0	40	7.4	5.3	72	7.7	0	0
Apr	14.2	11.1	78	15.3	13.1	86	12.7	8.3	65
May	10.2	7.5	74	6.3	3.4	54	15.4	12.8	83
Total	168.0	87.9	52	169.4	95.2	56	166.0	78.3	47

A seasonal pattern developed in which the ratio of hired labor in total labor input for rice production was larger in the months of higher labor requirements (Table 3.6).

Even though planting and harvesting require a high rate of hired labor, the types of labor contracts used were entirely different. In transplanting, the organizer of a team of transplanters called *kabisilya* usually contracts with farmers on a per-hectare basis or in terms of the number of workers that he supplies. In any case, the *kabisilya* receives a lump-sum payment from which he pays workers a certain daily rate.

PARTICIPATION IN HARVEST. Harvesting has traditionally been done as a kind of community activity called *hunusan*. In this system, any villager can participate in harvesting and threshing, and the harvesters are entitled to receive one-sixth of the output. However, the *hunusan* system has recently been replaced by a new system called *gama*. The *gama* system is a contractual arrangement wherein those who want to participate in harvesting agree to weed a field in exchange for the right to be employed as harvesters and receive one-sixth of the produce. This system has been diffused widely in Laguna dur-

ing the past decade and recently spread into Central Luzon (Barker and Cordova 1978).

The *gama* system was introduced to Barrio Tubuan after the extension of the national irrigation system and diffused rapidly with the development of the seed-fertilizer technology. As shown in Tables 3.4 and 3.5, nearly half the weeding labor was carried out under the *gama* system. Dependency of small farmers on *gama* labor was high — nearly 100% of hired labor for weeding. In contrast, large farmers relied on *gama* as a relatively minor fraction of hired weeding labor. Large farmers can afford to pay for weeding in cash, while small farmers prefer to wait until harvest even if it is more costly to pay for weeding-cum-harvesting on the crop-sharing basis.

RATIONALE OF GAMA SYSTEM. The major factor underlying the development and diffusion of the *gama* system may have been the cumulative gap between the marginal product of harvesting labor and the one-sixth of output (Kikuchi et al 1977). At the low level of yield under traditional technology, the one-sixth of output would have been close to a market wage rate, which could approximate the marginal product of labor for crop harvesting. However, as land productivity increased, the one-sixth of harvest should have become substantially larger than the prevailing market wage rate.

In such a situation, farmer employers could increase their incomes by reducing harvesters' share to lower than one-sixth. Or they could replace the *hunusun* labor with hired labor at the market wage rates. There would be considerable resistance, however, to a change in the long-established custom in the community. Also, even though labor is normally abundant, there is a risk because a farmer may not find sufficient daily wage workers when needed. On the other hand, the *gama* is more congruent with the traditional *hunusan* system, thereby involving less social friction in its introduction, and the availability of labor at havest time is guaranteed by contract. From the employee's standpoint, the *gama* is more secure.

Thus, the traditional mode of harvesting work as a communal activity according to the principle "sharing outputs in the village" has not been replaced by modern employment through market. Instead, a patron-client relation between farmer employers and landless workers (and small farmers) has developed with the *gama* system. In this way, landless workers have continued to be included in the peasant community as an integral unit of an organic body?

Wage costs for rice production

Different arrangements in the various forms of labor employed for rice produetion are reflected in large variations in the average wage per workday among

[2]This contrasts with a shift from the *bawon* system (a traditional share harvesting similar to *hunusan*) to the *tebasan* system in Java (Collier et al 1974). In the *tebasan* system, the rice crop is sold to middlemen before the harvest. Buyers harvest by employing workers at market wage rates. Although the motivation—to reduce harvesters' share corresponding to productivity increases — is the same for *gama* and *tebasan,* the latter had the effect of destroying the traditional village structure.

Table 3.7. Wage payments to hired workers for rice Production per hectare, average of all farmers, Barrio Tubuan, Laguna, Philippines, 1975–76.

Season, task	Wage payments ($/ha)				Total workdays (no./ha)	Av. wage ($/ha)
	Total	Cash		Kind		
		(2)	(2) , (1)	(3)	(4)	(1) , (4)
	(1)	(2)	(2) , (1)	(3)	(4)	(1) , (4)
Wet season:						
Land preparation	13.5	13.1	97	0.4	6.0	2.3
Irrigation control	2.7	2.3	85	0.4	2.7	1.0
Planting	5.9	5.6	95	0.3	6.0	1.0
Weeding	3.7	3.4	92	0.3	10.9	0.3
Fertilizer application	0.3	0.3	100	0	0.2	1.5
Harvesting & processing	70.3	1.4	2	68.9	24.9	2.8
Others	0.3	0.3	100	0	0.3	1.0
Total	96.7	26.4	27	70.3	51.0	1.9
Dry season:						
Land preparation	3.4	3.0	88	0.4	2.9	1.2
Irrigation control	2.0	1.9	95	0.1	1.7	1.2
Planting	8.0	7.9	99	0.1	6.6	1.2
Weeding	2.9	2.6	90	0.3	7.4	0.4
Fertilizer application	0.3	0.3	100	0	0.4	0.8
Harvesting & processing	60.8	1.1	2	59.7	19.2	3.2
Others	0	0	–	0	0.1	0
Total	77.4	16.8	22	60.6	38.3	2.0
Total (wet+dry)	174.1	43.2	25	130.9	89.3	2.0

tasks (Table 3.7). The average wages paid for weeding were especially low and those for harvesting high.

Such differences do not reflect the differences in effective wage rates between those two tasks. Weeding labor under the *gama* arrangement was included in the total number of workdays for weeding. Because the *gama* workers weed a field free of charge in exchange for the right to be employed for harvesting on a crop-share basis, the wage payments for harvesting include payments to both weeding and harvesting work. Therefore, the average wages for weeding, calculated by dividing total wage payment by total number of workdays, represent gross underestimates of the effective wage rates for weeding, whereas those for harvesting   represent   overestimates.

Total labor costs, including the wages actually paid to hired workers and the imputed wage costs of unpaid family labor, were estimated in Table 3.8. The imputations of family labor costs were made by applying the standard market wage rates (Table 3.9). On the average, the imputed family labor cost was about   40%.

The share of hired labor in total labor cost of small farmers was higher than that of large farmers (63% vs 56%). Part of the reason for the high wage pay-

Table 3.8. Labor costs ($1 of rice production per hectare in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average	Large farmers	Small farmers
Hired wage cost ($/ha):			
(1) Wet	96.7	77.1	122.6
(2) Dry	77.4	75.6	79.9
(3) Total (1) + (2)	174.1	152.7	202.5
Imputed wage cost ($/ha) for family labor: [a]			
(4) Wet	74.0	78.7	67.9
(5) Dry	46.3	41.9	52.0
(6) Total (4)+(5)	120.3	120.6	119.9
Total labor cost ($/ha):			
(7) Wet (1)+(4)	170.7	155.8	190.5
(8) Dry (2)+(5)	123.7	117.5	131.9
(9) Total (7)+(8)	294.4	273.3	322.4
Value ($) of rice output:[b]			
(10) Wet	522.4	459.3	606.3
(11) Dry	499.2	488.3	513.8
(12) Total	1021.6	947.6	1120.1
Labor's share (%) of output:			
Wet (7)÷(10)	32.7	33.9	31.4
Dry (8)÷(11)	24.8	24.1	25.7
Total (9)÷(12)	28.8	28.8	28.8

[a] Includes exchange labor. See Table 3.9 for the wage rates used for imputation
[b] Assumes $0.1483 kg of paddy.

ment to hired workers by small farmers was that the small farmers relied more heavily on *gama* labor for weeding, and on tractor custom work for land preparation.

Relative shares of labor in total rice output were also estimated in Table 3.8. On the average, the total labor cost was about 30% of the total value of rice output. The share of labor was slightly higher for the wet than for the dry season, but there was little difference between large farmers and small farmers.

UTILIZATION OF FAMILY LABOR

With our background data on technical and institutional structures in labor use for rice production, we identified the pattern of utilization of family labor in village households. Use of family labor measured here includes only income-producing activities — both self-employed work on farms and in other family enterprises and outside employment, but not household chores such as cooking and sweeping.

Table 3.9. Standard wage rates used for imputing family labor costs.

	Standard wage rates	
	₱/day	$/day
Rice production activities:		
Plowing	12.0	1.71
Harrowing	12.0	1.71
Weeding	12.0	1.71
Clearing dikes	11.0	1.57
Repairing dikes	11.0	1.57
Fertilizer application	11.0	1.57
Spraying chemicals	11.0	1.57
Harvesting and threshing	11.0	1.57
Transplanting and replanting	8.3	1.19
Clearing rice straw	5.0	0.71
Seedbed preparation	5.0	0.71
Visiting rice fields	5.0	0.71
Irrigating and draining	5.0	0.71
Rice processing	5.0	0.71
Drying	5.0	0.71
Nonrice agricultural activities:		
Fishing	5.0	0.71
Gardening	5.0	0.71
Feeding pigs	5.0	0.71
Feeding ducks	5.0	0.71
Nonagricultural occupations:		
Tricycle driving	10.0	1.43
Carpentry	12.0	1.71
Storekeeping	5.0	0.71
Marketing	5.0	0.71

Allocation of family labor

Table 3.10 shows how the family members allocate their time among different jobs in terms of average number of workdays per working member. On the average, one working family member spent about one-half the total workdays for self-employed work — of which two-thirds was used for rice farming — and another one-half for outside employment as a hired worker. Labor in exchange for mutual help was a relatively small portion of total workdays. In this area, mutual help takes the form of mutual employment with wage payments, as explained earlier.

The allocation of family labor was, of course, different between farmer sand landless workers. About 70% of total family workdays of both large and small farmers was spent on self-employment. In contrast, landless workers spent more than 80% of their time in hired employment. The majority of large farmers' self-employment was in rice farming, whereas small farmers allocated less time to rice than to nonrice farming. Labor allocated to nonagricultural enterprise and to the production of capital was almost negligible.

Table 3.10. Allocations of family labor among different tasks, workdays per working family member per year in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Allocation of family labor							
	Average		Large farmers		Small farmers		Landless workers	
	Days	%	Days	%	Days	%	Days	%
Self-employed:								
Rice farming	51.2	31.5	86.3	53	64.2	33	7.7	5
Nonrice farming	24.2	15	17.6	11	76.0	40	9.9	6
Nonagricultural enterprise	1.5	1.0	3.4	2	0	0	0	0
Capital production	0.7	0.5	0	0	0	0	2.0	1
Total	77.6	48	107.3	66	140.2	73	19.6	12
Exchange	7.1	4	2.0	1	19.9	10	7.5	5
Hired:								
Village employment	75.0	46	49.6	31	31.8	17	126.4	79
Rice work	67.8	42	36.4	23	27.9	14	124.1	78
Others	7.2	4	13.2	8	3.9	2	2.3	1
Urban employment	3.5	2	2.7	2	0.6	0	6.0	4
Total	78.5	48	52.3	33	32.4	17	132.4	83
Total	163.2	100	161.6	100	192.5	100	159.5	100

Urban employment opportunities were few in Barrio Tubuan. More than 95% of off-household employment was in jobs within the village, and primarily involved rice farming. Thus, the portion of family labor used for rice farming, including that for both self-employment and hired employment, was about 80% for landless workers, and was even higher than that for farmers.

Rates of labor utilization

Given such a dominant weight on rice farming in the total employment of family labor, the rates of family labor utilization in the village were governed primarily by the seasonality in rice-farming operations, as already observed in Figure 3.4.

The rates of utilization of family labor in terms of workdays per household and per working member are shown in Table 3.11. On the average, one household utilized about 340 days of family labor, and each working member of the family worked about 160 days per year on income-generating activities.

Total number of workdays per household of large farmers and of landless workers was substantially higher than that of small farmers. But, because the number of working family members was smaller, the average number of workdays per working member was largest for small farmers, although the differences in labor utilization rates among the three groups were relatively minor. Rates of labor utilization were higher for the wet season than for the dry sea-

Table 3.11. Family labor utilization per household and per working family member in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Total no. workdays per household				Av. no. workdays per working member			
	Average	Large farmers	Small farmers	Landless workers	Average	Large farmers	Small farmers	Landless workers
1975								
June	33.1	49.1	25.8	22.5	15.8	19.6	19.8	10.2
July	38.5	48.2	24.4	39.3	18.3	19.3	18.8	17.9
Aug	31.6	47.5	18.4	25.6	15.0	19.0	14.2	11.6
Sept	28.4	38.1	17.4	26.8	13.5	15.2	13.4	12.2
Oct	39.0	39.2	28.6	46.5	18.5	15.7	22.0	21.1
Nov	27.0	34.2	22.2	23.5	12.9	13.7	17.1	10.7
Dec	29.3	37.9	21.3	26.6	14.0	15.2	16.4	12.1
1976								
Jan	27.9	28.6	16.0	36.2	13.3	11.4	12.3	16.5
Feb	21.2	18.6	17.6	26.7	10.1	7.4	13.5	12.1
Mar	23.9	23.4	21.9	26.0	11.4	9.4	16.8	11.8
Apr	26.5	20.0	20.8	37.3	12.6	8.0	16.0	17.0
May	16.4	19.3	15.9	13.9	7.8	7.7	12.2	6.3
Total	342.8	404.1	250.3	350.9	163.2	161.6	192.5	159.5

son. This tendency reflects the higher labor demand for wet-season harvesting and weeding, as expected from the data in Figure 3.3.

The average rate of family labor utilization was rather low. Assuming rather conservatively that the full utilization of labor of a working family member was 20 days/month, the labor utilization rate was less than 70% of full capacity. In fact, the actual rate of family labor utilization should have been much lower than this calculation indicates, because the number of workdays in Table 3.11 includes the days of work by "working members" and those of casual help from other family members.

Such high degree of underemployment was due to large seasonal fluctuations in labor demand resulting from a rice monoculture. Full labor utilization was nearly reached only during the months of rice planting (June-July) and harvesting (October-November) in the wet season. Large amounts of labor were left idle during the other months.

The problem was that the major demands of self-employment and hired employment of villagers, both subject to the same seasonality, were derived from a single source — rice production. The seasonal underemployment was inevitable because nonfarm employment opportunities were not sufficient (as indicated in Table 3.10). Another factor that aggravated the degree of underemployment was a lack of effort to utilize, individually or communally, slack-season labor for capital formation, such as irrigation and drainage construction.
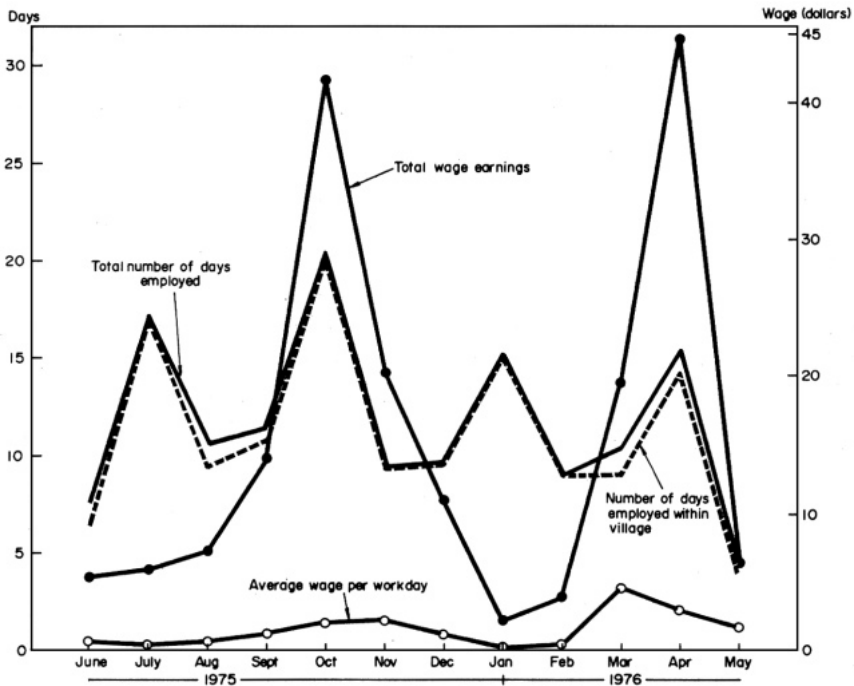
3.5. Monthly changes in employment and wage earnings per working member of the landless worker households in the sample, 1975–76.

Employment and earnings of landless workers

The seasonal nature of family labor utilization and labor income in this village can be observed most clearly in monthly changes in the hired employment and the wage earnings of landless workers because they depend primarily on off-household employment (Fig. 3.5).

There were four seasonal peaks in the employment of landless workers — July for wet-season weeding. October for wet-season harvesting, January for dry-season weeding, and April for dry-season harvesting. However, there were only two peaks in the total wage earnings, October and April, because under the *gama* system, most wages for weeding were paid as crop shares at harvest time. For the same reason, monthly average wages were high during harvesting months and low during weeding months.

Employment within the village was the major source of earnings for landless workers. Income from nonfarm employment outside the village accounted for only 5% of total wage earnings during the year and did not exceed 30% even in August when the ratio of income from nonvillage employment was highest (Table 3.12). It is clearly demonstrated that the labor market for villagers was primarily within the village and, therefore, their labor utilization and earnings were subject to the seasonality of agricultural production.

Table 3.12. Monthly wage earnings per working member of the landless worker households in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Days employed		Wage earnings ($)		Average wage ($/day)	
	Total (1)	Within village (2)	Total (3)	Within village (4)	Within village (4)÷(2)	Outside village [(3)−(4)]÷[(1)−(2)]
1975						
June	7.4	6.3	5.4	4.0	0.6	1.3
July	17.3	16.9	5.9	5.6	0.3	0.8
Aug	10.6	9.4	7.4	5.5	0.6	1.6
Sept	11.5	10.7	14.1	13.0	1.2	1.4
Oct	20.2	20.2	41.7	41.7	2.1	−
Nov	9.3	9.3	20.2	20.2	2.2	−
Dec	9.6	9.6	10.9	10.9	1.1	−
1976						
Jan	15.1	15.1	1.9	1.9	0.1	−
Feb	9.0	9.0	3.8	3.8	0.4	−
Mar	10.3	9.0	19.5	18.3	2.0	0.9
Apr	15.3	14.1	44.8	42.3	3.0	2.1
May	4.5	4.5	6.3	6.0	1.3	−
Total	140.1	134.1	181.9	173.2	1.3	1.5

Straight-row rice planting using guided lines.

Weeding with a rotary weeder.

CHAPTER 4

Household income flows[1]

IN THE PREVIOUS CHAPTER, we approached the economic activities in a village community in terms of labor utilization. Labor applied to the production process, together with other factors, generated incomes that were partly paid to outside factors and partly consumed; the balance was saved by the village households. The savings were invested within the village or flowed out with the result of an increase in financial claims. In this chapter, we document such flows of income among various activities in the peasant economy in terms of a set of household accounts.[2]

SPECIFICATION AND ESTIMATION OF ACCOUNTING SYSTEMS

A first step in examining village income flows is to specify the system of economic accounts appropriate for the documentation of income flows in the village households.

Accounting systems

To be useful for the analysis of the less developed economies of a semisubsistence nature, the standard system of economic accounts, such as the UN *System of National Accounts* (United Nations 1968), needs substantial modification (Mukherjee et al 1975).

The first consideration in designing an accounting system relevant to the village economy is that village households engage in a multitude of production activities. Although rice farming is a dominant enterprise in the barrio under study, the village households also engage in nonrice farming activities such as duck and hog raising, and in nonagricultural production activities such as tricycle driving. These production activities are interrelated not only in sharing the

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[1] Readers who are not interested in technical detail may wish to skip this chapter.
[2] Data in this chapter were also reported in Hayami and Kikuchi (1977).

services of factors owned by the households but also through the internal flow of products (e.g. a part of the paddy produced from rice farming is used as feed for duck raising).

Value added from the current production activities, together with income earned by family factors employed outside (such as wages from hired work), represents the major source of household income for the purchase of consumption goods and services. The account that establishes the income expenditure identity should be linked directly with current production accounts through the home consumption of commodities produced from the household's farming activities.

A distinct characteristic of the peasant economy is production of capital by the peasants' own labor, such as building houses and constructing irrigation ditches. Such capital production activity should be documented in an independent account. Value added from the capital production activities by use of family-owned factors should enter into the capital finance account as a source of financing capital formation, together with the savings in the household income expenditure account.

Finally, all transactions of households with other village households and the economy outside the village should be put together into a transaction account to complete the system.

The system we designed to incorporate such attributes of peasant households consists of seven accounts (see Chap. 1). The system is completely articulated and is, in principle, consistent with the framework of the UN *System of National Accounts.* Major deviations from the standard UN system are:

- Our system is in gross terms without the explicit entries of depreciation.
- Value added attributable to family-owned factors in fixed-capital production is not included as a part of income in the income-expenditure account, but it enters directly into the capital finance account as a source of financing capital formation.
- The imputed house rent is not included in both sides of the income-expenditure account, primarily because of the imputational problem involved.

Imputation

The major problem in accounting economic activities in the village households is how to impute the values of goods and services that do not pass through market transactions. Rice and family labor were two major items where the portions of nonmarket transactions were especially important.

Not only was a major portion of rice produced in the village consumed directly by producers' households, but rice was extensively used as an exchange medium, including payments for hired labor and land rent. In this study, we adopted the standard rates for imputing the value of rice as $0.143/kg of paddy and $0.299/kg of milled rice, which were the typical market prices during the study period. The cost of rice milling for home consumption, which was usually

paid to millers as a portion of rice milled or bran, was assumed as 5% of the value of the paddy milled.

The values of other agricultural products producers consumed directly or used for exchange were imputed according to the valuation of the record keepers.

The imputations of family labor costs were based on the standard market wage rates for tasks that prevailed during the period of record keeping (Table 3.9). Those standard wage rates were also used to separate labor costs from capital costs in the payments to tractor custom work. Because the payments for tractor custom work include both the operator's wage and the capital rental for the tractor, we assumed the difference between total payment and imputed wage cost as the capital rental.

Because our farmer-cooperators were all tenants and actually paid rents to landlords, we did not make any imputation of land rents. The tenancy title, however, commands a value in this village (see Chap. 5). This means that the tenants received a part of the functional income share of land. Therefore, our rent data may underestimate functional land rent.

PATTERNS OF INCOME FLOWS

The accounts of income flows in the village households for the 1-year period from 1 July 1975 to 31 May 1976, estimated from our sample record-keeping data, are shown in Private Account (PA/C) tables at the end of this chapter. From the estimates, we try to identify the patterns in the flows of income and the corresponding flows of goods and services in the village.

Rice production characteristics
Outputs and income generated from rice farming, as documented by the *Current Rice Production Account* (PA/C Table IR), are summarized in Table 4.1.

The rice produced on the farm was disposed of through sale (and payment in kind), home consumption, use as seed and feed, and inventory change. However, the whole amount of rice recorded as disposed of by farmers for these uses was not necessarily produced from their own farms. They may have received rice as wages when employed by neighbors or as interest to their loans or, simply, as grants. Such "nonoutput rice receipts" were especially important for landless workers. In the rice production account, the nonoutput rice receipt should be deducted from the total rice disposition to arrive at the estimate of rice output.

For the landless workers who have no operational landholding, the nonoutput rice receipt equals the total rice disposition. However, during the period of record keeping, two cooperators in the landless class of our sample subleased small parcels of paddy field (0.25 ha each) from other tenants. Therefore, rice output and costs were also recorded for landless workers, even though the amounts were negligible.

Table 4.1. Output and incomes ($) from rice production per household in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.[a]

	Average	Large farmers	Small farmers	Landless workers
(1) Total disposition	1615	2835	1594	411
of rice	(100.0)	(100.0)	(100.0)	(100.0)
Sale in cash	634	1285	383	172
	(39.2)	(45.3)	(24.0)	(41.8)
Payment in kind	673	1044	944	98
	(41.7)	(36.8)	(59.2)	(23.8)
Home consumption	174	236	153	127
	(10.8)	(8.3)	(9.6)	(30.9)
Farm input use	85	151	110	0
(seeds & feeds)	(5.3)	(5.3)	(6.9)	(0)
Inventory change	49	119	4	14
	(3.0)	(4.2)	(0.3)	(3.4)
(2) Nonoutput rice	192	71	115	371
receipt	(11.9)	(2.5)	(7.2)	(90.3)
(3) Total rice output	1423	2764	1479	40
(1)-(2)	(100.0)	(100.0)	(100.0)	(100.0)
Value added	1195	2272	1298	40
(Value added ratio)	(84.0)	(82.2)	(87.8)	(100.0)
Family factor income	497	1125	362	–30
(Family income ratio)	(34.9)	(40.7)	(24.5)	(–75.0)

[a] Percentages in parentheses.

The proportion of nonoutput rice receipts to the total disposition or total receipts of rice were less than 3% for large farmers and about 7% for small farmers, but as high as 90% for landless workers. The major source of their nonoutput rice receipts was in employment for harvesting on an output-sharing basis (*gama*). Small farmers as well as landless workers were employed by large farmers.

About 40% of the rice was sold for cash. Another 40% was paid out in kind as land rent and hired labor wages, and in exchange for other production inputs and consumption goods.

Cash sales by large farmers were considerably larger than those by small farmers, whereas the ratio of payment in kind by small farmers was larger; such contrast resulted primarily from the larger payment of land rent in kind by small farmers. The average rent payment by large farmers ($523) was smaller than small farmers' ($629) even though the average farm size of large farmers was 3.2 ha, and small farmers, 1.3 ha.

The difference in the rate of land rent ($163/ha for large farmers vs $483/ha for small farmers) seems to be primarily due to the difference in tenure arrangements. A majority of small farmers were under share tenancy, while most large farmers were under leasehold tenancy (Table 3.1). This suggests that large farmers were capturing a part of the functional income share of land in the form of residual farm profit.

Home consumption and farm input together constituted about 15% of total rice disposition for the average of all sample households. However, home consumption by landless workers was as high as 30%.

On the average, value added from rice farming, calculated by subtracting current inputs including rice seed, was 84% of total output value. Family income, the sum of imputed incomes of family factors, was 42% of value added.

On the average, the share of labor in external cost was 41% and that of family labor income, 35%. Because the share of external factor cost in total value added was larger (63%), the percentage of value added from rice production accruing to hired labor (24%) was substantially larger than that accruing to family labor (15%). This share of hired labor in value added in rice farming was the major income source of landless households in the village.

A major contrast is that the ratio of family income to total value added for large farmers was substantially larger than that for small farmers. The reason for the low family income ratio for small farmers was the high rate of land rent for them.

Value added per hectare of rice field was about 40% higher for small farmers than for large farmers (Table 4.2). However, because the external factor cost (payment to external factors) was nearly twice larger for small farmers, per-hectare income was larger by 25% for large farmers.

On the average, factor shares in total value added from rice farming were about 30% each for land and capital, and 40% for labor. The difference in the rate of rent between large and small farmers is also reflected in the estimates of factor shares; the share of rent was much higher and the share of capital (residual profit) was lower for small farmers. While the share of land rent in the

Table 4.2. Relative factor shares in incomes generated from rice production in sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

Factor	Average	Large farmers	Small farmers
Total value added ($/ha)	793	710	998
Shares in total value added (%):			
Labor	37.3	39.8	31.1
Land	30.4	23.0	48.5
Capital (residual)	32.3	37.2	20.4
External factor cost ($/ha)	462	358	720
Shares in external factor cost (%):			
Labor	40.6	45.2	29.2
Land	51.8	45.6	67.2
Capital	7.6	9.2	3.6
Family-factor income ($/ha)	331	352	278
Shares in family income (%):			
Labor	34.8	34.2	36.2
Land	0	0	0
Capital	65.2	65.8	63.8

external factor cost for large farmers was 45%, it was nearly 70% for small farmers.

For both large and small farmers, about one-third of family factor income from rice farming was the return to family labor, and two-thirds was the residual profit, which is supposed to represent the return of family-owned capital (including human capital). However, as explained previously, the residual would include a part of the return to land, which was captured by the tenants, especially the leasehold tenants, as surplus of the marginal productivity of land over the actual rate of rent.

Incomes from current production activities

In our accounting system, the current production activities are classified into rice production (1R), nonrice agricultural production (1N), and nonagricultural production (2). Nonrice agricultural production, primarily the raising of ducks and hogs, is backyard enterprises, and the scale of operation and the cost-return structure are not so different among large and small farmers. Among our sample households, only one in the category of large farmers drove a tricycle (motorcycle taxi) as a nonagricultural enterprise. Therefore, *Nonagricultural Production Account* (PA/C Table 2) refers to the tricycle operation of that farmer. In this section, we compare the cost and income structure of rice farming with those of other enterprises.

As shown in Table 4.3, rice farming was, by far, the most important family enterprise producing 82% of output, 88% of value added, and 75% of family factor income.

Table 4.3. Output and incomes ($) from current production activities, averages of all sample households, Barrio Tubuan, Laguna, Philippines. 1975–76.[a]

	Total	Rice farming	Nonrice farming	Nonagricultural enterprise
(1) Total output	1745	1423	310	12
	(100.0)	(100.0)	(100.0)	(100.0)
Sale in cash	889	634	243	12
	(50.9)	(44.6)	(78.4)	(100.0)
Payment in kind	693	673	20	0
	(39.7)	(47.3)	(6.5)	(0)
Home consumption	306	259	47	0
&farm input use	(17.5)	(18.2)	(15.2)	(0)
(2) Current input	383	228	151	4
	(21.9)	(16.0)	(48.7)	(33.3)
(3) Value added (1)-(2)	1362	1195	159	8
(Value added ratio)	(78.1)	(84.0)	(51.3)	(66.6)
(4) Payment to external	699	698	0	1
factors	(40.1)	(49.1)	(0)	(8.3)
(5) Family-factor income	663	497	159	7
(3)–(4)				
(Family income ratio)	(38.0)	(34.9)	(51.3)	(58.3)

[a]Percentages in parentheses.

Table 4.4. Relative factor shares in incomes generated from current production activities, averages of all sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Total	Rice farming[a]	Nonrice farming	Nonagricultural enterprise
Total value added ($/household)	1362	1195	159	8
Shares in total value added (%):				
Labor	37.1	38.2	28.3	50.0
Land	27.8	31.6	0	0
Capital	35.1	30.2	71.7	50.0
External factor cost ($/household)	699	698	0	1
Shares in external factor cost (%):				
Labor	38.8	38.7	0	100.0
Land	54.1	54.1	0	0
Capital	7.1	7.2	0	0
Family-factor income ($/household)	663	497	159	7
Shares in family factor income (%):				
Labor	35.4	37.6	28.3	42.9
Land	0	0	0	0
Capital	64.6	62.4	71.7	57.1

[a]The figures differ from those in Table 4.2, which are the averages for farmers only.

The cost and income structures were highly different among the three enterprises in the households. The share of current inputs was high for nonrice farming because the feeds were of major importance in duck and hog raising. The family income ratio of nonrice farming with respect to total output was small, but the ratio with respect to value added was as high as l00%, because duck and hog raising do not require external factors, such as farmland and hired labor. A somewhat similar cost-return structure existed for nonagricultural production in which the major paid-out cost was the fuel for the tricycle.

Because duck and hog raising and tricycle driving do not depend on farmland, their shares of land were zero.

According to our estimates in Table 4.4, about 30% of the income produced from nonrice farming went to labor and 70% to capital (or residual profit). In the case of nonagricultural enterprise, income shares were equally divided between labor and capital.

Income-expenditure structure

Table 4.5 shows the incomes of village households by sources, based on *Income-Expenditure Account* (PA/C Table 3). Average income for all households in the sample was $1164/household or $197/person. Family-factor income accounted for 85% of total household income, of which about one-half was labor income. Large farmers' income ($253/person) was more than 50% higher than the small farmers' and almost 90% higher than the landless workers' ($135/person).

INCOME SOURCES. Rice farming was the most important income source accounting for 43% of total income. The next important source was the wage

Table 4.5. Composition of household income, averages per household member in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Total income per household	1164		1897		879		646	
Total income per capita	197	100	253	100	166	100	135	100
Family-factor income per capita:								
Self-employed								
Rice income	84	43	150	59	68	41	−6	−4
(Labor income)	(32)	(16)	(51)	(20)	(25)	(15)	(6)	(−4)
Nonrice income	28	14	29	11	45	27	14	10
(Labor income)	(8)	(4)	(9)	(4)	(13)	(8)	(3)	(2)
Employed outside	55	28	55	22	19	11	83	61
(Labor income)	(38)	(19)	(20)	(8)	(18)	(11)	(83)	(61)
Total	167	85	234	92	132	79	91	67
(Total labor income)	(78)	(39)	(80)	(32)	(56)	(34)	(92)	(68)
Transfer income per capita	30	15	19	8	34	21	44	33

earnings from outside employment (28%). However, outside employment was primarily rice work within the village, and as much as 70% of the income of an average household in the village was generated from rice production.

The weight of rice income was substantially higher for large than for small farmers. The smaller income of small farmers from rice farming was, to some extent, compensated for by the larger income from nonrice farming. A major contrast was that, while almost all the factor income of small farmers from outside employment was labor wage earnings, more than one-half of large farmers' factor income from outside was from nonlabor sources. Large farmers' nonlabor-factor income from outside was the rental of tractors to small farmers.

As expected, the major income source of landless workers was the wage earnings from outside employment. Another important source was transfer income. The transfer income consisted of remittance from family members living outside the barrio as well as grants from parents and relatives in the barrio.

EXPENDITURE PATTERNS. Table 4.6 summarizes the expenditure pattern of village households. The average disposable income was $176/person, of which 79% was consumed and 21% saved. The average propensity to save seems rather high, which may indicate some under-reporting of consumption. However, it should be remembered that house rent was not included in both income and expenditure because of the imputational difficulty; this tends to raise the estimated propensity to save. The Engel coefficient was as high as 65%, which was also partly due to the exclusion of house rent in the calculation of consumption.

Table 4.6. Pattern of household expenditures as averages per household member in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Disposable income (D)	176	–	226	–	149	–	119	–
Total consumption:								
Home produce	37	27	43	26	38	30	28	25
Outside purchases	102	73	120	74	90	70	82	75
Total (C)	139	100	163	100	128	100	110	100
Food consumption:								
Home produce	37	41	43	43	38	41	28	37
Outside purchases	54	59	58	57	55	59	47	63
Total (F)	91	100	101	100	93	100	75	100
Propensity to save (1-C ̷ D)		21		28		14		8
Engel coefficient (F ̷ C)		65		62		73		68

The propensity to save was highest for large farmers and lowest for landless workers, reasonable results considering the interclass differentials in the income level. The Engel coefficient was lowest for large farmers, but it was slightly higher for small farmers than for landless workers.

About 30% of total consumption by the village households was that for home-produced food and the rest for food purchased from outside (either cash or exchange). The ratio of home produce to food consumption was about 40%. The percentages of home produce consumption were similar among the three classes of villagers.

SEASONAL PATTERNS. There were distinct seasonal patterns in the household incomes, which were primarily determined by seasonality in rice production (Fig. 4.1). The two peaks in movements of the disposable income per household coincided with the months of rice harvesting for wet and dry seasons (October and April). Compared with the large seasonal variations in income, the level of consumption was relatively stable throughout the year. As a result, large household surpluses (savings) were recorded for the harvesting months, but deficits were recorded for the rest of the year.

Such seasonal patterns were essentially the same for both farmers' and landless workers' households. However, the monthly changes in income relative to consumption were much larger for farmers than for landless workers: the coefficients of variations of income and consumption were 1.76 vs 0.18 for farmers and 0.43 vs 0.19 for landless workers.

For the months of land preparation and transplanting (June-July for wet season, and January-February for dry season), the income of farmers' households became negative because of the wage payments to hired labor and the purchase of current inputs such as fertilizers and chemicals. During the same months, landless workers received positive incomes because they received wages from farmers. The seasonal income pattern of landless workers was similar to that of
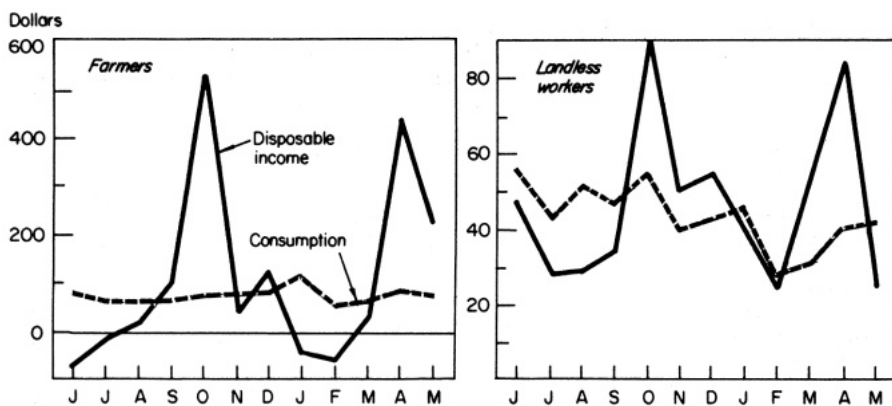
4.1. Monthly changes in income-expenditure balances of sample households, 1975–76.

farmers, because their major income source was the share of rice harvest according to the *gama* arrangement.

There was no significant correlation between income and consumption, although the correlation coefficient for landless workers ($r = 0.22$) was more than two times larger than that for farmers ($r = 0.09$).

Capital formation

The data concerning capital formation, documented by *Fixed Capital Production Account* (PA/C Table 4) and *Capital Finance Account* (PA/C Table 5), are summarized in Table 4.7.

On the average, total capital formation per household was about $230, of which about 40% was invested in fixed capital, 20% in inventory, and 40% in financial assets. The total investment of large farmers ($482/household) was more than four times that of small farmers ($106/household) and more than seven times that of landless workers ($65/household). However, the fixed capital investment was the largest for landless households because of relatively large expenditure for residential construction and the acquisition of land assets in the form of a temporary right of tenancy.

A large portion of total investment took the form of investment in financial assets. Because the acquisition of financial assets was estimated as a residual, it is doubtful that the investment in financial assets might be overestimated due to the under-reporting of consumption and the resulting overestimation of savings.

More than 95% of capital formation was financed from household savings. Contribution of family factors to the construction of fixed capital was minor: only 4% of total investment and 11% of fixed capital investment. The weights of contribution of family factors were small for farmers, but relatively large for

Table 4.7. Investment outlets and sources of financing capital formation, averages per household in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

Investment outlet and source	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Total investment	227	100	482	100	106	100	65	100
Fixed capital:								
Agricultural	43	19	44	9	6	6	71	109
Nonagricultural	32	14	64	13	32	30	0	0
Residential	15	7	0	0	3	3	38	58
Total	90	40	108	22	41	39	109	167
Inventory	49	21	119	25	4	4	14	22
Financial assets (residual)	88	39	255	53	61	57	−58	−89
Total investible fund	227	100	482	100	106	100	65	100
Household savings	217	96	474	98	105	99	45	69
Contribution of family factors	10	4	8	2	1	1	20	31
(Contribution of family labor)	(8)	(3)	(0)	(0)	(1)	(1)	(23)	(35)

landless workers (18% of gross fixed capital formation). The relatively large weight of family-factor contribution for landless workers was due to construction of their residence (simple nipa and bamboo houses) by their own labor.

The minor contribution of family factors to capital formation corresponded to a low rate of family labor utilization in the slack month of rice production, as observed in the previous chapter. This suggests that a major potential exists to mobilize family labor for the productive capital construction in the rural sector. A major problem in development strategy has been how to facilitate the mobilization of rural labor of low opportunity cost for capital formation (Nurkse 1953). For this goal, the initiatives of local leadership should be promoted by adequate technical and financial assistance.

Transaction balances

We now identify the characteristics in the transactions of the village households with other households within the village and with the economy outside of the village, based on *Transaction Account* (PA/C Table 6).

On the average, the total receipt of a household was about $1,890, of which about 30% was received from other villagers and 70% from outside of the village (Table 4.8). The sale of rice and other products, including those used for payments in kind (rent and wages), were the sources of more than 80% of total receipts: another 12% was earned from off-household employment.

Out of total receipts of about $1,890/household, about 55% was paid for the purchase of production inputs and about 30% for consumption goods and services (Table 4.9). A surplus was recorded in the balance of payments — about 5% of total receipts — which presumably took the form of the net acquisition of

Table 4.8. Receipts by households in the transactions within village and outside of village, averages per household in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
(1) Total receipt	1891	100	3238	100	1849	100	578	100
Within village	517	27	767	24	658	36	163	28
Outside	1374	73	2471	76	1191	64	415	72
(2) Sale/payment in kind	1582	100	2752	100	1684	100	339	100
Within village	374	24	478	17	594	35	106	31
Outside	1208	76	2274	83	1090	65	233	69
(3) Wage earnings	227	100	151	100	98	100	400	100
Within village	214	94	135	89	98	100	381	95
Outside	13	6	16	11	0	0	19	5
Ratio of sale (2)⎵(1)		84		85		91		59
Within village		72		62		90		65
Outside		88		92		92		56
Ratio of wage earnings (3)⎵(1)		12		5		5		69
Within village		41		18		15		234
Outside		1		1		0		5

financial assets by the sample households. In fact, as shown in Chapter 5, the net acquisition of financial assets took place in the form of reduction of debts outstanding.

VARIATIONS AMONG CLASSES. There were substantial differences in the outside-village transactions of the households among the three classes in the village. Total receipts of large farmers were almost twice as large as those of small farmers and five times those of landless workers. The structure of payments was similar between large and small farmers; about 60% of the total receipt was paid for input purchase and about 25% for consumption goods purchase. In contrast, the ratio of input purchase was low for landless workers, primarily because of no input requirement for rice farming, and their rate of consumption goods purchase was as high as 70%.

The share of within-village transactions in the transaction total was the largest for wage earnings (94%), indicating that opportunities for hired employment were limited to primarily within the village. The shares of within-village transactions in the sale of products and the purchase of production inputs ranged from 20 to 40%. The share in the purchase of consumption goods and services was less than 10%. Such a small share of within-village transactions in the consumption goods purchase does not imply the high dependence of consumption of village households on the goods supplied from outside of the village, because a large portion of food consumed was supplied within the households.

Table 4.9. Payments from the households in transactions within village and outside of village, averages per household in the sample, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
(1) Total payment	1891	100	3238	100	1849	100	578	100
Within village	517	27	767	24	658	36	163	28
Outside	1374	73	2471	76	1191	64	415	72
(2) Purchase of production inputs	1077	100	1881	100	1218	100	168	100
Within village	378	35	522	28	514	42	132	79
Outside	699	65	1359	72	704	58	36	21
(3) Purchase of consumption goods	602	100	902	100	479	100	395	100
Within village	41	7	57	6	38	8	26	7
Outside	561	93	845	94	441	92	369	93
(4) Transfer	124	100	200	100	91	100	73	100
Within village	35	28	35	18	42	46	31	42
Outside	89	72	165	82	49	54	42	58
(5) Acquisition of financial assets	88	100	255	100	61	100	-58	100
Within village	63	72	153	60	64	105	−26	45
Outside	25	28	102	40	−3	−5	-32	55
Ratio of input purchase (2)÷(1)		57		58		66		29
Within village		73		68		78		81
Outside		51		55		59		9
Ratio of consumption goods purchase (3)÷(1)		32		28		26		68
Within village		8		7		6		16
Outside		41		34		37		89
Ratio of surplus balance of payments (5)÷(1)		5		8		3		−10
Within village		12		20		10		−16
Outside		2		4		−0		−8

VARIATIONS AMONG SEASONS. Seasonal patterns in the transactions (Fig. 4.2) were very similar to those of income (Fig. 4.1). The two peaks in the receipts of farmers' households in April and October correspond to the large sale of rice outputs in the months of harvest. Surpluses in the balance of payments were recorded (the net acquisition of financial assets were positive) for a few months after the harvests, even though payments in the forms of land rent and harvesters' wages in kind were also large for those periods. For the rest of the year, receipts were exceeded by payments, resulting in the negative balance of payments.

A similar pattern applied to landless workers' transactions. Large receipts in the months after the harvests represent sales of rice received as harvesters' shares. Payments were also large in the harvesting months primarily because of
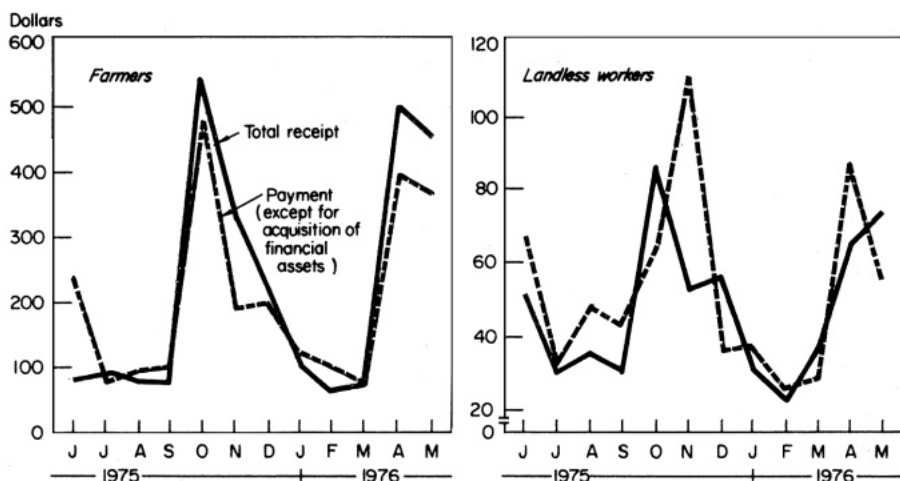
4.2. Monthly changes in the balances of household transactions of sample households, 1975–76.

the repayments of debts. For the rest of the year, landless workers had to rely on credit for living. The payment in November was abnormally high because one landless worker in the sample advanced a credit of $286 as a price to sub-lease 0.25 ha of rice land from a tenant for five cropping seasons. This case represents a pawning of tenancy title.

CASH AND RICE BALANCES

In addition to the basic accounting tables, we prepared balance sheets for cash and rice as a check on the accuracy of data. The cash balance identifies the total amount of cash received by the household from the various transactions (such as the sale of agricultural products and wage earnings from outside employment) and the total amount of cash paid by the household for various purposes (such as the purchase of consumption goods and services). The rice balance establishes a similar identity between total receipt and total disposition of rice. The two balance sheets prepared for the whole year are in Tables 4.10 and 4.11.

During the record-keeping period, cash and rice balances were prepared each month as a check on the recorded data. The cash on hand at the beginning of every month was obtained from the assets survey. Another independent estimate of cash on hand at the beginning of a month was the sum of the cash on hand at the beginning of a previous month and the increase in cash on hand during the month, which was obtained from the record keeping. That estimate may be called "expected" cash on hand.

During the record-keeping project, we compared the two estimates of cash on hand, and tried to minimize the discrepancies by re-examining the data and

Table 4.10. Cash balance ($) of sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average	Large farmers	Small farmers	Landless workers
Sale of agricultural products	870	1579	740	257
Sale of fixed assets	8	23	0	0
Revenue of nonagricultural enterprises	5	15	0	0
Wage received	86	124	23	95
Interest received	0	0	1	0
Rental received	88	241	0	0
Borrowing	119	78	189	108
Loan repayment to the household	27	22	31	29
Grant to the household	62	22	48	113
Total cash receipt	1265	2104	1032	602
Purchase of consumption goods	560	851	437	362
Purchase of current inputs	177	393	112	10
Purchase of capital goods	58	109	39	22
Grant from household	32	47	32	16
Wage paid	78	155	51	21
interest paid	22	50	13	1
Rental paid	6	2	10	7
Lending	56	31	50	86
Loan repayment from the household	333	611	292	87
Insurance	11	29	0	0
Tax and rate	3	6	5	0
Change in cash on hand (residual)	−71	−180	−9	−10
Total cash payment	1265	2104	1032	602

Table 4.11. Rice balance (kg of paddy) of sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Average	Large farmers	Small farmers	Landless workers
Receipt in kind for factor contribution:				
Wage	1,040	299	491	2,192
Rent	0	0	0	0
Grant in kind to household	30	35	53	10
Purchase for consumption	102	154	0	126
Output (residual)	10,446	20,414	10,692	294
Total receipt	11,889	21,068	11.499	3.003
Intermediate inputs (seeds and feeds)	594	1,057	769	0
Payments in kind to external inputs:				
Wage	1,312	2,311	1,529	152
Rent	2,553	3,663	4,404	55
Total consumption	1,317	1,802	1,070	1,016
Sale:				
Sale in cash and credit	4,442	8,998	2,685	1,206
Sale in exchange	89	102	136	41
Grant in kind	77	45	178	32

(continued on next page)

Table 4.11   continued

	Average	Large farmers	Small farmers	Landless workers
Credit, interest and fee payment in kind	679	1,192	365	402
Change in inventory	826	1,898	367	99
Total disposition	11,889	21,068	11,499	3,003
Output (based on the output survey)	10,271	20,058	10,520	297

Table 4.12. Cash balance check ($). averages of all sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Cash on hand at the beginning of month [a] (1)	Cash receipt during month [b] (2)	Cash payment during month [b] (3)	Expected cash on hand [c] (4)	Statistical discrepancy (4) , (1)
June	112	106	211	–	–
July	9	69	73	7	–2
Aug	6	67	69	5	–1
Sept	5	63	65	4	–1
Oct	3	118	114	3	0
Nov	7	171	143	7	0
Dec	37	151	174	35	–2
Jan	14	77	81	14	0
Feb	8	48	53	10	2
Mar	4	62	61	3	–1
Apr	4	158	87	5	1
May	77	176	206	75	–2
June	47	–	–	47	0

[a] Based on the assets survey.
[b] Based on the record keeping.
[c] Cash on hand at the beginning of a previous month is added to cash receipt minus cash payment during this month.

re-interviewing the record keepers. As a result, the discrepancies in the two estimates of cash on hand were relatively minor (Table 4.12).

Another consistency check was the comparison between the data of rice output obtained from the output survey and "expected" output obtained by subtracting the nonoutput receipt of rice from the total disposition of rice. Contrary to the cash balance, there was a tendency for the "expected" outputs to be larger than the output estimates from the output survey, but the discrepancies were not so large (Table 4.13).

Cash and rice were the two primary means of transactions in Barrio Tubuan. The relatively small statistical discrepancies between the two independent estimates of cash on hand and of rice output indicate that the transaction data in our income accounts are fairly accurate.

Table 4.13. Rice balance check (kg), averages of all sample households, Barrio Tubuan, Laguna, Philippines, 1975–76.

	Rice balance[a]			Rice output (4)	Statistical discrepancy (3)-(4)
	Total disposition (1)	Nonoutput receipt (2)	Expected output (3)=(1)–(2)		
June	28	5	23	0	23
July	74	54	20	0	20
Aug	54	52	2	0	2
Sept	586	180	406	396	10
Oct	4,226	307	3,919	3,874	45
Nov	724	152	572	548	24
Dec	73	63	10	0	10
Jan	22	26	–4	0	–4
Feb	36	25	11	0	11
Mar	297	199	98	44	54
Apr	3,616	351	3,265	3,271	–6
May	2,153	29	2,124	2,138	–14
Total	11,889	1,443	10,446	10,271	175

[a] Based on the record keeping.

[b] Based on the outputs survey.

PA/C TABLE 1R. **Current rice production account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Average	Large farmers	Small farmers	Landless workers
1.1	Payments to external inputs for rice production	(6.10)	895	1570	1095	70
	1.1.1 Hired labor wage		270	519	273	19
	1.1.2 Rent		378	523	629	44
	1.1.3 Capital rental		50	105	34	7
	1.1.4 Purchased current inputs		197	423	159	0
1.2	Seed use of rice	(1.7)	31	69	22	0
1.3	Imputed income of family factors in rice production	(3.7)	497	1125	362	−30
	1.3.1 Family labor wage		187	385	131	29
	1.3.2 Rent to owned land		0	0	0	0
	1.3.3 Farm profit (residual)		310	740	231	−59
Total rice production expenditure			1423	2764	1479	40
1.4	Payments in kind to external inputs	(6.1)	552	853	847	30
	1.4.1 Hired labor wage		187	330	218	22
	1.4.2 Rent		365	523	629	8
1.5	Sale of rice and rice products	(6.2)	755	1476	480	240
	1.5.1 Sale in cash		634		383	172
	1.5.2 Exchange		13	15	20	6
	1.5.3 Grant in kind		11	6	25	5
	1.5.4 Credit, interest, & fee payment in kind		97	170	52	57
1.6	Home consumption of rice	(3.1)	174	236	153	127
1.7	Seed use of rice	(1.2R)	31	69	22	0
1.8	Feed use of rice	(1.2N)	54	82	88	0
1.9	Inventory change in rice products & inputs	(5.4)	49	119	4	14
1.10	(Deduct) Nonoutput rice receipt	(6.9)	192	71	115	371
Total rice output			1423	2764	1479	40

PA/C TABLE 1N. **Current nonrice agricultural production account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Average	Large farmers	Small farmers	Landless workers
1.1 Payments to external inputs for agricultural production	(6.10)	97	197	83	9
1.1.1 Hired labor wage		0	0	1	0
1.1.2 Rent		0	0	0	0
1.1.3 Capital rental		0	0	0	0
1.1.4 Purchased current inputs		97	197	82	9
1.2 Feed use of rice	(1.8R)	54	82	88	0
1.3 Imputed income of family factors in agricultural production	(3.7)	159	194	237	66
1.3.1 Family labor wage		45	56	71	16
1.3.2 Rent to owned land		0	0	0	0
1.3.3 Farm profit (residual)		114	138	166	50
Total agricultural production expenditure		310	473	408	75
1.4 Payments in kind to external inputs	(6.1)	0	0	0	0
1.4.1 Hired labor wage		0	0	0	0
1.4.2 Rent		0	0	0	0
1.5 Sale of agricultural products	(6.2)	263	388	357	69
1.5.1 Sale in cash		243	358	326	66
1.5.2 Exchange		1	1	1	1
1.5.3 Grant in kind		19	29	30	2
1.5.4 Credit, interest, & fee payment in kind		0	0	0	0
1.6 Home consumption of agricultural products	(3.1)	47	85	51	6
1.7 Inventory change in agricultural products & inputs	(5.4)	0	0	0	0
Total agricultural output		310	473	408	75

PA/C TABLE 2. **Current nonagricultural production account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Average	Large farmers	Small farmers	Landless workers
2.1 Payments to external inputs for nonagricultural production	(6.11)	5	14	0	0
2.1.1 Hired labor wage		1	2	0	0
2.1.2 Capital rental		0	0	0	0
2.1.3 Purchased current inputs		4	12	0	0
2.2 Imputed income of family factors in nonagricultural production	(3.8)	7	21	0	0
2.2.1 Family labor wage		3	9	0	0
2.2.2 Profit of nonagricultural enterprises (residual)		4	12	0	0
Total nonagricultural production expenditure		12	35	0	0
2.3 Revenue of nonagricultural enterprises	(6.3)	12	35	0	0
2.4 Inventory change in nonagricultural products & inputs	(5.5)	0	0	0	0
Total nonagricultural output		12	35	0	0

PA/C TABLE 3. **Income-expenditure account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Average	Large farmers	Small farmers	Landless workers
3.1 Home consumption of agricultural products	(1.6R+N)	221	321	204	133
3.2 Purchase of consumption goods	(6.13)	602	902	479	395
3.2.1 Food		320	435	294	225
3.2.2 Personal needs		68	114	50	35
3.2.3 Household needs & equipment		43	70	32	25
3.2.4 Transportation & other services		54	80	40	40
3.2.5 Health needs & recreation		34	42	46	17
3.2.6 Education		83	161	17	53
3.3 Interest payment to consumption loan	(6.14)	56	99	7	50
3.4 Grant from the household	(6.15)	65	97	79	23
3.5 Tax and rate	(6.16)	3	4	5	0
3.6 Savings (residual)	(5.7)	217	474	105	45
Total household expenditure		1164	1897	879	646
3.7 imputed income of family factors in agricultural production	(1.3R+N)	656	1319	599	36
3.8 Imputed income of family factors from nonagricultural enterprises	(2.2)	7	21	0	0
3.9 Earnings from outside employment	(6.4)	227	151	98	400
3.10 Receipt of rent	(6.5)	0	0	0	0
3.11 Receipt of interest & rental	(6.6)	95	260	1	0
3.12 Grant to the household	(6.7)	179	146	181	210
3.13 Government subsidy	(6.8)	0	0	0	0
Total household income		1164	1897	879	646

PA/C TABLE 4. Fixed capital production account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.

		Average	Large farmers	Small farmers	Landless workers
4.1 Payments to external inputs for capital production	(6.12)	80	100	40	89
4.1.1 Purchase of land		26	0	0	71
4.1.2 Purchase of machines		0	0	0	0
4.1.3 Purchase of materials		48	84	39	18
4.1.4 Purchase of livestock & plants		6	16	1	0
4.1.5 Hired labor wage for construction		0	0	0	0
4.2 Contribution of family factors to fixed capital production	(5.8)	10	8	1	20
4.2.1 Family labor wage for construction		8	0	1	23
4.2.2 Farm-supplied materials		0	0	0	0
4.2.3 Residual		2	8	0	−3
Gross expenditure for fixed capital production		90	108	41	109
4.3 Agricultural fixed capital production	(5.1)	43	44	6	71
4.3.1 Land infrastructure		26	0	0	71
4.3.2 Machines & implements		11	28	5	0
4.3.3 Livestock & perennial plants		6	16	1	0
4.4 Nonagricultural fixed capital production	(5.2)	32	64	32	0
4.4.1 Buildings & structures		13	16	28	0
4.4.2 Machines & implements		19	48	4	0
4.5 Residential construction	(5.3)	15	0	3	38
Gross fixed capital production		90	108	41	109

PA/C TABLE 5. Capital finance account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.

		Average	Large farmers	Small farmers	Landless workers
5.1 Agricultural fixed capital production	(4.3)	43	44	6	71
5.2 Nonagricultural fixed-capital production	(4.4)	32	64	32	0
5.3 Residential construction	(4.5)	15	0	3	38
5.4 Inventory change in agricultural products & inputs	(1.7N+1.9R)	49	119	4	14
5.5 Inventory change in nonagricultural products & inputs	(2.4)	0	0	0	0
5.6 Net acquisition of financial assets (residual)	(6.17)	88	255	61	−58
Gross investment		227	482	106	65
5.7 Savings	(3.6)	217	474	105	45
5.8 Contribution of family factors to fixed capital production	(4.2)	10	8	1	20
Gross investible fund		227	482	106	65

PA/C TABLE 6. Transaction account ($), Barrio Tubuan, Laguna, Philippines, 1975–76.

		Average	Large farmers	Small farmers	Landless workers
6.1 Payments in kind to					
external inputs	(1.4R+N)	552	853	847	30
a) within village		249	330	446	−22
b) outside		303	523	401	8
6.2 Sale of agricultural					
products	(1.5R+N)	1018	1864	037	309
a) within village		115	121	148	84
b) outside		903	1743	689	225
6.3 Revenue of nonagri-					
cultural enterprise	(2.3)	12	35	0	0
a) within village		10	27	0	0
b) outside		2	8	0	0
6.4 Earnings from outside					
employment	(3.9)	227	151	98	400
a) within village		214	135	98	381
b) outside		13	16	0	19
6.5 Receipt of rent	(3.10)	0	0	0	0
a) within village		0	0	0	0
b) outside		0	0	0	0
6.6 Receipt of interest					
and rental	(3.11)	95	260	1	0
a) within village		59	160	1	0
b) outside		36	100	0	0
6.7 Grant to the household	(3.12)	179	146	181	210
a) within village		53	50	78	38
b) outside		126	96	103	172
6.8 Government subsidy	(3.13)	0	0	0	0
a) within village		0	0	0	0
b) outside		0	0	0	0
6.9 (Deduct) Nonoutput					
rice receipt	(1.10)	192	71	115	371
a) within village		183	56	113	362
b) outside		9	15	2	9
TOTAL RECEIPT		1891	3238	1849	578
a) within village		517	767	658	163
b) outside		1374	2471	1191	415

PA/C TABLE 6 **continued**

		Average	Large farmers	Small farmers	Landless workers
6.10 Payments to external inputs for agricultural production	(1.1R+N)	992	1767	1178	79
a) within village		350	520	509	61
b) outside		642	1247	669	18
6.11 Payments to external inputs for nonagricultural production	(2.1)	5	14	0	0
a) within village		1	2	0	0
b) outside		4	12	0	0
6.12 Payments to external inputs for fixed-capital production	(4.1)	80	100	40	89
a) within village		27	0	5	71
b) outside		53	100	35	18
6.13 Purchase of consumption goods	(3.2)	602	902	479	395
a) within village		41	57	38	26
b) outside		561	845	441	369
6.14 Interest payment to consumption loan	(3.3)	56	99	7	50
a) within village		16	18	7	21
b) outside		40	81	0	29
6.15 Grant from the household	(3.4)	65	97	79	23
a) within village		19	17	35	10
b) outside		46	80	44	13
6.16 Tax and rate	(3.5)	3	4	5	0
a) within village		0	0	0	0
b) outside		3	4	5	0
6.17 Net acquisition of financial assets	(5.6)	88	255	61	−58
a) within village		63	153	64	−26
b) outside		25	102	−3	−32
TOTAL PAYMENT		1891	3238	1849	578
a) within village		517	767	658	163
b) outside		1374	2471	1191	415

Harvesting rice by hand, with sickles.

Threshing rice by hand-beating on wooden table.

CHAPTER 5

Household asset positions[1]

ASSETS OWNED BY VILLAGERS are the sources of their incomes in varying degrees of importance. Their asset positions change over time according to the income flows as observed in the previous chapter. Understanding of the structure of the village economy requires analysis of the asset-holdings pattern of the village households in relation to the pattern of income flows. In this chapter, we identify the asset positions of sample households based on the assets surveys at the beginning and end of the record-keeping period.

CLASSIFICATION AND VALUATION OF ASSETS

The villagers' assets are broadly classified into fixed assets, inventories, and financial assets. To the extent possible, we tried to evaluate the assets in terms of market prices.

Fixed assets include land, buildings and structures, major consumer durables, machines and implements, livestock, and perennial plants. They are further classified into those for farm use, nonfarm production, and household use.

Inventories include those of farm products and farm inputs.

Financial assets include cash, bank deposits, insurance securities, etc. Outstanding debts are enumerated as negative financial assets.

Land assets
Land assets consist of farmland and residential lots. In our sample, only one out of seven farmers owned a small parcel of coconut land; the others are tenants. However, a tenancy title commands a value. It is a common practice among tenants to sublease their rented land or sell the right of tenancy, or both. Therefore, we considered the tenancy title as a kind of land asset by valuing it as 35%

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[1]Readers who are not interested in technical detail may wish to skip this chapter.

of land value if it was leasehold tenancy and 25% if it was share tenancy. Land values were estimated by asking the tenants for their evaluations and adjusting those according to the evaluations of the barrio captain and other knowledgeable persons in the village.

Another form of land asset is the residential lot. In Barrio Tubuan, few people own their residential lots. Most are squatters in coconut forests owned by absentee landlords. Among the 11 households in our sample, only two owned residential lots. The squatters have no official right of tenancy for the residential lots where they live, even though they have implicit consent of landlords. There is also no custom of trading in the lots among squatters. Therefore, the land assets in our survey include only the residential lots owned by the two families. Lot values were estimated in the same way the values of tenancy rights for farm land were determined.

Buildings and structures

The asset values of buildings and structures were the estimated resale values. The resale values were determined on the basis of the estimates obtained from two carpenters. Depreciation was calculated by dividing present value by the number of years of remaining usable life.

Machines and implements

Machines and implements were tentatively valued at their new acquisition prices at local dealers. Then, present values were estimated by subtracting past depreciation, assuming linear depreciation and zero salvage value at the end of usable life.

Major consumer durables

Consumer durable goods counted as fixed assets were sewing machines, bicycles, radios, television sets, refrigerators, other electric appliances, and major items of furniture. The evaluation procedure was the same as for machines and implements.

Livestock

Major livestock and poultry assets in the barrio were hogs and ducks. Their sale values were estimated according to the evaluation of owners, and adjusted by the evaluation of knowledgeable persons in the barrio.

Perennial plants

The valuable plants that the villagers possess were primarily fruit trees. Only one respondent owned coconut trees. The evaluation of plants followed the procedure used for livestock.

Inventory

Only rice was counted in the product inventory, and fertilizer and chemicals were counted in the input inventory. Rice inventory was evaluated by the stan-

dard market prices ($0.143/kg for paddy and $0.299/kg for milled rice). Fertilizers and chemicals were valued at purchase prices.

Financial assets
Financial assets consist of cash and savings (bank deposit, insurance, security, sales in credit, and lending). Net financial assets are defined as positive financial assets minus debts outstanding.

STRUCTURE OF ASSET-HOLDINGS

The asset positions of sample households are summarized in PB/S (Private Balance Sheet) Tables 1 and 2 at the end of this chapter.

Asset and liability balances
As illustrated in Figure 5.1, from the initial (1 June 1975) to the terminal date (31 May 1976) the total assets owned by an average household decreased from
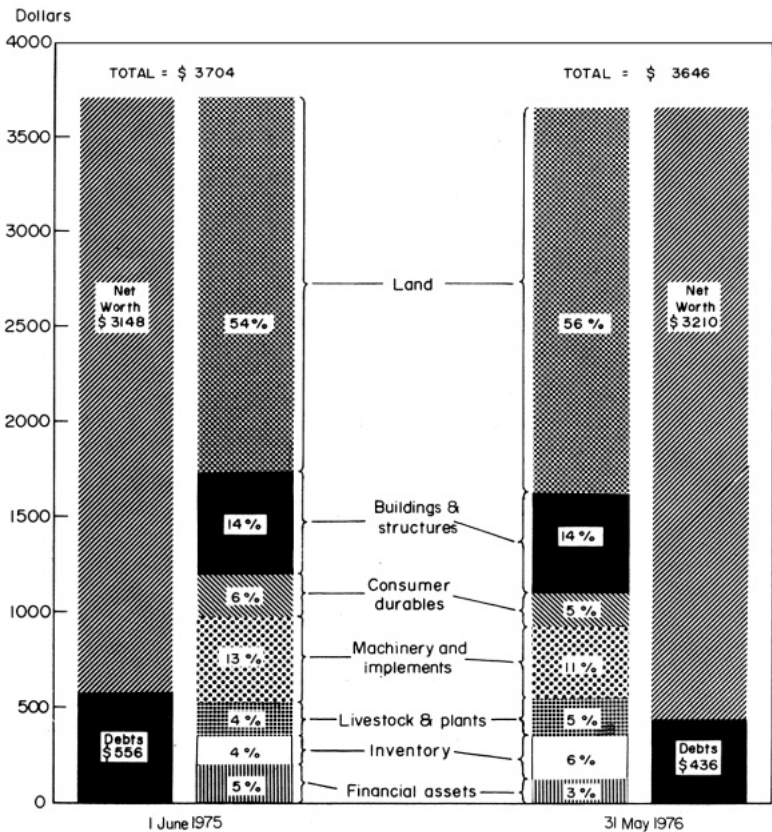
5.1. Structure of asset-holdings, average of all sample households. 1975–76.

Table 5.1. Asset positions of sample households as of 1 June 1975, BarrioTubuan,Laguna, Philippines.

	Average	Large farmers (1)	Small farmers (2)	Landless workers (3)	Ratio	
					(1) ÷ (2)	(1) ÷ (3)
Asset values ($)						
(1) *Total assets:*						
Per household	3704	8411	1945	316	4.3	26.6
Per capita	628	1121	367	66	3.1	17.0
(2) *Debts outstanding:*						
Per household	556	1358	119	81	11.4	16.8
Per capita	94	181	22	17	8.2	10.6
(3) *Net worth:*						
Per household	3148	7053	1826	235	3.9	30.0
Per capita	534	940	345	49	2.7	19.2
(4) *Total income:*						
Per household	1164	1897	879	646	2.2	2.9
Per capita	197	253	166	135	1.5	1.9
(3) ÷ (1) Equity ratio (%)	85	84	94	74	0.9	1.1
(3) ÷ (4) Asset-income ratio	2.7	3.7	2.1	0.4	1.8	9.3

$3,704 to $3,646. However, because the debts outstanding decreased more, net worth (net asset value) increased slightly. The equity ratio, defined as net worth divided by total assets, increased from 85% to 88%.

More than 90% of total assets consisted of fixed assets, of which land, primarily in the form of tenancy rights, was the major component. The debts outstanding were larger than the sum of financial assets and inventories. Therefore, both the net financial assets and the net liquid assets — defined as financial assets plus inventories minus debts — were negative for both the initial and the terminal dates.

Differences in the asset positions among households were extremely large (Table 5.1). Total assets per household of large farmers were more than four times as large as those of small farmers, and 25 times as large as those of landless workers, although the differences in per-capita terms were somewhat smaller. The debts outstanding were also larger for large farmers. Still, interclass differences in net worth were in the same magnitudes as in the case of total assets.

The differences in levels of assets were much larger than differences in income levels; the average income per household for large farmers was only about twice that of small farmers and three times that of landless workers. As a result, the asset: income ratio was almost two times higher for large than for small farmers and as much as nine times higher than for landless workers.

The composition of assets also differed greatly (Table 5.2). The ratio of fixed assets to total assets was much higher for farmer households than for landless households (91% vs   75%).

Table 5.2 Composition of assets owned by sample households as of 1 June 1975, Barrio Tubuan, Laguna, Philippines.

	Average	Large farmers	Small farmers	Landless workers
Total assets ($/household):				
Including land	3704	8411	1945	316
Excluding land	1692	3843	662	316
Fixed assets ($/household):				
Including land	3368	7693	1777	236
Excluding land	1356	3125	494	236
Fixed ÷ Total (%):				
Including land	91	91	91	75
Excluding land	80	81	75	75

To a large extent, such differences in both the level and composition of assets were due to the differences in the holdings of land assets. If we compare the asset values by excluding land, the differences among farmers and landless workers were reduced to less than one-half of where land was included. The relative weights of fixed assets were almost the same.

From the initial date to the terminal date, the asset positions of large farmers, small farmers, and landless workers changed at different rates (Table 5.3). It is remarkable that landless households achieved major gains in both total assets and net worth as compared with the farmer households. Small farmers also gained more than large farmers. Thus, even though the differences in asset

Table 5.3 Changes in asset positions of sample house holds from the Initial (1 June l975) to the terminal date (31 May 1976), Barrio Tubuan, Laguna, Philippines.

		Average	Large farmers	Small farmers	Landless workers
Initial ($/person):					
(1) Total assets		628	1121	367	66
(2) Net worth		534	940	345	49
(3) Fixed assets		571	1026	335	49
Terminal ($/person):					
(41 Total assets		618	1078	382	87
(5) Net worth		544	946	353	64
(6) Fixed assets		564	983	350	74
Rate of change (%):					
Total	$\frac{(4)-(1)}{(1)}$	−1.6	−3.8	4.1	31.8
Net worth	$\frac{(5)-(2)}{(2)}$	1.9	0.6	3.5	30.6
Fixed	$\frac{(6)-(3)}{(3)}$	−1.2	−3.8	4.5	51.0

holdings were extremely large, the direction of change was toward equalization.

Fixed assets

As observed in Figure 5.1, land was by far the largest component of fixed assets, followed by buildings and structures, and machines and implements. Such was the case for the farmer households. In the landless households, buildings, livestock, and plants were the major items (Table 5.4).

The composition of fixed assets by use categories was different among households, reflecting the differences in their income earning opportunities (Table 5.5). Average fixed asset value per family member in the households of large farmers was about three times as large as that of small farmers and 20

Table 5.4 Holdings of fixed assets owned by sample households as of 1 June 1975, Barrio Tubuan, Laguna, Philippines.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Fixed assets per household	3368		7693		1777		236	
Per capita fixed assets:								
Land	341	60	609	59	242	72	0	0
Buildings & structures	88	15	134	13	72	22	28	57
Consumer durables	35	6	72	7	3	1	2	4
Machines & implements	79	14	171	17	0	0	1	2
Livestock & plants	28	5	40	4	18	5	18	37
Total	571	100	1026	100	335	100	49	100

Table 5.5. Composition of fixed assets by use, owned by sample households as of 1 June 1975, Barrio Tubuan, Laguna, Philippines.

	Average		Large farmers		Small farmers		Landless workers	
	Total	Excluding land	Total	Excluding land	Total	Excluding land	Total	Excluding land
Per capita fixed assets ($):								
Farm assets	375	88	660	167	261	19	19	19
Nonfarm production assets	22	22	47	47	0	0	0	0
Household assets	174	120	319	203	74	74	30	30
Total	571	230	1026	417	335	93	49	49
Asset composition (%):								
Farm assets	66	38	64	40	78	20	39	39
Nonfarm production assets	4	10	5	11	0	0	0	0
Household assets	30	52	31	49	22	80	61	61
Total	100	100	100	100	100	100	100	100

times as large as that of landless workers. The differences between farmers and landless workers were much larger in the assets of production use than those of household consumption use. As a result the percentage of production assets in total fixed assets was much higher for farmers (about 70% for large farmers and 80% for small farmers) than for landless workers (40%).

However, if we excluded land, the percentages of fixed assets classified according to use categories did not differ greatly. The relatively small amount of farm assets held by small farmers, except the land assets, reflects that they owned few machines and implements for rice production. They relied on tractor custom work by large farmers for land preparation and the *gama* labor by landless workers for weeding and harvesting.

Inventories and financial assets

There were seasonal variations in both product and input inventories. However, in terms of the 12-month averages (June 1975–May 1976), total value of inventories for the average of all sample households was $108, of which 78% was product (paddy) and 22% input (Table 5.6). The differences in average inventory levels among the three classes of village households were large, but not as large as the differences in fixed assets.

Because landless workers did not operate their own farms, they held no input inventory for rice production. Their product inventories were procured primarily as wage earnings in kind when they were employed for harvesting work.

For the 12-month average, the total financial assets, including cash and other financial claims, of the average sample household amounted to $96, of which 25% was cash, 75% other claims (Table 5.7). The average debt outstanding, however, was as large as $546, and the net financial assets were negative. Borrowing from institutional sources constituted 35% and from private moneylenders 24% of total debt. Purchases on credit made up the remaining 41%.

In terms of their holdings in cash and other positive financial assets, small farmers were remarkably similar to landless workers. In contrast, the structure

Table 5.6 Structure of inventory holdings by sample households, annual averages of monthly inventones (1 June 1975 to 1 May 1976). Barrio Tubuan, Laguna, Philippines.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Inventory per household	108		219		84		15	
Inventory per capita:								
Product	14	78	22	76	13	81	3	100
Input	4	22	7	24	3	19	0	0
Total	18	100	29	100	16	100	3	100

Table 5.7. Structure of financial assets owned by sample households, annual averages of monthly asset holdings (1 June 1975 to 1 May 1976), Barrio Tubuan, Laguna, Philippines.

	Average		Large farmers		Small farmers		Landless workers	
	$	%	$	%	$	%	$	%
Positive financial assets:								
Total per household	96		204		36		35	
Per capita:								
Cash	4	25	7	26	1	14	1	14
Other claims	12	75	20	74	6	86	6	86
Total	16	100	27	100	7	100	7	100
Debts:								
Total per household	546		1241		214		101	
Per capita:								
Institutional	32	35	63	38	14	35	0	0
Private	22	24	30	18	8	20	20	95
Purchase on credit	38	41	72	44	18	45	1	5
Total	92	100	165	100	40	100	21	100
Net financial assets:								
Total per household	−450		−1037		−178		−66	
Per capita	−76		−138		−34		−14	

of debts of the small farmers was more like that of the large farmers than that of landless workers. While borrowing from institutional sources and purchase on credit were the major sources of credit for both large and small farmers, land-less workers relied almost exclusively on private loans.

Total financial assets (sum of positive financial assets) of large farmers were about six times those of small farmers and landless workers. However, because their negative assets (debts) were even greater, large farmers had the largest negative financial assets, followed by small farmers. The large negative finan-cial assets of large farmers seem to reflect their large holdings of fixed assets, especially of machines and implements, which they usually purchase on credit.

As shown in Figure 5.2, monthly changes in inventories and financial assets were characterized by strong seasonality. Product inventories had two peaks at the ends of the two crop seasons (November for the wet season, and May for the dry season). In the months before harvest (September and April), product inventories almost disappeared. Such seasonal patterns were the same for farmers and landless workers. Input inventories were held by farmers ex-clusively for the first 3 months of crop seasons (June–August for the wet season and January–March for the dry season).

The movements of inventories were closely related to those of financial assets. During each crop season, positive financial assets were low and debts were high before harvest. As the product inventories were sold out, the positive financial assets, especially cash, were gradually increased and the debts out-
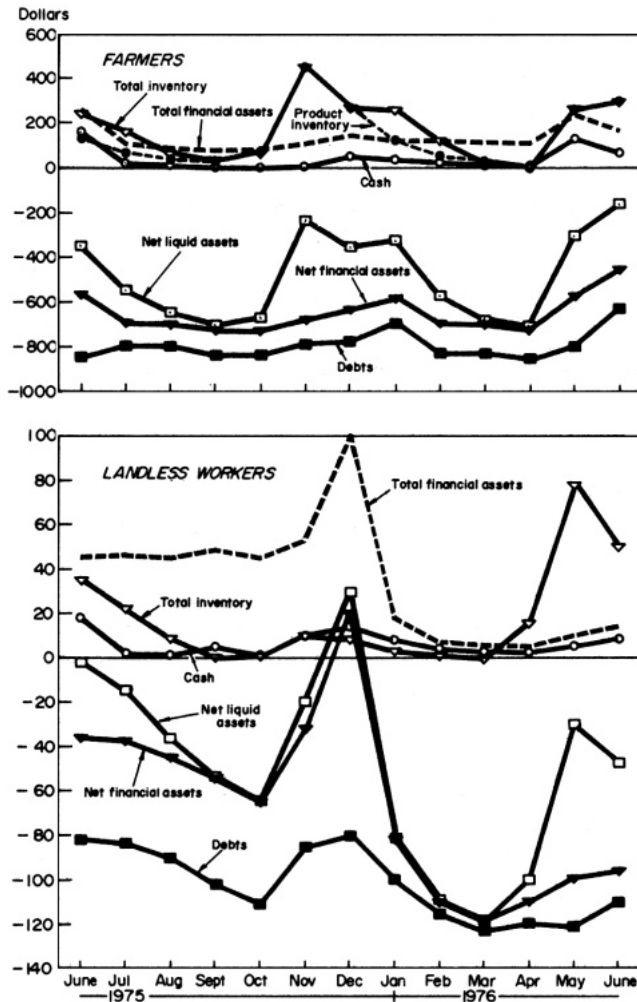
5.2. Monthly changes in inventories and financial assets in sample households, 1975–76.

standing declined. Such a pattern was more pronounced for the landless households than for the farmer households because landless workers did not hold input inventories.

Because the positive and negative financial assets tended to move in the same direction in absolute terms corresponding to movements of the inventories, the seasonal fluctuations were larger for the net financial assets. Movements in the net liquid assets followed the pattern of inventory changes. It is expected that, if we were to add the value of standing crops to inventories, there would not have been so much seasonal fluctuations in net liquid assets.

CAPITAL COEFFICIENT AND CAPITAL-LABOR RATIO

The capital coefficient, defined as the ratio of capital to income in a production process, is an important economic parameter to measure investment requirements to generate a stream of income. Another key parameter in economics is the capital-labor ratio, which determines the productivity of labor.

Those parameters, implied in the income accounts and the balance sheets that we have constructed, are summarized in Table 5.8. Capital was defined here as the value of production assets owned by village households and used for their family-operated enterprises. Correspondingly, income was measured as the income produced from those family enterprises, and labor measured as the number of family members' workdays in their own enterprises.

The capital coefficient and the capital-labor ratio based on the above definitions are not the same as conventionally used in economics. In conventional terms, the capital coefficient implies the ratio of total capital used for the production process to total value added from the process. It makes no difference whether the capital is owned by the operator of the enterprise or whether

Table 5.8. Estimates of capital coeffcients, capital–labor ratios, and labor productivities for sample households, Barrio Tubuan, Laguna, Philippines.

		Average	Large farmers (1)	Small farmers (2)	Landless workers (3)	(1)÷(2)	(1)÷(3)
(K)	Production assets as of 1 June 1975 ($/household):						
	Total	2338	5298	1384	93	3.8	57.0
	Farm assets	2210	4946	1384	93	3.6	53.2
(Y)	Family factor income from self-employment for 1 June 1975- 31 May 1976 ($/household):						
	Total	663	1340	599	36	2.2	37.2
	Agricultural	656	1319	599	36	2.2	36.6
(L)	Family labor input for self-employed works for 1 June 1975- 31 May 1976 (workdays/household):						
	Total	163	268	182	39	1.5	6.9
	Agricultural	158	260	182	39	1.4	6.7
(K/Y)	Capital coefficients:						
	Total	3.5	4.0	2.3	2.6	1.7	1.5
	Agricultural	3.4	3.7	2.3	2.6	1.6	1.4
(K/L)	Capital-labor ratio ($/workday):						
	Total	14.3	19.8	7.6	2.4	2.6	8.3
	Agricultural	14.0	19.0	7.6	2.4	2.5	7.9
(Y/L)	Family labor productivity ($/workday):						
	Total	4.1	5.0	3.3	0.9	1.5	5.6
	Agricultural	4.2	5.1	3.3	0.9	1.5	5.7

the incomes generated accrue to the factors owned by the operator. Likewise, the capital-labor ratio is defined as the ratio of total capital to total labor used for the production.

The conventionally defined capital coefficient and capital-labor ratio are relevant for the economic analysis at a level of society as a whole. Our definitions are relevant to analyze investment requirements and labor productivities from the standpoint of individual households.

The capital coefficients measured in Table 5.8, according to our definition, were rather high. For large farmers, it was as high as 4, implying that the past investment of $4 was required to produce an annual income stream of $1. One reason for the high capital coefficient of large farmers was a large portion of value added paid out as wages for hired labor. Another reason was that large farmers owned farm structures and machines of long usable life, which tends to reduce the level of income stream per dollar of capital.

The capital coefficient was slightly higher for landless workers than for small farmers mainly because some farm implements included in landless workers' production assets were not used for their own enterprises (ducks and hogs). This was especially true of rotary weeders, which were used primarily when workers were employed by farmers to weed under the *gama* arrangement. If we discount the values of the implements for hired use from the total value of production assets, the capital coefficient of landless workers would decline below that of small farmers.

Differences in the capital-labor ratio were large among the three classes of households in the village. Average capital holdings per workday of family members were about $20 for large farmers, $8 for small farmers, and less than $3 for landless workers.

The large differences in the capital-labor ratio were associated with almost equally large differences in the productivity of family labor. Average income per day of work was $5 for large farmers' family members, about $3 for small farmers', and only $1 for landless workers'. The results clearly show that the capital-labor ratio was a major determinant of the productivity of family labor in the village households.

PB/S TABLE 1. **Household balance sheets for the initial (1 June 1975) and terminal dates (31 May 1976), averages ($) per household in the sample, Barrio Tubuan, Laguna, Philippines.**

	Average		Large farmers		Small farmers		Landless workers	
	Initial	Terminal	Initial	Terminal	Initial	Terminal	Initial	Terminal
Fixed assets	3368	3329	7693	7406	1777	1855	236	355
Land	2012	2051	4568	4568	1283	1283	0	107
Buildings & structures	517	516	1004	936	380	433	132	159
Major consumer durables	205	192	541	507	17	17	11	9
Machines & implements	469	412	1281	1127	2	1	8	5
Livestock	89	62	147	72	72	95	45	26
Perennial plants	76	96	152	196	23	26	40	49
Inventories	155	204	292	411	132	136	35	49
Farm products	86	204	140	411	84	136	35	49
Farm inputs	69	0	152	0	48	0	0	0
Financial assets	181	113	426	269	36	36	45	14
Savings	70	66	149	154	21	27	27	6
Cash	111	47	277	115	15	9	18	8
TOTAL ASSETS	3704	3646	8411	8086	1945	2027	316	418
Debts outstanding	556	436	1358	988	119	134	81	110
Net worth	3148	3210	7053	7098	1826	1893	235	308
TOTAL LIABILITIES	3704	3646	8411	8086	1945	2027	316	418

PB/S TABLE 2. Composition of fixed assets for the initial (1 June 1975) and terminal dates (31 May 19761, averages ($) per household in the sample, Barrio Tubuan, Laguna, Philippines.

	Average		Large farmers		Small farmers		Landless workers	
	Initial	Terminal	Initial	Terminal	Initial	Terminal	Initial	Terminal
LAND	2012	2051	4568	4568	1283	1283	0	107
Farmland (f)	1694	1733	3693	3693	1283	1283	0	107
Owned land	0	0	0	0	0	0	0	0
Tenancy title	1694	1733	3693	3693	1283	1283	0	107
Residential lot (h)	318	318	875	875	0	0	0	0
BUILDINGS & STRUCTURES	517	516	1004	936	380	433	132	159
Farm use (f)	12	9	31	23	4	4	0	0
Nonfarm production use (n)	0	0	0	0	0	0	0	0
Residential use (h)	505	507	973	913	376	429	132	159
MAJOR CONSUMER DURABLES (h)	205	192	541	507	17	17	11	9
MACHINES 81 IMPLEMENTS	469	412	1281	1127	2	1	8	5
Farm use (f)	339	302	923	824	2	1	8	5
Nonfarm production use (n)	128	108	352	298	0	0	0	0
Residential use (h)	2	2	6	5	0	0	0	0
LIVESTOCK (f)	89	62	147	72	72	95	45	26
PERENNIAL PLANTS (f)	76	96	152	196	23	26	40	49
Farm assets (f)	2210	2202	4946	4808	1384	1409	93	187
Nonfarm production assets (n)	128	108	352	298	0	0	0	0
Household assets (h)	1030	1019	2395	2300	393	446	143	168
TOTAL FIXED ASSETS (f + n + h)	3368	3329	7693	7406	1777	1855	236	355

Nipa hut construction through mutual help.

Social accounts of the village economy[1]

IN THE PRECEDING TWO CHAPTERS WE traced the flow of come within households in the village and the resulting changes in the peasants' asset positions. A major characteristic of the peasant economy was the role of the village — a largely self-contained economic unit, an organic social body — in governing the decisions of individual villagers and families.

To understand the peasant economy, it is critical to have complete documentation of village economic activities as a whole in addition to the measurement of income flows in individual households within the village. In this chapter we construct a system of social accounts of the village economy that describes the income flows of the village and the corresponding changes in its asset positions?

CONSTRUCTION OF SOCIAL ACCOUNTS

Village social accounts can be constructed by aggregating the accounts of individual households after deducting transactions among the households within the village. The procedures follow:

1. We deducted transactions and financial claims between households within the village from the private income accounts and the private balance sheets of individual sample households (Appendixes B and C).

2. The individual household data were averaged separately for large farmers, small farmers, are landless workers after deducting the within-village transactions and claims.

3. The averages for large farmers, small farmers, and landless workers were multiplied by the number of households in the respective categories in the village and aggregated into village totals.

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[1] Readers who are not interested in technical detail may wish to skip this chapter,
[2] Data in this chapter were also reported in Hayami and Kikuchi (1978).

These procedures were not quite sufficient to construct the social accounts because private accounts of individual households, based on the household record keeping, did not include data on government subsidies to the village in the form of public infrastructure including irrigation systems, schools, agricultural extension, and roads. Likewise, the assets surveys on individual households did not cover the stock of public infrastructure owned by the village.

To complete the village social accounts, the infrastructure subsidies and the stock values of community capital should be estimated and added to the aggregates of private accounts and balance sheets. The following estimation procedures were adopted.

Rice fields in Tubuan are irrigated by the Sta. Cruz River Irrigation System under the National Irrigation Administration (NIA). The official irrigation fee per hectare per year was equivalent to 250 kg of paddy or $35.70 and was supposed to cover both capital cost and operation-maintenance cost. We estimated the government subsidy in the form of irrigation services as the difference between the official irrigation fee and the actual collection.

According to the NIA office at Pila, the area irrigated in Barrio Tubuan was 172 ha and the total fee collection was $1,439 during the study period. However, according to our benchmark survey, the irrigated rice area cultivated by the villagers was 111 ha. The difference was cultivated by farmers residing in neighboring barrios. By assuming that the fee collection was proportional to area, we estimated the government subsidy on irrigation in Tubuan as

$$111\text{ha} \times \$35.70 - \$1,439 \times \frac{111}{172} = \$3,034.$$

The government subsidy to the barrio school (1st through 4th grades) was estimated as the sum of teacher salaries and other miscellaneous supports such as books. The total of two teachers' salaries was $1,567 a year. By assuming that the miscellaneous supports were 20% of teachers' salaries, we estimated that the government subsidy to the barrio school was $1,880.

One agricultural extension worker of a joint project of the University of the Philippines at Los Baños and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture was responsible for two barrios, one of them Tubuan. We estimated one-half of his salary, which was $771 per year, as the subsidy to Tubuan.

The municipal government contributed two truckloads of gravel, which were estimated to have a value of $60, for the repair of village roads.

The total government subsidy for the village infrastructure was:

Irrigation	$3,034
School	1,880
Extension	771
Road	60
Total	$5,745

At the end of the project, the value of public infrastructure, including school, health center. and church, was assessed jointly by a carpenter and the barrio captain. The assessed values were:

School	$7,600
Health center	1,000
Church	200
Total	$8,800

Our system of social accounts is essentially the same as that of private accounts except that there is no entry of "nonoutput rice receipt" in the rice production account because it was eliminated in the process of deducting internal transactions within the village.

In the private accounts, we did not include the imputed house rent because of the difficulty involved in imputation. There was simply no case of renting a house in the village. Furthermore, it would have been difficult to ascertain the interest rate that might apply to the value of residential assets for the imputation of house rent, because the interest rates in the village varied to extremes ranging from zero to 100% in a crop season (6 months).

However, because it is highly desirable to make the social accounts of the village as comparable as possible with the system of national accounts. we prepared a highly provisional estimate of the house rent by applying the interest rate of 40% per year. It is possible to enter the rent on both sides of the income-expenditure account. However, the procedure is only an illustrative calculation.

VILLAGE INCOME FLOWS

The social accounts of income flows of the village are shown in the SA/C (Social Account) tables at the end of this chapter.

Current production activities
Output and income generated from current production activities in the village, documented in SA/C Tables 1R, 1N and 2, are summarized in Table 6.1. Rice farming was, by far, the most important enterprise for the village as a whole as well as for individual households in the village; it produced more than 50% of output, value added, and village-factor income. Agricultural production combining rice and nonrice activities was the source of more than 99% of factor income within the village.

About 70% of rice output was sold or paid in kind outside and 20% consumed within the village. The outside sale ratio was higher for nonrice agricultural output (such as ducks and pigs). The ratio of village consumption was higher for nonagricultural output (primarily transportation services by tricycles).

Table 6.1. Village outputs and income generated from current production activities within Barrio Tubuan, Laguna, Philippines, 1475–76.[a]

Item	Agricultural production (thousand $)			Nonagricultural production (thousand $)	Total
	Rice	Nonrice	Total		
	(1R)	(1N)	(1)=(1R)+(1N)	(2)	(1)+(2)
Out put:					
Sale or payment in kind to outside village	75.7 (68.5)	20.9 (78.6)	96.6 (70.5)	0.2 (25.0)	96.8 (70.2)
Consumption within village	24.4 (22.1)	5.7 (21.4)	30.1 (22.0)	0.6 (75.0)	30.7 (22.3)
Use for current inputs (seeds and feeds)	6.9 (6.2)	0 (0)	6.9 (5.0)	0 (0)	6.9 (5.0)
Inventory change	3.5 (3.2)	0 (0)	3.5 (2.6)	0 (0)	3.5 (2.5)
Total	110.5 (100.0)	26.6 (100.0)	137.1 (100.0)	0.8 (100.0)	137.9 (100.0)
Value added	93.3 (84.4)	14.4 (54.1)	107.7 (78.6)	0.5 (62.5)	108.2 (78.5)
Village factor income	65.1 (58.9)	14.4 (54.1)	79.5 (58.0)	0.5 (62.5)	80.0 (58.0)

[a] Figures in parentheses are percentages of total (100%).

The value-added ratio was relatively low for nonrice agricultural production. The major input for duck and hog raising was feed, characterized by a high proportion of current inputs to output values. A relatively high proportion of fuel use for tricycles also depressed the value-added ratio in nonagricultural production. In contrast, 100% of value added from both nonrice agricultural activities and nonagricultural enterprises became villagers' factor income, whereas nearly 30% of value added from rice farming flowed out of the village in the form of land rent to absentee landlords.

Estimates of factor shares in current production activities are shown in Table 6.2. Labor and land were the two major factors contributing to rice production, sharing the returns almost equally. However, there is some evidence that the actual land rents were below market equilibrium rates. So it is possible that the calculated shares represent an underestimate of the functional share of land and an overestimate of the functional share of capital.

For nonrice agricultural production, the output share of current inputs was large because of the large input of feeds; the high income share of capital reflects the high capital value in the form of livestock and poultry. Because ducks and hogs were the backyard enterprises, the share of land was zero for

Table 62. Relative factor shares of village output and income generated from current production activities within Barrio Tubuan, Laguna, Philippines, 1975–76.

Shares	Labor (%)	Land (%)	Capital (%)	Current inputs (%)
Output shares:				
(1R) Rice production	32.4	30.0	22.0	15.6
(1N) Nonrice agricultural production	15.4	0	38.7	45.9
(1) Total agricultural production (1R)+(1N)	29.1	24.2	25.2	21.5
(2) Nonagricultural production	25.0	0	37.5	37.5
(3) Total current production (1)+(2)	29.1	24.1	25.3	21.5
Income shares:				
(1R) Rice production	38.4	35.6	26.0	−
(1N) Nonrice agricultural production	28.5	0	71.5	−
(1) Total agricultural production (1R)+(1N)	37.1	30.8	32.1	−
(2) Nonagricultural production	40.0	0	60.0	−
(3) Total current production (1)+(2)	37.1	30.7	32.2	−

nonrice agricultural production. The structure of factor shares of nonagricultural enterprise (tricycle) was fairly similar to that of nonrice production.

Income and expenditure

Total income of the village was estimated at $101,800, or $126,200 including imputed house rent. The total village factor income was more than 80% of total village income (Table 6.3). More than 95% of the factor income was earned within the village. The income accruing to labor was nearly one-half of the factor income when excluding house rent, but only 38% including it.

Average per-capita income in the village, including house rent, was about

Table 6.3. Composition of village income. Barrio Tubuan, Laguna, Philippines, 1975–76.

Income	Excluding imputed house rent		Including imputed house rent	
	Thousand $	%	Thousand $	%
Total village income	101.8	100.0	126.2	100.0
Village factor income:				
Factor income within village	80.0	78.6	104.4	82.7
(Labor income)	(40.1)	(39.4)	(40.1)	(31.8)
Factor income from outside	3.6	3.5	3.6	2.9
(Labor income)	(1.2)	(1.2)	(1.2)	(1.0)
Total factor income	83.6	82.1	108.0	85.6
(Total labor income)	(41.3)	(40.6)	(41.3)	(32.8)
Transfer income from outside	18.2	17.9	18.2	14.4

Table 6.4. Pattern of village expenditures. Barrio Tubuan, Laguna, Philippines, 1975–76.

	Excluding imputed house rent		Including imputed house rent	
	$	%	$	%
Per capita village income	185.5	–	229.9	–
Per capita disposable income (D)	172.4	–	216.8	–
Per capita consumption:				
Produced within village	56.0	38.7	100.4	53.1
Purchased from outside	88.6	61.3	88.6	46.9
Total (C)	144.6	100.0	189.0	100.0
Per capita food consumption:				
Produced within village	54.8	54.7	54.8	54.7
Purchased from outside	45.4	45.3	45.4	45.3
Total (F)	100.2	100.0	100.2	100.0
Average propensity to save (1−C÷D)	16.1		12.8	
Engel coefficient (F÷C)	69.3		53.0	

$230. This was substantially lower than the 1973–76 national average of $320, reflecting the urban-rural income disparity. Excluding house rent, about 84% of the disposable income was consumed and 16% saved; including house rent the average propensity to save declines to about 13% (Table 6.4). Almost 70% of consumption expenditure went to food, but the Engel ratio declines to nearly 50% if we include the house rent.

Excluding the house rent, about 40% of total consumption was for goods and services produced within the village and the rest for those purchased from outside; the portion of the village product in total consumption exceeds 50% if we include the service of the residential house. The portion of the village product was higher in food consumption, amounting to 55%.

Capital formation

Total fixed capital produced in the village during the study period was $5,300, of which 23% was capital for agricultural production, 46% for nonagricultural enterprises, and 31 % for residential construction.

Seventy-nine percent of the total cost of fixed capital construction was paid for inputs from outside the village, and only 21% from village factors.

Total investment gross of depreciation was $16,400 of which 33% was in fixed capital, 22% in inventories, and 45% in financial assets.

Ninety-three percent of capital formation was financed by household savings. Capital construction by village factors was only 7% of total investment. The data again point up the problem of how to organize underutilized rural labor in the slack season for construction of productive capital.

Transaction with outside economy

Total village receipt from transactions outside the village were $118,600, whereas the payment was $111,000. As a result, the village recorded a $7,600 surplus (6% of total receipts) in the balance of payment with the outside economy. This indicates the net increase in financial claims of villagers to the outside economy. Thus, the data show a relatively large net outflow of financial resources from the village sector.

Even though the net resource outflow estimated as a residual may involve large errors, the direction of the resources flow shown in the account is consistent with the data from the asset survey, as will he shown later. Although one village study for 1 year is hardly sufficient to determine the general direction of intersectoral resource flow, such results add to the scarce empirical evidence on the direction of intersectoral flows of savings or financial resources in developing countries, a major unsolved issue in development economics (Ishikawa 1967; Lee 1971).

Sale of agricultural products was the major source of villagers' receipts (61%). Next important sources were the payment in kind to external inputs (21%), and the grant to the household from nonvillagers (11%).

Payments to external inputs for agricultural production and purchase of consumption goods and services were the two major items among the payments by villagers to the outside economy, each comprising about 40%. Payments to external inputs for agricultural production were mainly rent for absentee landlords, and purchase of current inputs such as fertilizers.

Seasonal patterns in income and transactions

As was the case with the private households in the village, the village income fluctuated sharply according to the seasonality of rice production; it had distinct peaks in the months of harvest (October and April) and declined even to negative values in the earlier periods of cropping seasons (Fig. 6.1). Because the level of consumption was relatively stable throughout the year, the household surplus (savings) also fluctuated with the income.

Transactions of the village with the outside economy followed the same seasonal pattern. Although rent and debt payments were high in the months following harvests, receipts were greater, resulting in surpluses in favor of the village.

VILLAGE ASSET POSITIONS

Asset positions of the village are documented by SB/S (Social Balance Sheets) Tables 1 and 2 at the end of this chapter. Total asset value of the village as of 1 June 1975 was $281,500. By 31 May 1976, it had increased to $284,300. In the same time period, debt outstanding declined from $38,900 to $31,000. As a result, village net worth changed from $242,600 to $253,300. The net worth
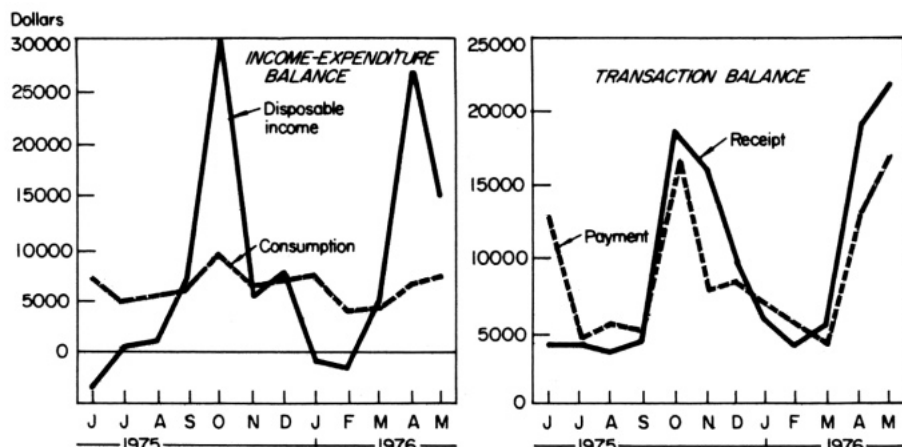
6.1. Monthly changes in the income-expenditure balances and the transaction balances of the village, 1975–76.

of the village was roughly 2.5 times the total village income during the project year.

The value of land assets, consisting of tenancy rights and residential lots, was about 50% of total asset value. The share of other fixed assets in total asset value, including land assets, was about 40%. Buildings and major consumer durables were of major importance, occupying about 70% of the value of non-land fixed assets.

Percentage compositions of the fixed assets for farm production, nonfarm production, household use, and public use as of 1 June 1975 are in Table 6.5.

The capital coefficient, defined as the ratio of the fixed assets for production use to village factor income from current production activities, was 2.2, implying that capital investment of about $2 was required to produce an annual income stream of $1 in the village.

The positive financial assets, including cash and other financial claims to outside of the village, amounted to $12,500 at the beginning of the project. It

Table 6.5. Composition of fixed assets by use. Barrio Tubuan, Laguna, Philippines, as of 1 June 1975.

	Fixed assets (%)	
	Including land assets	Excluding land assets
Farm production	64.0	34.0
Nonfarm production	3.3	7.9
Household use	29.3	50.0
Public infrastructure	3.4	8.1

Table 6.8. Investment check Barrio Tubuan, Laguna, Philippines, 1975–78.

| | Gross investment (thousand $) based on | | Statistical discrepancy |
	Balance sheets (1)	Income accounts (2)	(thousand $) (1)–(2)
Fixed capital	4.3	5.3	−1.0
Inventory	3.5	3.5	0
Net finencial assets	2.8	7.6	−4.8
Total	10.6	16.4	−5.8

declined to \$7,400 at the end of the project. However, the debts outstanding decreased more than the decrease in positive financial assets, and the financial assets recorded a net increase. That implies that the net acquisition of financial assets recorded in the village income accounts took the form of reduction of debts outstanding.

INVESTMENT CHECK

As a final check of reliability of data, we compared in Table 6.6 the gross investments estimated by subtracting the initial asset values from the terminal asset values (SB/S Table l), with those estimated in SA/C Table 5. The first estimates were based on the asset surveys and the second on the record keeping. Because increases in consumers' durables were not counted as investments in SA/C Table 5, we excluded them from the comparison.

   The discrepancy between the two estimates of investments was rather small for fixed capital, considering the problems involved in data collection and imputation. However, the discrepancy was quite large for financial assets. It is possible that the estimates of investments in financial assets from the accounting approach may involve large errors, because the net acquisition of financial assets was estimated in our accounting system as a final residual, including various possible errors. However, both sets of data support the same hypothesis— that there was a net outflow of financial resources from the village to the outside economy.

SA/C TABLES

SA/C TABLE 1R. **Current rice production account, Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
1.1 Payments to nonvillage inputs for rice production (6.8)		43.1	78.7	39.1
1.1.1 Rent to absentee landlords		24.9	45.4	22.6
1.1.2 Capital rental to nonvillagers		3.3	6.1	3.0
1.1.3 Purchased current inputs		14.9	27.2	13.5
1.2 Seed use of rice	(1.8)	2.3	4.2	2.1
1.3 Income of village factors for rice production	(3.9)	65.1	118.5	58.8
1.3.1 Hired labor wage		21.4	39.0	19.4
1.3.2 Family labor wage		14.4	26.2	13.0
1.3.3 Rent to resident landlords		8.3	15.1	7.5
1.3.4 Rent to owned land		0	0	0
1.3.5 Capital rental to villagers		0.5	0.9	0.4
1.3.6 Farm profit (residual)		20.5	37.3	18.5
Total rice production expenditure		110.5	201.4	100.0
1.4 Payments in kind to inputs owned by nonvillagers	(6.1)	24.9	45.4	22.5
1.5 Sale of rice to outside village	(6.2)	50.8	92.5	45.9
1.6 Sale of rice within village	(3.2)	8.9	16.2	8.1
1.7 Home consumption of rice	(3.1)	15.5	28.2	14.0
1.8 Seed use of rice	(1.2R)	2.3	4.2	2.1
1.9 Feed use of rice	(1.2N)	4.6	8.4	4.2
1.10 Inventory change in agri-cultural products and inputs	(5.4)	3.5	6.5	3.2
Total rice output		110.5	201.4	100.0

SA/C TABLE 1N. **Current nonrice agricultural production account, Barrlo Tubuan, Laguna, Philippines 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
1.1 Payments to nonvillage inputs for agricultural production	(6.8)	7.6	13.8	28.4
1.1.1 Rent to absentee landlords		0	0	0
1.1.2 Capital rental to nonvillagers		0	0	0
1.1.3 Purchased current inputs		7.6	13.8	28.4
1.2 Feed use of rice	(1.9R)	4.6	8.4	17.3
1.3 Income of village factors for agricultural production	(3.9)	14.4	26.3	54.3
1.3.1 Hired labor wage		0	0.1	0.2
1.3.2 Family labor wage		4.1	7.5	15.5
1.3.3 Rent to resident landlords		0	0	0
1.3.4 Rent to owned land		0	0	0
1.3.5 Capital rental to villagers		0	0	0
1.3.6 Farm profit (residual)		10.3	18.7	38.6
Total agricultural production expenditure		26.6	48.5	100.0
1.4 Payments in kind to inputs owned by nonvillagers	(6.1)	0	0	0
1.5 Sale of agricultural products outside village	(6.2)	20.9	38.1	78.6
1.6 Sale of agricultural products within village	(3.2)	1.9	3.4	7.0
1.7 Home consumption of agricultural products	(3.1)	3.8	7.0	14.4
1.8 Inventory change in agricultural products and inputs	(5.4)	0	0	0
Total agricultural output		26.6	48.5	100.0

SA/C TABLE 2. **Current nonagricultural production account, Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
2.1 Payments to nonvillage inputs for nonagricultural production	(6.9)	0.3	0.5	33.3
2.1.1 Capital rental to nonvillagers		0	0	0
2.1.2 Purchased current inputs of nonvillage origin		0.3	0.5	33.3
2.2 Income of village factors for nonagricultural production	(3.10)	0.5	1.0	66.7
2.2.1 Hired labor wage		0	0.1	6.7
2.2.2 Family labor wage		0.2	0.4	26.7
2.2.3 Capital rental to villagers		0	0	0
2.2.4 Profit from nonagricultural enterprises (residual)		0.3	0.5	33.3
Total nonagricultural production expenditure		0.8	1.5	100.0
2.3 Revenue of nonagricultural enterprises from nonvillagers	(6.3)	0.2	0.3	20.0
2.4 Revenue of nonagricultural enterprises from villagers	(3.3)	0.6	1.2	80.0
2.5 Inventory change in nonagricultural products and inputs	(5.5)	0	0	0
Total nonagricultural output		0.8	1.5	100.0

SA/C TABLE 3. **Income-expenditure account, Barrlo Tubuan, Laguna, Philippines, 1975–76.**

		Total (thousand $)	Per capita (t)	Composition (%)
3.1 Home consumption of agricultural products	(1.7R+N)	19.3	35.2	19.0
3.2 Sale of agricultural products within village	(1.6R+N)	10.8	19.6	10.6
3.3 Revenue of nonagricultural enterprises from villagers	(2.4)	0.6	1.2	0.6
3.4 Purchase of consumption goods of nonvillage origin	(6.11)	48.7	88.6	47.8
3.4.1 Food		25.0	45.4	24.5
3.4.2 Nonfood		23.7	43.2	23.3
3.5 Interest payment to consumption loan from nonvillagers	(6.12)	3.1	5.8	3.1
3.6 Grant from the households to nonvillagers	(6.13)	3.8	6.9	3.7
3.7 Tax and rate	(6.14)	0.2	0.4	0.2
3.8 Savings (residual)	(5.7)	15.3	27.8	15.0
Total household expenditure		101.8	185.5	100.0
3.9 Income of village factors for agricultural production	(1.3R+N)	79.5	144.8	78.1
3.10 Income of village factors for nonagricultural production	(2.2)	0.5	1.0	0.5
3.11 Earnings from outside-village employment	(6.4)	1.2	2.1	1.1
3.12 Receipt of rental from nonvillagers	(6.5)	2.4	4.4	2.4
3.13 Grant to the households from nonvillagers	(6.6)	12.5	22.7	12.2
3.14 Government subsidy	(6.7)	5.7	10.5	5.7
Total village income		101.8	185.5	100.0
Imputed house rent		24.4	44.4	22.9

SA/C TABLE 4. **Fixed-capital production account, Barrio Tubuan, Laguna, Philipplnes, 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
4.1 Payments to nonvillage inputs for capital formation	(6.10)	4.2	7.7	79.4
4.1.1 Purchase of machines		0	0	0
4.1.2 Purchase of materials produced outside of village		3.8	6.9	71.1
4.1.3 Hired labor wage for construction to nonvillagers		0	0	0
4.1.4 Purchase of livestock		0.4	0.8	8.3
4.2 Contribution of village factors to fixed capital formation	(5.8)	1.1	2.0	20.6
4.2.1 Family labor wage for construction		1.0	1.7	17.5
4.2.2 Hired labor wage for construction to villagers		0	0	0
4.2.3 Farm-supplied materials		0	0	0
4.2.4 Purchased materials produced within village		0.1	0.2	2.1
4.2.5 Residual		0	0.1	1.0
Total expenditure for fixed capital formation		5.3	9.7	100.0
4.3 Agricultural fixed capital formation	(5.1)	1.2	2.2	22.7
4.4 Nonagricultural fixed capital formation	(5.2)	2.5	4.5	46.4
4.5 Residential construction	(5.3)	1.6	3.0	30.9
Total fixed capital formation		5.3	9.7	100.0

SA/C TABLE 5. **Capital finance account, Barrio Tubuan, Laguna, Philippines. 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
5.1 Agricultural fixed capital formation	(4.3)	1.2	2.2	7.4
5.2 Nonagricultural fixed capital formation	(4.4)	2.5	4.5	15.1
5.3 Residential construction	(4.5)	1.6	3.0	10.1
5.4 Inventory change in agricultural products and inputs	(1.10R+1.8N)	3.5	6.5	21.8
5.5 Inventory change in nonagricultural products and inputs	(2.5)	0	0	0
5.6 Net acquisition of financial assets from nonvillagers (residual)	(6.15)	7.6	13.6	45.6
Gross investment		16.4	29.8	100.0
5.7 Savings	(3.8)	15.3	27.8	93.3
5.8 Contribution of village factors to fixed capital formation	(4.2)	1.1	2.0	6.7
Gross investible fund		16.4	29.8	100.0

SA/C TABLE 6. **Transaction account, Barrio Tubuan, Laguna, Philippines, 1975–76.**

		Total (thousand $)	Per capita ($)	Composition (%)
6.1	Payments in kind to inputs owned by nonvillagers (1.4R+N)	24.9	45.4	21.0
6.2	Sale of agricultural products to outside village (1.5R+N)	71.7	130.6	60.5
6.3	Revenue of nonagricultural enterprises from nonvillagers (2.3)	0.2	0.3	0.1
6.4	Earnings from outside-village employment (3.11)	1.2	2.1	1.0
6.5	Receipt of rental from nonvillagers (3.12)	2.4	4.4	2.0
6.6	Grant to the household from nonvillagers (3.13)	12.5	22.7	10.5
6.7	Government subsidy (3.14)	5.7	10.5	4.9
Total receipt from outside		118.6	216.0	100.0
6.8	Payments to nonvillage inputs for agricultural production (1.1R+N)	50.7	92.5	42.8
6.9	Payments to nonvillage inputs for nonagricultural production (2.1)	0.3	0.5	0.2
6.10	Payments to nonvillage inputs for fixed capital formation (4.1)	4.2	7.7	3.6
6.11	Purchase of consumption goods of nonvillage origin (3.4)	48.7	88.6	41.0
6.12	Interest payment to consumption loan from nonvillagers (3.5)	3.1	5.8	2.7
6.13	Grant from the households to nonvillagers (3.6)	3.8	6.9	3.2
6.14	Tax and rate (3.7)	0.2	0.4	0.2
6.15	Net acquisition of financial assets (5.6)	7.6	13.6	6.3
Total payment to outside		118.6	216.0	100.0

SB/S TABLES

SB/S TABLE 1. **Village balance sheets, Barrio Tubuan, Laguna, Philippines, 1975–76.**

	Initial (1 June 1975)		
	Total (thousand $)	Per capita ($)	Composition (%)
ASSETS			
Fixed assets:	256.4	467.1	91.1
Land	148.2	270.0	52.6
Buildings & structures	40.9	74.5	14.5
Major consumer durables	13.9	25.3	5.0
Machines & implements	31.1	56.7	11.1
Livestock	7.5	13.7	2.7
Perennial plants	6.0	10.9	2.1
Public infrastructure	8.8	16.0	3.1
Inventories:	12.6	22.9	4.5
Farm products	7.4	13.4	2.7
Farm inputs	5.2	9.5	1.8
Financial assets:	12.5	22.8	4.4
Savings	4.7	8.6	1.6
Cash	7.8	14.2	2.8
Total assets	281.5	512.8	100.0
LIABILITIES			
Debts outstanding	38.9	70.8	13.8
Net worth	242.6	442.0	86.2
Total liabilities	281.5	512.8	100.0

SB/S TABLE 1 **continued**

	Terminal (31 May 1976)		
	Total (thousand $)	Per capita ($)	Composition (%)
ASSETS			
Fixed assets:	260.9	475.3	91.8
Land	148.2	270.0	52.1
Buildings & structures	45.4	82.7	16.0
Major consumer durables	14.1	25.7	5.0
Machines & implements	31.3	57.0	11.0
Livestock	5.6	10.2	2.0
Perennial plants	7.5	13.7	2.6
Public infrastructure	8.8	16.0	3.1
Inventories:	16.0	29.1	5.6
Farm products	16.0	29.1	5.6
Farm inputs	0	0	0
Financial assets:	7.4	13.5	2.6
Savings	4.1	7.5	1.4
Cash	3.3	6.0	1.2
Total assets	284.3	517.9	100.0
LIABILITIES			
Debts outstanding	31.0	56.5	10.7
Net worth	253.3	461.4	89.3
Total liabilities	284.3	517.9	100.0

SB/S TABLE 2. **Composition of fixed assets, Barrio Tubuan, Laguna, Philippines, 1975–76.**

	Initial (1 June 1975)		
	Total (thousand $)	Per capita ($)	Composition (%)
Land	148.2	270.0	57.8
Farmland (f)	127.2	231.7	49.6
Owned land	0	0	0
Tenancy title	127.2	231.7	49.6
Residential lot (h)	21.0	38.3	8.2
Buildings & structures	49.7	90.5	19.4
Farm use (f)	0.8	1.5	0.4
Nonfarm production use (n)	0	0	0
Residential use (h)	40.1	73.0	15.6
Public infrastructure (p)	8.8	16.0	3.4
Major consumer durables (h)	13.9	25.3	5.4
Machines & implements	31.1	56.7	12.2
Farm use (f)	22.5	41.0	8.8
Nonfarm production use (n)	8.5	15.5	3.3
Residential use (h)	0.1	0.2	0.1
Livestock (f)	7.5	13.7	2.9
Perennial plants (f)			
TOTAL ASSETS (f + n + h + p)	256.4	467.1	100.0
Farm assets (f)	164.0	298.8	64.0
Nonfarm production assets (n)	8.5	15.5	3.3
Household assets (h)	75.1	136.8	29.3
Public infrastructure (p)	8.8	16.0	3.4

	Terminal (31 May 1976)		
	Total (thousand $)	Per capita ($)	Composition (%)
Land	148.2	270.0	56.8
Farmland (f)	127.2	231.7	48.7
Owned land	0	0	0
Tenancy title	127.2	231.7	48.7
Residential lot (h)	21.0	38.3	8.1
Buildings & structures	54.2	98.7	20.8
Farm use (f)	0.9	1.6	0.3
Nonfarm production use (n)	0	0	0
Residential use (h)	44.5	81.1	17.1
Public infrastructure (p)	8.8	16.0	3.4
Major consumer durables (h)	14.1	25.7	5.4
Machines & implements	31.3	57.0	12.0
Farm use (f)	22.7	41.3	8.7
Nonfarm production use (n)	8.5	15.5	3.3
Residential use (h)	0.1	0.2	0
Livestock (f)	5.6	10.2	2.1
Perennial plants (f)	7.5	13.7	2.9
TOTAL ASSETS (f + n + h + p)	260.9	475.3	100.0
Farm assets (f)	163.9	298.5	62.8
Nonfarm production assets (n)	8.5	15.5	3.3
Household assets (h)	79.7	145.3	30.6
Public infrastructure (p)	8.8	16.0	3.3
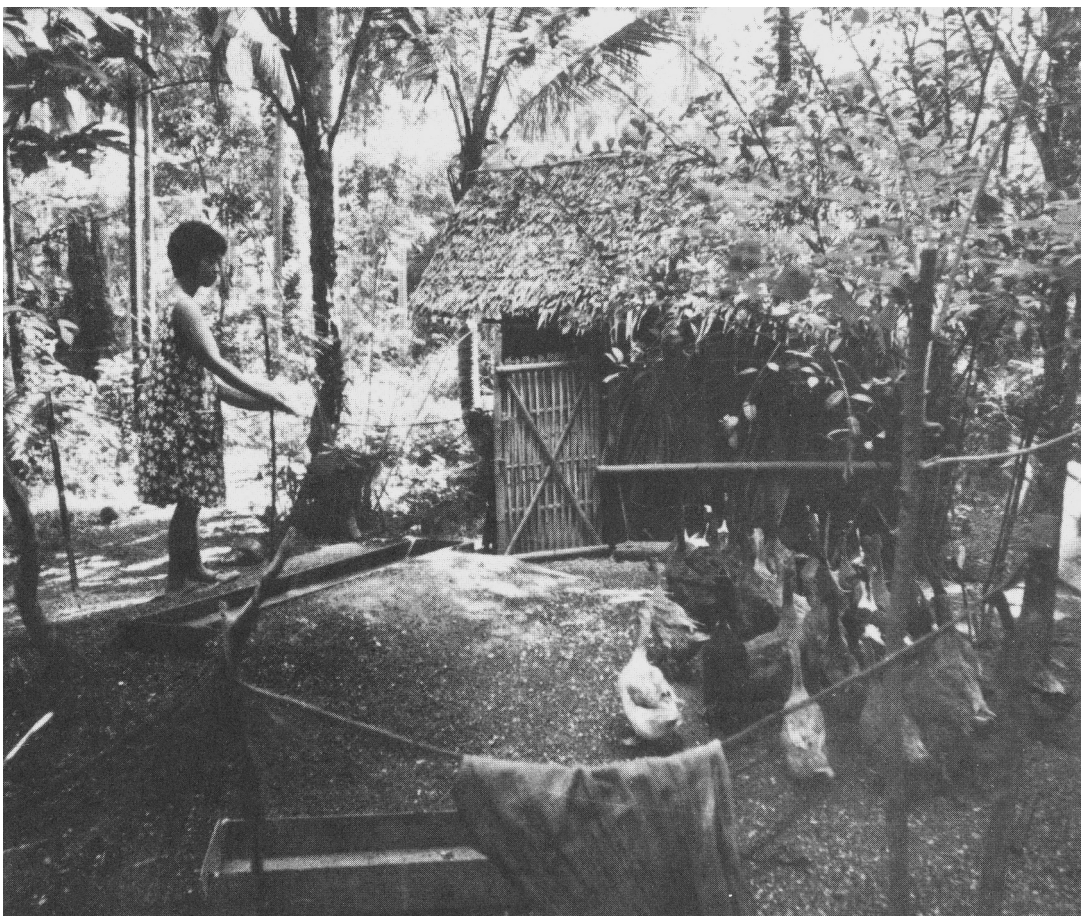
Feeding ducks.

Permanent house of large farmer.

Semipermanent house of small farmer.

Toward understanding the village economy

WE HAVE DOCUMENTED A PEASANT ECONOMY in quantitative terms through an intensive case study of a rice village. After a description of the environmental and socioeconomic characteristics of the village (Chapter 2), the complex of peasants' economic activities is accounted for in terms of labor flows (Chapter 3), income flows (Chapter 4), and corresponding changes in asset positions (Chapter 5) of village households. The village economy is analyzed as a whole in terms of village social accounts (Chapter 6).

Here, we outline an overall structure and working mechanism of the village economy by putting together our findings, and draw some implications for rural development.

STRUCTURE OF VILLAGE ECONOMY

The economic system and its workings in the village from the standpoint of production and distribution of income are illustrated in Figure 7.1. For simplicity, the outputs of current village — production activities — rice and nonrice farming and nonagricultural enterprises — are aggregated and represented by one major pie chart. Arrows from that chart represent the flows of income earnings corresponding to the contributions of factor services to production. Incomes of village households from production within the village and from the outside economy for their factor contributions are shown in the three small pie charts.

Of the total village output of $137,900 (excluding imputed house rent), 5% was consumed in the production process for seed and feed, 16% was paid to the outside economy for the purchase of current inputs such as fertilizers, and 21% went to landlords living outside the village. The rest, 58%, was the earnings of the factors owned by the villagers.

The earnings of villagers' labor were as much as 30% of the total village output. More than one-half of labor earnings was paid to hired workers within the village community. As explained in detail in Chapter 3, that results from the high dependence on hired labor in rice farming because of the traditional
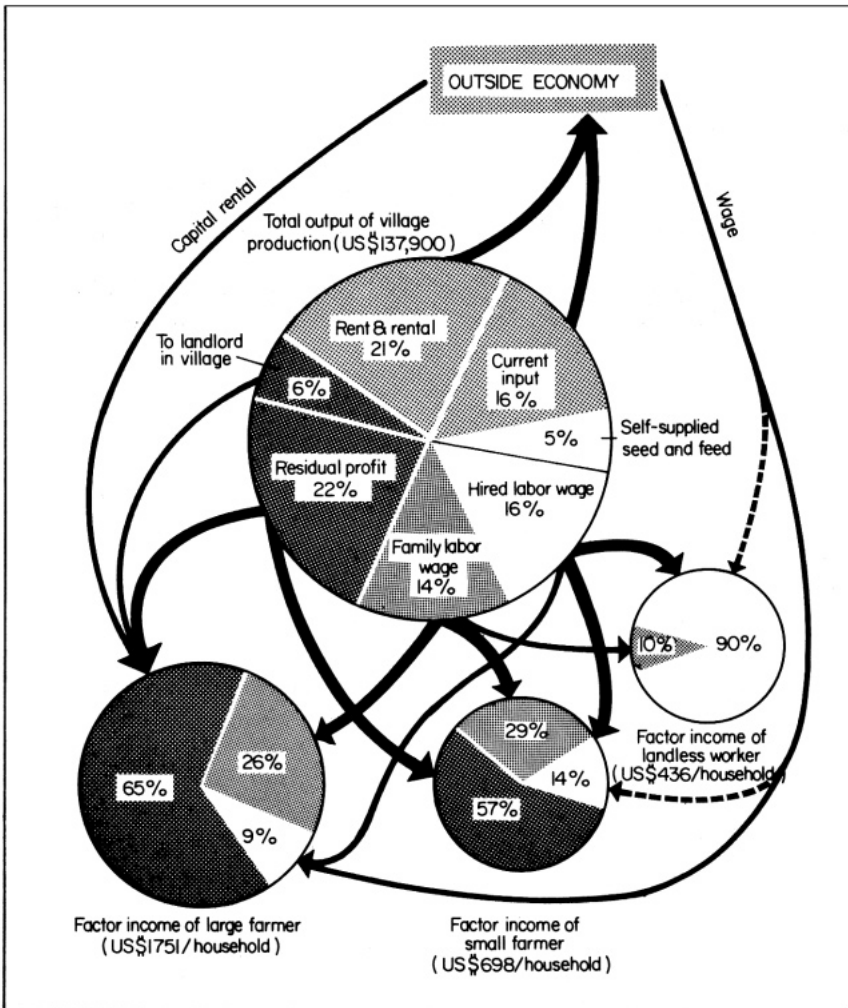
7.1. Generation and distribution of village income, 1975–76.

mutual-help system of "labor exchange with wage payments" to minimize the rent payments to absentee landlords under share tenancy. It is also due to the patron-client relation in the *gama* harvesting arrangements.

Wage receipts from farmers represented as much as 90% of family factor income of the landless worker households; another 10% was earned from their own backyard enterprises, such as duck and hog raising.

Less than half of total labor income in the village accrued to farmers' family labor, which made up 26% of large farmers' income and 29% of small farmers'. However, the major income of the farmer households came from property sources. The "profit" of farm and nonfarm production, measured as the residual of output after deducting both paid-out costs and imputed family labor costs, was the prime source of farmers' income. This profit is supposed to represent a return to capital (including human capital) owned by farmers. In fact, however, it included a part of land rent because the rents actually paid to landlords were substantially lower than the economic rent or the functional share of land under the land reform regulations.

Incomes earned from the employment of villagers' labor and capital in the economy outside the village were less than 4% of total village income, most of which went to the large farmer households.

Figure 7.2 shows how the incomes earned by the villagers were disposed of. To simplify, the flows of transfer incomes that relate family factor income to
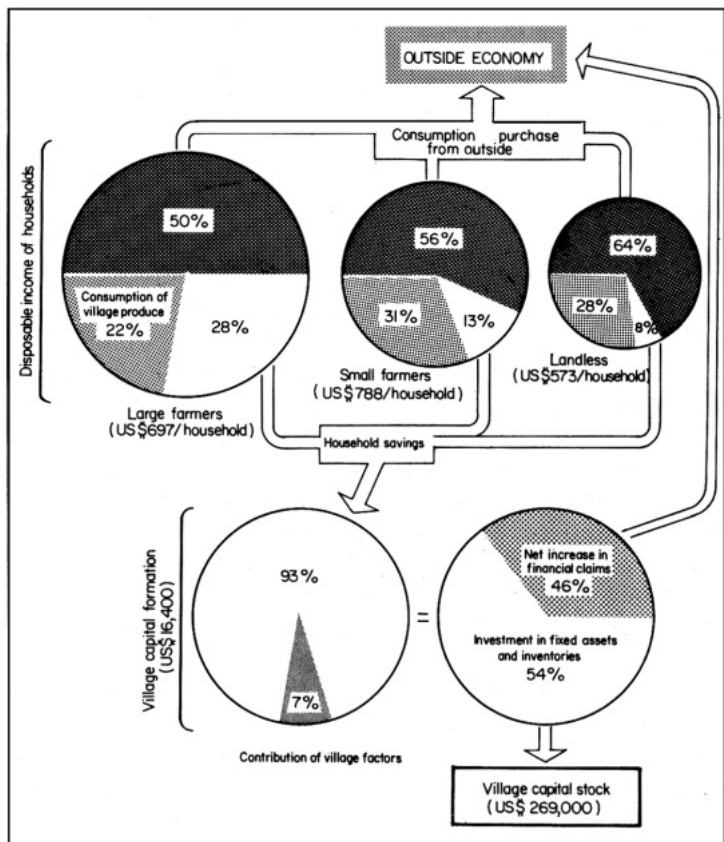
7.2. Disposition of village income, 1975–76.

disposable income (disposable income = factor income + transfer income - transfer payment) were eliminated from the illustration. The upper pie charts represent the average disposable income of the three classes of households in the village. The two lower pie charts represent capital formation in the village as a whole; the two pie charts are identical, the left representing the sources of financing investments and the right, investment outlays. The arrows show direction of the disposition of incomes.

Corresponding to the income differentials among the three classes in the village, the portion of household income consumed was 72% for large farmers, 87% for small farmers, and 92% for landless workers. Dependence of village households on goods and services purchased from the outside economy was high. More than half of disposable income in each class of households was spent for the purchase of consumption goods. Consumption of village produce, mainly rice, was only about one-third of total consumption.

Household savings were the major source of finance of capital formation in the village. Contributions of village factors, such as improvements in irrigation and drainage systems by villagers' labor, were only 7% of total capital formation.

The portion of total investment that became a new addition to the capital stock in the village was 54%. As much as 46% flowed out of the village, primarily as repayments for past debts.

SOME POLICY IMPLICATIONS

A conspicuous feature of the village economy was that the incomes of village dwellers were almost exclusively earned from the production within the village; 96% of the factor income earnings was from village production activities (80% from rice farming) and only 4% from nonvillage employment. Employment opportunities for villagers outside of the village were severely limited, especially for people without education and skills sought in urban areas.

In such a situation, increases in the income of villagers are possible only through the increases in output from the production activities within the village. Since no more land is available in the village, the increase in output can only be achieved by increasing the productivity of land in rice production and expanding nonland-based enterprises such as duck and hog raising. These are also two major possible means of increasing the utilization of labor in the village.

The land reform program that converted share-tenants to leaseholders and fixed the rates of rent at 25% of average harvest for 3 normal years preceding the conversion to leasehold tenancy should have reduced the portion of income produced in the village that flows out to absentee landlords. Thus, the program should have contributed to the increase in village income and the reduction in urban-rural   disparity.

It appears, however, that the inequality within the village has been aggra-

vated by the land reform operations because larger tenants captured major benefits and no gain accrued to landless workers. As shown in Figure 7.1, the major source of income inequality among households in the village can be identified as the inequality in the ownership of property for farm production within the village. Because the tenancy titles were the major items in the productive assets owned by villagers, the income differentials were due primarily to the differences in the size and tenure status of operational holdings of farmland.

Barring the possibility of land redistribution from large tenants to landless workers, and given the difficulty of finding urban employment, the only way to raise the income levels of landless people should be to increase employment within the village. Naturally, the rice sector, which absorbs as much as 70% of village labor input, should play a major role in such an increase. There is evidence that, for the past two decades, labor input for rice production has increased substantially through the construction of irrigation systems and the introduction of new rice technology, even though the displacement of carabaos by tractors has reduced labor input for land preparation.

The system of high dependence of rice-farming operations on hired labor in the form of "labor exchange with wage payments" developed under the output- and cost-sharing tenancy. The motivation was to maximize the portion of rice income to be retained in the village community. The system has been preserved through development of a patron-client relationship between farmers and landless workers represented by the *gama* arrangements for harvesting and weeding. Under such a system, a major share of the increase in labor use has been in the employment of landless workers, rather than increase in use of family labor of farmers. In a sense, traditional mutual-help and patron-client relations in the village community helped the landless to receive some share of the gains in rice productivity.

As a result, the income differentials among farmers and landless workers are perhaps not so great (average per-capita income in the large farmer households is only about twice as much as in the landless households). Despite the rapid increase in landless population, a decent level of subsistence seems to have been maintained.

But how long can such a system be sustained? Population growth will continue to press on limited land, and the landless population will increase even more sharply. Competition for land and employment will reduce the real wage rates and raise the economic rent of land, as described by classical economists like Ricardo (1951). Such conditions will sharpen the conflicts between the farmers and the landless in dividing the income produced in the village (Scott 1972). The gloomy prospect of intensifying class conflicts is evident from the experience in Java where the population pressure is the highest in Asia (Collier et al 1974; Wertheim 1969; White 1976). The system that has been effective in sharing income gains within the village community might not be preserved unless great efforts are made to overcome population pressure by increasing employment and income in the village.

How can such goals be achieved? Continued efforts for improvements in rice technology will, of course, be most critical to increase the output portion of the pie chart in Figure 7.1. The direction of technological improvement should be toward increasing labor's share in the output. Expansion of livestock and poultry production should be encouraged because those enterprises are not based on land resources.

In addition, two routes of policy efforts might be effective in terms of the relationships illustrated in Figure 7.2. First, the consumption of village households is characterized by high dependence on the purchase of goods and services from the outside economy. On the other hand, production activities to satisfy the need for village consumption are minor, except for rice farming. Ducks and hogs are raised primarily for the outside market. Cottage industries are almost nonexistent, even for village consumption purposes. Many villagers buy vegetables from the outside market even though there is space to grow them in their backyards. Efforts should be made to encourage various production activities to satisfy the demands of local consumption.

Second, the increase in the intensity of rice farming by use of new rice technology requires investments in capital, especially in community capital such as irrigation and drainage systems. Likewise, the expansion of nonrice production activities, either for market or for home use, also requires investments in equipment and structures, such as fences and terraces for growing vegetables.

A large potential seems to exist for building such capital by mobilizing labor that remains idle during the off-season months of rice farming. Yet, during the year of our study, less than 10% of village capital formation was built by the village factors. Indeed, a critical question for the development of the village economy is how to organize villagers' labor for effective capital formation through adequate technical and financial assistance during the period when the opportunity cost of their labor is low.

FUTURE RESEARCH NEEDS

It should be emphasized that, by its nature, this study represents an experiment in data collection and documentation for the analysis of the village economy in its whole complexity. It was not intended to produce, by itself, policy implications directly useful for rural development. Since the study was based on a small sample in one village in one year, any generalization from the data could be hazardous.

For example, the net outflow of financial resources primarily in the form of debt repayments as observed in our sample might have occurred because the year of our study was a relatively favorable or normal year. In years of crop failure, villagers might accumulate debts from the outside economy. Thus, the direction of financial resource flows under average conditions cannot be identified unless data collection is extended for a number of years. The tentative

policy implications that we have drawn from the experimental study should, therefore, be taken with great caution.

However, the study clearly shows the possibility for systematically collected and documented data at a village-household level to be consistent with the framework of macro national accounts. If our approach is applied to various sites over time, it will provide a solid data base for advancing the theory of the peasant economy as well as for formulating rural and national development policy.

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APPENDIX A. **Record book and survey questionnaire forms.**

Appendix A1-1
DAILY RECORD OF INCOME AND HOUSEHOLD EXPENSES

Date:_____   Day :_____

Name of head:_____

Name of wife:_____

Description of activities	Items given	Income		Home produced items	Expenses	
		Qty.	Value		Qty.	Value
Sold 10 cavans of rice		400 kg	₱400.00			
Sold 1 pig		89 kg	584.00			
Interest paid to bank						₱ 50.00
Haircut expense						1.50
Transportation						2.00
Bought: Salt						1.00
Dress material					1 pc.	20.00
Fish					1 kg	7.00
Gasoline					1 liter	1.75
Cooked rice (3x)				1 ganta		(4.50)
Eggs				2		(1.00)
Sweet potato tops				1 bundle		(0.10)
Paid 2 hired laborers				2 gantas		(9.00)
Coconut given	2		(0.30)			
Gave rice as gift				2 gantas		(9.00)
Grant from children			100.00			
Credit from sari-sari store			2.00			
Oil				1 bottle		1.50
Bread						.50

Appendix A1-2
RECORD OF DAILY ACTIVITIES

Name: _____   Date: _____

Day	Activities	Operator (hours)	Family		Hired				Exchange		
			No.	Hours	No.	Hours	Rate	Food exp.	No.	Hours	Food exp.
Monday											
Morning	Did the cutting of rice stalks	1	2	4							
	Prepared garden for vegetables	1									
	Bought feed for ducks		1	2							
	Feed the ducks		1	1							
	Did the plowing w/ the use of tractor				2	4	7.00	6.00			
	Did the plowing w/ the use of animal								1	4	3.00
	As tricycle operator	2									
	Did groceries for sari-sari store		1	3							
	Drying of palay		1	1							
	Carpentry work	4									
	As hired farm laborer										
	Did the planting		1	4							
	As hired farm laborer										
	Did weeding work		1	4							
	As hired tractor operator		1	4							
Afternoon	Prepared the seedbed	1									
	Did the measuring of rice	1	1	1							
	Did plowing w/ use of tractor				2	4	7.00				
	Carpentry work	4									
	As hired farm laborer										
	Did the planting		1	4							
	As hired farm laborer										
	Weeding work		1	4							
	As hired tractor operator		1	4							
	As tricycle operator	2									

Appendix A2
ASSET SURVEY QUESTIONNAIRE

Family head: Name_____

            Major occupation_____

Record keeper: Name _____

              Major occupation _____

Classification _____

Household number _____

Cooperator symbol_____

1. Family status

Name	Relation with family head	Sex	Age	School years	Occupations		
					First	Second	Third
Resident family							
Resident non-family							
Non-resident							**Place of living**

2. Farming and crop areas

| | Area (ha) | | | | | Tenure status | Rent per ha | Name and location of landlords |
| | Total | Owned | Rented | | | | | |
			Total	Resident landlord	Absentee landlord			
Farming area								
Rice area								
Irrigated								
Rainfed								
Upland								
Tree crops (specify)								
Crop area								
Rice								
Dry								
Wet								
Upland crops (specify)								
Tree crops (specify)								

3. Land assets

Land classification	Initial			Terminal		
	Area (ha)	Total value (P)	Unit value (P/ha)	Area (ha)	Total value (P)	Unit value (P/ha)
Farm land						
Rice area						
Irrigated						
Rainfed						
Upland						
Tree crops (specify)						
Pasture						
Home lot						
Other (specify)						
Total						

Acquisition and disposal

Date of change	Land classification	Area (m2)	Increase (P)							Decrease (P)			
			Purchase	Grant	Reclamation		Land improvement		Total	Sale	Grant	Natural calamity	Total
					Paid cost	Imputed cost	Paid cost	Imputed cost					
Total													

4. Buildings and structures

Item	Size (m^2)	Year built	Years of life		Present acquisition value (P)	Change in value (P)				Terminal	
			Total (1)	Remaining (2)	(3)	Depreciation (4)	Increase in value (5)	Decrease in value (6)	Total (7)	Size (m^2)	Value (P) (8)
House											
Agricultural (specify)											
Nonagri-cultural (specify)											

Acquisition and disposal

Date of change	Item	Size (m^2)	Increase in value (P)							Decrease in value (P)			
			Purchase	Grant	Construction		Major repairs		Total	Sale	Grant	Casualty loss	Total
					Paid cost	Imputed cost	Paid cost	Imputed cost					

Total

(3) = Estimated value for acquisition of the present house, (5) = (3)÷(2), (6) = do not include depreciation,
(7) = (5) - (4) - (6), (8) = (3) + (7)

5. Farm machinery and implements

Item	Specification	Year of purchase	Year of life		Initial value (P)		Depre-ciation	Change in value (P)			Terminal value (P)
			Total (1)	Remaining (2)	New acquisition price (3)	Present value (4)	(5)	Increase in value (6)	Decrease in value (7)	Total (8)	(9)
Total											

Acquisition and disposal

Date of change	Item	Specification	Increase in value (P)			Decrease in value (P)			
			Purchase	Grant	Total	Sale	Grant	Casualty loss	Total

(3) = Estimated value for acquisition of a new house at present.

(4) = (3) - $\dfrac{(1) - (2)}{(1)}$ × (3),   (5) = (3) ÷ (1),   (7) = do not include depreciation.

(5) = (6) - (5) - (7),   (9) = (4) + (8).

6. Non-farm machines and implements (include transportation vehicle)

Item	Specification	Year of purchase	Year of life (1)	(2)	Initial value (P) (3)	(4)	Change in value (P) Depreciation (5)	Increase in value (6)	Decrease in value (7)	Total (8)	Terminal value (9)
Total											

Acquisition and disposal

Date of change	Item	Specification	Increase in value (P) Purchase	Grant	Total	Decrease in value (P) Sale	Grant	Casualty loss	Total

(3) = Estimated value for acquisition at present, $(4) = (3) - \dfrac{(1) - (2)}{(1)} \times (3)$

(5) = (3)÷(1),   (7) = do not include depreciation,   (8) = (6) - (5) - (7),   (9) = (4) + (8)

7. Major consumer durables (exclude transportation vehicle)

Item	Specification	Year of purchase	Year of life		Initial value	value	Change in value (P)			Total (8)	Terminal value (P) (9)
			Total (1)	Remaining (2)	New acquisition (3)	Present value (4)	Depre-ciation (5)	Increase in value (6)	Decrease in value (7)		
Total											

Acquisition and disposal

Date of change	Item	Specification	Increase in value (P)			Decrease in value (P)			
			Purchase	Grant	Total	Sale	Grant	Casualty loss	Total

(3) = Estimated value for acquisition at present, $(4) = (3) - \frac{(1) - (2)}{(1)} \times (3)$

(5) = (3)÷(1),   (7) = do not include depreciation,   (8) = (6) - (5) - (7),   (9) = (4) + (8)

8. Livestock (livestock in different age groups should be itemized separately)

Item	Age	Year of life	Initial stock		Change in value of initial stock (P) (3)	Changes in stock						Terminal stock	
			Number (1)	Present acquisition value (P) (2)		Increase in stock		Decrease in stock		Total			
						Number (4)	P (5)	Number (6)	P (7)	Number (8)	P (9)	Number (10)	P (11)
Total													

Acquisition and disposal

Date of change	Age	Increase						Decrease						
		Purchase		Grant		Birth		Sale		Grant		Home cons'n		Death
		Number	P	Number	P	Number	P	Number	P	Number	P	Number	P	Number

(2) Estimated value, (3) Change in value due to growth and depreciation, (8) = (4) – (6),
(9) = (5) – (7), (10) = (1) + (8), (11) = (2) + (3) + (9)

9. Perennial plants (bearing and non-bearing trees itemized separately)

Item	Initial plants		Change in value of initial plants (P) (3)	Changes in plants							Terminal plants	
	Number (1)	Present acquisition value (P) (2)		Income in stock		Decrease in stock		Total			Number (10)	P (11)
				Number (4)	P (5)	Number (6)	P (7)	Number (8)	P (9)			
Bearing:												
Non-bearing:												
Total												

Acquisition and disposal

Date of change	Increase								Decrease				
	Purchase		Grant		New planting				Sale		Grant		Casualty loss
	Number	P	Number	P	Number	Cost (P)			Number	P	Number	P	Number	P
						Paid	Imputed	Total					

(2) = estimated value, (3) = change in value due to growth and depreciation,
(8) = (4) - (6), (9) = (5) - (7), (10) = (1) + (8), (11) = (1) + (3) + (9)

10. Inventory at the beginning of month

| | June | | July | | Aug | | Sept | | Oct | | Nov | | Dec | | Jan | | Feb | | Mar | | Apr | | May | |
	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P	Qty	P
Farm products: Palay																								
Farm inputs:																								
Nonfarm products:																								
Nonfarm inputs:																								

11. Financial assets at the beginning of month (P)

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Cash (1)												
Saving:												
Deposit												
Insurance												
Security												
Sale in credit												
Lending												
Total (2)												
Debt outstanding:												
Borrowing: Institutional												
Private:												
in cash												
in kind												
Purchase in credit												
Total (3)												
Net saving (2) - (3)												
Net financial asset (1) + (2) - (3)												

Appendix A3
BENCHMARK SURVEY QUESTIONNAIRE

Date of interview

Name of family head

Name of person interviewed
  (His or her status in family)

Major occupation

Location of house

Type of house

Membership in organization (specify)

Rating: Economic status
         Social status
         Intelligence
         Cooperativeness

1. Family status

Name[a]	Relation with family head	Sex	Age	Education[b]
	Head			
	Wife			
	Son(s):			
	Daughter(s):			
	Others (specify)			

[a]
Include nonfamily members living in the same household.
[b]
E: Elementary, H: Secondary, C: College (specify institutions)
g: graduated, e: enrolling, i: incomplete (specify years studied)

2. Occupations[a]

Name	Self-employed		Employed		House-hold	Schooling
	Farm	Others (specify)	Farm	Others (specify)		

[a]
MA: major work
MI: minor but significant work
 N: minor, nonsignificant work
 O: no work

3. Assets

Item	Unit	Quantity	Brief description
Building:			
House			
Shed or bodega			
Hog house			
Others (specify)			
Animal:			
Carabao			
Cattle			
Pig			
Chicken			
Goat			
Ducks			
Others (specify)			
Machines & implements:			
Tractor with accessories			
Animal plow			
harrow			
Sprayer			
Weeder			
Others (specify)			
Major consumer durables:			
TV			
Radio			
Refrigerator			
Sewing machine			
Bicycle			
Others (specify)			

4. Landholding

	Area (ha)			Tenure status	Rent	Landlord[a]
	Total	Owned	Rented			
Farming area						
Rice area						
Irrigated						
Rainfed						
Upland						
Tree crops (specify)						

	Area (ha)	Tenure status	Rent	Tenant[a]
Owned but rented area				
Rice area				
Irrigated				
Rainfed				
Upland				
Tree crops (specify)				

[a] Specify name and location.

5. Land use and output

Crop	Area (ha)	Sharing arrange-ment	Production							Disposal (operator)				
			Total	HV	TH	Seeds	Others	LL	O	Sold			Eaten or given away	Stored
										Qty	Price	Value		
Rice														
wet														
dry														
Others (specify)														

HV: Harvesters' share
TH: Threshers' share
LL: Landlords' share
O: Operators' share

6. Cost and return of rice production (per ha), wet season, 1974.

	Quantity	Cost	
		in kind	in cash
Land rent			
Labor wages			
Plowing and harrowing			
Transplanting			
Weeding			
Harvesting			
Others			
Current inputs			
Seed			
Fertilizer (specify)			
Insecticides			
Herbicides			
Total	(1)	(2)	(3)

Unit price of rice_____Pesos per cavan

Total output_____cavans

Total output - cost in kind (2)_____cavans

Net revenue
  = (Total output - cost in kind) x rice price - cost in cash_____pesos

7. Income

Source	In kind	In cash	Remark
Farming			
Rice			
wet			
dry			
Others (specify)			
Nonfarm enterprises (specify)			
Wage (specify earners)			
Others[a] (specify)			

[a] Include grant.

APPENDIX B. **Income accounts of individual households.**

APPENDIX B 1R. Current rice production account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
1.1 Payments to external inputs for rice production	(6.10)	1478	1392	1338	2075	807	2012	466	245	32	0	0
1.1.1 Hired labor wage		825	277	131	843	280	524	16	54	21	0	0
1.1.2 Rent		409	673	440	572	452	1059	376	174	0	0	0
1.1.3 Capital rental		46	127	221	28	8	46	48	17	11	0	0
1.1.4 Purchased current inputs		198	315	546	632	67	383	26	0	0	0	0
1.2 Seed use of rice	(1.7R)	88	75	63	50	17	41	8	0	0	0	0
1.3 Imputed income of family factors in rice production	(3.7)	1992	726	602	1175	195	475	416	-96	-23	0	0
1.3.1 Family labor wage		567	379	473	122	145	98	151	30	88	0	0
1.3.2 Rent to owned land		0	0	0	0	0	0	0	0	0	0	0
1.3.3 Farm profit (residual)		1425	347	129	1053	50	377	265	-126	-111	0	0
Total rice production expenditure		3558	2193	2003	3300	1019	2528	890	149	9	0	0
1.4 Payments in kind to external inputs	(6.1)	1070	842	552	949	640	1525	376	75	40	3	0
1.4.1 Hired labor wage		662	169	112	377	188	466	0	44	40	3	0
1.4.2 Rent		408	673	440	572	452	1059	376	31	0	0	0
1.5 Sale of rice and rice products	(6.2)	2329	803	738	2035	55	1056	330	400	209	158	193
1.5.1 Sale in cash		2125	510	562	1944	46	876	227	264	113	121	191
1.5.2 Exchange		36	7	15	0	9	31	19	6	9	8	0
1.5.3 Grant in kind		21	0	1	3	0	73	3	16	1	0	2
1.5.4 Credit, interest, & fee payment in kind		147	286	160	88	0	76	81	114	86	29	0
1.6 Home consumption of rice	(3.1)	190	266	298	188	180	85	194	300	37	65	107
1.7 Seed use of rice	(1.2R)	88	75	63	50	17	41	8	0	0	0	0
1.8 Feed use of rice	(1.2N)	0	0	150	177	100	164	0	0	0	0	0
1.9 Inventory change in rice products and inputs	(5.4)	-99	232	385	-43	44	-214	182	69	0	-7	-7
1.10 (Deduct) Nonoutput rice receipt	(6.9)	20	25	183	56	17	129	200	695	277	219	293
Total rice output		3558	2193	2003	3300	1019	2528	890	149	9	0	0

APPENDIX B 1N. Current nonrice agricultural production account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
1.1 Payments to external inputs for agricultural production	(6.10)	264	6	115	403	44	194	10	20	1	1	13
1.1.1 Hired labor wage		0	0	0	0	0	1	0	0	0	0	0
1.1.2 Rent		0	0	0	0	0	0	0	0	0	0	0
1.1.3 Capital rental		0	0	0	0	0	0	0	0	0	0	0
1.1.4 Purchased current inputs		264	6	115	403	44	193	10	20	1	1	13
1.2 Feed use of rice	(1.8R)	0	0	150	177	100	164	0	0	0	0	0
1.3 Imputed income of family factors in agricultural production	(3.7)	249	214	174	140	249	372	90	81	36	1	146
1.3.1 Family labor wage		42	30	76	74	105	88	19	15	17	1	30
1.3.2 Rent to owned land		0	0	0	0	0	0	0	0	0	0	0
1.3.3 Farm profit (residual)		207	184	98	6	144	284	71	66	19	0	116
Total agricultural production expenditure		513	220	439	720	393	730	100	101	37	2	159
1.4 Payments in kind to external inputs	(6.1)	0	0	0	0	0	0	0	0	0	0	0
1.4.1 Hired labor wage		0	0	0	0	0	0	0	0	0	0	0
1.4.2 Rent		0	0	0	0	0	0	0	0	0	0	0
1.5 Sale of agricultural products	(6.2)	417	74	428	632	374	655	41	98	21	1	154
1.5.1 Sale in cash		313	72	426	622	358	584	36	98	10	1	154
1.5.2 Exchange		1	2	0	0	2	0	0	0	5	0	0
1.5.3 Grant in kind		103	0	2	10	14	71	5	0	6	0	0
1.5.4 Credit, interest, & fee payment in kind		0	0	0	0	0	0	0	0	0	0	0
1.6 Home consumption of agricultural products	(3.1)	96	146	11	88	19	75	59	3	16	1	5
1.7 Inventory change in agricultural products and inputs	(5.4)	0	0	0	0	0	0	0	0	0	0	0
Total agricultural output		513	220	439	720	393	730	100	101	37	2	159

APPENDIX B2. Current nonagricultural production account ($), 1975–76.

	A	B	C	D	E	F	G	H	I	J	K
2.1 Payments to external inputs for nonagricultural production (6.11)	0	0	0	54	0	0	0	0	0	0	0
2.1.1 Hired labor wage	0	0	0	7	0	0	0	0	0	0	0
2.1.2 Capital rental	0	0	0	0	0	0	0	0	0	0	0
2.1.3 Purchased current inputs	0	0	0	47	0	0	0	0	0	0	0
2.2 Imputed income of family factors in nonagricultural production (3.8)	0	0	0	85	0	0	0	0	0	0	0
2.2.1 Family labor wage	0	0	0	38	0	0	0	0	0	0	0
2.2.2 Profit of nonagricultural enterprises (residual)	0	0	0	47	0	0	0	0	0	0	0
Total nonagricultural production expenditure	0	0	0	139	0	0	0	0	0	0	0
2.3 Revenue of nonagricultural enterprises (6.3)	0	0	0	139	0	0	0	0	0	0	0
2.4 Inventory change in non-agricultural products and inputs (5.5)	0	0	0	0	0	0	0	0	0	0	0
Total nonagricultural output	0	0	0	139	0	0	0	0	0	0	0

APPENDIX B3. Income-expenditure account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
3.1 Home consumption of agricultural products	(1.6R+N)	286	412	309	276	199	160	253	303	53	66	112
3.2 Purchase of consumption goods	(6.13)	959	790	877	986	376	666	392	496	506	285	291
3.2.1 Food		282	388	428	643	280	344	260	291	196	203	208
3.2.2 Personal needs		79	107	146	124	30	95	24	48	49	13	31
3.2.3 Household needs and equipment		45	71	94	72	23	58	15	29	23	22	24
3.2.4 Transportation and other services		154	67	78	19	21	61	36	47	65	22	26
3.2.5 Health needs and recreation		15	35	53	67	10	108	19	36	6	25	2
3.2.6 Education		384	122	78	61	12	0	38	45	167	0	0
3.3 Interest payment to consumption loan	(6.14)	63	260	73	0	0	20	2	68	93	30	9
3.4 Grant from the household	(6.15)	234	18	35	99	21	201	15	46	30	1	16
3.5 Tax and rate	(6.16)	0	1	0	15	0	14	0	0	0	0	0
3.6 Savings (residual)	(5.7)	1419	228	17	231	-57	21	353	-82	95	-31	197
Total household expenditure		2961	1709	1311	1607	539	1082	1015	831	777	351	625
3.7 Imputed income of family factors in agricultural production	(1.3R+N)	2241	940	776	1315	444	847	506	-15	13	1	146
3.8 Imputed income of family factors from nonagricultural enterprises	(2.2)	0	0	0	85	0	0	0	0	0	0	0
3.9 Earnings from outside employment	(6.4)	71	203	323	8	18	2	273	642	261	283	415
3.10 Receipt of rent	(6.5)	0	0	0	0	0	0	0	0	0	0	0
3.11 Receipt of interest and rental	(6.6)	337	428	139	138	0	3	0	0	0	0	0
3.12 Grant to the household	(6.7)	312	138	73	61	77	230	236	204	503	67	64
3.13 Government subsidy	(6.8)	0	0	0	0	0	0	0	0	0	0	0
Total household income		2961	1709	1311	1607	539	1082	1015	831	777	351	625

APPENDIX B4. Fixed capital production account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
4.1 Payments to external inputs for capital production	(6.12)	176	0	81	143	4	117	0	286	0	0	71
4.1.1 Purchase of land		0	0	0	0	0	0	0	286	0	0	0
4.1.2 Purchase of machineries		0	0	0	0	0	0	0	0	0	0	0
4.1.3 Purchase of materials		176	0	63	98	4	113	0	0	0	0	71
4.1.4 Purchase of livestock and plants		0	0	18	45	0	4	0	0	0	0	0
4.1.5 Hired labor wage for construction		0	0	0	0	0	0	0	0	0	0	0
4.2 Contribution of family factors to fixed capital production	(5.8)	0	0	0	30	0	2	0	0	0	0	80
4.2.1 Family labor wage for construction		0	0	0	0	0	2	0	0	0	0	92
4.2.2 Farm-supplied materials		0	0	0	0	0	0	0	0	0	0	0
4.2.3 Residual		0	0	0	30	0	0	0	0	0	0	−12
Gross expenditure for fixed capital production		176	0	81	173	4	119	0	286	0	0	151
4.3 Agricultural fixed capital production	(5.1)	10	0	18	146	0	18	0	286	0	0	0
4.3.1 Land infrastructure		0	0	0	0	0	0	0	286	0	0	0
4.3.2 Machines & implements		10	0	0	101	0	14	0	0	0	0	0
4.3.3 Livestock and perennial plants		0	0	18	45	0	4	0	0	0	0	0
4.4 Nonagricultural fixed capital production	(5.2)	166	0	63	27	0	96	0	0	0	0	0
4.4.1 Buildings and structures		0	0	63	0	0	85	0	0	0	0	0
4.4.2 Machines & implements		166	0	0	27	0	11	0	0	0	0	0
4.5 Residential construction	(5.3)	0	0	0	0	4	5	0	0	0	0	151
Gross fixed capital production		176	0	81	173	4	119	0	286	0	0	151

APPENDIX B5. Capital finance account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
5.1 Agricultural fixed-capital production	(4.3)	10	0	18	146	0	18	0	286	0	0	0
5.2 Nonagricultural fixed-capital production	(4.4)	166	0	63	27	0	96	0	0	0	0	0
5.3 Residential construction	(4.5)	0	0	0	0	4	5	0	0	0	0	151
5.4 Inventory change in agri-cultural products and inputs	(1.7N + 1.9R)	−99	232	385	−43	44	−214	182	69	0	−7	−7
5.5 Inventory change in nonagricultural products and inputs	(2.4)	0	0	0	0	0	0	0	0	0	0	0
5.6 Net acquisition of financial assets (residual)	(6.17)	1342	−4	−449	131	−105	118	171	−437	95	−24	133
Gross investment		1419	228	17	261	−57	23	353	−82	95	−31	277
5.7 Savings	(3.6)	1419	228	17	231	−57	21	353	−82	95	−31	197
5.8 Contribution of family factors to fixed-capital production	(4.2)	0	0	0	30	0	2	0	0	0	0	80
Gross investible fund		1419	228	17	261	−57	23	353	−82	95	−31	277

APPENDIX B6. Transaction account ($), 1975–76.

		A	B	C	D	E	F	G	H	I	J	K
6.1 Payments in kind to external inputs	(1.4R+N)	1070	842	552	949	640	1525	376	75	40	3	0
a) within village		662	169	112	377	188	1525	0	75	40	3	0
b) outside		408	673	440	572	452	0	376	0	0	0	0
6.2 Sale of agricultural products	(1.5R>N)	2746	877	1166	2667	429	1711	371	498	230	159	347
a) within village		225	134	70	52	60	273	111	137	103	74	22
b) outside		2521	743	1096	2615	369	1438	260	361	127	85	325
6.3 Revenue of nonagri-cultural enterprises	(2.3)	0	0	0	139	0	0	0	0	0	0	0
a) within village		0	0	0	109	0	0	0	0	0	0	0
b) outside		0	0	0	30	0	0	0	0	0	0	0
6.4 Earnings from outside employment	(3.9)	71	203	323	8	18	2	273	642	261	283	415
a) within village		7	203	323	8	18	2	273	586	261	262	415
b) outside		64	0	0	0	0	0	0	56	0	21	0
6.5 Receipt of rent	(3.10)	0	0	0	0	0	0	0	0	0	0	0
a) within village		0	0	0	0	0	0	0	0	0	0	0
b) outside		0	0	0	0	0	0	0	0	0	0	0
6.6 Receipt of rental	(3.11)	337	428	139	138	0	3	0	0	0	0	0
a) within village		190	175	139	138	0	3	0	0	0	0	0
b) outside		147	253	0	0	0	0	0	0	0	0	0
6.7 Grant to the household	(3.12)	312	138	73	61	77	230	236	204	503	67	64
a) within village		132	58	6	3	0	141	92	95	38	6	12
b) outside		180	80	67	58	77	89	144	109	465	61	52
6.8 Government subsidy	(3.13)	0	0	0	0	0	0	0	0	0	0	0
a) within village		0	0	0	0	0	0	0	0	0	0	0
b) outside		0	0	0	0	0	0	0	0	0	0	0
6.9 (Deduct) Nonoutput rice receipt	(1.10)	20	25	183	56	17	129	200	695	277	219	293
a) within village		20	19	171	12	17	122	200	670	272	212	293
b) outside		0	6	12	44	0	7	0	25	5	7	0
TOTAL RECEIPT		4516	2463	2070	3906	1147	3342	1056	724	757	293	533
a) within village		1196	720	479	675	249	1822	276	223	170	133	156
b) outside		3320	1743	1591	3231	898	1520	780	501	587	160	377

APPENDIX B6. continued

		A	B	C	D	E	F	G	H	I	J	K
6.10 Payments to external inputs for agricultural production	(1.1R+N)	1742	1398	1453	2478	851	2206	476	265	33	1	13
a) within village		842	280	135	888	288	1651	42	246	32	1	3
b) outside		900	1118	1318	1590	563	555	434	19	1	0	10
6.11 Payments to external inputs for nonagricultural production	(2.1)	0	0	0	54	0	0	0	0	0	0	0
a) within village		0	0	0	7	0	0	0	0	0	0	0
b) outside		0	0	0	47	0	0	0	0	0	0	0
6.12 Payments to external inputs for fixed-capital production	(4.1)	176	0	81	143	4	117	0	286	0	0	71
a) within village		0	0	0	0	0	14	0	286	0	0	0
b) outside		176	0	81	143	4	103	0	0	0	0	71
6.13 Purchase of consumption goods	(3.2)	959	790	877	986	376	666	392	496	506	285	291
a) within village		70	49	86	27	32	38	44	14	42	22	24
b) outside		889	741	791	959	344	628	348	482	464	263	267
6.14 Interest payment to consumption loan	(3.3)	63	260	73	0	0	20	2	68	93	30	9
a) within village		62	0	9	0	0	20	2	1	45	28	9
b) outside		1	260	64	0	0	0	0	67	48	2	0
6.15 Grant from the household	(3.4)	234	18	35	99	21	201	15	46	30	1	16
a) within village		22	8	9	30	14	88	2	29	7	0	3
b) outside		212	10	26	69	7	113	13	17	23	1	13
6.16 Tax and rate	(3.5)	0	1	0	15	0	14	0	0	0	0	0
a) within village		0	0	0	0	0	0	0	0	0	0	0
b) outside		0	1	0	15	0	14	0	0	0	0	0
6.17 Net acquisition of financial assets	(5.6)	1342	-4	-449	131	-105	118	171	-437	95	-24	133
a) within village		200	383	240	-277	-85	11	186	-353	44	82	117
b) outside		1142	-387	-689	408	-20	107	-15	-84	51	-106	16
TOTAL PAYMENT		4516	2463	2070	3906	1147	3342	1056	724	757	293	533
a) within village		1196	720	479	675	249	1822	276	223	170	133	156
b) outside		3320	1743	1591	3231	898	1520	780	501	587	160	377

APPENDIX C. Balance sheets of individual households.

APPENDIX C1. Household balance sheet, 1975–76.

	A		B		C		D		E		F	
	Initial	Terminal	Initial	Terminal	Initial	Terminal	Initial	Terminal	Initial	Terminal	Initial	Terminal
Fixed assets	7306	6754	7244	6993	4657	4524	11562	11354	1269	1253	2974	3216
Land	4400	4400	4771	4771	3000	3000	6100	6100	1000	1000	2143	2143
Buildings & structures	543	441	1176	1131	396	368	1900	1803	171	142	611	817
Major consumer durables	507	457	10	9	104	108	1543	1456	8	5	34	36
Machines & implements	1546	1328	1155	959	937	836	1487	1385	2	1	2	2
Livestock	234	17	25	12	163	106	165	154	72	81	145	181
Perennial plants	76	111	107	111	57	106	367	456	16	24	39	37
Inventories	269	170	233	465	243	629	423	380	82	126	277	63
Farm products	144	170	50	465	75	629	289	380	82	126	132	63
Farm inputs	125	0	183	0	168	0	134	0	0	0	145	0
Financial assets	172	184	541	189	576	267	414	434	28	4	74	96
Savings	100	160	189	180	70	98	235	177	17	4	46	77
Cash	72	24	352	9	506	169	179	257	11	0	28	19
TOTAL ASSETS	7747	7108	8018	7647	5476	5420	12399	12168	1379	1383	3325	3375
Debts outstanding	1104	561	2500	2175	1377	1218	449	0	45	169	278	206
Net worth	6643	6547	5518	5472	4099	4202	11950	12168	1334	1214	3047	3169
TOTAL LIABILITIES	7747	7108	8018	7647	5476	5420	12399	12168	1379	1383	3325	3375

APPENDIX C1 continued

	G Initial	G Terminal	H Initial	H Terminal	I Initial	I Terminal	J Initial	J Terminal	K Initial	K Terminal
Fixed assets	1097	1099	276	573	192	344	115	88	359	416
Land	714	714	0	286	0	143	0	0	0	0
Building & structures	357	339	122	104	107	85	86	64	214	382
Major consumer durables	9	8	10	8	10	9	11	9	11	9
Machines & implements	3	1	14	9	6	4	11	8	0	1
Livestock	0	21	77	87	0	10	0	1	103	7
Perennial plants	14	16	53	79	69	93	7	6	31	17
Inventories	38	200	88	157	0	0	13	6	38	31
Farm products	38	220	88	157	0	0	13	6	38	31
Farm inputs	0	0	0	0	0	0	0	0	0	0
Financial assets	7	7	165	15	9	18	0	1	9	23
Savings	0	0	101	14	0	1	0	0	9	10
Cash	7	7	64	1	9	17	0	1	0	13
TOTAL ASSETS	1142	1326	529	745	201	362	128	95	406	470
Debts outstanding	36	25	100	295	56	49	52	61	115	35
Net worth	1106	1301	429	450	145	313	76	34	291	435
TOTAL LIABILITIES	1142	1326	529	745	201	362	128	95	406	470

APPENDIX C2. Composition of fixed assets, 1975–76.

	A Initial	A Terminal	B Initial	B Terminal	C Initial	C Terminal	D Initial	D Terminal	E Initial	E Terminal	F Initial	F Terminal
Land	4400	4400	4771	4771	3000	3000	6100	6100	1000	1000	2143	2143
Farmland (f)	4400	4400	3628	3628	3000	3000	3750	3750	1000	1000	2143	2143
Owned land	0	0	0	0	0	0	0	0	0	0	0	0
Tenancy title	4400	4400	3628	3628	3000	3000	3750	3750	1000	1000	2143	2143
Residential lot (h)	0	0	1143	1143	0	0	2350	2350	0	0	0	0
Buildings & structures	543	441	1176	1131	396	368	1900	1803	171	142	611	817
Farm use (f)	43	41	33	26	3	1	43	23	7	11	4	2
Nonfarm production use (n)	0	0	0	0	0	0	0	0	0	0	0	0
Residential use (h)	500	400	1143	1105	393	367	1857	1780	164	131	607	815
Major consumer durables (h)	507	457	10	9	104	108	1543	1456	8	5	34	36
Machines & implements	1546	1328	1155	959	937	836	1487	1385	2	1	2	2
Farm use (f)	786	722	1133	939	937	836	837	800	2	1	2	2
Nonfarm production use (n)	760	606	0	0	0	0	650	585	0	0	0	0
Residential use (h)	0	0	22	20	0	0	0	0	0	0	0	0
Livestock (f)	234	17	25	12	163	106	165	154	72	81	145	181
Perennial plants (f)	76	111	107	111	57	106	367	456	16	24	39	37
TOTAL ASSETS (f + n + h)	7306	6754	7244	6993	4657	4524	11562	11354	1269	1253	2974	3216
Farm assets (f)	5539	5291	4926	4716	4160	4049	5162	5183	1097	1117	2333	2365
Nonfarm production assets (n)	760	606	0	0	0	0	650	585	0	0	0	0
Household assets (h)	1007	857	2318	2277	497	475	5750	5586	172	136	641	851

APPENDIX C2 continued

	G Initial	G Terminal	H Initial	H Terminal	I Initial	I Terminal	J Initial	J Terminal	K Initial	K Terminal
Land	714	714	0	286	0	143	0	0	0	0
Farmland (f)	714	714	0	286	0	143	0	0	0	0
Owned land	0	0	0	0	0	0	0	0	0	0
Tenancy title	714	714	0	286	0	143	0	0	0	0
Residential lot (h)	0	0	0	0	0	0	0	0	0	0
Buildings & structures	357	339	122	104	107	86	86	64	214	382
Farm use (f)	0	0	0	0	0	0	0	0	0	0
Nonfarm production use (n)	0	0	0	0	0	0	0	0	0	0
Residential use (h)	357	339	122	104	107	86	86	64	214	382
Major consumer durables (h)	9	8	10	8	10	9	11	9	11	9
Machines & implements	3	1	14	9	6	4	11	8	0	1
Farm use (f)	3	1	14	9	6	4	11	8	0	1
Nonfarm production use (n)	0	0	0	0	0	0	0	0	0	0
Residential use (h)	0	0	0	0	0	0	0	0	0	0
Livestock (f)	0	21	77	87	0	10	0	1	103	7
Perennial plants (f)	14	16	53	79	69	93	7	6	31	17
TOTAL ASSETS (f + n + h)	1097	1099	276	573	192	345	115	88	359	416
Farm assets (f)	731	752	144	461	75	250	18	15	134	25
Nonfarm production assets (n)	0	0	0	0	0	0	0	0	0	0
Household assets (h)	366	347	132	112	117	95	97	73	225	391

This study aimed to account for, in quantitative terms, the whole complexity of the peasant economy. It was done through an intensive case study of a typical rice village in the Philippines. Basic data were collected by combining daily household record keeping from 1 June 1975 through 31 May 1976 with interview surveys before and after the record-keeping period. Economic activities of both individual households and the village as a whole were documented by a set of double-entry accounts. These sets of data on a village economy are among the most comprehensive that have yet been collected.