

MIDDLEMEN AND PEASANTS: THE STRUCTURE OF THE INDONESIAN SOYBEAN MARKET

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I. INTRODUCTION

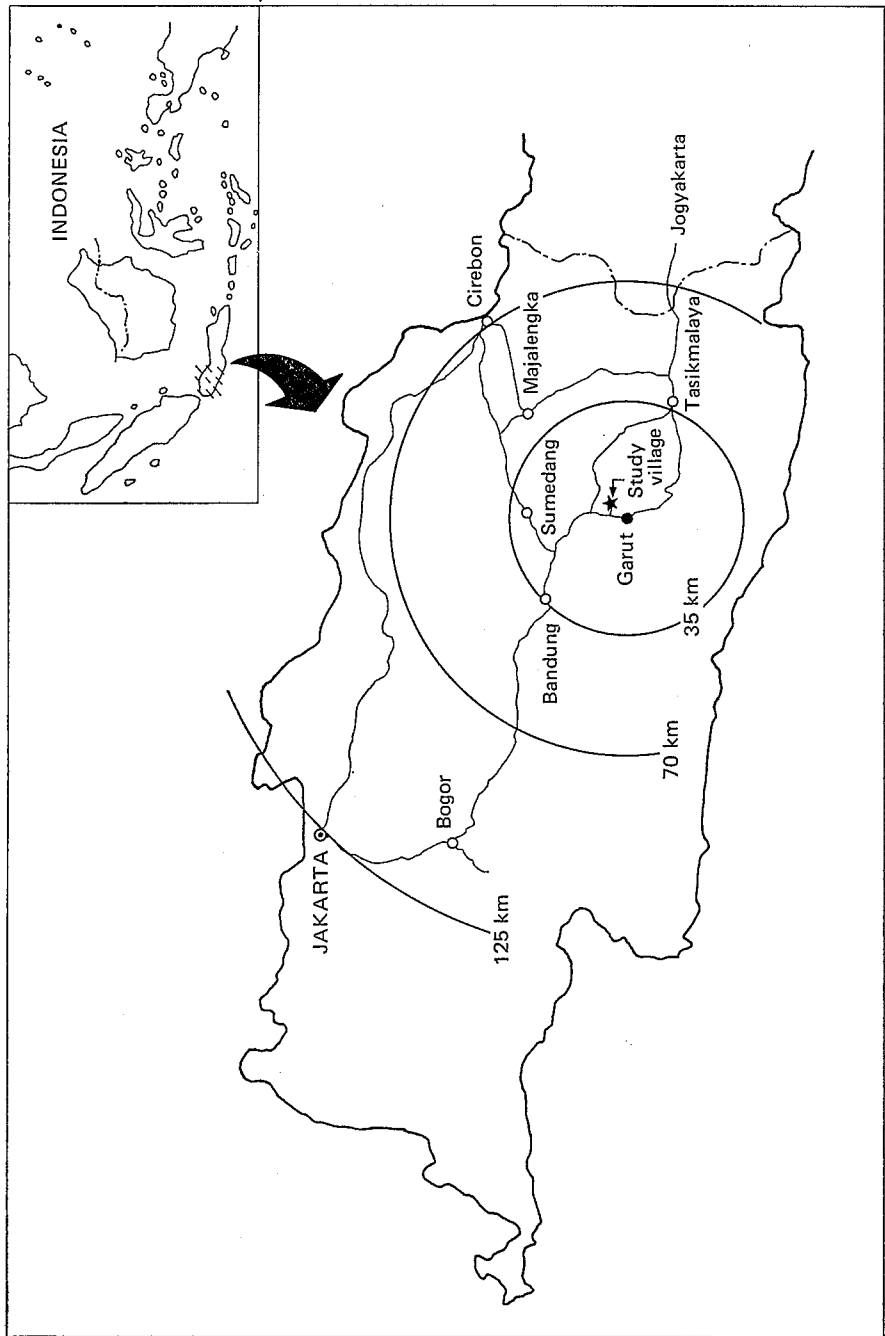
LOCAL marketing of agricultural products in developing economies is carried out mostly within the "informal sector." Virtually, no official statistics are available and few scholarly investigations into the market structure have been made. The traditional image that middlemen exploit peasants through monopolistic/monopsonistic pricing and usury has been waning somewhat as empirical evidence has been gradually accumulated [2] [5] [4] [6] [8]. Yet, the evidence is far from definitive. It is still common to assume that middlemen are a major block to agricultural and rural development and to rationalize government intervention into the market on that score. Here we will attempt to investigate this problem through a case study of the local soybean market in Indonesia. The investigation focuses on how middlemen and processors at various levels are organized into an entire network of local soybean marketing and how efficiently the system works to channel soybeans and soybean products between producers and end-users.

II. APPROACH

Organizations of the informal sector within which local soybean marketing is carried out are highly elusive and characterized by infinite variations. Moreover, middlemen are usually suspicious and hostile of investigations by outsiders. Taking this into consideration, we limited our analysis to one small location and sacrificed national or regional representativeness of results. Our strategy was to conduct a sample survey of farmers in one location to identify how much and to whom their soybeans were sold in the last crop season. Then, we traced the middlemen at various links in the marketing chain up to the end-user to check out prices, transportation costs, trade practices, and contracts. A major advantage of this approach is that it allows a consistent check of data obtained from the two parties involved in each transaction.

This paper contains part of the results from a research project commissioned by the UN/ESCAP Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre). The complete study is entitled "Soybean Processing Industry and Marketing in Indonesia." The CGPRT Centre is not responsible for the opinions expressed in this paper.

Fig. 1. The Garut District in West Java



One village in the Garut district in West Java was chosen as the study site for the initial farmer survey. This village was chosen because one member of our study team has conducted an integrated analysis of farm production and household economy there from January 1985 to December 1986. Starting from the village, our investigation extended to the town of Garut and, further, to the surrounding marketing centers of Bandung and Tasikmalaya (see Figure 1). An initial survey covering twenty-five sample farmers was made in August 1986 and a subsequent survey covering thirty-seven middlemen, twenty-two processors, and three transport agents was made in August and September 1986.

III. LOCAL MARKETING ENVIRONMENT

This section attempts to give the reader background information on the characteristics of the study site as to production and utilization of soybeans, the geographical relation of the study village to local marketing centers, and the effects of inter-regional and international trade on the local market.

A. *Village Characteristics*

The village where our investigation begins is on hilly plateau in the district (*kabupaten*) of Garut. It is a typical upland village in which various crops are grown in terraces under rain-fed conditions. Most villagers are Sundanese and pious Moslems.

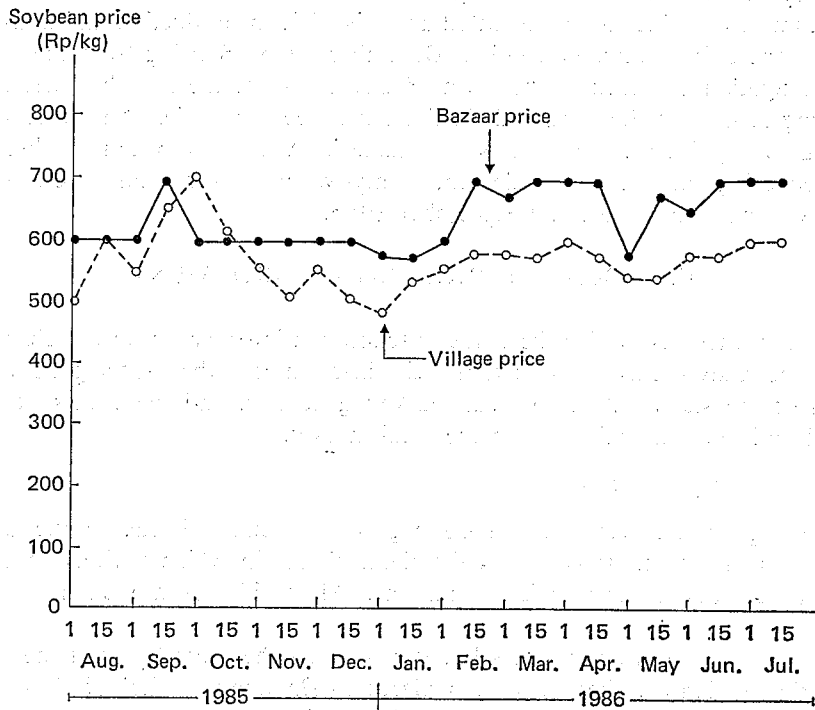
An unpaved road of about one kilometer connects the central part of the village to a national highway that runs from Garut to Bandung, capital of West Java. Garut is about eight kilometers away and easy for villagers to get to by pony wagon (*delman*) or minibus. It is a major market for village products, sold either directly or through middlemen, as well as for purchasing urban commodities. It is not uncommon, however, for village products to be brought directly to Bandung or other cities outside the district of Garut.

Farming is the main occupation of most villagers, and many also engage in other occupations such as petty trade, transportation, and construction work. About one-quarter of the households have no farm land and another one-quarter own less than 0.2 hectares. Average farm land owned for all households is less than 0.4 hectares and the average for farm households is only about 0.5 hectares. Landless villagers eke out a living either as tenants or agricultural laborers with their income supplemented by casual nonfarm work. Operational farm sizes are also very small with 0.5 hectares the average, and only 8 per cent of farmers cultivate more than 1 hectare. Farming is of a typical peasant mode based mainly on family labor with the aid of hired or exchange labor at busy seasons such as harvesting.

B. *Production and Utilization*

As is common in many tropical upland areas, soybeans are intercropped with other crops. In a normal year, the wet season is from September to May. A majority of farmers plant soybeans with corn for the first crop (September–

Fig. 2. Seasonal Fluctuations in Soybean Prices at Garut Bazaar and in Study Village, August 1, 1985 to July 15, 1986



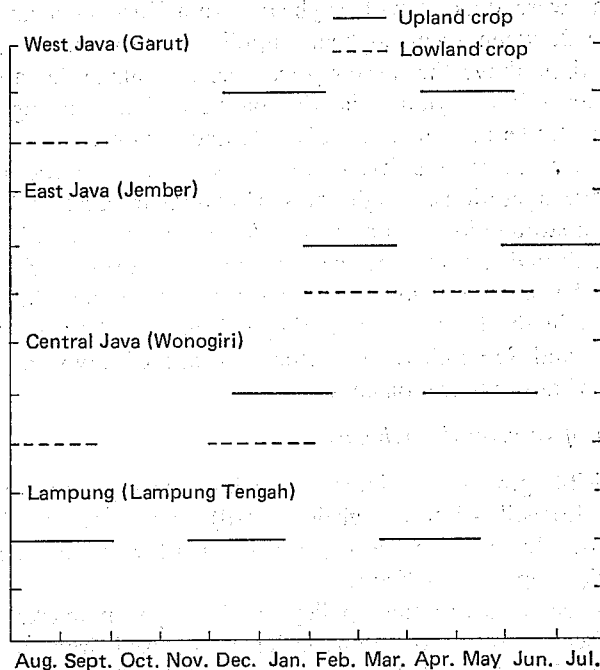
January), then soybeans and tobacco for the second crop (January–June). Cassava is usually planted at the edge of fields. In this intercropping system, the soybean yield is itself low, rarely exceeding a half ton per hectare. Given the small farm size, output per farm is usually very low. The average output of sample farmers for the second crop of 1985–86 was only 150 kilograms per farm, although the second crop yield is usually lower than the first crop.

In general, soybeans are consumed in Indonesia in processed form. A large variety of processed soybean foods supply altogether about 10 per cent of the total Indonesian protein intake [7]. Only the two most popular soybean products, *tempe* (tempeh) and *tahu* (tofu) are dealt with in this study, because these are products into which soybeans in the village are processed.

Tempe is a fermented soybean cake. *Tahu* is a protein curd obtained from water extracted from ground soybeans. Both are cooked in a variety of ways, fried, boiled, or added to soup.

Tempe processing is simpler and requires less capital than *tahu*. Many small cottage-industry type *tempe* manufacturers are located in rural and urban areas. As many as thirty *tempe* manufacturers operate in the study village of about one thousand households. In contrast, *tahu* producers are located mostly in urban

Fig. 3. Harvest Seasons for Soybeans in Different Regions of Indonesia



Source: [7, pp. 21–22].

areas or relatively urbanized parts of rural areas. Likewise, no *tahu* is manufactured in the study village.

C. Production Seasonality and Interregional Trade

Soybeans are harvested in the study area in the four months of December–January and May–June, although sometimes the harvest is a few weeks before or after those months. It is natural to expect that soybean prices are characterized by large seasonal fluctuations.

Indeed, the price data collected both in the village and in the bazaar of Garut twice each month from August 1, 1985 to July 15, 1986 show that both bazaar and village prices hit troughs in the midst of the two harvesting seasons and peak in the interharvest months (Figure 2). However, seasonal price fluctuations are not large and do not correspond regularly to harvest fluctuations. There are no particular rises in bazaar prices in the August to October lean season.

The relative price stability throughout the seasons, especially in the bazaar, is explained by extensive soybean trade between regions with different harvesting seasons. As Figure 3 shows, soybeans are being harvested at one place or another in Indonesia throughout the year. A major function of traders in the towns is

to import soybeans from other regions during the lean seasons for local production. For example, in August and September when our survey was conducted, shops in the Garut bazaar were flooded with soybeans from East Java and Sumatra. As shown in Figure 2, when local soybean supplies are exhausted during October the village price rises above the bazaar price because village demand must be met by a supply from other regions via the bazaars. But, during local soybean harvesting season, traders sell to other districts and regions.

Given this relative price stability, there seems to be little room for traders to profit from storage operations. High rates of capital interest make storage costs high. Assuming a storage loss of about 3 to 5 per cent per month and an interest rate probably much higher than 5 per cent per month, storing soybeans will not be profitable unless the price rises more than 10 per cent per month. Price increases of this kind occur in the bazaar only during February and September and in the village in August and September. Therefore, storage of soybeans, if any, would be a minor part of any trader's business.

D. *Distribution of Improved Soybeans*

There is no visible government intervention into the soybean market. BULOG (Badan Urusan Logistik—Food logistic board) guarantees a floor price for domestic soybeans. However, the floor price is much lower than the market price, making direct price supports ineffective.

A major influence of government policy on the soybean market is its controls on imports. Soybean imports to Indonesia have increased dramatically from only 18,000 tons in 1975 to 401,000 tons in grain and 206,000 tons in cake in 1984. Altogether, imports are roughly equivalent to domestic production. Imported soybeans, especially those from China are large pulses which makes them better for *tempe* production.

Soybean imports have been handled exclusively by BULOG. There are two channels for distributing imported soybeans to local users. One is the semi-government organization KOPTI (Koperasi Produsen Tahu Tempe Indonesia—Cooperative of tofu and tempeh processors of Indonesia). BULOG allocates a certain quantity of imported soybeans to a KOPTI setup in each district. KOPTI Garut, for example, receives 250 tons per month and sells it to about 300 members. The c.i.f. import price of U.S. soybeans is estimated to be about Rp 250 for one kilogram. When the market price was about Rp 600 for one kilogram, KOPTI Garut bought imports at Rp 390 for one kilogram and sold them to members at Rp 565 for one kilogram. (All prices are for August 1986, the time of our survey.)

KOPTI Garut estimates that about 150 processors have not yet joined. However, it was our impression that many more nonmembers than that were, if we count the minuscule *tempe* producers in the villages. Only four out of thirty *tempe* producers in the village are KOPTI members.

There is a private channel other than KOPTI. About half of the imported soybeans are sold to the private firm P. T. Watraco, at Rp 430 although market prices were higher than Rp 500. The soybeans are channeled through wholesalers in Jakarta, Bandung, and other large cities to bazaar traders in smaller cities like Garut. Only a few large traders in the Garut bazaar handle imported soybeans.

It is not clear whether the handling of imported soybeans is limited to large traders because of the need for large amounts of working capital or because these traders have some special connection with the exclusive source of supply. It is beyond our capacity to know what percentage of the obvious monopoly profits going to privileged traders, BULOG, and KOPTI is spent for bureaucratic and political consumption.

IV. MARKET STRUCTURE AND TRADE PRACTICE

This section examines the structure of the local soybean market in terms of relations between farmers and middlemen and between various types of middlemen.

A. *Organization of Marketing*

At the village level, middlemen called "collectors" (*penampung*) collect soybeans from farmers for delivery to processors and traders in town. There is a hierarchy of collectors. From bottom to top they are: "hamlet," "village," and "inter-village" collectors. Hamlet collectors collect a modest amount of pulses from neighboring farmers in the same hamlet (*kampung*). Typically, a hamlet collector is tied to a higher echelon collector, to whom he delivers his collection in return for an advance payment from which he finances his purchase from the farmers.

Village collectors also collect directly from farmers over a somewhat wider territory that encompasses several hamlets or even villages, although they buy from hamlet collectors somewhat exceptionally. A major difference between hamlet and village collectors is that the latter have much greater autonomy in disposing of their collected commodities. By nature, inter-village collectors are similar to village collectors but their activities encompass a much wider territory of several villages and a much larger volume of commodities. They collect goods mainly through hamlet and village collectors and seldom buy directly from farmers.

Those collectors are living in village and doing business in part time besides farm work. The hierarchy corresponds in business scale to the landholding hierarchy. Hamlet collectors are mostly landless farm laborers (*buruh tani*) and marginal farmers. Village collectors are mostly middle-class peasants. Most inter-village collectors are larger landholders relying heavily on hired labor to cultivate their land.

Farmers are free to sell their products to any village-based middlemen or directly to traders in town. The town-based traders in Indonesia are typically located in bazaars (*pasar*). The larger traders usually operate out of shops (*toko*) in permanent buildings, while the smaller ones operate in roofed stalls (*kios*). They retail soybeans to *tempe* and *tahu* traders in other towns. Many *toko* traders are Chinese, with a large amount of their business in interregional wholesale trade. The farmers have the not difficult option of bringing their produce to bazaar traders in Garut by minibus or pony wagon.

Although they have many alternatives, farmers seem to sell their products mainly to village collectors. Our survey shows that almost 80 per cent of the soybeans sold by sample farmers was purchased by village collectors and about 90 per cent by village-based middlemen including hamlet, village, and inter-village collectors

TABLE I
 PERCENTAGE DISTRIBUTION OF SOYBEAN SALES FROM FARM
 PRODUCERS BETWEEN DIFFERENT MARKETING OUTLETS:
 AVERAGE OF TWENTY-FIVE FARMERS IN THE SAMPLE,
 THE SECOND CROP, 1986

| Sold to | Kg | % |
|-----------------------|-----|-----|
| Neighbor consumer | 1 | 1 |
| <i>Tempe</i> producer | 2 | 2 |
| Collector: | | |
| Hamlet | 6 | 6 |
| Village | 81 | 78 |
| Inter-village | 5 | 5 |
| Bazaar trader | 9 | 8 |
| Total | 104 | 100 |

(Table I). Less than 10 per cent is sold by farmers directly to bazaar traders.

Soybeans collected by hamlet collectors go almost exclusively to inter-village collectors who are tied by advance payment. Marketing outlets for village collectors vary. Some deliver their collection mainly to inter-village collectors, who are also tied by advance payment, and others specialize in supplying to fixed-customer processors over a continuous term. Cash sales at the bazaar are an always available option.

Inter-village collectors mainly tranship collected soybeans to traders in other districts such as Bandung and Tasikmalaya. They seldom sell to processors and bazaar traders in Garut because they have no comparative advantage over village collectors in local trade.

It is difficult to estimate the exact percentage of soybeans collected by village collectors that goes to local *tempe* and *tahu* producers and the percentage shipped out through inter-village collectors. However, discussions with village and inter-village collectors give the impression that about half the village collectors' collection is delivered to inter-village collectors and the other half goes directly to local processors. This estimate and the data in Table I lead us to believe that about 40 per cent of locally produced soybeans are processed locally and the rest are shipped out to other districts mainly through inter-village collectors.

As a transhipper of local soybeans, the function of bazaar traders is the same as inter-village collectors, even though their territory is somewhat wider, covering as far as Cirebon and Jakarta in some cases. The role of the bazaar trader retailing local soybeans seems quite small. In harvesting seasons much of the demand for soybeans by processors in Garut, both in town and village, is met by a supply from village collectors.

However, the role of bazaar traders in soybean retailing is very large in the non-harvest seasons in Garut, when they sell soybean from overseas or from other regions with different harvest seasons. Retailing imported soybeans is a major part of business, especially for the large *toko* traders.

Small grocery stores (*warung*) are a major retail channel for both *tempe* and

tahu. Village-based *tempe* manufacturers sell their product to neighboring stores. Town-based *tempe* and *tahu* manufacturers sell their products mainly at the bazaar, either directly from their own stalls or through vendors, while part is retailed by factories. The customers are grocery store keepers as well as housewives. Early every morning, small grocery store keepers (mostly women) from towns and villages come to bazaar to bargain at the vending stalls and buy a bundle of goods to sell in their stores that day. Village store keepers usually bring back a few pieces of *tahu* that is not produced in the village. Soybean sold from the village through various marketing channels thus returns in processed form.

B. *Conditions of Soybean Marketing*

What economic and technical conditions characterize the local soybean marketing organization outlined above? The basic condition in marketing any peasant crop is that transaction is in small lots with producers who increase the transaction cost for the middlemen per unit of product collected. In the study area this condition is especially severe for soybeans because of intercropping and the very low per-hectare soybean yield.

On the other hand, soybeans are easy to handle in bulk and, therefore, their transportation is characterized by strong scale economy as estimated in the next section. To economize on the transaction costs that are involved in collecting a large number of small lots on a large enough scale in order to make good use of economies of scale in transportation appears to be a major consideration in the organization of the soybean marketing.

The second basic condition is scarcity of capital. It is very difficult to estimate the market rate of interest because lending money at interest is prohibited by Islam. However, available evidence suggests that interest is very high. One study on a village in the Subang district where interests are charged reports that the rate for one rice crop season was 50 per cent, thus giving an annual rate higher than 100 per cent [3, p. 200]. The credit arrangement called KOPIA (Koperasi Simpan Pinjam) is fairly common in Indonesia. In this arrangement, one who borrows Rp 1,000, for example, has to pay back the lender Rp 40 every day for one month, which would thus make the interest rate more than 20 per cent per month. It does not seem unreasonable to assume that the market rate of interest on a non-collateral loan can be 100 per cent per year or higher, an assumption based on the severe scarcity of capital.

With such high interest rates, the profit on trade would be lost if the repayment ties up large amount of capital for a long time. Therefore, a consideration vital to the trader is shortening the period so that working capital spent in collecting commodities can be recovered by selling the commodity as soon as possible. This consideration is important in the trade of almost all agricultural commodities because a large amount of working capital is required for purchase at harvest season. But, it is especially critical for soybeans because their price does not rise much with the passage of time after harvest, due to the import of soybeans from other regions and overseas.

C. *Credit Tying and Hierarchy among Middlemen*

The hierarchy of village-based middlemen from hamlet to inter-village collectors may be understood as an organization geared to saving transaction costs and working capital. For the middleman who ships soybeans from the village to a distant market, the transaction costs for acquiring the optimum amount for bulk shipment will be excessive if he himself has to collect from a large number of small farmers. It is more economical to consign business to agents whose cost of transaction with farmers is lower. The hamlet and village collectors live relatively closer to the producers than the inter-village collectors, and need less time and effort to make contact with the producer and to search for available supplies. Moreover, the hamlet and the village collectors have smaller assets and lower education so that their labor opportunity cost is lower than that of the inter-village collectors.

A major constraint on the operations of village and hamlet collectors is the shortage of working capital. The minimum working capital for a village collector is said to be about Rp 500,000. This is not an easy sum for ordinary villagers to mobilize, because it is roughly equivalent to a middle-class farmer's annual income. Loans from government banks are difficult to get because they require collateral and complicated paper work.

A device to mitigate capital constraints is the informal credit from the inter-village collector given in the form of an advance payment. The period of advance is usually very short, rarely more than one week. A hamlet collector typically receives a cash advance from an inter-village collector and uses it to purchase soybeans from farmers that he delivers to the inter-village collector within a day or two. No explicit interest is charged on these short-term cash advances. Nor does it seem that implicit interest is charged in the form of a discount purchase price.

It appears that the implicit interest that the hamlet and village collector does not have to pay is a premium for assured delivery of commodities, with which the inter-village collector can save transportation and transaction costs by more precisely scheduling the transshipment of the commodities to be collected.

In general, capital costs are lower for the inter-village collector who has relatively large assets to use as collateral. He can take advantage of his high credit worthiness to tie the hamlet and village collectors to the collection of commodities from a large number of farmers at modest transaction costs. This function of the larger trader supplying working capital to the smaller, who has a higher credit risk, is not rare in the world; it is commonly practiced, for example, by Japanese trading companies. However, such arrangements are rarely between village-based middlemen and bazaar traders in Garut or other districts.

In general, the village or inter-village trader sells his collected goods in cash to the town-based trader who offers the highest bid after checking several other alternatives. The general absence of tied credit between village-based and town-based traders may be due to the high risk of default. Inter-village collectors and hamlet/village collectors live in the same community and are bound by various

relations such as those between mutual friends and relatives [1], making it relatively easy to enforce the terms of contract. In contrast, it is difficult for the town trader to prevent the remote village collectors from disappearing with their advances.

However, the hierarchy among village-based middlemen is not so tightly structured as to give the inter-village collectors monopsony power. Although it is common for a hamlet or village collector to continually deliver to the same inter-village collector for years, the opportunity of changing his patron customer is always available. However, he usually does not because terms from each inter-village collector are more less the same and a continuous relationship with one customer has the advantage of saving transaction costs.

The middlemen hierarchy based on tied credit does not reflect monopsony by those in the top echelon. The chances are very small that inter-village and bazaar traders can monopolize supply. The demand for local soybean by *tempe* and *tahu* producers is supplied mainly by village collectors. There is also very little room to greatly profit from speculation and hoarding, because of high capital costs and small inter-seasonal price variations. Essentially, their source of income gives a thin margin over bulk trade with other districts or regions. A trader can have large income if he is able to increase trade volume and keep a shrewd eye on business opportunities in the form of interregional price differences. A slight miscalculation in price differential relative to transportation costs may result in large losses. A critical consideration is how to speed up the turnaround of working capital.

D. *Farmers and Middlemen*

It is interesting to observe that, while tying credit is common among middlemen, no such arrangements exist between middlemen and farmers. On the contrary, deferred payment is fairly common, implying that farmers are lenders rather than borrowers vis-à-vis middlemen. This contrast reflects the much larger seasonal requirement of working capital for the collection of farm products by middlemen than for farm production itself, while the income and asset position of hamlet or village collectors is no better than that of farm producers. In addition, farmers' need for credit is relatively small in this village because the various crops produced through intercropping are harvested throughout the year.

Although farmers are entirely free to choose to whom they sell their products, there is a strong tendency for each farmer to continue selling his crops to the same middlemen. According to our survey, the percentage of farmers' transactions in soybeans with the same middlemen was a more or less continuous 77 per cent. This percentage was even higher for other commodities; 91 per cent for corn, 81 per cent for tobacco, and 100 per cent for cassava. This relative fixity in trade relations does not seem to reflect monopsony power on the part of the middlemen. Instead, the terms of conditions to be offered from alternative buyers are always very similar so it is advantageous for farmers to save transaction costs by trading with one buyer continuously.

In fact, as many as 90 per cent of the farmers we interviewed said they know

TABLE II
ESTIMATED TRANSPORTATION COSTS

| Location | Assumption | | | Transportation Cost (Rp/Kg) |
|---------------------------|---------------|---------------------|---------------|-----------------------------|
| | Distance (Km) | Transportation Mean | Lot Size (Kg) | |
| Within village | 1 | Man with pole | Up to 50 | 5 |
| Village center to highway | 1 | Man with pole | Up to 50 | 5 |
| | | Pony wagon | 100-200 | 2 |
| | | Small truck | 1,000 | 2 |
| Village to Garut bazaar | 8 | Pony wagon | 100-200 | 10 |
| | | Small truck: | 1,000 | 5 |
| | | | 1,500 | 3 |
| | | | 2,000 | 2.5 |
| Village to Bandung City | 60 | Small truck: | 1,000 | 15 |
| | | | 1,500 | 10 |
| | | | 2,000 | 7.5 |
| | | Large truck: | 2,000 | 10 |
| | | | 4,000 | 5 |
| | | | 5,000 | 4 |

very well the prevailing soybean prices in the bazaar and that it is easy to sell their products there if they so wish. Forty-two per cent of farmers said that hearing from neighbors and friends was the most important source of market price information; 37 per cent said it was cross-checking with a number of middlemen; and 21 per cent said they directly visited the bazaar. The data suggest that most farmers are able to obtain fairly accurate information on the market situation by relatively inexpensive means.

V. QUANTITATIVE EVIDENCE

We will now test the competitiveness and efficiency of the local soybean market in terms of data on price and marketing margins.

A. *Transportation Costs*

Transportation cost is a major determinant not only of marketing margin but also of marketing organization and trade practices. Therefore, before proceeding to an analysis of prices and marketing margins, we will try to estimate the costs of transportation.

Table II summarizes the estimates of transportation costs per kilogram of ordinary farm commodity. Hauling of farm products within the village is usually done by men with carrying poles. The portorage cost is Rp 5 per kilogram irrespective of the size of load to be carried.

Goods can be carried either on the shoulder, by pony wagon, or by small truck from a central part of the village to a junction on the main village road and then

to the national highway, where the residence-cum-shops of inter-village collectors are located. One chartered trip by pony wagon costs Rp 250 and can carry a load up to 200 kilograms with the load's owner riding along. A discount is given on the charter fee if the load is smaller. It is also common for two or three customers to share the cost. On the average, the cost per kilogram is about Rp 2.

The cost to charter a small gasoline-engine truck (*colt bak*) for the same trip is about Rp 2,000. The cost of transportation decreases below Rp 2 per kilogram if the lot of one load is over one ton. However, the lot size for transportation from inside the village to the highway is usually small, seldom exceeding one ton. Therefore, the unit cost of transportation on the village road by small truck is usually not different from or even much more than that by pony wagon. On the whole, economy of scale is not large for short-distance transportation within village.

Strong economy of scale emerges in transportation beyond the village. It costs Rp 1,000 to 2,000 to charter a pony wagon to the Garut bazaar, for loads that range from 100 to 200 kilograms. On the other hand, it costs Rp 5,000 to charter a small truck for the same trip irrespective of the load to a maximum of two tons. Therefore, the per kilogram cost of transportation declines from Rp 10 by pony wagon with a load under 200 kilograms to Rp 5 if one ton is carried by a small truck, and down to Rp 2.5 if two tons is carried in one lot. We assume that the average cost by small truck from the village to the Garut bazaar is about Rp 3.

Economies of scale are also evident for transportation to Bandung, sixty kilometers away. The cost of chartering a small truck for the trip is Rp 15,000, while a large diesel-engine truck (*truk besar*) costs Rp 20,000. Therefore, the transportation cost per kilogram decreases from Rp 15 for carrying a one-ton load by small truck to Rp 7.5 for a two-ton load on the small truck, and down to Rp 4 if a five-ton lot is carried by large truck.

B. *Prices and Marketing Margins of Soybeans*

Table III lists typical prices of local soybeans at various points in the marketing chain.

Farmers receive Rp 570 per kilogram if they sell their produce to hamlet or village collectors at the farm gate. They can receive Rp 10 more if they bring their produce to the inter-village collector's shop. However, it would cost them nearly Rp 10 per kilogram to haul soybeans from their residence to the village center and then the inter-village collector's shop. Naturally the farmers do not usually bother to visit the inter-village collectors but sell their products to hamlet or village collectors, except for those few living nearer the inter-village collector.

If farmers bring soybeans to the Garut bazaar traders they can sell it for Rp 15 more than the price at the farm gate. In doing so, they would have to incur the additional cost per kilogram of nearly Rp 15 for a man to haul it to the village center and, then, by pony wagon to Garut. Therefore, farmers usually do not bother to bring their produce to the bazaar. The fact that the price difference between village and bazaar is about equivalent to the transportation cost indicates that the local soybean market that covers both village and town approximates perfect competition.

TABLE III
TYPICAL PRICES OF LOCAL SOYBEANS FOR VARIOUS MARKETING
AGENTS DURING HARVEST SEASON IN THE GARUT DISTRICT,
MAY-JUNE 1986

| Seller | Buyer | Sale at the Residence/Shop of | Price Received by Seller (Rp/Kg) |
|-------------------------|------------------------------------|----------------------------------|---|
| Farmer | Hamlet or village collector | Farmer | 570 |
| | Inter-village collector | Inter-village collector | 580 |
| | Bazaar trader | Garut bazaar trader | 585 |
| Hamlet collector | Village or inter-village collector | Hamlet collector | 580 |
| Village collector | Village processor | Village collector | 590 ^a |
| | Inter-village collector | Village collector | 580 |
| | Bazaar trader | Garut bazaar trader | 585 |
| Inter-village collector | Bazaar trader | Garut bazaar trader | 585 |
| | Trader in other district | Bandung bazaar trader | 600 |
| Bazaar trader | Town processor | Garut bazaar trader | 590 |
| | Trader in other district | Bandung bazaar trader | 600 |

^a High-quality soybean for *tempe*, which is about Rp 10/kg higher than ordinary soybean.

TABLE IV
MARGINS AT VARIOUS LOCAL SOYBEAN MARKETING CHAINS
DURING HARVEST SEASON IN THE GARUT DISTRICT,
MAY-JUNE 1986

| Marketing Agent | Marketing Chain | Marketing Margin (1) | Transportation Cost ^a (2) | Middleman Profit (1) - (2) |
|-------------------------|-----------------|----------------------|--------------------------------------|----------------------------|
| Hamlet collector | F to IC | 10 | 5 (man) | 5 |
| Village collector | F to VP | 10 | 5 (man) | 5 |
| | F to IC | 10 | 5 (man) | 5 |
| | F to BT/TP | 15 | 8-10 (man + small truck) | 5-7 |
| Inter-village collector | HC/VC to BT | 5 | 5-7 (pony + small truck) | -2-1 |
| | HC/VC to OT | 20 | 10-17 (pony + small truck) | 3-10 |
| Bazaar trader | F/VC/IC to TP | 5 | 0 | 5 |
| | F/VC/IC to OT | 15 | 10 (1.5 t/small truck) | 5 |
| | | | | 5 (4 t/large truck) |

Note: F: Farmer, HC: Hamlet collector, VC: Village collector, IC: Inter-village collector, VP: Village processor, TP: Town processor, BT: Bazaar trader, OT: Trader in other district.

^a Estimates of transportation cost from Table II, corresponding to assumptions on transportation mean and lot size shown in parentheses.

Marketing margins for various types of middlemen in the data of Table III are calculated in Table IV. The marketing margin for all hamlet and village collectors in the market chain from farmer to customer within the village (*tempe* manufacturer or inter-village collector) is uniform Rp 10 per kilogram. Five rupiahs are usually required to hauling soybeans from farm to residence although the hauling is often done by collectors themselves, especially with the hamlet collectors. Therefore, the rate of profit or net return for acting as a middleman is Rp 5 per kilogram.

If a village collector brings produce to the bazaar traders in Garut, his margin increases by Rp 5 but with additional transportation cost. Carrying one ton to Garut by small truck takes Rp 5 per kilogram. In that case the rate of profit from his transaction with bazaar traders is in equilibrium with the trade with village customers. Therefore, whether he prefers to sell his collection to inter-village collectors or bazaar traders depends on whether he is able to collect more than one ton of soybeans at one time under the constraint of working capital. Of course, the prices spread between village and town changes day by day. So, there should be moments at which shipment to the bazaar is more attractive than within-village sale even in smaller lots.

The marketing margin for an inter-village collector is very thin if he buys from a hamlet or village collector and sells to bazaar traders in Garut. A marketing margin of Rp 5 per kilogram is insufficient to cover transportation costs that include hauling of soybeans collected by hamlet or village collectors to their shops in small lots and transshipping them in larger lots to Garut by small truck. That is why they do not usually engage in such trade but in the transshipment of collected goods to other districts such as Bandung.

A similar situation applies to the business of bazaar traders. If a bazaar trader transships a load of 1.5 tons by small truck to Bandung, he can earn a profit of Rp 5 per kilogram which is the same as the profit from local retail sale. However, if the lot of 4 tons is carried by a large truck, the profit doubles to Rp 10.

Those observations are consistent with the hypothesis that petty traders such as hamlet and village collectors base their business on low transaction costs with small farmers, while larger traders such as inter-village collectors and bazaar traders base their business on the economies of scale associated with long-distance transportation.

C. Price and Marketing Margins of Soybean Products

Table V lists typical prices of *tempe* and *tahu* at various marketing points at the time of our survey. Unlike the price of soybeans, the prices of processed soybean products are characterized by stability over time and area.

For some reason difficult for us to identify, *tempe* is produced and sold in towns in large pieces weighing about 900 grams, whereas the common *tempe* in the village is one-tenth that size. The difference in size corresponds to an exactly proportional difference in price. If the price of town-made *tempe* is adjusted to the size of village-made *tempe*, their prices are the same; i.e., the producer price is Rp 40 and the retail price at the grocery store is Rp 50. The uniform prices

TABLE V
TYPICAL PRICES OF SOYBEAN PRODUCTS AT VARIOUS MARKETING POINTS
IN THE GARUT DISTRICT, AUGUST 1986

| Product | Seller | Buyer | Sale at | Price (Rp/Block) |
|--------------|-------------------|-------------------------|--------------|---------------------|
| <i>Tempe</i> | Village processor | Village grocery | Factory | 40 ^a |
| | Village grocery | Village consumer | Store | 50 ^a |
| | Town processor | Town grocery | Bazaar stall | 40 ^b |
| | Town grocery | Town consumer | Store | 50 ^b |
| <i>Tahu</i> | Town processor | Grocery and consumer | Bazaar stall | 25 ^c |
| | Village grocery | Village consumer | Store | 30 ^c |
| | Town grocery | Town consumer | Store | 30 ^c |

^a Price per 85 to 90 grams block.

^b Price per 900 grams block divided by 10 for comparison with village-made *tempe*.

^c Price per 50 grams block.

between the different locations suggest that the local *tempe* market is competitive and not segmented between village and town even though there is usually no *tempe* trade between village and town.

Tahu produced in factories in town is usually sold at a producer-owned stall in the bazaar to town consumers as well as grocery store keepers from town and village. The retail price of *tahu* at village grocery stores is no different from that of town stores, presumably because the town groceries that sell *tahu* are located far from the bazaar so that the cost of transportation does not vary from village. In any case the price data are not inconsistent with the hypothesis that a single competitive market encompasses both village and town with respect to *tahu*, too.

VI CONCLUSION

The results of our investigation indicate that the local market for soybeans and soybean products in Indonesia can be approximated by perfect competition in the economics textbook sense. The market seems to work very efficiently with an intensive use of local factors, especial labor, of low opportunity cost, while minimizing the cost of capital needed for transportation and storage. Nowhere were found middlemen exploiting peasants through monopsonistic pricing and usury. The monopoly element was found only in the distribution of imported soybeans under government control.

Those findings imply that government intervention into the market through control of prices and profits, if attempted, will likely result in serious loss in social and economic efficiency. If an attempt were made to substitute the present system with a "modern" system in requiring more intensive use of capital, it would not only reduce efficiency but would reduce labor income and employment and significantly impair equity. Policy efforts in such a direction should be held off until

overall economic development reaches the stage at which wage rates begin to rise sharply and labor-saving devices become socially profitable.

This does not mean, however, that government can do nothing to improve the existing marketing system. A wide scope exists for government to reduce transportation costs associated with the activities of middleman searching for an available supply, negotiating transactions, and arranging transportation, that would significantly reduce unit marketing cost if the average lot of marketable surplus per farm could be increased. Therefore, government investments in agricultural research and extension geared to increase crop yield and marketable surplus will reduce marketing costs. Inefficiency in agricultural marketing has often been blamed as a block to increased agricultural productivity. However, it should be realistic to say that low agricultural productivity is the major impediment to improved marketing efficiency.

It has also been argued that government intervention in the market is necessary to prevent volatile price fluctuation. However, private trade between regions in Indonesia having different crop seasons has proved highly effective in reducing seasonal price variation. Inter-year price stability can also be achieved easily at modest cost by controlling the import of soybeans, without resorting to intervention in domestic marketing channels; this is particularly true of soybeans in Indonesia, a significant share of which is imported for domestic consumption. It seems difficult to justify on the grounds of price stabilization the obvious inefficiencies and inequities associated with the government-controlled distribution system for imported soybeans.

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