

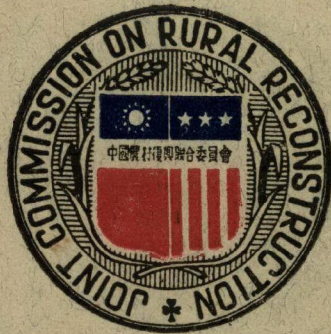
CHINESE-AMERICAN  
JOINT COMMISSION ON RURAL RECONSTRUCTION

Economic Digest Series: No. 7

**RICE MARKETING IN TAIWAN**

By

S. M. Yeh  
Rural Economics Division  
(S. C. Hsieh, Chief)



TAIPEI, TAIWAN, CHINA

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## FOREWORD

As rice is the most outstanding farm product in Taiwan and is the basic food to a great majority of the population, its marketing has played an important role in the field of agricultural marketing and has been of great concern to the government and the people. With a view to ascertain the details in the marketing of rice, the Rural Economics Division of JCRR undertook in 1953 a project "A Study on Rice Marketing in Taiwan."

This study was initiated in March 1953 and completed in September 1954. The planning and economic analysis were undertaken by the staff of the Rural Economics Division of this Commission while the field work and statistical calculation and tabulation were done by four undergraduates of the Department of Agricultural Economics, National Taiwan University. Cooperation was also obtained from concerned government and private agencies in furnishing pertinent information and data.

Preparation of this report has extended over sometime. It was originally scheduled to be published in the fall of 1954, but the collection of additional information and revisions of the draft report based on comments received from within JCRR resulted in the delay of its release. This study is expected to serve as an important reference in the formulation of food programs of the government and for strengthening rice marketing operations in Taiwan.



Chiang Monlin  
Chairman, Joint Commission on  
Rural Reconstruction

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# RICE MARKETING IN TAIWAN

## I. INTRODUCTION

Rice is the basic food item to a great majority of the population, and has been the most important agricultural product of Taiwan. With favorable climate, adequate irrigation facilities and the availability of imported commercial fertilizers, Taiwan normally produces a large quantity of rice which is not only sufficient to meet domestic requirements but leaves a considerable amount of surplus for export.

To bridge over the gap between producers and consumers, there requires many services from the middlemen, the various types of rice merchants. Farmers grow rice and reap paddy which needs storage for later consumption or sale. It must be milled first into brown rice and then from brown into polished rice to make it suitable for human consumption. Moreover, various means of transportation are needed to take rice to places where the consumers can obtain it. These are only some of the important functions performed by rice merchants in rice marketing.

In Taiwan, the main emphasis of food administration work is laid on the increase of food production and on the regulation of food supply and demand. About one third of annual rice production is collected through taxation, barter and other means for the disposal of the government. The rice collected is used for rations to specific groups of people who comprise about one fifth of the total population, for stabilization sales when there are great changes in rice price and for export. But to the general populace, the free rice markets in every township and city are the main sources of food supply. The rice merchants in the markets are allowed a free hand in the marketing of rice provided they observe all food regulations proclaimed by the government.

To ascertain current practices in the assembling, grading, processing, storing, transporting and financing of rice, the Joint Commission on Rural Reconstruction has undertaken a study on rice marketing for which the set goals are as follows:



- (1) To obtain basic information regarding the history and organization of various important rice markets.
- (2) To observe the marketing channels in various important rice markets.
- (3) To observe how transactions in rice are made and how market prices are determined in various important rice markets.
- (4) To investigate the functions and services performed by different kinds of rice merchants.
- (5) To study price spreads among farm, wholesale and retail markets of rice in relation to marketing costs incurred in various marketing steps.
- (6) To obtain basic information on the current status of rice storage, processing, packing and transportation facilities.
- (7) To ascertain how the government carries out the control of rice marketing.

Since Taiwan's Restoration to the Republic of China, the operations of rice export and import have been handled entirely by the Provincial Food Bureau which designates the Central Trust of China as its sole agent. The Rural Economics Division of JCRR already prepared in July 1951 a report on Rice Export Problem in Taiwan covering detailed description and analysis of rice export and import of Taiwan in both prewar and postwar years, factors affecting rice export, possible markets for Taiwan rice and recommendations for promoting the export. For this reason, we deal only with rice marketing in the domestic market in this report.

It is believed that the completion of this study will provide some basic data and information for the formulation of food programs of the government. It will also help strengthening rice marketing operations of both public and private enterprises.



## II. RICE MARKETING DURING JAPANESE OCCUPATION

The history and development of rice marketing in Taiwan during Japanese occupation can be divided into three periods, each of which had distinct characteristics. They are (A) free marketing without an organized rice exchange, (B) free marketing with an organized rice exchange and (C) strict control over rice marketing in wartime. The details are briefed as follows:

### A. Free Marketing without an Organized Rice Exchange (1894—1922)

In the early years of Japanese occupation rice produced on the island was mainly for domestic consumption and there was little for export. Free markets existed in every township and city, but the marketing technique was very primitive and inefficient. Rice was classified by producing area and sold by personal inspection. Processing equipment remained in the home pounding stage and rice shipments were dependent on animal carts and human labor.

The picture began to change in 1908 following the completion of the Trans-Island Railway. Rice was then transported by rail, thus reducing the cost of rice shipment and shortening the time for transportation. Telegraph and telephone facilities were improved which made possible the dissemination of marketing news. There was also great progress in rice processing as electric power and steam power were utilized and steel machines replaced wooden and stone tools. In 1912 a rice inspection system was established and all rice to the market was then inspected and graded. With those improvements, it became possible to make rice a merchandized commodity both in domestic and international trade.

There was free rice marketing during this period but yet no organized rice exchange. This was because the volume of rice transaction then was not very large as annual rice production was normally below 700,000 M.T., because no great amount of rice was available for export, and because the colonial government disapproved the establishment of a rice exchange, lest it might affect the stabilization of domestic rice markets.

### B. Free Marketing with an Organized Rice Exchange (1923-1937)

As early as 1896, a new species of rice, Ponlai rice, was introduced to Taiwan from Japan for the improvement of rice seeds. After repeated

failures in numerous experiments, the efforts made by a number of Japanese rice specialists in the development of new varieties from this species finally were compensated with a great success in 1922. Ponlai rice is high in unit yield, short in growing period and good in milling and table quality. It has also a taste favored by the Japanese. It was through the extension of Ponlai rice that rice production on the island was greatly increased after 1922, resulting in greater amount of surplus rice for export.

Beginning 1923, rice export played an important part in the rice marketing of Taiwan. The export was mostly made to Japan and was dominated by Japanese exporters on the island.

#### 1. The Establishment of Taiwan Rice Exchange

For the purposes of efficiently handling rice transaction in large amount and providing rice marketing news and daily quotations to various rice markets scattered over the island, some leading rice exporters decided early in 1904 to organize a rice exchange following the pattern of rice exchanges in Japan Proper. A move on this matter was passed by the Chamber of Commerce of Taipei City and a request was submitted to the colonial government for approval. However, this request was turned down by the latter because it felt that such an exchange would aid speculation. The Chamber of Commerce made a same request in 1914 and it was again turned down for the same reason. The colonial government did not grant permission to the organization of a rice exchange until 1924 when the Taiwan Rice Exchange was finally established in June of that year.

The Taiwan Rice Exchange had one chairman, one deputy chairman, one standing director and eight directors to form the Board of Directors, who were all elected by and among its members. Its daily business was handled by one secretary and a number of assistants, appointed by the Board. All registered rice merchants were eligible to be members of the Exchange with the introduction of two members and the Board's approval. The members were given the privilege of making rice transaction in the exchange, but had the obligations to pay membership fee and observe the rules and regulations of the Exchange. The operation fund of the Exchange was raised through the collection of membership fee, transaction charges, interest from guarantee funds and other incomes.

## 2. Operation of the Exchange

The business hour of the Taiwan Rice Exchange was six hours a day on weekdays, from 9 a.m. to 3 p.m. There was no market on Sundays, great festival days and national holidays, but a temporary market might be held if necessary. The Exchange employed three rice specialists to be rice commissioners to decide daily standard rice price, which was set twice a day with reference to the bidding and volume of transaction in the Exchange in the morning and afternoon and the rice price in Tokyo market. These standard rice prices were posted on the bulletin board in the Exchange and broadcasted twice a day.

There were a number of brokers just as in any other exchange. The brokers were men with definite residence in Taipei City and wide experience in rice marketing. They were required to pay a certain amount of guarantee fund before starting business. They were not allowed to make transactions themselves but acted only as go-betweens in any deal. This was, however, merely a routine regulation, as they could easily buy and sell through members of the Exchange.

There were two kinds of transactions in the Exchange, spot trade and future trade. One of the two parties in spot trade might not be a member of the Exchange, but in future trade only the members were allowed. The details of making transactions are briefly described below:

a) Spot trade was made through bidding on rice sample. The rice sample was placed in a given plate. Its specific grade and variety were written on a blackboard. Then one broker representing the seller and other brokers representing the buyers would start to bid by calling. When the buying price met the selling price, the bidding was completed which was followed by registration in the office of the Exchange and a formal contract. Delivery of spot transaction was restricted to within five days. If the spot transaction was made between a member and a non-member, the latter was required to pay  $\text{NT} 0.02$  per 60 kilograms charges for services rendered by the Exchange.

b) Future trade was also made through bidding on sample but the amount of rice involved should be at a minimum of 500 kg. Another difference was that the buyer might be asked to pay a certain amount of guarantee fund after the conclusion of a contract if deemed necessary by the Exchange. The delivery of rice in future trade was restricted to within 45 days from the day entering a contract and the place for de-

livery should be one of the three cities of Taipei, Keelung and Kaohsiung. Reselling and buying back were allowed in the Exchange.

### 3. Effects of the Exchange

In the first three years after the establishment of the Taiwan Rice Exchange (1924-1927) the volume of transaction was not as large as expected. This was due to the fact that the colonial government then strictly prohibited future trade in the Exchange to prevent possible speculation. Beginning 1928, however, future trade of rice became legal, which immediately brought prosperity to the Exchange. According to some experienced rice merchants, the volume of transaction in the Exchange after 1927 varied from 1,800 MT to 6,000 MT a day, of which future trade occupied almost one half.

It is evident that the Taiwan Rice Exchange exercised great influence in rice marketing in Taiwan during the Japanese occupation. Its effects on general rice marketing may be briefed as follows:

#### a) Standardization of Rice Price

Before the inauguration of the Exchange, rice prices in different localities varied from one another and there was no standard rice price on the island. This caused inconvenience as well as loss to both producers and rice dealers because they did not know what was the real going market price to sell or purchase. Following the establishment of the Exchange, its daily rice quotations gradually became the standard rice prices on the island. Rice price information in Taipei City and Tokyo market and other marketing news were also disseminated by the Exchange every day through newspapers and radio broadcast. Thus rice producers and dealers could take the rice quotations of the Exchange as dependable reference in rice transactions and would no longer worry of being fooled by the opposite party.

#### b) Promotion of Rice Export

In earlier days rice exporters encountered many difficulties in assembling rice for export. As the quantity of rice for export was usually large, the exporters had to assemble rice from scattered markets. This resulted in increased marketing cost and sometimes delaying the scheduled shipment. Furthermore, as mentioned above, their operations were also hampered by the absence of a standard rice price. These difficulties

were removed after the establishment of the Taiwan Rice Exchange, as rice exporters could purchase the needed rice on time through the Exchange at a going market price and of a standardized quality. It is evident that services rendered by the Exchange had contributed greatly to the increase of rice export during this period.

#### c) Stimulation of Speculation in Rice Trade

Speculation in rice trade automatically occurred as trade in futures was made in the Exchange. Rice merchants were likely to make profit out of the change in price and many speculative practices such as selling short and buying long were therefore prevalent. They usually contributed to a fictitious apparent supply and demand which enlarged the volume of transactions but at the same time stabilized to some extent the rice price in off-seasons and in the months after harvest. Generally speaking, the speculation in rice trade at that time produced more favorable than harmful effects. It brought no disturbance to the rice market and no disorder in rice price, as the colonial government watched closely the operation of the Exchange and the general economic condition in Taiwan during the existence of the Exchange was prosperous and stable.

#### C. Strict Control over Rice Marketing in Wartime (1938-1945)\*

The whole Japanese Empire entered a state of emergency following the outbreak of the Sino-Japanese War in 1937. As the first step towards food control, the Taiwan Rice Exchange was ordered to close in 1938 and rice export was monopolized by the colonial government in 1939. Strict control over domestic rice marketing was imposed in 1940 as a result of the intensified Sino-Japanese War and thus collection, processing, transportation, storage and export of rice in Taiwan were all under the close supervision of the colonial government. Free rice markets ceased to exist after June 1940 and the rice merchants were left with no business of their own but to mill rice for the colonial government and to sell rice allocated by it for distribution to the general populace.

After June 1940, food control was exercised largely through two organizations: The Food Corporation and the Rice Collection Cooperatives. The former, which was a semi-official enterprise and had branch offices throughout the island, was empowered by the colonial government

\* See Food Administration in Taiwan: JCRR Economic Digest Series No. 3.

to handle rice processing (from brown to white) and domestic distribution. The latter in which participated all local rice mills associations, food merchants' guilds and farmers' associations, were entrusted to undertake the compulsory purchase of paddy for the government from all rice producers and landowners on the island, the storage of collected stock, the processing of rice (from paddy to brown) and the shipment of brown rice from warehouses to the branch offices of the Food Corporation. The details on rice control are briefed as follows:

### 1. Rice Export

Prior to the promulgation of the Rice Export Act passed by the Japanese 74th Diet in 1939, rice export from Taiwan was undertaken by Japanese importers with no restriction by the government. After the promulgation of that Act, export became a government monopoly and no merchants were allowed to take part in it. The colonial government entrusted the Rice Collection Cooperatives in various localities to collect the rice required for export. The government then shipped and delivered the exported rice to the Japanese Ministries of Agriculture and Forestry, of Army and of Navy, which worked out respective distribution plans in Japan to meet civilian and military requirements.

### 2. Rice Collection

The Rice Collection Cooperatives were empowered to purchase all merchantable paddy in their respective regions and to mill such paddy into brown rice for the disposal of the colonial government. Beginning from the first rice crop in 1941, all landowners and farm families were allowed to keep only the amounts of paddy needed for their household consumption and rice seed, and were required to sell all that was left—the merchantable paddy—to the Rice Collection Cooperatives at an official price. Thus the colonial government was in complete control of merchantable rice on the island.

### 3. Rice Distribution

The amount of rice for distribution in each township was worked out according to actual requirement following a spot investigation. The rice was distributed by the Food Corporation and was sold at a uniform price set by the colonial government. The sale of rice was handled by rice merchants who served as agents of the Food Corporation and were paid a handling fee for their service.

The rice merchants could get a certain amount of processing fee if they were designated by the Corporation to mill rice. The milling rate of brown into polished rice should not be less than 93 per cent for Ponlai variety and 94 per cent for Tsailai variety and subsequent broken rice was not allowed for private consumption or transaction but should be sold to the Rice Collection Cooperative. The islanders then were allocated on the average only 8.4 to 10.8 kilograms of brown rice per month, an amount far from sufficient to meet their requirements.

#### 4. Rice Price

When the island-wide rice collection and distribution program was first launched, the prices of paddy and brown rice were set by the Rice Collection Cooperatives according to their respective local conditions. Later on, the colonial government established uniform prices for both paddy and brown rice and applied them to all purchases from farm families throughout the island. These official prices were quite low, taking into consideration the currency inflation at that time and their disparity with prices of general commodities. Worse still, these prices were very seldom adjusted.

The low official price and insufficient amount of rice ration inevitably led to the creation of black markets in most densely populated centers. The black market rice came for most part from farm families which saved some rice from home consumption. Its price, of course, was much higher than that of the rationed rice.



### III. RICE MERCHANTS AND RICE MARKETS

#### A. Classification of Rice Merchants

Based on the nature of business and the functions performed, rice merchants are generally classified into shippers, wholesalers, jobbers, retailers, millers, warehousemen and brokers. In fact, a rice merchant may perform two or more functions at the same time and therefore the classification of rice merchants is not so simple. The Provincial Food Bureau now classifies the rice merchants into five types, namely: 1. wholesaler and shipper; 2, retailer and jobber; 3, warehouseman; 4, miller, and 5, broker. If a rice merchant operates more than one kind of business, he will be classified according to his major business. For instance, a rice mill may undertake also shipping, storing, wholesaling and retailing of rice but is classified as a miller because its chief marketing operation is milling.

From this survey, it is found that rice merchants in Taiwan can further be grouped into the following types in accordance with their actual operation:

- (1) Shipper, miller, wholesaler and retailer
- (2) Shipper, miller and wholesaler
- (3) Shipper and wholesaler
- (4) Miller and retailer
- (5) Miller and warehouseman
- (6) Retailer
- (7) Broker
- (8) Warehouseman

The above classification appears closer to actual practice than the Food Bureau's.

Although business operations vary with different types of rice merchants, there is a general pattern of each type which can be briefed as follows:

#### 1. Shipper, miller, wholesaler and retailer

This type of rice merchants can be found in the markets of both rice-surplus and rice-deficit areas. They usually assemble paddy or brown rice from nearby rural areas or from other localities to their mills for

storage and processing, and then sell the brown or polished rice to other merchants and direct consumers. Because they handle a number of marketing functions, their profit is likely to be greater than that of other rice merchants. However, they need a considerable amount of fixed assets and working capital to run their business and must also possess a shop with processing equipment and adequate space for storage and retail sales.

## 2. Shipper, miller and wholesaler

This type of rice merchants is also found in the markets of both rice-surplus and rice-deficit areas. Their business operation is about the same as that of the above type but they do not sell rice at retail. Their volume of transaction is generally larger than that of other types and consequently more working capital is needed. Among all rice merchants, they usually carry weight in the local rice merchant's association and have great influence in the supply of rice to the market.

## 3. Shipper and wholesaler

This type of rice merchants is not large in number and can be found only in markets of rice-deficit areas. Their major operation is to ship paddy or brown rice from rural areas and sell it to local millers and retailers. They need not have large storage and processing equipments and require therefore, less fixed assets.

## 4. Miller and retailer

This type of rice merchants is most common among all types of rice merchants. They usually own only a small shop and a set of huller (milling machine). Brown rice is bought from local millers and wholesalers and milled to polished rice for sale to consumers. They also mill rice for direct consumers and retailers who have no milling equipment, but seldom hull paddy into brown as this processing practice is not profitable on a small scale.

## 5. Miller and warehouser

Some rice mills with large storage space and adequate processing equipment do not buy and sell rice, but undertake the processing

operation only. They usually store and mill rice for the Food Bureau and for big consumers such as factories, companies and military units and get the processing fee and some by-products in return. They need not have much working capital and bear no business risk, but must have a large investment in fixed assets. Such millers and warehousemen are usually found in the markets of rice-surplus areas and most farmers associations are doing food business of this type.

#### 6. Retailer

Rice retailers are scattered in all townships and cities. They buy polished rice from millers or wholesalers and retail it to the consumers. A rice retailer may be a grocery, or may at the same time sell sweet potato or wheat flour or both.

#### 7. Broker

Rice brokers are the middlemen between buying and selling rice merchants. Their chief function is to negotiate and arrange rice transactions for their consigners, for which they will get a small commission (generally about 1% of sale value). They must have good reputation in commercial circles as well as considerable real estate lest both buyers and sellers would not trust them. The total number of brokers in the province is small. They are found only in important rice markets such as Taipei, Tainan and Pingtung.

#### 8. Warehouseman

Normally, two functions are performed by a rice warehouseman: to store rice for rice holders and to finance rice holders with loans with the stored rice as security. The rice warehousemen in Taiwan, however, now perform only the storage function. Even the rice warehouses run by commercial banks do not extend any loan on mortgage basis as it is prohibited by the government to prevent rice hoarding.

Of the total rice merchants, Type 4 (miller and retailer) undoubtedly occupies the major portion, Type 1 (shipper, miller, wholesaler and retailer) and Type 2 (shipper, miller and wholesaler) ranked the second, Type 3 (shipper and wholesaler) and Type 6 (retailer) take the third and Type 7 (Broker) and Type 8 (warehouseman) are few in number.

## B. Registration of Rice Merchants\*

According to the Revised Rules Governing the Registration of Food Merchants of June 1950 still in effect, persons who wish to engage in the transaction, transportation, processing or storage of rice, are required to apply for a Food Business Permit from and register with the local government, in addition to the general business permit required by all merchants in common. The same registration and application are also required by farmers' associations and cooperatives which conduct business on foodstuffs. The only exceptions are:

- (1) Rice peddlers
- (2) Persons who sell their self-produced rice
- (3) Persons or organizations with warehouses for their own exclusive use
- (4) Persons or organizations with rice processing equipment for their own exclusive use, neither collecting fees for processing nor selling processed products

The amount of capital and other conditions required by a rice merchant as stipulated in these rules are as follows:

- (1) A minimum capital equivalent to the value of 20 shih piculs of polished rice, medium grade for a rice retailer or jobber (1 shih picul = 1 hectoliter).
- (2) A minimum capital equivalent to the value of 40 shih piculs of polished rice, medium grade, for a rice wholesaler or shipper.
- (3) A broker must possess properties equivalent to the value of 20 shih piculs of polished rice, medium grade, and be so certified by his local township office.
- (4) A warehouse operator must possess a warehousing capacity of at least 200 shih piculs.
- (5) A processing mill owner must possess adequate processing equipment.

The minimum amounts of capital in terms of new Taiwan dollars required by different kinds of rice merchants are worked out by the Food Bureau and adjusted once or twice a year. The latest adjustment was

\* See Food Administration in Taiwan: JCRR Economic Digest Series No. 3.

made in January 1953, and provides that the minimum amount of capital required by a rice retailer or jobber, a rice wholesaler or shipper, and a broker are NT\$3,500, NT\$7,500 and NT\$3,500, respectively.

The registration procedures are regulated as follows:

(1) In the case of a rice firm or store, the applicant must fill an application form and three copies of a registration form and send them to the local government for approval. But in case of a rice corporation, the applicant must send also the certificate issued by the Ministry of Economic Affairs, its organizational rules, business statement, and lists of its directors, supervisors and staffs. The procedures for rice warehouse registration are separately stipulated in the Agricultural Warehouse Act.

(2) After receiving the application with other attachments, the local government must make a recommendation and within five days send two copies of the registration form to the Provincial Food Bureau for approval.

(3) When the application is approved, a Food Business Permit is issued by the Ministry of Finance through the Food Bureau.

(4) If a rice merchant is going to suspend or close his business, he must report to the local government ten days in advance and request the withdrawal of his Food Business Permit. If he changes the form of his business, he must apply for a change of registration ten days in advance. If he transfers his business to another person, he and the person involved must jointly apply for a change of registration and request the issuance of a new business permit ten days in advance. In all these cases the local government must make public announcement within ten days after it receives the application, and report to the Food Bureau for reference.

(5) The Food Bureau must report every month the disposition of registration cases, to which must be attached one copy each of the registration forms submitted by rice merchants, to the Ministry of Finance for reference.

(6) The application and registration forms are given free by the local government, but costs of the Food Business Permit must be paid by the applicant. At present charge for one such permit is NT\$10.

In the case of a rice mill, the applicant must obtain beforehand a written approval for its establishment from the Provincial Department of Reconstruction. After receiving the Food Business Permit, the applicant is required to register with the PDR in accordance with the Rules Governing the Registration of Factories in Taiwan and get a Factory Registration Permit at a cost of NT\$20.\* Without this permit, the rice mill cannot apply for the supply of electricity.

Since the current electricity supply is not sufficient to meet the increasing demand as the number of rice mills at present is considered enough for local requirements, the PDR has tentatively restricted the establishment of new rice mills in certain areas since January 1952. However, this restriction will be lifted as soon as electricity supply is increased.

Because the amount of capital and other conditions required by rice merchants are easily compiled with, there are numerous rice merchants at present. As of the end of 1953, the number of rice merchants registered with the respective local government totalled 10,429.

According to the Provincial Food Bureau, a great majority of rice merchants have registered for handling more than one item of business but the Bureau has not compiled data to show the number of registered rice merchants for each clan as indicated previously in Section A of this Chapter. Therefore, we can only present the number of registered rice merchants according to their major business to show the distribution of rice merchants in various cities and hsien as follows:

\* The Rules Governing the Registration of Factory in Taiwan was promulgated by the Provincial Government of Taiwan in June 1950.

Table 1. Number of All Types of Registered Rice Merchants in Taiwan, December 1953.

Prefecture	Wholesaler and shipper	Retailer and Jobber	Ware-houser	Miller	Broker	Total
Keelung City	201	210	3	75	—	489
Taipei "	475	512	—	135	14	1,136
Yilan Hsien	73	150	—	280	3	506
Taipei "	158	548	1	319	—	1,026
Yangmingshan Administration	11	67	—	34	—	112
Taoyuan Hsien	101	106	—	223	—	430
Hsinchu "	151	95	2	240	1	489
Miaoli "	60	78	4	297	2	441
Taichung City	77	20	1	97	3	198
Taichung Hsien	69	139	2	316	4	530
Changhua "	238	145	—	373	1	757
Nantou "	23	131	—	238	2	394
Tainan City	186	10	—	90	11	297
Yunlin Hsien	166	108	—	247	—	521
Chiayi "	102	182	—	291	5	580
Tainan "	245	144	—	373	—	762
Kaohsiung City	277	119	—	87	6	489
Kaohsiung Hsien	92	38	—	314	—	444
Pingtung "	127	24	—	210	13	374
Taitung "	42	8	—	71	—	121
Hualien "	112	48	—	87	—	247
Penghu "	59	11	—	16	—	86
Total	3,045	2,893	13	4,413	65	10,429

Source: Provincial Food Bureau.

Note: The table includes Farmers' Associations of all levels that have obtained Food Business Permits from the Bureau.

There were more rice merchants in Taipei City and the Hsien of Taipei, Changhua and Tainan. Taipei City is the most important consumption center, Taipei Hsien is located near Taipei City, and the Hsien of Changhua and Tainan are leading rice production areas.



According to PFB, among all the registered rice merchants in 1953 there were 247 FAs and 15 cooperatives of which the distribution is shown in the following table:

**Table 2. Number of Farmers' Associations and Cooperatives Registered As Rice Merchants, 1953**

Prefecture	FAs	Cooperatives	Total
Keelung city	1	2	3
Taipei "	2	4	6
Yilan Hsien	10	1	11
Taipei "	30	—	30
Yangmingshan Administration	2	—	2
Taoyuan Hsien	10	—	10
Hsinchu "	10	—	10
Miaoli "	15	—	15
Taichung City	4	4	8
Taichung Hsien	20	—	20
Changhua "	23	1	24
Nantou "	13	—	13
Tainan City	4	2	6
Yunlin Hsien	11	—	11
Chiayi "	15	—	15
Tainan "	27	—	27
Kaohsiung City	2	1	3
Kaohsiung Hsien	18	—	18
Pingtung "	19	—	19
Hualien "	5	—	5
Taitung "	5	—	5
Penghu "	1	—	1
<b>Total</b>	<b>247</b>	<b>15</b>	<b>262</b>

Source: Provincial Food Bureau.

Note: All the registered FAs and cooperatives were listed in the group of miller by the PFB although they had registered for two or more other operations besides milling. Most of them operate both processing and storage and seldom undertake other marketing functions.

The total number of rice merchants in the past six years (1948-1953) had increased steadily with the exception of 1951. The following table will show the picture:

Table 3. Number of Registered Rice Merchants in Taiwan, 1948-1953

Prefecture	1948	1949	1950	1951	1952	1953
Keelung City	340	418	461	399	441	489
Taipei "	629	739	833	919	1,029	1,036
Yilan Hsien	—	—	468	393	443	506
Taipei "	1,105	1,258	924	743	877	1,026
Yangmingshan Administration	—	6	100	88	98	112
Taoyuan Hsien	—	—	410	318	361	430
Hsinchu "	698	799	426	373	437	489
Miaoli "	—	—	291	255	326	441
Taichung City	195	180	206	176	203	198
Taichung Hsien	935	967	376	428	473	530
Changhua "	—	—	607	574	645	757
Nantou "	—	—	245	282	339	394
Tainan City	159	188	218	213	244	297
Yunlin Hsien	—	—	498	405	460	521
Chiayi "	—	—	510	361	467	580
Tainan "	1,109	1,210	618	584	684	762
Kaohsiung City	306	384	374	390	428	489
Kaohsiung Hsien	362	411	383	349	394	444
Pingtung "	112	103	305	291	332	374
Taitung "	—	—	134	82	100	121
Hualien "	192	198	227	208	238	247
Penghu "	79	93	96	82	96	86
Hsinchu City	183	205	—	—	—	—
Changhua "	96	94	—	—	—	—
Chiayi "	210	233	—	—	—	—
Pingtung "	81	111	—	—	—	—
Total	6,791	7,597	8,710	7,913	9,115	10,429

Source: Provincial Food Bureau.

- Note: (1) Before 1950, there were 9 hsien, 8 cities and 1 administration in the province, following an adjustment made in that year, the administrative area of Taiwan was divided into 16 hsien, 5 cities and 1 administration.
- (2) The table includes FAs of all levels that have obtained Food Business Permit from PFB.

The registered rice merchants are all organized merchants, having certain amounts of capital and fixed places for business operation. However, a number of registered rice merchants only operate rice marketing occasionally after they have obtained the rice merchant permit. They are usually grocers and miscellaneous grain merchants. Therefore, the number of rice merchants in actual operation must be somewhat less than the figure released by the Food Bureau. In addition to the organized rice merchants, there are many roadside stands and peddlers who also sell rice directly to consumers. They usually cut the price somewhat lower than that of retailing shops so as to induce consumers to buy rice from them. As they are allowed to operate without a food merchant permit and do not join the local food merchants' association, it is very hard to give the actual number of such rice dealers. However, the following roughly estimated figures have been obtained from various rice merchants' associations.

Table 4. Estimated Number of Non-Registered Rice Peddlers and Roadside Stands in Various Major Rice Markets, April 1953

Market	Estimated number	Market	Estimated Number
Keelung	10	Nantou	4
Taipei	40	Tainan	170
Yilan	40	Toulu	N.A.
Pangchiao	N.A.	Chiayi	N.A.
Yangmingshan	5	Sinyin	50
Taoyuan	N.A.	Kaohsiung	40
Hsinchu	10	Fengshan	N.A.
Miaoli	25	Pingtung	20
Taichung	45	Taitung	21
Fongyuan	N.A.	Hualien	20
Changhua	N.A.	Penghu	N.A.
Total			500

Source: Local Rice Merchants' Associations

Note: N.A. — not available

C. Distribution of Rice Merchants in Various Cities and Hsien in Relation to Civilian Population.

There is a close relation between the number of rice merchants and local population. Under normal conditions, the denser the local population, the more the rice merchants. It has been indicated in the previous section that the total number of rice merchants increased from 6,791 to 10,429 in 1948-1953. During the same period, the population increase in Taiwan has also been enormous. According to the Provincial Department of Civil Affairs, the total civilian population was only 6,801,601 in 1948 but increased to 8,437,226 in 1953. The following table is compiled to show the distribution of registered rice merchants of all types in various hsien and cities in relation to civilian population:

Table 5. Distribution of Rice Merchants in Various Cities and Hsien in Relation to Civilian Population, 1953

Prefecture	Population (1)	Registered Rice Merchants (2)	Number of Civilian Popula- tion per Merchant (1) ÷ (2)
Keelung City	174,363	489	357
Taipei „	626,935	1,136	552
Yilan Hsien	278,970	506	551
Taipei „	571,702	1,026	557
Yangmingshan Administration	75,997	112	679
Taoyuan Hsien	375,857	430	874
Hsinchu „	373,403	489	764
Miaoli „	367,236	441	833
Taichung City	225,623	198	1,140
Taichung Hsien	503,407	530	950
Changhua „	747,124	757	987
Nantou „	327,569	394	831
Tainan City	252,279	297	849
Yunlin Hsien	562,132	580	969
Chiayi „	579,522	762	761
Tainan „	659,370	521	1,266
Kaohsiung City	317,047	489	648
Kaohsiung Hsien	489,604	444	1,103
Pingtung „	515,979	374	1,379
Taitung „	138,056	121	1,141
Hualien „	192,415	247	779
Penghu „	82,636	86	961
<b>Total</b>	<b>8,437,226</b>	<b>10,429</b>	<b>809</b>

Source: Compiled on data from PDCA, PFB and various rice merchants' Associations.

The average distribution of rice merchants for the whole province in relation to civilian population is about one rice merchant for 809 people. But this figure varies greatly among different cities and hsien. For instance, the figure for Keelung City is 357, and those for the hsien of Kaohsiung, Taitung, Tainan, and Pingtung and Taichung city are

1103, 1141, 1266, 1379 and 1140 respectively. Compared with the figure of average distribution, it seems that too many rice merchants are operating in Keelung City and that too few in the other five prefectures. Generally speaking, there are more rice merchants in the five cities than in the sixteen hsien with the only exception of Taichung City, as farmers constitute a large portion of the population in the various hsien who naturally need less services from rice merchants.

However, the civilian population figures in Table 5 do not exclude certain groups of people who are rationed with government rice such as government employees and their dependents, students, miners, salt workers, destitute people and prisoners. According to the Provincial Food Bureau, the total rice ration in 1952 excluding that for military personnel was 182,098 MT of brown rice, which would have furnished about 1,270,000 persons, assuming that per capita rice consumption was 143.44 kg. Owing to the lack of available data, we cannot however, make further analysis of the distribution of civilian population excluding people receiving rice rations in various hsien and cities. These specified groups do not purchase rice from the market or sell rice to rice merchants, but still depend on rice mills to mill rice for them, as all rice rations are in brown rice not readily suitable for human consumption. Therefore, rice merchants still render services to the people receiving rice rations from the government.

#### D. Direction and Supervision of Rice Merchants' Activities\*

The activities of rice merchants are directed and supervised, according to the rules, by local city/hsien government which is assisted by the district food office and the police bureau. The city/hsien government has the responsibility to see that administrative orders of the government are enforced to the rice merchants through their association and that all governmental measures are strictly observed by them in conducting their business.

Among other things, the Revised Rules Governing the Registration of Food Merchants and separate administrative orders of the Provincial Government have stipulated the following:

- (1) All rice merchants must keep daily accounts of the amounts of rice transacted and cash received, and a kind of uniform journal

\* See Food Administration in Taiwan: JCRR Economic Digest Series No. 3.

is designed by the Food Bureau for such purpose. They are required to send to the respective hsien/city government through their association four kinds of regular reports namely, (a) the monthly report of rice processing and warehousing, (b) the detailed statement on amount of rice stored in rice mill consigned by rice farmers and land owners, (c) the ten-day report of buying and selling rice, and (d) the detailed statement on buying and selling rice (attached to the preceding report). All the uniform journals and report and statement forms are printed by the Food Bureau and sold to rice merchants at cost price. The city/hsien government must dispatch its personnel from time to time to check the accounts.

- (2) No rice merchant shall be allowed to conduct any business other than items stated in the registration.
- (3) No rice merchant shall undertake hoarding, or speculation, or manipulation of the market, or transfer his business to another person without the approval of the government.
- (4) No rice merchant shall hide or refuse to sell his rice stock. For every shipment he bought in, he shall sell it out within ten days after arrival, and if he cannot sell it all within ten days after arrival, he shall report to the district food office and the latter shall arrange for him to sell the remaining quantity to local consumption organizations. The same shall apply to his rice stored in his own warehouse or other warehouses.
- (5) When a rice merchant purchases rice from farmers or land-owners or other rice merchants, he shall ship his rice immediately to his firm. If he cannot do so because of transportation or other difficulties, he shall store the rice only in a private warehouse or in the warehouse of a local Farmers' Association that has been registered with the government.

These stipulations are rather severe and violations are subject to administrative prosecution or legal action. But before 1953, they were seldom strictly enforced by local governments. In January 1953, rice price in the Province began to rise steadily. The rice quotation on January 31 was increased by as much as 18% compared with that on January 1. Hence, the Food Bureau mobilized in February 1953 all the staffs of local food offices to carry out the above measures in full swing in collabo-



ration with local law courts and police organizations. Spot investigations were made by the food offices to check the validity of the reports sent to them by rice merchants, to find out cases violating the control measures, and to direct rice merchants how to handle their business legally. The police organizations also sent their men now and then to make spot checks in local rice markets. Thus, many cases of hoarding, hiding rice stock and false reporting were uncovered and reported to the District Procurator's Office for judicial investigation.

#### E. Punishment to Rice Merchants Offending Food Control Measures\*

The punishment to offenders of food control measures in Taiwan, as in other provinces on the Mainland, has been based on the Regulations Governing Punishment of Food Offenders. These regulations were promulgated by the Central Government in November of 1948, but were revised by the Legislative Yuan on November 29, 1952 to fit the special condition on the island. If a rice merchant is discovered to have violated the food control measures, he shall be punished according to the above mentioned Regulations. Any government organization or individual can report cases of such violations to the District Procurator's Office for investigation and referral, when meritted, to the District Court. Punishment to those rice merchants found guilty as food offenders shall be imposed by the District Court.

Any rice merchant who refuses to sell his stock or fails to sell his stock within the time prescribed by the government will be considered as hoarder. Severe punishment will be imposed on these rice merchants which at the extreme might be death. According to the Regulations, the punishment, however, varies with the quantities of rice involved in the case. The details of which are as follows:

- (1) For cases involving 5,000 shih piculs of paddy, death or life imprisonment or at least ten years imprisonment.
- (2) For cases involving 3,000—5,000 shih piculs of paddy, life imprisonment or at least seven years imprisonment.
- (3) For cases involving 1,000—3,000 shih piculs of paddy, three to seven years imprisonment.
- (4) For cases involving 500—1,000 shih piculs of paddy, one to three years imprisonment.

\* See Food Administration in Taiwan: JCRR Economic Digest Series No. 3.

- (5) For cases involving 200—500 shih piculs of paddy, six months to one year imprisonment.
- (6) For cases involving less than 200 shih piculs of paddy, detention under custody or a fine of below 1,000 silver dollars\*

The paddy in cases 1—5 shall be confiscated after court judgment is passed, but punishment provided for case 6 needs not be imposed if the offence is considered not serious. For cases involving brown rice or polished rice, the conversion rate of paddy to brown rice or polished rice is 2 to 1. Beside hoarding, any one of the following offences shall also be subject to punishment:

- (1) Speculation on the rice market.
- (2) Purchase of green crop of rice.
- (3) Violations against government's restrictions on purchase and transportation of rice outside the food district and between various food districts, and on sale of rice at a price higher than the ceiling price and not within the time limit.
- (4) Violations against government's restrictions on the storage of rice and the milling of brown rice to white rice.
- (5) Rice merchants who fail to keep detailed accounts of daily transactions or fail to report on business conditions regularly to the local government.

For cases 1-2, the offender shall be punished with at most three years imprisonment, or detention under custody, and may at the same time be fined with the equivalent of the value of rice involved. Under these cases, any contract entered into shall also be considered invalid. A fine equivalent to the value of rice involved shall be imposed for case 3, and for case 4 the punishment shall be a fine of less than 500 silver dollars in addition to a possible confiscation of the rice involved: A fine equivalent to one half of the value of the rice involved shall be imposed for case 5.

## F. Rice Merchants' Association

### 1. Local Rice Merchants' Association

According to the stipulation of the Revised Rules Governing the Registration of Food Merchants, a rice merchants' association must be

\* Following the failure of the "gold yuan" currency in the spring of 1949, a "silver yuan" note was introduced as the national currency, which is payable in silver dollar on the ratio of one to one. Accordingly, the fine stipulated in all laws and acts was revised in terms of silver dollar in 1949. The official rate of silver dollar to NT\$ was announced by the Central Government in 1950 to be 1 to 3.

formed when there are more than three rice merchants in a locality. All registered rice merchants except FAs and cooperatives must join the local association or have their registration cancelled by the government. In each hsien/city, there is a rice merchants' association with its head office in the city or township where the city/hsien government locates. The only exception is the Taichung Hsien Rice Merchants' Association whose head office is in Taichung City.\* Only a few associations have branch offices in the important townships of the respective hsien or city. Most associations usually contact their members in other townships through the representatives elected by their members, correspondence and general meetings. Membership fee is collected monthly by the Association, which varies from NT\$3 to NT\$100 for each member according to its business volume in different hsien and cities.

Each association has its own organization rules, in which the general provisions, membership, staff members, functions of directors and supervisors, kinds and functions of meetings and finance and accounting are stipulated in detail. These rules are approved by the general meeting and submitted to the respective Hsien/city government for information. The following is the general pattern of the organization of all local rice merchants' associations:

- (1) There are nine directors and three supervisors to be elected at the general meeting by and among its members.
- (2) A chairman is elected by and among the directors, who represents the association in all external affairs.
- (3) A general manager is appointed by the directors, who is in charge of the routine work of the association under the direction and supervision of the chairman.
- (4) There are four kinds of meetings, namely: (i) the general meeting to be called once a year; (ii) the extraordinary general meeting to be called whenever necessary; (iii) the directors' meeting to be called once a month; (iv) the supervisors' meeting to be called once every three months.

The chief functions of the Associations are to promote the general interests of members, improve the technics in rice marketing, and assist the government in carrying out the governmental food policy. The

\* Before the re-division of administration areas of all hsien and cities on 1950, Taichung Hsien covered all the areas now under the jurisdiction of the hsien of Nantou, Changhua and Taichung.

sale of government rice is generally handled by them. They assist members in applying for shipment certificates, in preparing business reports and in keeping accounts, and arbitrate disputes arising among their members. During the rice crisis in spring 1953 many associations undertook collective purchase and transportation of rice and sweet potatoes for their members.

## 2. Provincial Union of Rice Merchants' Association

The rice merchants' associations of various hsien and cities have formed the Provincial Union of Rice Merchants' Associations with its headquarters established in Taipei city. The chief functions of the Union are to seek coordination among member associations and to safeguard their interests and development.

Each prefectural rice merchants' association may send 2 representatives to join the Union. But if it has more than 100 members, one more representative may be sent for every additional 100 members. The Union has 25 directors and 7 supervisors elected from members in its annual plenary session. Seven standing directors are elected by and among the directors and one chairman is elected by and among the standing directors. One general manager and a certain number of assistants are appointed by the chairman to take charge of routine work. There are four kinds of meetings, namely; (i) the plenary session to be called once a year; (ii) the extra-ordinary congress to be called whenever necessary; (iii) the directors' meeting to be called once every two months; and (iv) the supervisors' meeting to be called once every four months.

The needed expenditure of the Union is met by the collection of membership fee according to the size of representatives, the free contribution of its members and other incomes.

There have been fewer achievements of the Provincial Union than the local Rice Merchants' Associations. As the Union has no practicable activity, it serves at present only as a liaison agency between the Provincial Government and local associations and as a coordinator among its members.

## G. Major Rice Markets and Marketing Channel

### 1. Major Rice Markets

In this study, rice markets are classified into two groups, namely rice markets in rice surplus areas and rice markets in rice deficit areas,

both of which have distinct characteristics. The major rice markets in rice surplus areas generally are important rice production or transit centers, while the major ones in rice deficit areas are the most densely populated centers. In the rice markets in rice surplus areas, rice is supplied exclusively from rural areas nearby and rice trade is made partly for local consumption and partly for shipment to other localities. On the other hand, in the rice markets in rice deficit areas, rice is shipped in from rice surplus areas in addition to the supply of rural areas nearby and rice trade is done almost entirely for local consumption.

Although there are rice markets in nearly every township and city in Taiwan which are the main source of rice supply to the general populace, the important markets are relatively few. The importance of rice markets is generally measured by the number of rice merchants in the markets and the volume of rice entering and leaving the markets. Based on these standards and the figures shown in Tables 3, 19 and 20 the major rice markets in the province are as follows:

Table 6. Major Rice Markets in Taiwan

a) In Rice Surplus Areas

Prefecture	Major Rice Markets
Taichung City	Taichung
Taipei Hsien	Tamshui, Hsinchuang, Shelin
Yilan        ,,	Sanhsing, Chiaochih, Chungwei, Yilan
Taoyuan     ,,	Dayuan, Kwangyin
Hsinchu     ,,	Chupei, Hsiangshan
Miaoli      ,,	Wanli, Kungkwang, Toufen
Taichung    ,,	Dachia, Wufong, Wujii, Chingshui
Changhua    ,,	Homei, Yuanlin, Chihu, Erhlin, Changhua
Nantou      ,,	Tsotun
Yunlin      ,,	Erhlan, Silo, Tounan
Chiayi      ,,	Botze, Dalin, Menghsiung, Chiayi
Tainan      ,,	Houbi, Paiho, Liuying
Kaohsiung   ,,	Meinung, Daliao
Pingtung    ,,	Neipu, Wandan, Chaochow, Pingtung
Taitung     ,,	Changbing, Chenkung, Peinan
Hualien     ,,	Fuli, Yuli

## b) In Rice Deficit Area

Prefecture	Major Rice Markets
Keelung City	Keelung
Taipei "	Taipei
Tainan "	Tainan
Kaohsiung "	Kaohsiung
Yilan Hsien	Lotung, Shuao
Taipei "	Panchiao, Juifong
Taoyuan "	Taoyuan
Hsinchu "	Hsinchu, Chutung
Miaoli "	Miaoli, Chunan
Taichung "	Fonyuan, Tongshi
Changhua "	Lukang
Nantou "	Nantou, Puli, Chushan
Yunlin "	Toulu, Huwei
Chiayi "	Meishan
Tainan "	Hsingyin
Kaohsiung "	Fongshan, Kangshan
Pingtung "	Tungkong
Taitung "	Taitung, Dawu
Hualien "	Hualien

Source: Compiled from information furnished by various local rice merchants' associations.

Of the above rice markets the most important are Taichung, Dachia, Chingtsui, Changhua, Chiayi, Pingtung and Yilan in rice surplus areas and Taipei, Keelung, Tainan, Kaohsiung, Fongshan and Hualien in rice deficit areas. Keelung and Kaohsiung are the only two ports for rice export. Between the two, Keelung is more important as rice exports to Japan are shipped from that port.

## 2. Marketing Channel

Of rice produced annually in Taiwan, the stock has been disposed in three ways: (1) farmers' home consumption, (2) government collection for ration, export and other purposes, and (3) consumption by the general populace through the free markets.

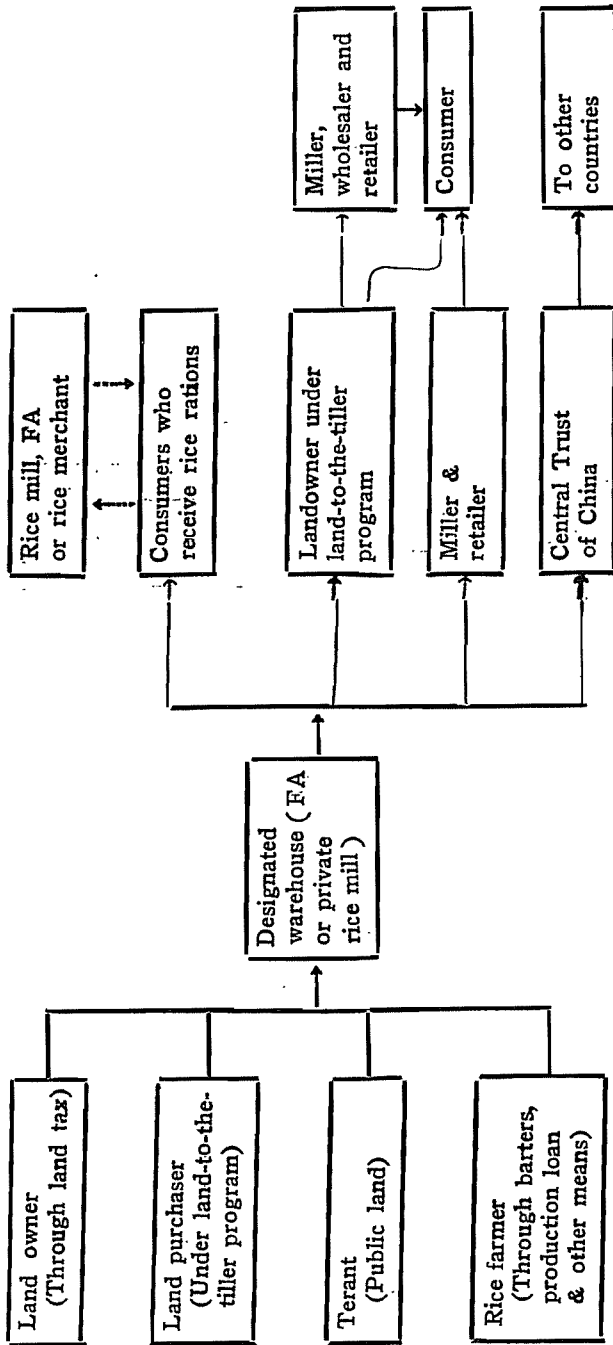
While limited data are available, the aggregate consumption of rice by farm families is estimated at about one half of the total rice

production. This estimate is considered to be close to the factual distribution of rice in Taiwan, as the rural population occupies more than a half of the civilian population and as rice consumption level of rural people is relatively high.

The Provincial Food Bureau rations rice to armed forces, public servants of all levels, immediate family members of military officers and public servants, destitute persons, students, prisoners and other designated group of people, of whom the total number is a little less than one fifth of the total population. The Bureau undertakes a market stabilization program by the sale and purchase of rice during off-season and after harvest. The export of rice is handled by the Bureau which designates the Central Trust of China as its sole agent. Rice needed for distribution is obtained from a variety of sources including the collection of rural land tax and surtaxes in kind, the compulsory purchase of rice from landowners according to land size, the barter of rice for fertilizer, cotton cloth and threshers, and the repayment of rice production loans. The rice collected from these sources amounted to about 30 per cent of the total rice production. The following chart shows the channels of collection and distribution of government rice:



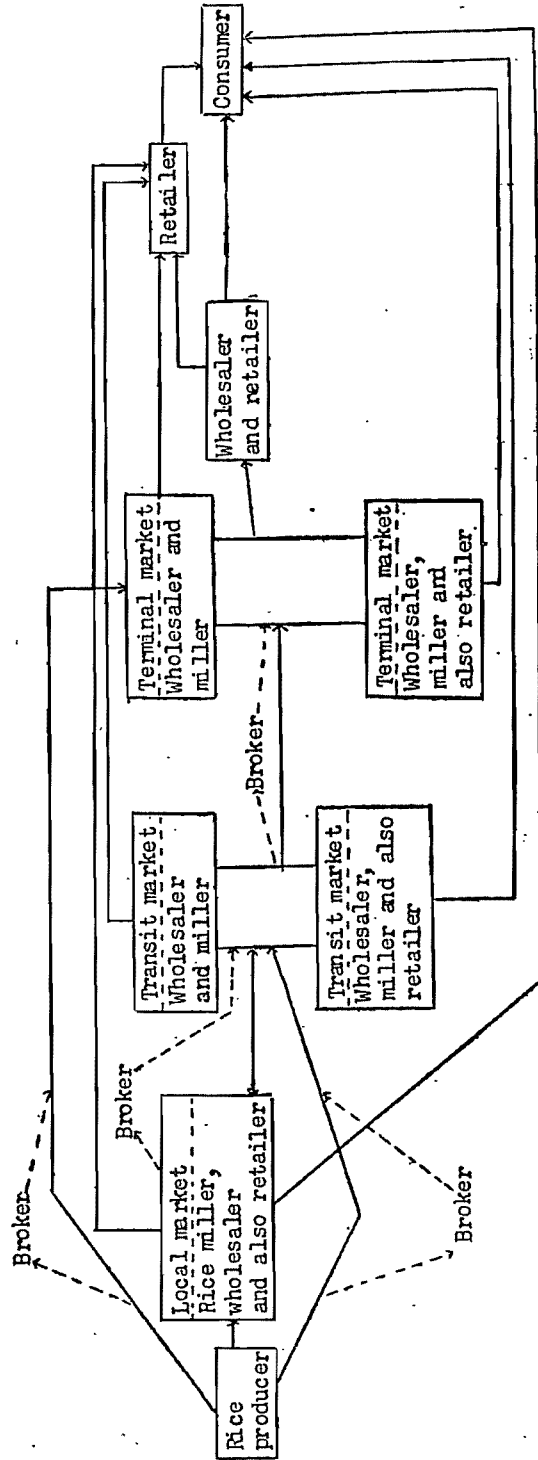
Chart I. Channels of Disposition of Government Rice



Note: The Provincial Food Bureau is authorized by the Provincial Government to handle the collection and distribution of all government rice.

About 20 per cent of the total rice production is channeled through free rice markets. The movement of rice from producers to consumers is shown in the following chart:

Chart 2. Marketing Channel of Rice in Free Market



While various rice merchants all play an important part in the marketing of rice, the role of millers and wholesalers (or concurrently retailers) is more important than that of the others, because they assemble rice from producers as well as other wholesalers and process it into suitable form for sale directly to consumers or through retailers. The millers and wholesalers in rice deficit areas usually entrust brokers in rice surplus areas to buy rice for them, while those in rice surplus areas also often consign brokers in rice deficit areas to sell rice on their behalf. It is obvious that they help to a very great extent the flow of rice from surplus to deficit areas. It can also be seen from the foregoing chart that there is no duplicate of functions performed by the middlemen in rice marketing.

#### IV. MARKETING OPERATION

##### A. Buying and Selling

Like the marketing of other commodities, buying and selling are the two primary functions of rice marketing. The current operation of buying and selling of rice in Taiwan is briefed below:

##### 1. Methods of Buying and Selling

The methods of buying and selling rice vary slightly among rural areas, rice-surplus areas and rice-deficit areas. The general practices in all areas are stated below:

##### a) Sources of Rice Supply

Rice merchants generally obtain paddy or rice from two sources, i.e. from farmers and from other rice merchants. As small rice mills are widely scattered in rural areas owing to the availability of electricity supply, farmers can easily sell their paddy to local mills or store it in them for sale later. When rice supply is abundant, farmers usually ship their paddy to urban areas for sale, but in off-seasons, rice mills in urban areas often have to send persons to rural areas to purchase paddy from farmers. Rice retailers in urban areas seldom purchase paddy from farmers. They obtain polished rice from local millers and wholesalers. In addition to local supply, rice merchants in rice-deficit areas also buy rice from rice merchants in other localities where rice supply is abundant. They usually buy brown rice instead of paddy to save transportation cost. The transaction is usually made through telephone call although sometimes the buyers may dispatch their employees to rice surplus townships or cities to buy rice. Brokers often play an important role in such transactions between rice merchants in different localities, as the two parties are not familiar with each other. Buyers would entrust brokers in rice-surplus areas to purchase rice for them at a fixed range of price or even at current price, while sellers would ship rice to rice-deficit areas when rice supply is abundant, and also entrust brokers to sell at current market price.

##### b) Bases of Trading

There are three bases of rice trading: trading by inspection, trading by sample and trading by description. The first basis is widely adopted in transactions between farmers and rice merchants who usually inspect the paddy to determine whether its quality meets their demand prior to transaction. The second basis applies to transactions between two rice merchants in a same locality, while the third to transactions between two rice merchants who are acquainted with each other but in different localities. In case the quality of the delivered rice is lower than what was previously described or the original sample, the two parties usually negotiate to settle the transaction by discounting the price.

From the standpoint of modern marketing, trading by description is the most progressive of the trading bases, as it facilitates transactions to a great extent. However, this basis of trading cannot be widely adopted in rice trade at present, because rice standardization and inspection systems have not yet been properly established in the province (see Section C, Chapter IV), and because not all of the rice merchants are enjoying a good reputation.

c) Settlement of Price and Payment of Sales Proceeds

The price in rice trade is usually settled between the buyer and seller with reference to rice quality and current market price. It is generally affected by the supply of rice in major producing areas and by the demand for it in large consumption centers. (For factors affecting rice price, see Section A, Chapter V of Food Administration in Taiwan: JCRR Economic Digest Series No. 3) The payment for rice purchased from farmers is always made in cash. The payment may be delayed if farmers are well acquainted with local rice mills. In rice wholesaling, buyers are often required to make immediate payment in cash, but a short delay may be acceptable if they know the sellers well. For transactions made between two rice merchants in different localities, generally one half or one third of the sales proceeds is paid by buyers as earnest money as soon as an agreement is reached, while the balance is paid upon the arrival of rice at its destination.

Rice retailers generally sell rice to direct consumers for cash, but some of them sell it on credit because too many rice merchants in the locality has resulted in a keen competition in rice sale, because the buyers are for the most part their neighbors or acquaintance, and because some of their customers may not have cash on hand at the time of purchase. As a result, many rice retailers have suffered from bad and doubtful accounts.

## 2. Availability of Each Rice Crop for Local Market

There exists the double rice cropping system on the Island. The first rice crop is commonly harvested from mid-May to late July and the second rice crop from late September to Mid-December. In Tainan area, where the three-year rotation system exists due to lack of enough water for irrigation, the intermediate rice crop is harvested from Mid-September to late November. Consequently the rice supply is always abundant from the latter part of May through January or February and becomes scarce from early March to Mid-May. The availability of each new rice crop, of course, exercises great influence over the buying and selling of rice. In other words, the total volume of transaction must be larger in the months soon after the harvest and smaller in the off seasons. The following chart is compiled to show the time schedule of the availability of each new crop in various hsien.

CHART 3 AVAILABILITY OF NEW RICE CROP FOR LOCAL MARKET IN VARIOUS HSIEN

HSIEN	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
TAIPEI												
YILAN												
TAOYUAN												
HSINCHU												
MIAOLI												
TAICHUNG												
CHANGHWA												
NANTOU												
YUNLIN												
CHIAYI												
TAINAN												
KAHSIUNG												
PINGTUNG												
HUALIEN												
TAITUNG												

||||| FIRST CROP

----- SECOND CROP

||||| INTERMEDIATE RICE CROP

### 3. Methods of Measurements, Pre-Purchase and Marketing Information

#### a) Methods of Measurement

According to the Regulations Governing the Measurements of Length, Volume and Weight promulgated by the National Government on February 26, 1929 now still in force, the metric system of measures is the standardized and legal system which must be used for measurements in all business transactions. These regulations were, however, not strictly enforced in respect of rice trade in Taiwan until January, 1953 when the Provincial Food Bureau issued an administrative order through the rice merchants' associations that all rice merchants must record their transactions in kilograms instead of Taiwan catties or Tai tou, failing which they would be subject to the punishment stipulated in the Regulations Governing the Punishment of Food Offenders.

Rice can be measured either by weight or by volume. As rice is often packed in gunny bags for the convenience of storage and transportation, it is commonly measured by weight, especially in wholesaling. For transactions made between two rice merchants in different localities, metric ton and kilogram are the units commonly used for measuring rice. In retailing, rice is also commonly measured by weight in kilogram but the proceeds are always calculated in Taiwan catty or Tai tou. This may seem confusing but does no great harm, as practically all house wives know that the conversion rates of Taiwan catty and Tai tou to kilogram are 0.6 and 6.9 respectively except in Tainan City and Tainan Hsien where one Tai tou is equivalent to 8.4 kilograms. In some prefectures like Tainan, Miaoli, Nantou and Kaohsiung, rice is still measured by volume in retail sales and the proceeds are paid in NT\$ per Tai tou instead of Taiwan catty.

#### b) Pre-Purchase

Although pre-purchase and green sale are considered illegal and prohibited in Taiwan (see Chapter III), some big rice merchants in rice-deficit areas still make pre-purchase of



rice from rice merchants in rice-surplus areas. This pre-purchase is usually made two or three months before the harvesting of new crop by paying about one-third of the total proceeds as earnest money, and is always transacted at a price lower than the current price because it involves certain risk. If the seller fails to deliver the rice as he has promised, the buyer cannot sue him to law court due to the illegality of this practice. Furthermore, as rice price in some months later cannot be correctly forecasted, the pre-purchase naturally means either gain or loss. For these reasons, ordinary rice merchants would hesitate to make pre-purchase and take the risk.

The green sale of rice crops was rather common in rural areas before 1951. This sale usually takes place one or two months before the harvest, as most farmers are then in need of money to meet urgent requirements. Because green sale is made only under severe financial emergency, the buyer can always conclude the sale at a low price. This malpractice has, however, been checked to a some extent since the Spring of 1951 when the Food Bureau began to provide rice production loans to rice farmers.

c) Marketing Information

Marketing information normally includes such types of news as daily price quotations, growing condition of current crops, data relating to acreage and production in the past, outlook information that attempts to forecast market conditions and general economic development that helps interpret market behavior. This information is of vital importance to both buyers and sellers because well informed of marketing conditions, the buyers can always buy their needed commodities in the right market and at the right time, and the sellers can also sell their goods with more favorable terms. There is no systematic dissemination of marketing news in Taiwan because there is no responsible agency to handle the work and because a radio network has not yet been established in the rural areas. JCRR has tried to cooperate with the Provincial Farmers' Association in strengthening the dissemination of marketing news of agricultural products to farmers, but no great improvement has yet been made.

Although there are some rice marketing news in the daily newspapers, they are not of much help to farmers as the news are incomplete in many ways and as a large portion of farmers cannot read newspapers.\* Hence, farmers can only use whatever little information they learned from others as reference in the marketing of their products and are in an unfavorable position to bargain with rice merchants in rice transactions.

Unlike farmers, rice merchants are well informed of current marketing news. They know pretty well the total planting area and growing condition of rice crops in various important producing areas from newspapers and rice merchants in those areas. They also gather timely information on price quotations, supply and demand, future trend and money market situation through telephone calls and correspondence. Some rice brokers in such producing areas like Chiayi and Pingtung regularly furnish rice merchants in rice-deficit areas with detailed marketing reports by mail and this service has brought them more chances to earn commission charges.

## B. Processing:

The processing of rice is to mill rice from paddy to the form suitable for human consumption. The details of the current practices of rice processing are briefed below:

### 1. Procedures of Processing rice

There are two steps in processing rice, i.e., from paddy to brown rice and from brown rice to polished rice. Paddy from threshing machines usually contains chaff, weed seed, mud lump and other foreign materials. These must be removed before the rice is milled. The milling operation starts with the removing of hulls from kernels through the sheller. From the sheller, the mixture of brown rice, paddy and hulls is elevated to a screening machine through a fanning machine. The remaining paddy is separated from the brown rice and will be hulled again.

The brown rice is then milled into polished rice by a huller. The name "huller" is rather misleading, because it is not used for removing

\* According to Farmers' Associations in the hsien of Taichung, Changhua, Tainan and Pingtung, only about 40 per cent of their members can read newspapers.

rough hull but bran layers from the brown rice. The huller which looks like a small grain grinder, consists of perforated-iron walls and a rapidly revolving iron or steel tapered core with a rifled surface. The brown rice is fed into the hopper of the huller and passes down between the tapered cylinder and the rapidly revolving core. In this operation the outside brown bran coat is rubbed or milled off the kernel and the product which appears like the rice usually seen in the stores is separated from any remaining bran through a bran duster. To mill rice white enough as people prefer, the rice will be passed through two or more sets of hullers or be milled twice or thrice by the same huller. Sometimes, the milled rice is coated with talc powder (calcium carbonate) to give it a higher polish and glossy appearance and save to some extent the electricity needed for running the huller. Therefore, most rice mills in big cities use some talc powder in milling practice. The talc powder is locally produced. To mill one kilogram of brown rice needs only 0.2 kg. of talc powder and one kg. of such powder cost about NT\$1.40 in June 1953.

## 2. Processing Rates:

There are two sets of processing rate: one is for hulling rice from paddy to brown and the other for milling rice from brown to polished. The details are briefed as follows:

### a.) Hulling Rate of Rice

Owing to the difference in the varieties and quality of paddy, the hulling rate of rice in the province varies from place to place and also from crop to crop. In addition, the efficiency of hulling machine and the quality of rubber roller also affect the hulling rate of rice. Based on the field survey of this study, the current hulling rates of rice from paddy to brown can be shown as follows:

Table 7. Hulling Rates of Rice in Various Cities and Hsien, 1953

Prefecture	Ponlai Variety (%)	Tsailai Variety (%)
Taichung City	80.0	78.0
Kaohsiung „	79.3	77.0
Tainan „	79.0	77.5
Yilan Hsien	79.5	77.8
Taipei „	79.9	77.8
Taoyuan „	79.8	77.4
Sinchu „	80.0	77.8
Maoli „	80.2	78.0
Taichung „	79.7	77.3
Changhua „	80.0	77.0
Nantou „	79.6	77.4
Yunlin „	78.7	76.3
Chiayi „	79.5	77.0
Tainan „	78.7	76.4
Kaohsiung „	78.5	76.9
Pingtung „	78.8	76.8
Taitung „	78.7	76.5
Hualien „	79.2	77.5
Average	79.4	77.2

Source: Compiled from information furnished by sample rice merchants.

The above table indicates that the hulling rates of rice vary from 78.7% to 80.2% for Ponlai variety and from 76.3% to 78% for Tsailai variety, the average rates being 79.4% and 77.2% respectively.

However, these figures give only a general picture and there may be slight differences in actual hulling rates among rice mills. In hulling the government's rice, the Food Bureau has set the minimum rates of 77.5% and 75.5% for Ponlai and Tsailai varieties respectively (including 0.5% of brewers.)\* for Farmers Associations and private rice mills.

#### b.) Milling Rate of Rice

There is no definite rate for milling rice, because rice can be milled to any degree of whiteness that the consumers desire. The milling rates

\* Broken rice can be further differentiated into three groups, namely, second head rice, screenings and brewers, of which the last are the smallest in size, being less than one fourth of a kernel.

vary from place to place, and also vary in a same locality. While highly polished rice is prepared by the people in Taiwan, the rice consumed by city dwellers is generally whiter than that consumed by rural folks. For saving more rice from milling practice, the government has set a limit that rice mills are not allowed to mill brown rice into polished rice under 93-94% (for Ponlai 93%; for Tsailai 94%) for either military or civilian consumption. For rice for export, the milling rates are set at 91% for Ponlai and 92% for Tsailai. However, this restriction of milling rates for domestic consumption has not been very successful because of the inherent resistance of the people to change their dietary habit of consuming over-polished rice. The milling restrictions, though meritorious both to extend food supplies and for reason of health, have never been enforced. Based on the field survey of this study, the current milling rates from brown to polished rice are listed below:

Table 8. Milling Rates of Rice in Various Cities and Hsien, 1953

Prefecture	Ponlai variety (%)	Tsailai Varsity (%)
Keelung City	91.0	92.0
Taipei "	90.0	91.0
Taichung "	92.0	93.0
Tainan "	89.0	90.0
Kaohsiung "	91.0	92.0
Yilan Hsien	91.0	92.0
Taipei "	90.0	91.0
Taoyuan "	90.0	91.0
Sinchu "	92.0	93.0
Miaoli "	93.0	94.0
Taichung "	93.0	94.0
Changhua "	92.0	93.0
Nantou "	93.0	94.0
Yunlin "	91.0	92.0
Chiayi "	92.0	93.0
Tainan "	92.0	93.0
Kaohsiung "	91.0	92.0
Pingtung "	92.0	93.0
Taitung "	90.0	91.0
Hualien "	90.0	91.0
Average	91.3	92.3

Source: Compiled from information furnished by sample rice merchants.

The general milling rates of rice in various cities and prefectures vary from 89% to 93% for Ponlai variety and 90% to 94% for Tsailai variety, the average rates being 91.3% and 92.3% respectively. These rates are more or less above the limits set by the Food Bureau with exceptions of the Hsien of Miaoli, Taichung and Nantou.

From the standpoint of nutrition, the lower the milling percent (i.e. the higher the milling rate), the lower the nutrient content. The B vitamins as well as protein, fat and minerals in rice are undoubtedly depleted through high milling as these nutrients are present in greater quantities in the germ and outer layers than in the starchy endosperm. The over polishing of rice is commonly considered one of the major factors for physical weakness of the people in most rice-eating countries.

### 3. Processing Machines

#### a.) Hulling Machine (sheller)

The hulling machines used by the rice mills are for the most part locally manufactured with a small portion imported from Japan. The most common brands of hulling machines are Wang-Wong and Ching-Eng. The former is the product of the Cheng-Sing Iron Works Factory in Taipei which is widely used by the rice mills in the Northern Taiwan, while the latter is produced by the Ching-Eng Iron Works Factory in Taichung which is preferred by rice mills in Central and Southern Taiwan. In June 1953 one sheller costed NT\$1,500-1,600 and a complete set of the hulling machine costed NT\$5,000-10,000. The capacity of a sheller varies with the sizes of the machine. Generally speaking, it is about 1,900 kg/hr. for the small size (6 inches), 2250 kg/hr. for the medium size (7½ inches) and 3000 kg/hr. for the big size (10 inches) of which the medium size is most commonly used in the province.

There is a certain coefficient between the sheller and the motor. The greater the horse power of the motor, the faster the movement of the sheller's rollers, and consequently more paddy is hulled. But, on the other hand, an unbalanced horse power will increase to a great extent the depreciation of both the rollers and the machine. The hulling machines used in Taiwan generally need 3, 5 and 7.5 horse power respectively for the small, medium and large sizes. Nearly all the motors are imported from Japan. The shellers are usually run by electricity, but are also run by diesel engines in some rural areas where electricity is not available.

It is hard to say for how long a hulling machine will last. According to the experience of some rice merchants, it can be used for 20 to 60 years, depending mainly on its quality. The depreciation of rubber roller is much faster than that of the hulling machine. For an example, the Sing-Sing Rubber Roller manufactured in Taichung can be used for hulling only 60,000 kg. of paddy. After that limit, a new roller has to replace the old one. As one roller costed about \$320 in June 1953, its depreciation occupies an important part of the hulling cost.

#### b.) Milling Machine (huller)

Wang-Wong and Ching-Eng are also the most common brands of milling machines used in Taiwan. Each of these machines costed NT\$700—2,000 in June 1953 and can last for 20 to 60 years. The milling capacity of the huller is about 600 kg. of brown rice per hour for the small size about 800 kg. for the medium size and about 1,200 kg. for the large size and the numbers of horse power for the three sizes are 3, 5 and 7.5 respectively. The steel knife equipped in the huller off the bran from the brown rice can be used for milling only 20,000 kg. of brown rice. After that limit, it must be replaced by a new one. As one steel knife costs only NT\$10, its depreciation does not seriously affect the milling cost. There are two common practices in using the hullers: (1) to use the hullers separately, i.e. to mill rice many times through a same huller, (2) to use several hullers as a set i.e. to mill rice only once through each of the hullers. The latter practice is more efficient than the former as it can result in a standard whiteness and save the required labour to some extent, but has not been widely adopted by local rice mills because of their insufficient capital for purchasing more hullers and lack of sufficient space in their mills to settle the additional equipment.

#### 4. Total Processing Capacity

The total number of registered rice mills, their total horse power and monthly processing capacity in all hsien and cities are tabulated below:

Table 9. Number of Registered Rice Mills, Horse Power and Monthly Processing Capacity in All Hsien and Cities, June 1953

Prefecture	Owned by Rice Merchants				Owned by Farmers' Associations				Total			
	No. of Mills	Horse Power	Monthly Processing capacity		No. of Mills	Horse Power	Monthly Processing capacity		No. of Mills	Total Horse Power	Monthly Processing capacity	
			Hulling MT/Paddy	Milling MT/Brown			Hulling MT/Paddy	Milling MT/Brown			Hulling MT/Paddy	Milling MT/Brown
Yilan	214	860	5,744	6,137	18	191	2,824	42	232	1,051	8,568	6,179
Taipei	240	1,126	3,609	11,689	22	268	1,864	1,759	262	1,394	5,473	13,448
Taoyuan	175	1,272	2,946	11,323	10	222	3,807	1,756	185	1,494	6,753	13,079
Hsinchu	181	836	5,322	12,838	10	98	1,120	789	191	934	6,442	13,627
Miaoli	233	890	2,847	18,943	11	90	3,689	1,762	244	980	6,536	20,705
Taichung	328	1,237	6,224	16,453	24	244	5,793	1,072	352	1,481	12,017	17,525
Changhua	438	1,847	12,937	16,649	17	254	6,247	1,101	455	2,101	19,184	17,750
Nantou	219	862	4,292	11,199	10	176	1,745	271	229	1,038	6,037	11,470
Yunlin	218	1,221	6,259	14,144	15	180	6,129	1,180	233	1,401	12,388	15,324
Chiayi	133	752	3,849	6,622	8	75	1,810	488	141	827	5,659	7,110
Tainan	241	1,097	350	8,320	22	177	2,445	1,780	263	1,274	2,795	10,100
Kaohsiung	265	1,314	13,707	26,888	17	188	3,579	2,313	282	1,502	17,286	29,201
Pingtung	198	1,429	8,343	9,369	22	199	1,384	1,328	220	1,628	9,727	10,697
Taitung	61	388	252	2,638	5	66	262	63	66	454	514	2,751
Hualien	100	592	2,496	3,847	4	48	1,707	113	104	640	4,203	3,960
Penghu	15	107	—	1,084	—	—	—	—	15	107	—	—
Keelung	33	150	—	2,200	—	—	—	—	33	150	—	1,084
Taipei	149	854	—	26,140	3	60	—	1,856	152	914	—	2,200
Taichung	107	420	—	10,501	4	48	—	954	111	468	—	27,996
Tainan	72	351	—	4,417	1	40	45	36	73	391	45	11,455
Kaohsiung	111	675	—	13,444	3	41	—	579	114	716	—	4,453
Yangmingshan Administration	25	111	—	1,501	3	45	—	1,058	28	156	—	2,559
Total	3,756	18,391	79,177	236,396	229	2,710	44,450	20,300	3,985	21,101	123,627	256,696

Source: Provincial Department of Reconstruction.



The above table indicates that the total processing capacity of all the registered rice mills seems sufficient to meet the local requirements particularly in hulling operation. The rice mills owned by Farmers' Associations are usually fully operated as they are designated by the PFB to collect, store and hull a greater part of government rice which amounts to about one third of the annual rice production. However, most private rice mills are in a serious situation because they are operated much under their hulling and milling capacity. According to various rice merchants associations private mills with a total horse power over 10 can operate hulling or milling for only 7—10 days in a month. The majority of private rice mills are those with a total horse power of 3—5 which can operate for a little more than 10 days in a month.

## 5. Processing Charges and By-products

### a.) Processing Charges

The charges for processing rice from paddy to brown and from brown to polished are regulated by local rice merchants' associations. The processing charges in various localities in Spring 1953 are tabulated below:

Table 10. Processing Charges in Various Hsien and Cities as Regulated by Local Rice Merchants' Associations Spring 1953

Prefecture	From Paddy to Brown NT\$/100 kg.	From Brown to Polished NT\$/100 kg.	From Paddy to Polished NT\$/100 kg.
Keelung City	2.50	2.50	5.00
Taipei "	—	2.10	—
Taichung "	2.50	2.50	4.00
Tainan "	2.50	2.00	4.00
Kaohsiung "	2.50	2.50	4.50
Yilan Hsien	2.50	2.70	4.70
Taipei "	2.50	2.50	4.00
Taoyuan "	2.00	2.30	4.00
Hsinchu "	1.70	2.50	4.00
Miaoli "	2.10	2.50	4.20
Taichung "	2.50	2.50	4.00
Changhua "	2.50	2.50	4.00
Nantou "	2.50	2.50	4.00
Yunlin "	2.50	2.50	4.00
Chiayi "	2.50	2.50	4.00
Tainan "	2.50	2.50	4.00
Kaohsiung "	2.50	2.50	4.50
Pingtung "	2.50	2.50	4.00
Taitung "	2.10	2.40	4.20
Hualien "	2.10	2.40	4.20
Average	2.40	2.50	4.20

Source: Compiled from information furnished by various local Rice Merchants' Associations.

The above processing charges represent the maximum charges made in the respective localities concerned. Actually, they are 10-30 per cent less than the regulated figures as there is keen competition among the local rice mills. The processing charges of FAs for their members are usually about 20 percent less than those set by the local rice merchants' associations.

The costs of processing rice consist mainly of three items, namely, electricity, labor and depreciation of roller and steel knife. Based on the information obtained from this survey, an estimation of the actual costs of rice processing is made as follows:

**Table 11. Estimation of Actual Costs of Rice Processing in Taiwan, Spring 1953**

Unit: NT\$ per 100 kg.

Item	From Paddy to Brown	From brown to Polished	From paddy to Polished
Electricity cost	0.25	0.25	0.50
Labor cost	0.40	0.40	0.50
Depreciation of roller or knife	0.25	0.15	0.30
<b>Total</b>	<b>0.90</b>	<b>0.80</b>	<b>1.30</b>

Source: Compiled from information furnished by various sample rice merchants.

The processing cost of rice from paddy to polished is about 24% less than aggregated processing costs from paddy to brown and from brown to polished, because less electricity and labour are needed in one operation than in two separate operations.

#### b.) By-products

There are several by-products from rice processing, namely, hulls, dead rice, rough bran, fine bran and brewers. The first three come from hulling while the rest from milling. Hulls are generally used as fuel and have little or no feed value. Sometimes, they are used for scouring, packing and building purposes. Dead rice and fine bran are of feed value and are needed by hog, poultry and pond fish raisers. The fine bran is sometimes also used for pressing the rice bran oil. Rough bran can also be used for fodders although its feed value is not very high. Brewers are good for making wine, from which the famous "Rice Wine" is distilled by the provincial Tobacco and Wine Monopoly Bureau. They are also good for feeding.

The percentages of main product and various by-products in hulling and milling rice as compared with the original paddy and brown rice vary in cities and hsien with their respective processing rates. The following table is compiled to show the general picture:

Table 12. Percentages of Main Product and Various By-products in Hulling and Milling as Compared with the Original Paddy and Brown Rice

Unit: 100 kg.

Variety	Paddy to Brown					Brown to Polished				
	Brown Rice	Hulls	Dead Rice	Rough Bran	Loss	Polished Rice	Browers	Fine Bran	Talc added	Loss
Ponlai	79.5	17.8	0.8	1.3	0.6	91	0.4	7.8	0.5	0.8
Tsailai	77.2	20.0	0.8	1.4	0.6	92	0.5	7.0	0.5	0.5

Source: Compiled from information furnished by various local Rice Merchants, Associations.

Note: These figures represent the averages of all cities and hsien in the province.

The prices of the by-products vary from one another. Dead rice is sold at about 60% of the price of brown rice; fine bran about 45%; and rough bran about 9%. Hulls have little market value, only 3-4% of the price of rice. The difference in prices of dead rice, fine bran and rough bran is slight in various cities and hsien but the price of hulls varies greatly from place to place. When used for fuel hulls usually can be sold at a higher price in the locality where coal price is relatively high.

As a rule, fine bran is given to customers while other by-products are left to the rice mills. If a customer does not want fine bran, he may give it to the rice mills for offsetting the processing charges. It is apparent that the value of fine bran must surpass the processing charges. Generally speaking, customers in rural areas usually take back fine bran while those in urban areas always leave it to the rice mills.

### C. Grading, Inspection and Packing

#### 1. Grading and Inspection

While the successful implementation of rice grading and inspection in the period of 1924-1945 had contributed to a great extent the export of rice as mentioned in Chapter, II, the work has been generally neglected in Taiwan since its restoration, which was caused largely by the facts

that there was a rice shortage in the first several years after the restoration and that to meet the urgent requirements of domestic consumption quantity was considered more important than quality.

The Inspection and Quarantine Bureau under the Provincial Department of Agriculture and Forestry did set respective standards for the grading and inspection of rice and other foodstuffs in June 1946\*, but those standards were not accepted by the Provincial Food Bureau and rice merchants and were therefore never enforced on the island. In October 1950 the Provincial Government proclaimed instead the Rules Governing the Inspection of Foodstuffs for Export and Import and limited the scope of inspection to rice exports and imports undertaken by private traders. These rules are entirely unrealistic as rice exports and imports have been monopolized by the Food Bureau and no private traders have been allowed to take part in them.

As rice production has been greatly increased in recent years and rice exports have been resumed since 1951, certainly there is no reason to suspend any longer the reestablishment of the compulsory rice inspection system. The JCRR had made a number of suggestions regarding the subject to the Provincial Government in 1951 and 1952. Although its proposals were accepted in principle, no action has yet been taken by the government.

In the current marketing operation, paddy and brown rice are generally classified by localities (central, northern or southern part) and by crops (first or second crop). Under normal conditions, rice produced in the central part is of a quality better than that from northern and southern parts and the first crop rice is superior in quality to the second crop rice. In addition to the difference of localities and crops, polished rice is classified according to the degree of whiteness. In the free market, polished rice is generally divided into three grades of superior, medium and inferior, which means their milling rates are 88-90%, 91-92% and 93-94% respectively.

For the collection and processing of government rice, the Food Bureau classifies rice into two main groups, namely rice meeting set

\* The standards were embodied in the Regulations Governing the Inspection of Food stuffs, promulgated by the Office of Governor of Taiwan in June 1946 and abolished by the Provincial Government in Oct. 1950.

standards and rice below set standards. The respective standards set by the Bureau for paddy, brown rice and polished rice as follows:

- a) For paddy\*
  - (1) Paddy must be clean and fresh. The grain must be full and must not show signs of having been infested with insect pests.
  - (2) Foreign materials mixed in paddy must not exceed 0.5 per cent.
  - (3) The moisture content of paddy must not exceed 13 per cent.
  - (4) The unit weight of paddy shall be measured by a certain measurement. The total weight of six Tai tou (equivalent to 1.083 hectoliter) of paddy must not be less than 57.6 kilograms.
  - (5) Paddy must be either pure Ponlai or Tsailai variety.
- b) For brown rice\*\*
  - (1) Brown rice must be clean and fresh and must not show signs of spoiling.
  - (2) The incompletely matured grains mixed in brown rice must not exceed 15 per cent.
  - (3) The broken rice mixed in brown rice must not exceed 5 per cent.
  - (4) The foreign materials mixed in brown rice must not exceed 0.3 per cent.
  - (5) The moisture content of brown rice must not exceed 14.5 per cent and 15 per cent in the periods from May to September and from October to next April respectively.
  - (6) For one sampler of brown rice, the numbers of paddy, slightly spoiled rice and rice of varieties other than Ponlai or Tsailai must not exceed 2, 3 and 20 respectively.
- c) For polished rice\*\*\*
  - (1) Polished rice must be clean and fresh and must not show signs of spoiling.

\* Rules Governing the Receipt of Rural Land Taxation in Kind which was promulgated by the Office of Governor of Taiwan in July 1946 and on which the latest revision was made in July 1951 by the Provincial Government.

\*\* Rules Governing the Receipt of Brown Rice from Designated Rice Mills, announced by the Provincial Food Bureau in June 1951.

\*\*\* Rules Governing the Receipt of Polished Rice from Designated Rice Mills, announced by the Provincial Food Bureau in June 1951.

- (2) The whiteness of polished rice must coincide with the sample prepared by the Bureau.
- (3) The broken rice mixed in polished rice must not exceed 15 per cent.
- (4) The foreign materials mixed in polished rice must not exceed 0.5 per cent.
- (5) The moisture content of polished rice must not exceed 14 per cent and 14.5 per cent in the periods from May to September and from October to next April respectively.
- (6) For one sampler of polished rice, the numbers of paddy, slightly spoiled rice and rice of varieties other than Ponlai or Tsailai must not exceed 1, 3 and 20 respectively.

## 2. Packing

The utility of proper packing is to facilitate the commodity in loading and unloading and reduce the loss during storage and transportation. In Taiwan, rice is all packed in gunny bags which are for the most part manufactured by the Taiwan Industrial and Mining Corporation. The gunny bags most commonly used have a capacity of 60 kg. although those having the capacities of 90 and 100 kg. are also used. The former can be used for about 12 times in long distance shipment, or about 20 times in short distance shipment, while the latter two can be used for about 10 times in long distance shipment or about 18 times in short distance shipment. For saving transportation loss, rice bags should be stitched sixteen crosses with double jute threads and a small knot at the end of each thread, but most rice merchants do not stitch their bags according to the above standard and consequently suffer considerable loss during transportation.

In Spring 1953, the prices of gunny bags sold at retail stores were as follows:

Table 13. Retail Prices of Gunny Bags, Spring 1953

Quality	Of a capacity of		
	100 kg	90 kg	60 kg
	New	10.80	10.50
1st class	8.50	7.20	7.20
2nd "	7.50	6.80	6.50
3rd "	6.00	5.00	5.00
4th "	4.50	3.50	3.50

Source: Compiled from information furnished by gunny bag stores in various localities.

The price of locally produced gunny bags is much higher than the imported ones from India. For instance, the new gunny bags with a capacity of 100 kg. were wholesaled by the Taiwan Industrial and Mining Corporation at NT\$10.20 per piece in Spring 1953, while those imported from India via Hongkong costed only about NT\$6.00 per piece (at certificate rate of exchange) at the same time. As the importation of gunny bags is now banned by the government for the protection of home industry, rice merchants have no other choice but to use the highly priced local bags for packing.

#### D. Storage

Rice in Taiwan is harvested twice a year but its distribution is always made at a somewhat uniform rate every month except for export which is determined by the current situation in both domestic and international rice markets and the existing government stock. The government always holds a rice reserve to meet urgent requirements, especially in the off-seasons and hence rice is usually stored several months after each crop.

##### 1. General Status of Rice Storage

On the island rice is general stored in farmers' and landowners' residences, farmers' associations' warehouses and rice mills. As farmers' associations handle a great majority of government rice collections and as a number of farmers and landowners also store rice in their warehouses,



they undoubtedly play a leading role in rice storage. Next to the FAs, private rice mills also play an important part in rice storage because many farmers and landowners store their paddy in the mills after harvest for the convenience of processing and of sale to them when necessary. Rice stored at home is commonly in small amounts, but the total figure is large. According to some experienced rice merchants, the total amount of rice stored in farm families is about 40-50% of the total rice production.

The structure of the warehouses owned by private rice mills is generally very simple, of which most are built of wood and in urban areas. With the financial assistance from JCRR and Food Bureau, FAs have built better warehouses of bricks and cement with more open spaces not so close to other buildings. Many farm families use storeroom and storage huts for storing rice at home, of which the structure is undoubtedly the simplest.

Rice is stored for the most part in the form of paddy because paddy can be stored for a period longer than brown or polished rice. The paddy of first and second crops can be stored 6-8 and 10-12 months respectively, while brown and polished rice can only be stored for 1-2 months. Theoretically speaking, polished rice can be stored longer than brown rice, as the latter has an outer-layer of bran on it which is very easy to ferment. But in Taiwan, polished rice also cannot be stored for long, because the milling of rice usually takes place after paddy or brown rice has already been stored for a certain period of time, which naturally shortens the duration of the potential storage of polished rice, and because some fine bran is often retained in polished rice due to the low efficiency of the locally made screening machines, the presence of which is apt to cause the polished rice to ferment or mould. However, if two bags of paddy of same quality are processed at the same time, one milled to brown rice and one to polished rice, and if the products are screened and milled thoroughly, the polished rice can be stored longer than the brown rice.

Paddy is generally stored in bulk while brown and polished rice are packed in gunny bags for storage. Bulk storage of rice has certain advantages over storage in bags, but there are also problems in bulk storage which require attention. Rice with excess moisture will get heated and spoiled quicker when large quantities are stored in bulk than when stored in bags, because the space between the bags will allow

some movement of air around them. But rice stored in bags will spoil if it has a high moisture content. Bulk rice can be reconditioned more readily than bagged rice, as it can be moved from one bin to another and run through a cleaner for cooling. Right now, both FAs and private rice mills are in urgent need of newer and cheaper gunny bags for the improvement of rice storage, as locally manufactured bags are sold at a high price and importation of Indian bags is banned.

The average rate of storage loss in Taiwan is greater than that on Mainland China owing to the semi-tropic climate here.\* Because of the warm and humid weather, warehouses are often infested with weevils and other injurious insects. The FAs have been assisted by JCRR in the disinfection of their warehouses with DDT emulsion and treatment of stored rice with Pyrenone and Findane powder, but rice merchants have not adopted these improved practices. According to the Rural Food Consumption Survey made by JCRR in 1952, farm families usually suffered a loss of 1-2 per cent of paddy stored at home for a period of 1-3 months. In the Survey, attempts were made to collect some additional information on storage loss from rice merchants but we failed in our efforts because rice merchants usually store paddy for some time before processing it into brown or polished rice and cannot, therefore, distinguish storage loss from processing loss. For the storage of government rice, the Food Bureau has so far refused to accept any storage loss. The FAs are responsible for any actual loss during storage but are able to make up the loss by a gain in processing. From the standpoint of storage, the denying of any storage loss is unfair to the designated warehouses as there will always be some loss during storage. It would be more reasonable if the PFB increase the official hulling rate but allow a reasonable rate of storage loss in relation to storage period.

The designated warehouses are paid a low compensation for storing government rice. The rates of compensation for receipt and storage in the second half of 1953 as regulated by PFB, for instance, were NT\$ 0.10 and NT\$0.12 per 100 kg. of paddy for a total amount over and under 500,000 kg. respectively. Besides, there is a basic compensation of NT\$1000 for each designated warehouse for each rice crop. The FAs usually store rice for their members without any charge because the amount of such storage is small. Farmers' and landowners' rice stored in private mills is also free of charge as it is expected to be sold to or

\* According to Provincial Weather Bureau the average temperature was about 23.° C in Taichung (in 1920-1950) and 23.4° C in Singyin (in 1929-1950).

processed by them and the profits from milling will cover the storage charges.

## 2. Total Storage Capacity

There are no data available regarding the total storage capacity of the storerooms and storage huts of individual farmers and landowners. Based on materials furnished by the Farmers' Organization Division, JCRR and various Rice Merchants' Associations, the following table is compiled to show the current storage capacity of warehouses owned by FAs and private mills in various hsien and cities:

Table 14. Total Storage Capacity in Various Hsien and Cities, 1953

Unit: MT/Paddy

Prefecture	Storage Capacity of		
	FAs <u>1/</u>	Rice Merchants <u>2/</u>	Total
Yilan hsien	13,737	12,330	26,067
Taipei "	18,703	9,664	28,367
Taoyuan "	10,540	8,840	19,380
Hsinchu "	6,583	3,850	10,433
Miaoli "	12,645	3,550	16,195
Taichung "	23,245	27,127	50,372
Changhua "	29,038	48,473	77,511
Nantou "	9,067	7,458	16,525
Yunlin "	21,738	26,221	47,959
Chiayi "	13,969	9,402	23,371
Tainan "	17,816	12,613	30,429
Kaohsiung "	6,942	16,111	23,053
Pingtung "	13,045	12,613	25,658
Taitung "	2,012	2,770	4,782
Hualien "	2,763	5,025	7,788
Penghu "	<u>2/</u>	<u>2/</u>	<u>2/</u>
Keelung City	318	3,170	3,488
Taipei "	1,061	15,000	16,061
Taichung "	5,135	5,790	10,925
Tainan "	1,125	1,602	2,727
Kaohsiung "	1,512	7,950	9,462
Yangmingshan Administration	2,658	300	2,958
<b>Total</b>	<b>213,652</b>	<b>239,859</b>	<b>453,511</b>

Source: The total storage capacities of FAs and rice merchants are compiled from data furnished by Farmers' Organization Division, JCRR and the local Rice Merchants' Associations respectively.

Note: 1/ The table does not include the FAs' storage capacity for chemical fertilizers.

2/ Not available.

3/ Data showing the total storage capacity of private rice mills are incomplete. The actual figures must be greater than the figures listed in the table.

The total rice production in 1953 was increased to 1,641,557 m/t of brown rice or about 2,154,000 m/t of paddy of which about 35 percent was estimated to have been collected by the government through various maens. Since the total storage capacity of the warehouses owned by FAs is not sufficient to store all government rice and since the warehouses owned by the private rice mills have not been made full of use by the government, there is an urgent need for the Food Bureau to improve the overall storage program. As to the storage of rice of rice merchants and individual rice holders, the current storage facilities seem quite enough to meet the actual requirements.

Besides the storage facilities owned by FAs and private rice mills, the Provincial Railway Administration has a number of warehouses in each station especially in Taipei City and the Harbour Bureaus of Keelung and Kaohsiung also each have a great storage capacity. All these storage facilities may be used for storing rice if rice holders can pay the high charges regulated by the respective authorities. The warehouses of Keelung Harbour are sometimes used by the Food Bureau to store rice waiting for shipping abroad.

## E. Transportation

### 1. Means of Transportation

The means of transportation of rice on the island vary with the distance of shipment. For rice shipment within a locality, man-drawn carts and ox-carts are more often used than trucks as the former are more suitable on narrow and rough road and as farmers and rice merchants may not have enough rice for a truck load. The man-drawn carts and ox-cart can carry 800 kg and 1,000 kg respectively, while the loading capacity of a truck is 3,600-4,000 kg. According to the statistics of

the Provincial Department of Communications, there were 2,464 motor trucks, 19,852 man-drawn carts and 60,483 ox-carts in Taiwan as of the end of 1953. As these vehicles are also widely used for local transportation of other commodities and as a great portion of them are old and worn out, their total number is considered not sufficient to meet the actual requirements.

Trucks are extensively used for short distance transportation of rice. To ship rice for short distance by trucks has certain advantages over railway transportation as it is convenient in loading and unloading and much time can be saved by avoiding the shipments from both the seller's warehouse to the railway station of departure and from the railway station of destination to the buyer's mill. According to the Provincial Department of Communications, there was a total length of 15,655 kilometers of highways as of the end of 1953 which were constructed and operated partly by the Provincial Government and mostly by the prefectural governments. Although only 2.5 per cent of the total mileage was paved with asphalt or cement, the highways are evenly distributed and reach many rural areas. In addition to trucks, motor-tricycles have also been used in recent years for short-distance rice shipments. A motor-tricycle can carry 1,500-1,800 kg of cargo at a speed of about 20 miles per hour. While its freight charge is about the same as that of ox-carts, the motor tricycle is more useful and efficient for rice shipment in rural areas.

For long distance shipment, rice is almost entirely transported by rail. Trucks cannot compete with trains in long distance shipment, because the loading capacity of rolling stocks is much greater than that of trucks, because railway transportation cost is much cheaper, and because the government has set special railway freight rates for rice shipment which are much lower than for the shipment of other commodities. As of the end of 1953, Taiwan had altogether 3,903 kilometers of railways of which 1,763 kilometers were under business operation and the remaining 2,140 kilometers for the exclusive use of Taiwan Sugar Corporation and Taiwan Forest Administration. Of the 1,763 kilometers under business operation 53 per cent was owned by the Railway Administration and the remaining 47 per cent by TSC and TFA. With the assistance of U.S. Aid in recent years, much improvement has been made on the railway system which has contributed greatly to the increase of rice shipment and orderly marketing of rice.

## 2. Freight Rates and Transportation Procedures

Freight rates vary greatly with different means of transportation. While to ship commodities by railway is the cheapest way, the freight for rice shipped by railway is about 60-90 per cent cheaper than that for other commodities because of the special rate for rice shipment. The freight scales for rice regulated by the Railway Administration are shown in the following table:

Table 15. Freight Charged for Rice by Railway, 1953

Kilometers	Rate NT\$/MT	Kilometers	Rate NT\$/MT	Kilometers	Rate NT\$/MT
10	1.80	210	16.80	410	31.80
20	2.50	220	17.50	420	32.50
30	3.30	230	18.30	430	33.30
40	4.00	240	19.00	440	34.00
50	4.80	250	19.80	450	34.80
60	5.50	260	20.50	460	35.50
70	6.30	270	21.30	470	36.30
80	7.00	280	22.00	480	37.00
90	7.80	290	22.80	490	37.80
100	8.50	300	23.50	500	38.50
110	9.30	310	24.40	520	40.00
120	10.00	320	25.00	540	41.50
130	10.80	330	25.80	560	43.00
140	11.50	340	26.50	580	44.50
150	12.40	350	27.30	600	46.00
160	13.00	360	28.00	Above 600 Every 20	1.50
170	13.80	370	28.80		
180	14.50	380	29.50		
190	15.30	390	30.30		
200	16.00	400	31.00		

Source: Taiwan Railway Administration.

- Note:
- (1) The minimum unit for computing freight is NT\$0.50.
  - (2) If the shipper wants the rice to be shipped by a certain freight train, an additional 20 per cent will be charged.
  - (3) The minimum freight charge for rice is NT\$41.50 per car-load.

- (4) There is a 50% discount of the freight for a full carload (10 or 15 m/t).
- (5) The charges for loading or unloading of rice at stations are NT\$1.80 per m/t.

In Taiwan the railways are run by the government or public enterprises, but cargo transportation on the highways is operated by private transportation companies. There is also a uniform scale of freight rates for highway cargo transportation which is subject to the approval of the Provincial Department of Communications and the Economic Stabilization Board, but no special rate for rice shipment. The recent freight charges (effective on April 1, 1953) are briefed below:

Table 16. Freight Charged for Rice by Truck Companies, 1953

Class of Highway	Rate for KM per MT (NT\$)		
	Within 50 KM	51-100 KM	Over 101 KM
1st class road	4.29	3.65	3.00
2nd " "	5.22	4.44	3.56
3rd " "	6.09	5.18	4.26
4th " "	8.58	7.29	6.01

Source: Provincial Department of Communications.

- Note:
- (1) The minimum mileage for a shipment is 5 km.
  - (2) The minimum tonnage for a shipment is computed according to the registered tonnage of the respective trucks.
  - (3) The minimum freight for a 3-ton truck is NT\$39.
  - (4) If the shipment is made on two or more classes of road, the freight will be computed according to their average rate.
  - (5) The charge for loading and unloading of cargo is NT\$1.80 per MT.

The freight for rice shipped by railway is much less than that shipped by highway. For instance, to ship 10 m/t of rice from Taichung to Taipei costs about NT\$130 by train and about NT\$5,000 by truck. This great difference in freight is due to (1) the per metric ton operation cost of trucks far exceeds that of freight train, and (2) the government has set special low rates for rice shipment by railway. The trucks, however,

still occupy an important position in rice transportation, as they cannot be replaced by train for local and short distance shipments.

There is no uniform freight charges for ox-carts and man-drawn carts. Their charges are relatively high and vary from place to place. In Taipei City, for instance, to ship a carload of rice from a rice mill to the railway station or from one rice mill to another costs about NT\$9.30 for man-drawn cart or NT\$11.70 for ox-cart, while in other cities and townships, the freight charges are roughly NT\$6.70 for man-drawn cart or NT\$8.40 for ox-cart.

In the province, rice shipments are taken care of by the Railway Administration or truck companies. The shippers seldom despatch a clerk to go with the cargo. The loss during transportation is very small compared with that in Mainland China, but in recent years, the loss has been increasing owing to the lack of new gunny bags for rice packing and the prevalence of stealing at some small stations. For effectively operating the transportation of rice, it is necessary to help rice merchants obtain more new bags at reasonable cost and check stealing with effective measures.

### 3. Amount of Rice Shipped by Railway

A great majority of rice shipment in the province is carried by railway. While there are no available data on quantities of rice shipped by trucks, ox-carts and man-drawn carts, the Railway Administration has compiled statistics concerning rice shipment by railway since 1950 which is presented in the following table:



Table 17. Amount of Rice Shipment by Railway, 1950-52

Unit: MT

Month	Rice Shipment in			
	1950	1951	1952	Total
January	17,280	46,677	27,219	91,176
February	10,996	25,830	24,341	61,167
March	13,989	26,170	31,111	71,270
April	11,408	29,583	26,836	67,827
May	18,051	28,634	33,457	80,142
June	14,945	29,235	45,044	89,224
July	23,999	35,380	66,651	126,030
August	16,618	39,894	58,989	115,501
September	22,001	26,179	35,498	83,678
October	24,001	33,194	22,236	79,431
November	36,359	39,976	49,614	125,949
December	48,795	44,187	55,717	148,699
Total (1)	258,442	404,939	476,713	1,140,094
Rice Production (2)	1,421,486	1,484,792	1,570,115	4,476,393
Percentage of (1) to (2)	18.2%	27.3%	30.4%	25.5%

Source: Compiled on data from Railway Administration.

Note: Rice shipment on the Eastern Railway Line (Taitung-Hualien) is not included in this table.

In the period of 1950-52, more rice was transported in January, June, July, August, November and December while the lowest ebb of rice shipment was from March through May. As the first and the second rice crops are commonly harvested from Mid-May to late July and from late September to late December respectively, the abundant rice supply in the months following the harvest of each crop (June-August for the 1st rice crop, November-December for the 2nd rice crop) naturally resulted in more rice shipment in the respective months. The interval of the harvest of the second rice crop of the current year and the first rice crop of the next year is as long as 6-7 months, and therefore there is an off season from February through May. The low ebb of rice shipment in

1950-52 coincided completely with the seasonal variation of rice supply in a year. The total annual rice shipment in 1950-1952 increased every year, because; (a) rice production was increasing, (b) more rice was exported and (c) rice demand in big consuming centers became greater and greater due to the rapid growth of population.

The following table is compiled to show the quantity of rice shipment by railway of various stations of departure and destination in 1950-52:

**Table 18. Rice Shipment by Railway by Various Stations of Destination, 1950-1952**

Unit: MT

Station of Destination	Rice Shipment in			
	1950	1951	1952	Total
Suao	1,079	—	—	1,079
Lotung	739	599	—	1,338
Yilan	1,063	1,216	—	2,279
Keelung	65,429	117,135	136,886	319,450
Hwashan (Taipei)	63,657	115,374	135,518	314,549
Wanhwa (Taipei)	17,905	20,912	18,619	57,436
Pangchiao	3,300	2,750	4,358	10,408
Shulin	3,121	6,873	10,062	20,056
Yinko	3,039	2,499	5,692	11,230
Chungli	120	1,616	3,033	4,769
Yangmei	1,654	—	—	1,654
Huku	190	1,440	880	2,510
Chupei	—	224	1,150	1,374
Hsinchu	5,134	7,568	21,095	33,797
Chutung	450	260	4,014	4,724
Chunan	—	1,323	2,017	3,340
Taichung	6,768	8,473	13,554	28,795
Jinan	275	899	923	2,097
Chiayi	335	249	1,375	1,959
Shanhwa	—	580	1,378	1,958
Tainan	10,265	17,047	14,601	41,913
Kongshan	60	679	795	1,534
Tsaoyin	114	2,585	3,405	6,104
Kaohsiung	17,358	37,265	34,341	88,964
Fengshan	6,642	4,794	2,873	14,309
Others	49,745	52,579	60,144	162,468
<b>Total</b>	<b>258,442</b>	<b>404,939</b>	<b>476,713</b>	<b>1,140,094</b>

Source: Compiled on data from Railway Administration.

Note: Rice shipment on the Eastern Line Railway is not included in this table.

Table 19. Rice Shipment by Railway by Various Stations of Departure, 1950-1952

Unit: MT

Station of Departure	Rice Shipment in			
	1950	1951	1952	Total
Tungkong	666	1,575	—	2,241
Linbien	875	775	—	1,650
Chichow	535	888	—	1,423
Chaochow	3,087	2,304	—	5,391
Chutien	1,138	850	—	1,988
Pingtung	8,949	10,177	17,192	36,318
Fengshan	1,742	3,580	5,263	10,585
Kaohsiung	2,497	1,205	3,677	7,379
Hsingyin	1,770	—	—	1,770
Hubi	1,352	1,109	—	2,461
Chiayi	3,980	9,209	10,300	23,489
Tailin	3,506	3,292	3,527	10,325
Tounan	4,381	15,471	6,321	26,173
Touliu	7,439	12,697	14,367	34,503
Tienchung	11,251	17,432	20,538	49,221
Yuanlin	8,285	26,243	33,770	68,298
Hwatan	2,884	7,410	14,097	24,391
Changhua	16,103	21,217	23,451	60,771
Taichung	8,323	23,949	19,988	52,260
Fengyuan	2,165	—	—	2,165
Miaoli	1,535	2,420	—	3,955
Tachia	5,499	7,690	11,545	24,734
Wanlee	3,270	3,939	8,461	15,670
Chupei	1,699	2,991	5,507	10,197
Peikunkong	2,663	3,076	1,983	7,722
Yangmei	3,107	1,038	2,890	7,035
Chungli	5,151	13,507	14,428	33,086
Taoyuan	7,498	14,021	15,706	37,225
Shulin	1,122	1,975	8,186	11,283
Pangchiao	—	—	2,333	2,333
Wanhwa (Taipei)	388	—	480	868
Hwashan (Taipei)	8,910	40,946	32,165	82,021
Keelung	12,411	540	—	12,951
Yilan				
Others	114,261	153,413	200,538	468,212
Total	258,442	404,939	476,713	1,140,094

Source: Compiled on data from Railway Administration.

Note: Rice shipment on the Eastern Line Railway is not included in this table.

By the order of importance, the major stations of departure for rice shipment were Hwashan (Taipei), Yuanlin, Changhua, Taichung, Tienchung, Pingtung, Touliu, Tounan, Tachia, Hwatan and Chiayi. These stations are all located in the leading rice producing areas except Hwashan which has been a rice transit station. It is interesting to note that over 12,000 m/t of rice were shipped from Keelung in 1950 where is usually one of the rice deficit markets. This is due to the fact that a considerable amount of rice was imported in 1950 to meet urgent military and civilian requirements and Keelung Harbour was the port where the imported rice was landed. With respect to the major stations of destination, Taipei (Hwashan and Wanhwa) and Keelung were the most important, Kaohsiung and Tainan came the next, and then the rest. More rice was shipped to Taipei as it is the largest consumption center and also a transit market. Rice shipment to Keelung consisted of a minor part for local consumption and a major part for export. The other localities were all important rice consuming centers. The only exception was Taichung where more rice was shipped out than shipped in.

As Taipei is the largest rice consuming center and the capital of Free China, it is worthwhile to study from where rice was shipped to the city. The following table will give the picture:

Table 20. Rice Shipment by Railway to Taipei City by Various Stations of Departure, 1950-1952

Unit: MT

Station of Departure	Rice Shipment in			
	1950	1951	1952	Total
Tungkong	373	679	—	1,052
Chaochow	1,340	1,325	—	2,665
Chutien	670	505	—	1,175
Pingtung	4,686	5,278	2,925	12,889
Fongshan	1,256	1,547	365	3,168
Kaohsiung	610	—	1,283	1,893
Chiayi	1,730	4,008	6,580	12,318
Dalin	1,553	1,328	2,200	5,081
Founan	1,214	3,944	1,405	6,563
Touliu	2,409	3,929	6,685	13,023
Tienchung	3,666	7,098	9,400	20,164
Satou	684	400	1,015	2,099
Yuanlin	2,792	10,929	16,424	30,145
Hwatan	1,200	2,900	3,711	7,811
Changhua	9,335	13,865	9,764	32,964
Taichung	3,435	10,965	3,352	17,752
Fongyuan	1,425	—	—	1,425
Miaoli	1,015	1,300	—	2,315
Tachia	3,294	5,030	5,578	13,902
Wanlee	798	890	3,252	4,940
Chupei	705	2,176	2,861	5,742
Peikukong	30	969	545	1,544
Chungli	1,042	5,305	2,274	8,621
Taoyuan	200	2,895	1,188	4,283
Shulin	—	—	1,000	1,000
Keelung	5,527	140	—	5,667
Yilan	813	607	—	1,420
Others	29,760	48,274	72,330	150,364
Total	81,562	136,286	154,137	371,985

Source: Compiled on data from Railway Administration.

Note: No rice is shipped to Taipei from Taitung—Hualien area.

The above table indicates that rice shipment to Taipei by railway in 1950—1952 came from all the leading rice producing areas in the province

except Taitung and Hualien. Among various stations of departure, Changhua, Yuanlin, Tienchung, Taichung, Toulou, Dalin, Chiayi and Pingtung were the most important. It can also be seen that more rice was shipped to Taipei from the central part than southern and northern parts.

## F. Financing

Rice marketing requires continuous financing. From the moment paddy rice is produced by the farmer until it is sold to the consumer through marketing agencies, financing costs continue. The marketing agencies, producers and even consumers who buy rice at rice stores all have money invested in rice, in equipment, in business operations and in facilities as a part of marketing operations. Lacking adequate financing, the flow of rice through marketing channels would be slowed and disturbed. Theoretically speaking, there are three types of loans, i.e., commodity loan, operating capital loan and facility loan. The first two are for relatively short periods of time and are in many cases very small at the beginning of each year, while the last generally exists for a number of years.

In Taiwan, most rice farmers are in urgent need of credit for production, marketing, and even daily living expenses before their products are sold. Credit is also badly needed by rice merchants in buying, storing and shipping, no matter whether they are in the form of a sole proprietorship, a partnership, a corporation or a cooperative. According to the findings of this survey, over one half of the total rice merchants have borrowed some money for the operation of rice marketing. The loans made to them are usually used for buying rice, paying operational expenses but not for buildings and equipment although the latter really need considerable investment to insure adequate storage and efficient movement of the commodity. The existing high interest rates make it impossible for borrowers to benefit from new buildings and equipment. On the other hand, the creditors are also reluctant to make long term loans for such purposes.

### 1. Conditions Influencing Financial Needs

#### a) Seasonal Variations

The need for financing in rice marketing varies seasonally in common with other agricultural products. Although rice is produced in

a relatively short period, its production is financed for several months for each crop, with the greatest need occurring near the end of the growing season. Farmers are usually in urgent need of credit during the harvesting of each rice crop but have little requirement for credit in the two or three months following the harvest. On the other hand, credit is often badly needed by rice merchants in the periods of May-August and November-January, as new rice crops are available in the market at that time and they intend to buy rice at its lowest price. Their costs of financing are often compensated by the seasonal increases in rice price.

#### b) Business Characteristics

The financing need of rice merchants is influenced by their trade practices and business characteristics. It is affected by the stock or inventory that they carry in ordinary business operations, the size of which is in turn affected by methods of operation. For instance, millers and concurrently wholesalers always have a large stock and require more credit for their operation, while retailers need little credit as most of them buy rice stock on a day to day basis. Furthermore, the policies of rice merchants are always affected by business conditions—large inventories with rising prices and small inventories with falling prices.

The financing requirement of rice merchants is also influenced by the turnover of rice inventory in a particular period of time. The annual turnover figure may be obtained by dividing the total annual sales by the average inventory. There are no available data to show the turnover of inventory in rice marketing in Taiwan, but it has been reported by experienced rice merchants that the average turnover for shipping, milling and wholesaling rice is once in 10-15 days while that for wholesale and retail rice is once in 7-13 days and 10-15 days respectively. As a rule, the turnover of inventory is very slow in the two to three months following the harvest of the first rice crop, which is caused by abundant supply, the hot and humid weather and consumer's reluctance to buy. The slower the turnover, the more the financial requirement. This accounts for the fact that more credit is usually needed in the period of May-August.

Under certain conditions, some rice merchants may also finance the operations of other rice merchants, producers and consumers. Wholesalers may finance retailers and retailers may finance consumers. Some of the rice mills often lend money to rice farmers who sell rice to them. Credit sales to retailers and consumers are also commonly practiced by



millers and wholesalers and retailers respectively. The rice merchants who usually finance others must have greater financing requirement because there is some shift in the responsibility of financing from one group to another.

## 2. Sources of Credit

### a) Rice Farmers

Rice farmers usually obtain their credit from: (1) the Food Bureau through the application of rice production loans, (2) private money lenders including rice merchants through borrowing money on credit or on mortgage, (3) farmers' associations and (4) commercial banks.

According to the Investigation on Loan Requirements of Farmers in Selected Regions of Taiwan undertaken by the Rural Economics Division of JCRR in 1952\*, 390 of the 439 rice farmers investigated in Taipei and Kaohsiung regions needed credit and most of their loans were obtained from private money lenders. The Investigation revealed that all the loans in kind and 64.36% of the loans in cash borrowed by rice farmers were granted by private sources, while 17.93% of the loans in cash was supplied by farmers associations, 9.69% by Provincial Food Bureau and 8.02% by the Land Bank, Cooperative Bank, commercial banks and other agencies. Among the private sources, the loans made by rice merchants occupied only 0.28%. The Investigation also revealed that of all the loans in kind and in cash made to rice farmers, rice merchants furnished as much as 5.00% in 1949 but only 1.93% in 1950 and 0.20% in July 1951—June 1952.

### b) Rice Merchants

The common sources of credit for rice merchants are: (1) the Cooperative Bank, (2) commercial banks, (3) local credit cooperatives and loan companies, (4) private money lenders, (5) other rice merchants and (6) rice farmers and landowners. Of all these sources private lenders again play a leading part in financing rice merchants. The Cooperative Bank and commercial banks extend both secured and unsecured loans to rice merchants, but the total amount of the latter far exceeds that of the former. Loans are also made to rice merchants by

\* See Farm Loan Requirements in Taiwan, compiled and published by the Rural Economics Division, JCRR, November 1953.

local credit cooperatives and loan companies, but at an interest rate somewhat higher than that charged by commercial banks. As mentioned in Section A of this Chapter, rice merchants in producing centers sometimes make future sales of rice to those in consumption centers and get about one-third of the total sales proceeds as earnest money. Although such sales are not common because they involve certain risk, they provide nevertheless a source of credit to some rice merchants.

Credit sales to wholesalers and retailers by millers and concurrently wholesalers are very common in both rice producing areas and consumption centers. If the seller is well acquainted with the buyer who has a good commercial reputation, the payment of sales proceeds usually can be delayed for a short period of time. This should be also considered as a common source of short-term credit in rice marketing.

Furthermore, rice mills in Taiwan usually utilize the rice stored by farmers and landowners as a part of their working capital and speculate by selling some of it at a higher price to get cash and buying back when rice price is low. Hence the storing of rice for farmers and landowners provides an important source of credit to many rice merchants, especially in rural areas. This practice, though not prohibited by law, is risky and may bring loss to rice merchants, because there may be unusual variations in rice price which they cannot foresee.

According to this Survey, 148 of the 200 rice merchants interviewed in various localities borrowed money for their business operation. Of the total loans borrowed by them, 49% came from private lenders, 27% from commercial banks and 24% from credit cooperative and loan companies. Rice merchants have so far received no financial assistance from the government.

### 3. Interest Rates and Other Terms

#### a) Rice Production Loan\*

The rice production loans to rice farmers are made in cash but repaid in paddy. The loans are allocated by Food Bureau on the basis of rice area, the ratios of which are adjusted from time to time. For the second crop of 1953, for instance, the amount of loans extended to rice farmers ranged from NT\$100 to NT\$2,000 which were determined according to set standards.

\* See Food Administration in Taiwan, JCRR Economic Digest Series No. 3

The loans for the first crop are to be repaid by farmers before the end of September and those for the second crop before the end of January of the following year. A daily interest of 0.05 per cent is applied from the day of issuance to the day of repayment. If farmers fail to repay the loans within the prescribed time, an extra daily interest of 0.2 per cent is charged for the time overdue.

The price of paddy for repayment of loans is calculated respectively at the average market wholesale price of Ponlai paddy between June 21 and July 10 for the first crop and between December 1 and December 20 for the second crop in the central and northern areas. For the southern area, however, the price is calculated at the average market wholesale price of Panlai paddy between June 11 and June 30 for the first crop and between November 21 and December 10 for the second crop.

According to Food Bureau, the repayment of rice production loans by farmers has been quite satisfactory. Of the total loans made in the period of 1950-52 only 1.7 per cent had not been repaid by the end of 1952.

#### b) Loans Made by Cooperative Bank and Commercial Banks

The loans made to rice merchants and rice farmers by the Co-operative Bank and commercial banks are for the most part on a mortgage basis. To extend loans with rice as security is prohibited by law and it has been difficult for rice merchants and farmers to furnish other suitable security for borrowing money from banks. According to current practices, each rice merchant or farmer is allowed to borrow only NT\$20,000 to NT\$50,000 if he has opened an account with the bank and can find two qualified guarantors. This sum is only sufficient to ship 10-25 m/t of brown rice and is therefore inadequate to meet the need of average rice merchants.

The interest rates charged by these banks are uniformly regulated by the government, which are much lower than the prevailing rates in local money markets. In the last three years the government had for many times revised the interest rates of banks, the details of which are shown in the following table:

Table 21. Uniform Interest Rates Charged by Cooperative and Commercial Banks, 1951-1953

Effective date	Uniform interest rates per month (%) for					
	Time loan	Time secured loan	Over-drafts	Over-drafts secured	Discount	Additional charges for extension
1950 Nov. 1	3.90	3.30	3.90	3.90	—	1.20
1951 Mar. 26	4.80	4.50	4.80	4.50	—	1.20
1952 Apr. 28	4.65	4.35	4.80	4.65	—	1.05
June 2	4.20	3.90	4.35	4.38	—	1.05
July 7	3.60	3.30	3.75	4.60	—	0.60
Nov. 30	3.30	3.00	3.45	3.30	3.15	0.30
1953 July 16	3.00	2.85	3.00	2.85	2.775	0.30
Sept. 1	2.70	2.55	2.70	2.55	2.55	0.30
Nov. 10	2.40	2.25	2.40	2.25	2.25	0.30

Source: Bank of Taiwan.

The uniform interest rates of loans from both Cooperative and commercial banks were decreased step by step, but rice merchants were not all benefited by such low interest because most of them could hardly obtain the needed credit from the banks.

#### c) Loans Made by Cooperatives and Loan Companies

In principle, the local cooperatives and loan companies should adopt the same uniform interest rates as regulated by the government. However, they usually extend loans to rice merchants at rates higher than the standards but a little lower than those charged by private money lenders. In the loan contract, the interest rate is commonly stipulated according to the uniform interest rates so as to coincide with governmental regulations, but some additional charges are imposed in making the loan. As such additional charges are illegal, there are no available data concerning the actual interest rates of local cooperatives and loan companies.

#### d) Local Farmers' Associations

Local Farmers' Associations usually extend loans to their members at the uniform interest rates charged by the Cooperative and commercial banks. As these rates are much lower than the prevalent rates in the

local money market, local credit cooperatives and loan companies, farmers are anxious to borrow money from local FAs when they are in need of credit. They usually fail to do so, because most FAs have a limited supply of credit. The available funds for making loans usually come from two main sources; the deposits of members and money borrowed from the Cooperative Bank. The amount of either source is not large enough and as a result the total available funds of most FAs are insufficient to meet the actual requirements of their members. There are two kinds of loans made by the FAs, i.e., secured and unsecured. The securities furnished by farmers are in most cases the deposit receipts of banks and land bonds in kind (paddy) issued by the government under the Land-to-the-tiller program. The use of gold bars or gold ornaments as security for a loan is prohibited by the law. As most farmers have no suitable securities, a great majority of the loans made by FAs are unsecured loans. To apply for an unsecured loan, the borrower needs the guaranty of one or two other members.

The term of either secured or unsecured loans is one month, but with the approval of the FA concerned, the borrowers may re-borrow for one or two more months. The maximum amounts of loans vary in various FAs, which are usually decided by them in the annual general meeting. According to the Provincial Farmers' Association, the maximum amounts of loans at present are NT\$1,000-10,000 for secured loans and NT\$300-3,000 for unsecured loans.

A number of farmers have failed to repay their loans to the FAs. As these loans were for the most part made without security, it has been very difficult for the FAs to secure repayment. The FAs can sue these debtors in the court, but this legal action usually takes one or more years to reach a final decision. These bad and doubtful accounts will jeopardize the whole operation as the available funds for loans are thus cut to a great extent.

#### e) Private Money Lenders

Most farmers and rice merchants have to borrow money from private money lenders as they cannot obtain enough credit at low interest from government and various financial organizations. A great majority of the loans made by private lenders to rice farmers and rice merchants are unsecured loans. Those who borrow money on a mortgage basis are quite limited because most borrowers lack suitable securities. Real estate and milling equipment usually furnish the security for the

secured loan. Gold bars or gold ornaments are still considered the best security by most money lenders, although to use gold as security has been made illegal. The term of these loans vary from one to several months. Generally, the term of secured loans is longer than that of unsecured loans as most money lenders consider the former to be much safer than the latter.

Interest is charged by private money lenders according to the prevalent rates in the local money market, which far exceed the uniform interest rates charged by the banks and local FAs. The following table is compiled to show the picture.

Table 22. Interest Rates Charged by Private Money Lenders 1951-1953  
Interest Rate per Month (%)

Month	General	Unse- cured	Secured	Month	General	Unse- cured	Secured
1951 Jan.	10.9-12.4	-	-	July	6.5-8.0	8.0	6.5
Feb.	13.5-15.0	-	-	Aug.	-	7.5	6.0
Mar.	12.7-14.4	-	-	Sept.	-	7.2	5.4
Apr.	10.0-11.5	-	-	Oct.	-	7.0	5.0
May	8.5-10.0	-	-	Nov.	-	6.5	5.2
June	7.5- 9.0	-	-	Dec.	-	6.6	5.5
July	7.5- 9.0	-	-	1953 Jan.	-	6.4	5.5
Aug.	7.5- 9.0	-	-	Feb.	-	6.2	5.2
Sept.	7.5- 9.0	-	-	Mar.	-	7.5	6.0
Oct.	7.5- 9.0	-	-	Apr.	-	7.5	6.0
Nov.	8.0- 9.5	-	-	May	-	7.5	6.0
Dec.	9.0-10.5	-	-	June	-	6.0	4.5
1952 Jan.	8.0- 9.5	-	-	July	-	5.4	4.2
Feb.	6.5- 8.0	-	-	Aug.	-	4.5	3.5
Mar.	6.0- 7.5	-	-	Sept.	-	4.2	3.2
Apr.	6.0- 7.5	-	-	Oct.	-	4.0	3.0
May	7.0- 8.5	-	-	Nov.	-	4.0	3.0
June	7.5- 8.0	9.0	7.5	Dec.	-	4.3	3.3

Source: Bank of Taiwan.

Note: The Bank only kept records of the general interest rate charged by private money lenders before July 1952 but began to collect the detailed information of both rates of secured and unsecured loans in August of the same year.

Since 1951 there has been a tendency for the rates of private lenders to gradually become lower because of the influence of the lowering uniform interest rates. However, both rice farmers and rice merchants still cannot afford such interest charges as it robs them of the major part of their marketing profit and sometimes even causes a loss.

## V. THE COSTS AND MARGINS IN RICE MARKETING

### A. Costs of Marketing Rice

The marketing of rice from the producer to consumer involves at least three steps of selling, processing and reselling. Firstly, rice is sold in paddy by farmers to wholesalers and hullers who hull paddy into brown rice and sell it to other wholesalers and millers. Secondly, these wholesalers and millers mill the brown rice into polished rice and sell it to retailers. Lastly, the retailers sell the polished rice to direct consumers. The price received by retailers represents the total cost in making rice available and suitable to consumers, including rice production and marketing costs and normal profits to the producer and middle-men.

There are many items of costs in the marketing of rice. In Taiwan the major items are as follows:

- (1) Freight
- (2) Processing cost
- (3) Processing loss
- (4) Depreciation of gunny bags
- (5) Tax
- (6) Profit to rice merchants

Freight varies according to the distance of transportation. If rice is shipped within a township or city, only local transportation expenses are involved. But if rice is shipped by rail to or from other localities, the item will include transportation expenses from the farm to the seller's mill, from the seller's mill to the railway station and from the station to the buyer's mill. The processing cost item is subdivided into processing costs from paddy to brown rice and from brown to polished rice, and includes depreciation of machines and equipment, electricity and labor expenses and the expense for talc powder which is used in milling rice only in some big cities. The processing loss is the loss in weight from hulling and milling after deducting the value of by-products. The depreciation of gunny bags is in proportion to the distance of transportation; the bags are used for packing brown and polished rice but not paddy. The actual costs of all these items have been already discussed in some detail in Chapter IV.

Four kinds of taxes are now levied on rice trade; namely, business tax, stamp tax, income tax and household tax. The rate of business tax



in rice trade is set at 0.3% of gross business income, which is one half of that for other business as rice is considered the most important daily necessity. Stamp tax is required for the invoice of every rice transaction which is set at 0.4% of the proceeds. Income tax is levied according to net business income on a progressive scale plus a defense surtax of 30% of the tax. According to local tax bureaus, income tax and its surtax total about 0.12% of the selling price of rice. A rice merchant also pays household tax and its defense surtax if his assets are valued at NT\$5,000 or over. Household tax is levied on a progressive scale and defense surtax is 30% of the main tax; they total about 0.13% of the sales proceeds. Adding all these taxes together, the total tax burden on rice trade is about 1.04% of the selling price. As these taxes are imposed or calculated according to the selling value of each transaction rice merchants have had a tendency in recent years to undertake more functions than before to reduce the frequency of transactions so as to avoid the duplication of tax payments and save the marketing cost.

The profit to rice merchants is derived from the selling price after deducting the buying price and the total marketing cost. In this study, the total marketing cost includes only the major cost items of freight, processing cost, processing loss, depreciation of gunny bags and tax. It does not include the interest paid for loans borrowed by rice merchants and business handling expenses such as wages, rent, water, electricity, communication and other, because the interest rates vary greatly with the sources of credit as indicated in Chapter IV and most rice merchants have mixed their business handling expenses with the living expenses of their family. Hence, the profit to rice merchants listed in the tables and charts in the following sections represents the return to their capital, labor and management plus profit, if any.

#### B. <sup>M</sup>arketing Margins among Farm, Wholesale and Retail Rice Markets

In Taiwan, there are four kinds of price quotations in the market, namely, the farm price of paddy, the wholesale price of brown rice, the wholesale price of polished rice and the retail price of polished rice. Therefore, there are marketing margins between (1) farm price of paddy and wholesale price of brown rice, (2) wholesale price of brown rice and wholesale price of polished rice, and (3) wholesale price and retail price of polished rice.

The marketing margins among these different markets vary slightly in different localities. In this study, the marketing margins of rice

in the Cities of Taipei, Changhua, Chiayi and Pingtung are computed for illustration, as Taipei is the most important consumption center while the other three cities are located in the most important rice production areas. The marketing margins in these cities are shown in the following tables:

Table 23. Marketing Margins among Farm, Wholesale & Retail Markets & Percentage Distribution of Each Item of Marketing Cost in Taipei City, January, 1953.

(Ponlai Variety)

Unit: 100 kg

Margins	Rice shipped from					
	Pingtung		Chiayi		Changhua	
	NT \$	%	NT \$	%	NT \$	%
Farm price of paddy	166.90		168.32		170.83	
1. Freight (from farm to mill and from mill to railway station)	3.75	7.3	3.72	7.7	3.71	7.8
2. Processing cost (from paddy to brown)	1.14	2.3	1.13	2.3	1.12	2.3
3. Processing loss (a-b)	41.84	81.5	39.66	82.0	38.93	82.1
a) gross loss	(45.64)		(44.14)		(43.40)	
b) value of by-products	( 3.80)		( 4.48)		( 4.47)	
4. Tax	2.27	4.4	2.25	4.7	2.27	4.8
5. Profit to dealer who hulls paddy and wholesales brown rice	2.32	4.5	1.59	3.3	1.40	3.0
Total marketing cost	51.32	100.0	48.35	100.0	47.43	100.0
Wholesale price of brown rice	218.22		216.67		218.26	
1. Freight (Train and local shipments)	4.18	18.1	3.68	15.6	3.35	14.5
2. Depreciation of gunny bag	0.40	1.7	0.40	1.6	0.40	1.7
3. Processing cost (from brown to polished)	1.19	5.2	1.19	4.2	1.19	5.2
4. Processing loss (a-b)	14.04	60.8	13.87	56.3	14.09	61.2
a) gross loss	(24.24)		(24.07)		(24.29)	
b) value of by-products	(10.20)		(10.20)		(10.20)	
5. Tax	2.51	10.9	2.51	10.2	2.51	10.9
6. Profit to dealer who mills brown rice and wholesales polished rice	0.76	3.3	2.98	12.1	1.50	6.5
Total marketing cost	23.08	100.0	24.63	100.0	23.04	100.0
Wholesale price of polished rice	241.30		241.30		241.30	
1. Freight (local shipment)	1.16	24.7	1.16	24.7	1.16	24.7
2. Depreciation of gunny bag	0.20	4.3	0.20	4.3	0.20	4.3
3. Tax	2.56	54.4	2.56	54.4	2.56	54.4
4. Profit to retailer	0.78	16.6	0.78	16.6	0.78	16.6
Total marketing cost	4.70	100.0	4.70	100.0	4.70	100.0
Retail price of polished rice	246.00		246.00		246.00	

Source: Compiled from data collected by interviewing sample rice merchants in various markets.

Note: Sample rice merchants interviewed in Taipei include eleven millers and wholesalers and nine retailers.

Table 24. Marketing Margins among Farm, Wholesale & Retail Markets and Percentage Distribution of Each Item of Marketing Cost in Cities of Pingtung, Chiayi and Changhua, January 1953  
(Ponlai Variety) Unit: 100 kg

Margins	Pingtung		Chiayi		Changhua	
	NT \$	%	NT \$	%	NT \$	%
Farm price of paddy	166.90		168.32		170.83	
1. Freight (from farm to mill)	2.82	5.5	2.79	5.8	2.78	5.8
2. Processing cost (from paddy to brown)	1.14	2.2	1.13	2.3	1.12	2.4
3. Processing loss (a-b)	41.84	81.5	39.66	82.0	38.93	82.1
a) gross loss	(45.64)		(44.14)		(43.40)	
b) value of by-products	( 3.80)		( 4.48)		( 4.47)	
4. Tax	2.27	4.4	2.25	4.7	2.27	4.8
5. Profit to dealer who hulls paddy and wholesales brown rice	3.25	6.4	2.52	5.2	2.33	4.9
Total marketing cost	51.32	100.0	48.35	100.0	47.43	100.0
Wholesale price of brown rice	218.22		216.67		218.26	
1. Freight (from seller's mill to buyer's mill)	0.91	5.1	0.91	4.4	0.91	4.5
2. Depreciation of gunny bag	0.22	1.2	0.22	1.0	0.22	1.1
3. Processing cost (from brown to polished)	0.87	4.8	0.87	4.2	0.87	4.3
4. Processing loss (a-b)	11.41	63.6	11.78	56.7	10.22	50.8
a) gross loss	(18.97)		(18.83)		(18.97)	
b) value of by-products	( 7.56)		( 7.05)		( 8.75)	
5. Tax	2.46	13.7	2.47	11.9	2.48	12.3
6. Profit to wholesaler	2.08	11.6	4.52	21.8	5.44	27.0
Total marketing cost	17.95	100.0	20.77	100.0	20.14	100.0
Wholesale price of polished rice	236.17		237.44		238.40	
1. Freight (local shipment)	0.83	12.2	0.83	13.5	0.83	11.4
2. Depreciation of gunny bag	0.20	2.9	0.20	3.2	0.20	2.8
3. Tax	2.53	37.0	2.53	41.0	2.55	35.1
4. Profit to retailer	3.27	47.9	2.61	42.3	3.69	50.7
Total marketing cost	6.83	100.0	6.17	100.0	7.27	100.0
Retail price of polished rice	243.00		243.61		245.67	

Source: Compiled from data collected by interviewing sample rice merchants in various rice markets.

Note: Sample rice merchants interviewed include two hullers and brown rice wholesalers, three millers and polished rice wholesalers and four retailers in Pingtung, three hullers and brown rice wholesalers, two millers and polished rice wholesalers and four retailers in Chiayi, and four hullers and brown rice wholesalers, three millers and polished rice wholesalers and seven retailers in Changhua.

Rice shipped to Taipei is always in the form of brown rice instead of paddy to save transportation cost and consequently no paddy price is quoted in the Taipei market. On the other hand, rice supplied to the Cities of Changhua, Chiayi and Pingtung is for the major part from nearby townships and is in the form of paddy.

Because of the great loss in hulling, the total marketing cost of hulling paddy and wholesaling brown rice was greater than that of milling and wholesaling polished rice and that of retailing polished rice. Of the various cost items, processing loss was undoubtedly the most outstanding. This loss is necessary for making rice suitable for human consumption, but can be reduced somewhat by decreasing the degree of whiteness of polished rice. The profit to rice merchants varied greatly between Taipei and the other three cities. Rice merchants in Changhua, Chiayi and Pingtung got more profit per unit than those in Taipei, because the latter were under closer supervision of the provincial food authorities and had larger average volume of business.

#### C. Distribution of Consumer's Dollar Paid for Rice.

The distribution of the consumer's dollar paid for rice in the rice markets in the Cities of Taipei, Changhua, Chiayi and Pingtung is shown in the following tables:

Table 25. The Percentage Distribution of Consumer's Dollar Paid for Rice in Taipei City, January, 1953

Margins	Rice shipped from (%)		
	Pingtung	Chiayi	Changhua
Farm price of paddy	67.9	68.4	69.4
1. Freight (from farm to mill and from mill to railway station)	1.5	1.5	1.5
2. Processing cost (from paddy to brown)	0.5	0.5	0.5
3. Processing loss	17.0	16.1	15.8
4. Tax	0.9	0.9	0.9
5. Profit to dealer who hulls paddy and wholesales brown rice	0.9	0.7	0.6
Total marketing cost	20.8	19.7	19.3
Wholesale price of brown rice	88.7	88.1	88.7
1. Freight (train and local shipments)	1.7	1.5	1.4
2. Depreciation of gunny bag	0.2	0.2	0.2
3. Processing cost (from brown to polished)	0.5	0.5	0.5
4. Processing loss	5.7	5.6	5.7
5. Tax	1.0	1.0	1.0
6. Profit to wholesaler who ships and mills brown rice and wholesales polished rice	0.3	1.2	0.6
Total marketing cost	9.4	10.0	9.4
Wholesale price of polished rice	98.1	98.1	98.1
1. Freight (local shipment)	0.5	0.5	0.5
2. Depreciation of gunny bag	0.1	0.1	0.1
3. Tax	1.0	1.0	1.0
4. Profit to retailer	0.3	0.3	0.3
Total marketing cost	1.9	1.9	1.9
Retail price of polished rice	100.0	100.0	100.0

Source: Compiled from Table 23.

Table 26. The Percentage Distribution of Consumer's Dollar Paid for Rice in Cities of Pingtung, Chiayi and Changhua, January 1953

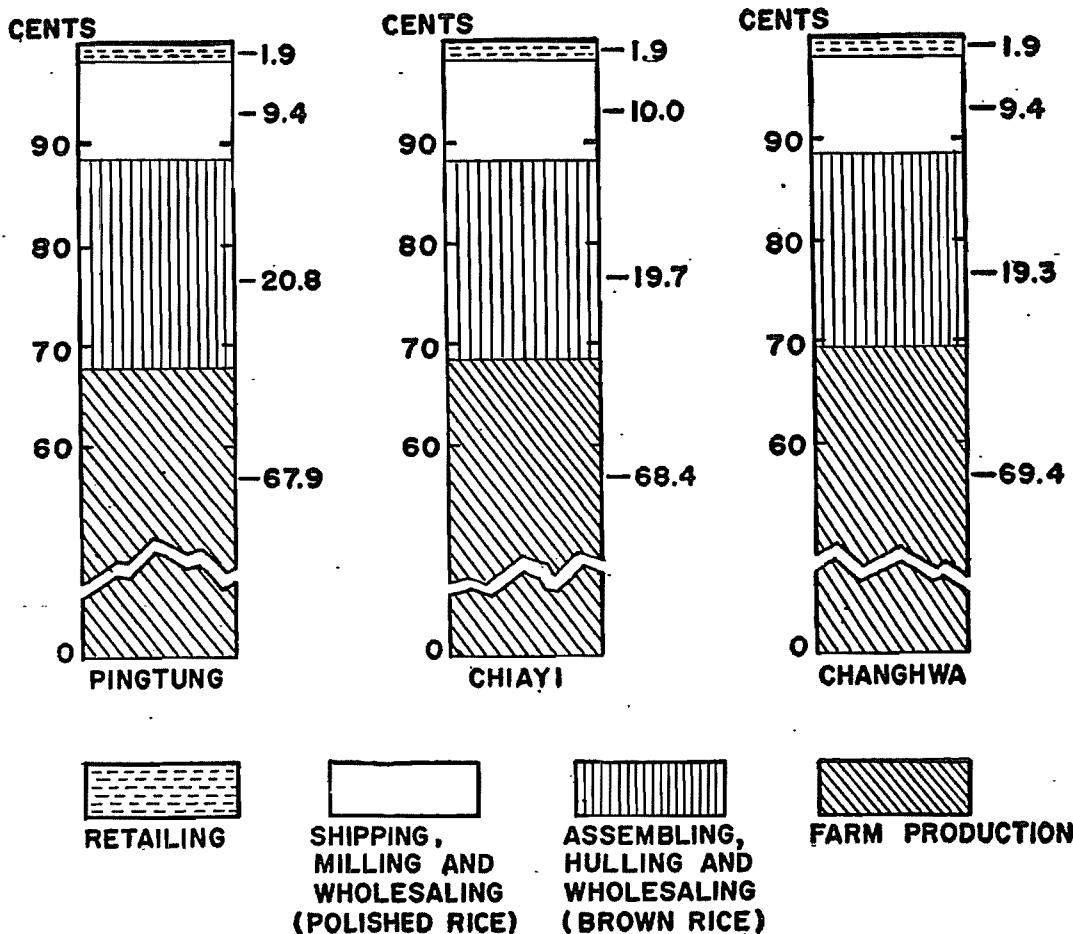
Margins	In the market of (%)		
	Pingtung	Chiayi	Changhua
Farm price of paddy	68.7	69.1	69.6
1. Freight (from farm to mill)	1.2	1.1	1.1
2. Processing cost (from paddy to brown)	0.5	0.5	0.5
3. Processing loss	17.2	16.3	15.8
4. Tax	0.9	0.9	0.9
5. Profit to dealer who hulls paddy and wholesales brown rice	1.3	1.0	1.0
Total marketing cost	21.1	19.8	19.3
Wholesale price of brown rice	89.8	88.9	88.9
1. Freight (from seller's mill to buyer's mill)	0.4	0.4	0.4
2. Depreciation of gunny bag	0.1	0.1	0.1
3. Processing cost (from brown to polished)	0.3	0.4	0.3
4. Processing loss	4.7	4.8	4.2
5. Tax	1.0	1.0	1.0
6. Profit to wholesaler who mills brown rice and wholesales polished rice	0.9	1.9	2.2
Total marketing cost	7.4	8.6	8.2
Wholesale price of polished rice	97.2	97.5	97.1
1. Freight (local shipment)	0.3	0.3	0.3
2. Depreciation of gunny bag	0.1	0.1	0.1
3. Tax	1.0	1.0	1.0
4. Profit to retailer	1.4	1.1	1.5
Total marketing cost	2.8	2.5	2.9
Retail price of polished rice	100.0	100.0	100.0

Source: Compiled from Table 24.

Based on the foregoing tables, charts are drawn to show the approximate distribution of the consumer's dollar paid for rice in the markets of Taipei, Pingtung, Chiayi and Changhua by services and by cost items.

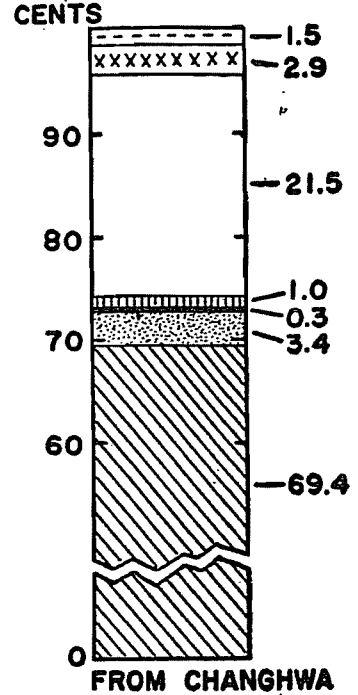
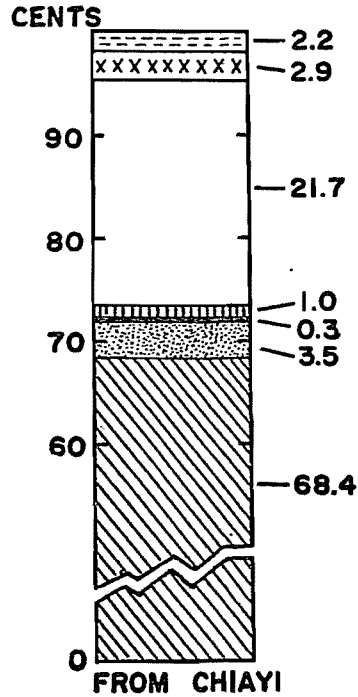
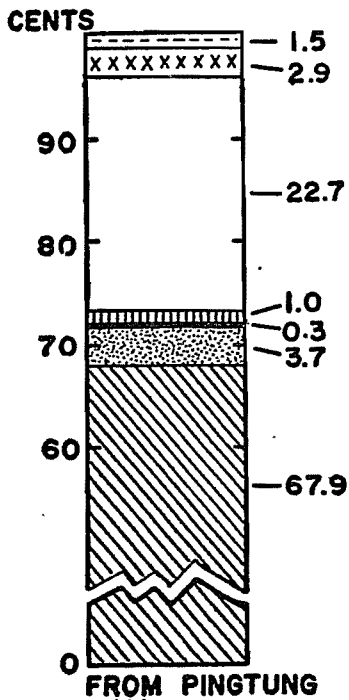
**CHART 4. APPROXIMATE DISTRIBUTION OF CONSUMER'S DOLLAR PAID FOR RICE IN TAIPEI CITY. JANUARY 1953 (BY SERVICES AND BY COST ITEMS)**

**A. BY SERVICES**





B. BY COST ITEMS



PROFIT TO MIDDLEMEN



PROCESSING LOSS



GUNNY BAG



FARM PRODUCTION



TAX



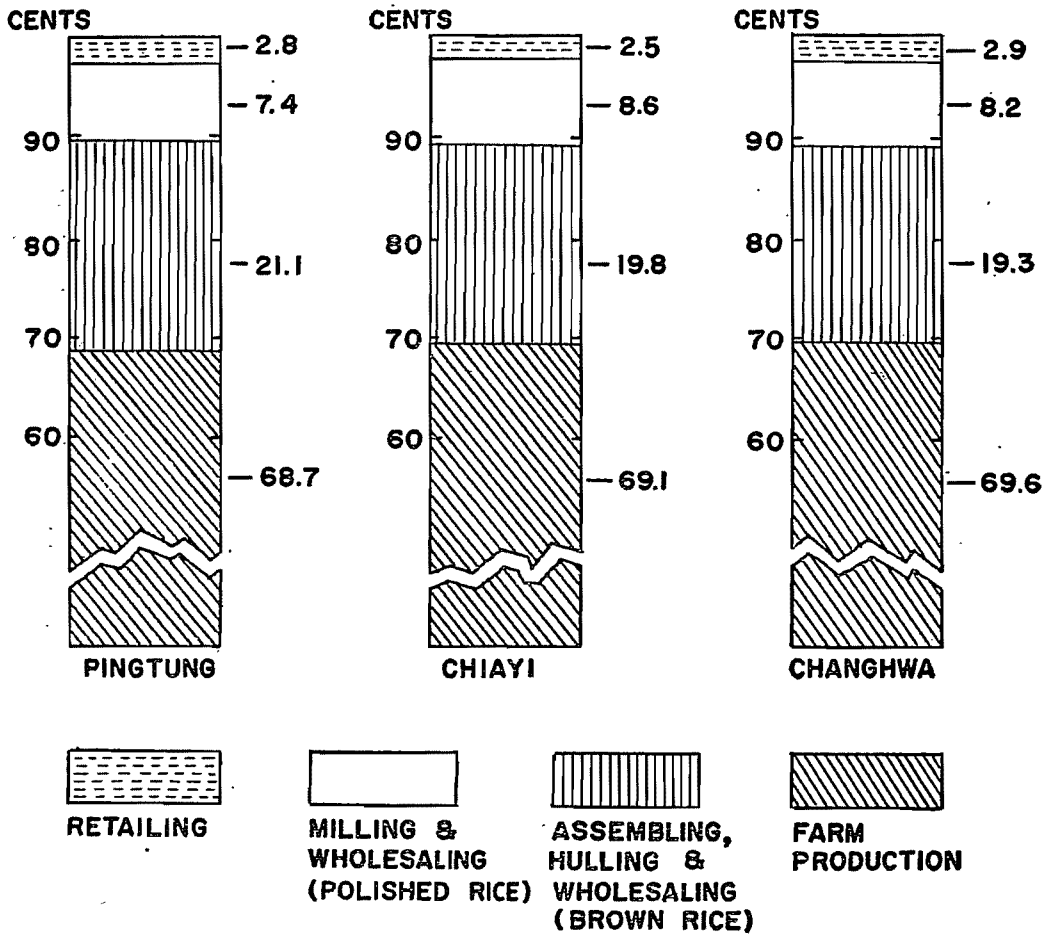
PROCESSING COST



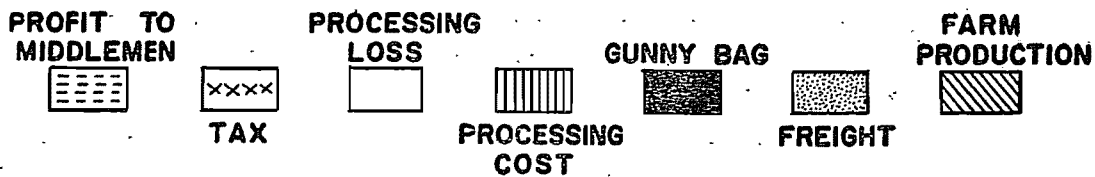
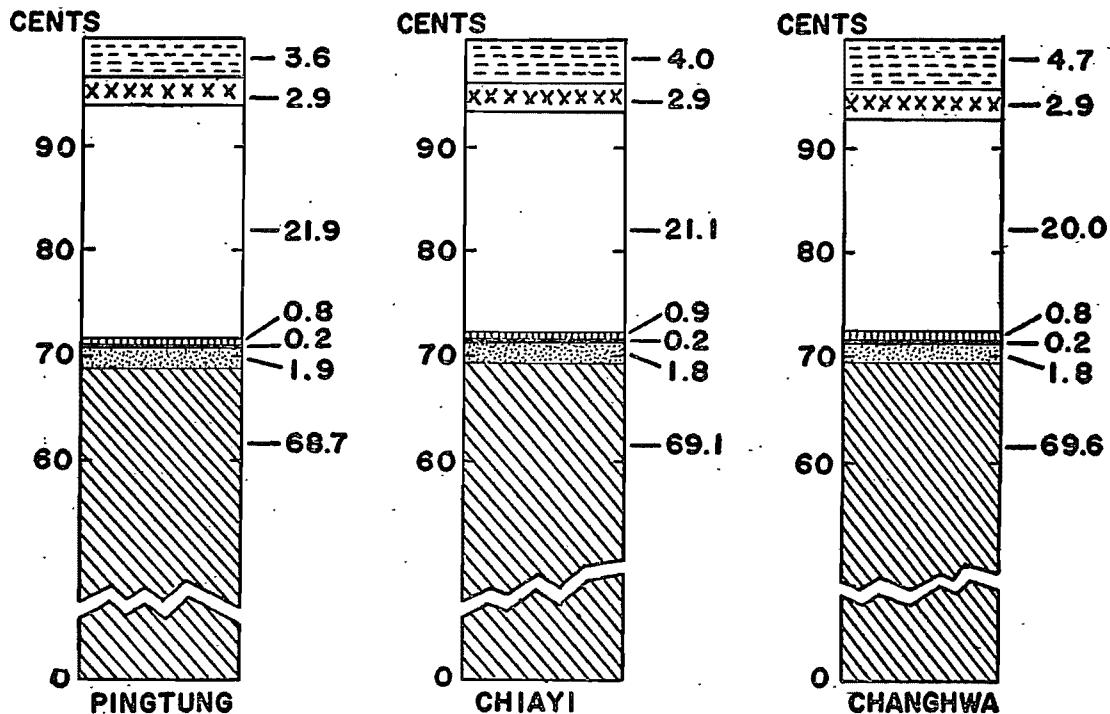
FREIGHT

**CHART 5. APPROXIMATE DISTRIBUTION OF THE CONSUMER'S DOLLAR PAID FOR RICE IN CITIES OF PINGTUNG, CHIAYI AND CHANGHUA, JANUARY 1953 (BY SERVICES AND BY COST ITEMS)**

**A. BY SERVICES**



**B. BY COST ITEMS**



In rice marketing in the markets of Taipei, Changhua, Chiayi and Pingtung, the producer received on the average about two thirds of the consumer's dollar, while the marketing costs and profit to rice merchants accounted for the remaining one third. The breakdown of the consumer's dollar by different kinds of services shows that the assembling, hulling and wholesaling took about 19.3—21.1%, shipping, milling and wholesaling 7.4—10% and retailing 1.9—2.9%, while the remainder went to farm production.

The profit per 100 kg. of brown or polished rice to either rice wholesalers or retailers was only 2—5% of Consumer's dollar. Generally speaking, wholesalers had a much larger volume in rice transactions than retailers and could gain more in rice trade if the turnover was frequent, but they could not insure their profit all the time and sometimes even suffered losses. As already mentioned, the profit to rice merchants was not the net profit they got from their business, as the expenses paid by them for interest and business handling were not calculated. If a rice merchant borrowed a large portion of his working capital from private money lenders at a high interest and if he spent too much for business handling, the computed profit may not cover these expenses. This survey revealed that a number of rice stores and mills had been closed because of heavy interest burden and extravagance. It also disclosed that in the period of 1952—1953, one of every two chairmen of the local rice merchants' associations in the Taichung area (Taichung city, Taichung hsien, Nantou hsien and Changhua hsien) became bankrupt because of mismanagement. A total of 201, 402 and 509 rice merchants applied to the Food Bureau in 1950, 1951 and 1952 respectively for the cancellation or transfer of their registration. These facts well indicate that the operation of rice trade is not as easy and profitable as many people think it to be.

On the other hand, rice merchants have an advantage over dealers in other merchandise in that the rice trade is relatively stable as the consumption of rice is relatively inelastic. This stability has invited many investors to join the trade and led to the increase of the total number of rice merchants in the province (See Chapter III). It has, however, resulted also in a keen competition in the trade which reduced the margin of profit and volume of business for each rice store or mill.

Most rice merchants do not welcome violent changes in rice price. Although some of them may seize such opportunities to gain extraordinary profit, these changes are harmful to the majority of them. When rice price is soaring, rice merchants would be unable to buy the same

quantity of rice after selling. In case of sharp decrease in rice price, they would also suffer a loss as they have bought the rice at a higher price. In both cases, the average volume of transaction for each rice merchant would be less than normal, thus greatly reducing his total income. Hence, most rice merchants hope to have only a normal seasonal variation of rice price, quicker turnover, less risk and reasonable food control measures. Under such conditions, they can make profit by doing more business although the portion of marketing margins received by them as profit is quite small.

## VI. CONCLUSION AND RECOMMENDATIONS

Rice is the backbone of Taiwan's economy. It is the basic food to local people and its export has earned a considerable amount of foreign exchange. As much as about forty per cent of the total population are engaged in the production and marketing of rice.

During the Japanese occupation, the rice marketing system in Taiwan was developed after the pattern of Japan Proper. There was a set of standards for rice grading and inspection of rice for domestic marketing and export was made compulsory. The establishment of the Taiwan Rice Exchange in the period of 1924—1938 helped to a great extent the increase of volume in rice transactions, the standardization of rice price and the promotion of rice export. The development in rice marketing was, however, first affected by the outbreak of the Sino-Japanese Hostility and then seriously interrupted by World War II, so that in the last five years of Japanese occupation, all rice marketing operations were put under the strict control of the former Government-General.

After Taiwan's Restoration to China in 1945, the Chinese Government abolished all measures left by the Japanese that hampered the free rice marketing activities. Instead, a less stringent marketing policy emerged, which was formulated according to existing Chinese laws modified to fit special conditions on the island. But as Taiwan has remained in an emergency state since 1949 because of the threat of a communist invasion, the government has retained broad control over the distribution of rice. While considerable freedom has been allowed to rice merchants for rice movement and transaction, their marketing operations are more or less restricted.

In the marketing of rice in Taiwan, the producer received about two thirds of the consumer's dollar while middlemen's profits and all cost items including freight, processing, processing loss, depreciation of gunny bags and taxes shared the remaining one third. Under normal conditions, the profit to rice wholesalers or retailers was only about 2—5 per cent of the consumer's dollars, including interest paid for loans borrowed and handling expenses. Although the number of rice merchants increased steadily in the years of 1948—1953, no overlapping of marketing functions was found in the survey.

Based on the findings of the survey, the following recommendations are offered for the improvement of rice marketing operations in Taiwan:

## A. Improvement of Rice Assembling

### 1. Cooperative Marketing of Rice in Rural Areas

Before 1953, the rice merchants in Taiwan used to depend on the big and medium landowners as their principal sources of rice supply, as the total amount of commercial rice controlled by them was even greater than that of the rice growers. Following the completion of the land-to-tiller program in 1953, however, the amount of rice available to them will decrease and they will receive no more paddy from either land rent or land value after ten years. Hence, in the years to come, the rice merchants are expected to have difficulty in assembling their rice from so many small scattered sellers.

To improve rice assembling, it is advisable that township farmers' associations, of which most handle only rice processing and storage at present, be encouraged to undertake cooperative rice marketing for their members by assembling commercial paddy from individual growers and selling it to rice merchants. The successful application of cooperative rice marketing not only will facilitate the assembling of rice, but will also ensure the stability of rice price and a better return to the growers. To handle cooperative marketing effectively, however, it is essential that the FAs are well organized and managed and that concerned governmental agencies will give them technical and financial assistance.

### 2. Dissemination of Market Information

A good market information service is essential if farmers are to obtain a better price for the fruit of their labor. To furnish them with needed information in rice marketing, it is desirable that the Provincial Farmers' Association include a 5—10 minute program in its "Farmers' Time" twice a week to broadcast current market information covering the general situation of rice supply and demand, daily price quotations in major rice markets, growing condition of current crop, government food measures and improved techniques in rice marketing. As several thousand radios have been distributed to the various FAs and small agricultural units by the Information Office of MSM/CM/JCRR, the PFA will have little difficulty to make available such market news to a great portion of farmers if full cooperation is obtained from the township FAs and small agricultural units.

## B. Improvement of Processing

The unduly large proportion of breakage and broken grains after processing is due chiefly to the use of worn out processing equipment by the mills. To reduce such losses in rice processing and standardize the rice quality, it is essential that all rice mills be required to replace those shellers and hullers that have been used for twenty years and be advised to use several hullers as a set instead of separate hullers in hulling practice. Concerned government agencies should also see that further improvement be made in the manufacture of rubber rollers which are of a very poor quality.

Although talc powder is of no harm to human health, its use in milling practice should be prohibited because polished rice containing talc powder must be thoroughly washed before cooking and because rice bran mixed with talc powder is not suitable for feeding hogs and poultry as well as for extracting bran oil.

To make good use of the by-products from rice processing meet the shortage in the supply of fats and oils in Taiwan, efforts should be made to establish bran oil plants in small units in different localities where the supply of rice bran is available and convenient. Rice bran has an oil content of 15—20 per cent. When the oil is removed, the bran is more suitable for livestock feed as it is higher in protein and can be stored for a longer period of time without becoming rancid, and is more digestible. The oil extracted can be used for both human consumption and industrial purposes.

## C. Improvement of Rice Grading and Inspection

Proper grading and compulsory inspection are basic requirements in any good marketing system. To ensure the quality of rice and facilitate its transaction, it is highly desirable for the government to work out objective standards for grading paddy, brown and polished rice and reestablish a compulsory rice inspection system on the island. In this regard, the following suggestions are offered:

- (1) A working group be organized under the Provincial Government by the representatives from the PFB, PFA, Provincial Rice Merchants' Association and JCRR, with the PDAF as the convenor, to study and recommend objective standards for grading paddy, brown and polished rice and new rules for rice inspection to the Provincial Government for approval and action.



(2) In setting the new standards and rules, the original grading standards and inspection rules set by the PFB and Provincial Quarantine and Inspection Bureau as well as current Japanese practices should be used for reference.

(3) An educational program be carried out jointly by PFB and PDAF with the full cooperation of local FAs and rice Merchant's associations to teach both the producers and middlemen the importance of rice grading and inspection and give them a better understanding of the factors that are responsible for the variations in rice quality.

(4) The Provincial Quarantine and Inspection Bureau be authorized by the Provincial Government to take charge of the inspection of both commercial and government rice. The PFB should give the Quarantine Bureau its hearty cooperation in rice inspection.

(5) JCRR may be requested to give financial assistance in purchasing additional equipment for rice grading and inspection and offer advice on the implementation of the program.

#### D. Improvement of Storage

##### 1. Encouragement of Farmers to Improve Their Rice Storage.

To reduce the loss of farmers in rice storage caused by rats, birds, insects and natural deterioration, it is advisable that farmers be encouraged with financial and technical assistance from PFB and PFA to remodel their simple and rustic storerooms and storage huts. The remodelled storerooms and storage huts must have better ventilation and drying grounds so that paddy can be stored in bulk. It is also important that farmers be taught through the local FAs the techniques in storing paddy and rice, testing the moisture content and temperature of stored paddy and rice, preventing them from getting heated and the use of pesticides.

##### 2. Assistance to Rice Merchants to Improve Their Storage Operation

As the warehouses of many private rice merchants are simple in structure and cannot meet the requirement for rice storage, it is desirable that some incentives be provided by the PFB to them to remodel their warehouses. To help them develop storage operation and reduce their storage loss, government assistance is also needed in supplying pesticides

and apparatus to rice merchants at cost prices to disinfect their warehouses and treat their stored rice and in obtaining for them the gunny bags much needed by them at reduced price

### 3. The Management of Designated Warehouses for Government Rice

As about one third of the total rice production are controlled by the government which are stored in the designated warehouses of FAs and rice merchants, constant supervision and direction of their storage operation should be provided by the PFB to see that government rice is well preserved. The PFB should give adequate compensation to the designated warehouses for their service and allow reasonable storage loss for storing government rice, the rate of which can be worked out by experiments on storage loss according to different periods of time. The PFB should treat all the designated warehouses fairly in the disposal of government rice.

### E. Improvement of Transportation

Although the Railway Administration has rendered valuable services in the shipment of rice, effective measures should be taken by the Administration to prevent the stealing of shipped rice during transportation and prohibit the use of iron hooks in loading and unloading. As the storing space allocated for rice at Hwashan Station in Taipei is not large enough to accept the daily arrivals of rice shipment and rice is usually piled on the platform and exposed to rain and heat, the Administration should also allocate more space or construct new godowns to reduce the loss in transportation.

### F. Improvement of Financing

Most rice merchants are in bad need of loans at fair interest in rice marketing, but can hardly borrow money from commercial banks because they cannot use rice as security under the existing law and the commercial banks do not accept fixed assets as guaranty of loans. In order to help rice merchants lessen their interest burden and reduce the marketing cost of rice, it is necessary that some ways be devised to permit the use of processing equipment and buildings as security for loans to rice merchants, or the existing law be revised to allow the use of food as security for loans with the following restrictions:

(1) The borrower should show his identification card and food business permit to the bank in applying for the loan.

(2) The borrower should sell his stored rice within ten days after he receives the notification from local food district in any rice crisis. If he fails to do so, the bank is entitled to sell the stored rice for him.

(3) If the commercial bank violates the above regulation, its responsible personnel are subject to the punishment stipulated in the Regulations Governing the Punishment of Food Offenders.

## Appendix

### Methodology of the Study

The overall data and information needed for this study were collected from the Provincial Food Bureau, the Provincial Department of Agriculture and Forestry, Inspection and Quarantine Bureau, Railway Administration, Highway Administration and other related institutions and organizations. For obtaining first-hand materials of rice marketing, two survey teams were sent to visit all hsien and cities except Penghu, beginning March 4, 1953 and ending April 30 of the same year. The information and data collected in this survey cover the whole year of 1952 and the first several months of 1953.

In each prefecture, two to four important rice markets were selected for investigation according to the following principles:

a. To select the city or township where the city or hsien government locates. These cities and townships are also the important consumption centers in that prefecture because they are all densely populated.

b. To select one or two townships which are the leading townships in rice production in that prefecture.

c. To select one or two more townships which are the most important rice transportation centers in the prefecture.

A total of 200 rice merchants including wholesalers, retailers, rice millers, warehousemen and brokers were selected for interview. The number of samples for each kind of rice merchants in each hsien/city was worked out according to the distribution of various kinds of registered rice merchants in the respective hsien/city at the end of 1952 compiled by the PFB. All the sample merchants were selected at random from the list of members of the local rice merchants' association who started the marketing operation before January 1, 1952 so that they could furnish at least one year information. An additional 10% of sample merchants was selected for reservation in case some sample merchants were unwilling to cooperate with the investigators.

Besides the selected rice merchants, the investigators were instructed to call on all local food offices, rice merchants' associations and other related governmental agencies and private corporations. From them much valuable data and information were collected which might give a general picture of rice marketing in that city or prefecture.

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