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An analysis of the Taiwanese rent control program

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AN ANALYSIS OF THE
TAIWANESE RENT CONTROL PROGRAM

31

by

Chi-lien Huang

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
MASTER OF SCIENCE

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Signatures have been redacted for privacy

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I. INTRODUCTION

This study deals with the first phase of the post-war land reform in Taiwan, the 37.5 per cent farm rent limitation program of 1949. This phase is analyzed in terms of consequences on agricultural productivity and income distribution. Contributions as well as limitations of the reform are considered. Finally, further steps are suggested.

A. Need for Land Reform in Taiwan

1. Historical background

The recent history of Taiwan is so peculiar and unique that certain background facts are needed to facilitate the understanding of the main theme of this study.

Since the Japanese took over Taiwan from China in 1895, Taiwan has undergone vast changes politically, socially, and economically.

Before 1895, Taiwan had been a territory of China for two hundred years but had never been integrated into China. Taiwan was remote from the Chinese political center. It was mountainous with resulting communications difficulties and plagued with diseases and epidemics. Throughout these two centuries Taiwan's economy remained stagnant. Its social and political framework was feudalistic and unstable.

But the situation changed in 1895 with the coming of its new ruler, Japan. First, Taiwan became a colony of Japan. In order to increase productivity in her newly acquired colony to feed the mother country, Japan immediately recognized the need for social reforms and economic

growth. Gradually, stability and security were brought into the island to form the basis for a modern capitalistic society. Meanwhile advanced technology was introduced to increase production, especially agricultural production and related processing activities. During this period, Taiwan witnessed a revolutionary change. Mechanization, technology, and science were introduced. Organized networks of extension and administration further contributed to the increased production and higher level of living.

Thus, with the advent of Japanese rule there was substantial over-all progress in the economic as well as the social life of Taiwan. However, in the midst of this general progress and even in the midst of remarkable growth in agricultural production, agrarian structures in rural Taiwan had been left largely untouched. They remained largely feudalistic in Taiwan as was also the case in Japan. It is understandable that agrarian problems, specifically land tenure problems, became increasingly serious in Taiwan (and in Japan proper) beginning in the years between 1910 and 1920. Occurrence of tenancy disputes in Taiwan increased from a yearly average of 45 for the two decades ending in 1929, to 609 cases annually in the 1930's. Frequency of these conflicts reached a peak of 1,502 cases in 1940 (1, p. 33).

The problems became so acute that officials became concerned about the outcome of resulting social unrest in the rural communities and their adverse effects on agricultural production. However, before the Japanese could work out effective measures to cope with the situation, World War II broke out, and the problems were carried over to the post-war period.

In 1945, with the end of the War, Taiwan was restored to China. The

Chinese government was faced at once with the task of rehabilitation and reconstruction in the wake of the War. Foods were desperately scarce. Inflationary pressures were strong. Agricultural production had to be increased rapidly. At the same time, the revolution within Mainland China forced the Nationalist government to retire to Taiwan. In her endeavor to improve such a pessimistic political climate and to recapture, once again, people's confidence and support, the Nationalist government was firmly determined to attack Taiwan's socio-economic weakness in land tenure structures as a means to serve economic needs and to ameliorate the political crisis.

From this background, land reform came to Taiwan in 1949. The fact that this is a fifteen year old reform should not mislead us to think that it is a "past" program. It is still active and influential. Since its inception in 1949, land reform has always been the central pillar of Taiwanese agricultural policy. Moreover, it has provided the basis for the over-all "development policy" (Tinbergen, 2, p. 4) comprising a series of four-year economic development plans, the first of which was introduced in 1953.

2. Agrarian situations relevant to the tenancy problems

Post-war needs for land reform in Taiwan were multifaceted. The specific agrarian situations relevant to the tenancy system are presented here in connection with the motivations that pushed the reform into the foreground.

First, in the economic field, there was a desperate food shortage

end resultant inflation immediately after the war. Moreover, when the Chinese government retired to Taiwan in 1947, many civilians and servicemen migrated to Taiwan from the Mainland. Not only was more food needed for consumption, extra food stocks were required for the continuing struggle against Mainland China. In addition, the population was growing by 3.0 per cent annually (3, p. 14). An increase in food supply was urgently needed. However, agrarian structures, and more specifically, the prevailing tenancy system was not favorable to generating the needed increase in food production.

Table 1. Tenure of farm operators in Taiwan prior to the reform^a
(Households)

Year	Owner-farmers		Part-owners		Tenants		Total	
	(Thou- sands)	(%)	(Thou- sands)	(%)	(Thou- sands)	(%)	(Thou- sands)	(%)
1931-1940 Average	131.4	31.3	129.5	30.9	158.6	37.8	419.5	100
1945	149.4	29.9	147.4	29.4	203.7	40.7	500.5	100
1947	174.9	31.6	152.7	27.6	225.7	40.8	553.3	100
1949	224.4	36.1	156.6	25.2	239.9	38.7	620.9	100

^aSource: (4, pp. 8-9).

According to Table 1 about two-thirds of the farmers rented all or part of the land they cultivated. And according to J. Lossing Buck (5, pp. 80-81), they rented 45 per cent of the cultivated land. What were the reasons that accounted for such a high concentration of

ownership reflected by widespread tenancy?

Scarcity of land resources with increasing population growth was one reason. Of a total area of about 3,596,000 hectares, only 24 per cent or 865,000 hectares were under cultivation (4, p. 11). On the other hand, there were 7.4 million people crowded on this tiny island. Among them about 52 per cent or 3.9 million were engaged in agriculture in 1949 (4, p. 7). Population pressure has always been very heavy. An annual growth rate of 3.0 per cent or more was not unusual; in some years the rate went up to 3.5 per cent or higher. Thus, Taiwan was heavily handicapped by the unfavorable man-land ratio, which shows no sign of improvement in the near future.

To this should be added the lack of diversification in Taiwan's economy. Like other underdeveloped countries, Taiwan's economy has been predominantly agricultural. The importance of agriculture in terms of the number of people engaged in it has been mentioned. Value-wise it is also the number one industry. Agriculture, in fact, accounted for 47 per cent of the total income of Taiwan in the decade just before World War II (6, pp. 26-27). This implies that those people who have been released from the agricultural occupation during its technological development and mechanization as well as those who have newly joined the labor force as the result of the population increase, would have had greater difficulty in finding jobs either within or outside of agriculture. It is inevitable that unemployment or underemployment, frequently disguised, prevailed in rural Taiwan.

These forces added together put the farmers in a vulnerable group

while the landlords, the "high society", enjoyed superior economic and social conditions. Farmers had little or no bargaining power when dealing with landlords. They had to accept whatever was offered by the latter, or they would lose their meager means of subsistence. And, there were always many fellow farmers who were anxious to take over the land from them under whatever terms the landlords demanded. Thus, it is not surprising to find the tenant group in hopeless poverty and insecurity. They lived at the mercy of their landlords. Under such conditions, it is also no surprise that they did not have the incentive to work and produce more. This structural defect had to be removed if an increase in production as well as improved income distribution were to be achieved.

The social facet of the need for the reform is related to the economic one. Prior to the reform, as everywhere in densely populated agricultural countries, land in Taiwan was a symbol of both wealth and social status. High social value, in addition to the economic value determined by the capitalization of future returns, came to be attached to land. This trend led to the formation of two sharply contrasted classes, the landed aristocracy and the landless peasantry. Further, it was practically impossible for the latter to climb up the social ladder into the former class. Farmers became desperate, hopeless, and lost aspiration. They had little interest in participating in social activities. This kind of community was certainly inconsistent with a democracy where one is respected for his contribution to society and where labor is dignified. Nor was it harmonious: lack of cooperative spirit, even antagonism and unrest underlined such a society. Nor was it progressive: the mass of

the farmers had no roots in the community in which they lived. Thus, landlordism's implication for community life was equally vital. It was an obstacle to democratic and progressive development.

The final, and perhaps the most important reason from the Nationalist government's point of view, was the political one. In the latter half of the 1940's, defeated and driven out of Mainland China by communists, the government was severely depressed by the political crisis. The government had to, first of all, secure full support from the people living in Taiwan. Land reform was one such potential measure. It is recalled that in Taiwan farmers comprised more than one-half of the population, and the majority of them suffered from abuses practiced by landlords. The new government strove to obtain the support of the mass of farmers by improving their economic and social status. Landlords could not possibly oppose the reform either, because they would have lost not only their land but also their lives had the communists conquered Taiwan.

B. Two Phases of the Post-war Land Reform in Taiwan

Tenancy improvement came to constitute a prerequisite for the progress and peace of Taiwan. Actually, land tenure problems and land reform have been the major concern of the national leaders since the birth of the nation. Dr. Sun, Yat-sen, the founder of the nation, advocated the "land-to-the-tiller" program, i.e., the creation of owner-farmers, as the goal of the land tenure policy in Free China. President Chiang, Kai-shek has often pointed out that the land problem is the root of all problems, and that only through land reform can all other problems be solved. Of course,

there are many ways to approach the land problem. In Taiwan, the land problem and reform were approached peacefully and progressively in two phases.

The first phase, the 37.5 per cent farm rent limitation program of 1949, was implemented in Taiwan as the preliminary step ultimately to lead to the "land-to-the-tiller" program. This preliminary program was concerned with elimination of the abuses of tenancy on privately owned cultivated land. In this program the emphasis was not on the change of land tenure system itself. Rather it tried to protect and improve tenants' economic and social positions within the framework of the farm tenancy system.

Four years later, in 1953, the government felt the time was ripe for them to promulgate the "land-to-the-tiller" Act, and launch the final phase of the land reform. It is this final phase of the reform that attacked the tenancy system directly. It tried to change the over-all tenure structures into the owner-farmer system by compulsory purchases of tenanted land from the landlords by the tenants.

C. Scope and Objectives of the Study

Foregoing statements reveal that (a) the land problem and consequent reform had very broad implications encompassing political and social as well as economic considerations and (b) the recent land reform in Taiwan was actually composed of two separate programs. It appears then that a complete analysis requires a comprehensive approach that takes economic, social, political, and cultural aspects of both programs into consideration.

In this study, however, the effort is limited largely to the economic aspects of implications of the first phase of the reform. This is an economic analysis of the 37.5 per cent farm rent limitation program of 1949 in Taiwan.

Objectives of this study are four-fold:

(a) To explore defects in farm tenancy arrangements prior to the reform, including needs for the reform and dissatisfactions with the tenancy system. Just what aspects of the tenancy system were deemed to be undesirable as a precondition to the reform? The first objective seeks to answer this question.

(b) To clarify, objectively, the goals of the program. Actually the above mentioned diagnosis of the existing situation calls for the identification of goals. Articulation of the goals of the program is not an easy task, as the means-ends schema suggests. Much confusion has resulted from the failure to clarify goals. This study tries to identify not only the ultimate goals but also the targets, the ends-in-view, of the program.

(c) To evaluate the effectiveness of the program in terms of the goals and targets declared by the government. On what aspects and to what degree has the program been successful or unsuccessful?

(d) To suggest further actions. Every program will presumably have some failure elements within its own context. Further, every program will probably have some effects on non-target variables (7, p. 24) as side effects of changes on other facets of the economy. How may these failure elements of the program be ameliorated? How may adverse

side effects be eliminated? Answers to these questions should indicate further actions. Moreover, in a dynamic economy, constant changes or modifications of the program are necessary to keep pace with changing conditions.

In short, this study will look at the program as a part of the over-all economic development policy and recommend further remedial measures from the over-all policy point of view.

D. Analytical Framework of the Study

1. Some basic considerations

Pursuit of improvement or development, whether that of the individual's position or that of the whole society, is as old as human history. What is not so old is the development policy in the sense of planned, consistent and systematic action. This is especially true in the case of underdeveloped countries. It was only after the end of World War II that the governments of these countries became more acutely aware of the need for and possibilities of economic development. Used in this context economic development means increases in per capita productivity as measured by annual per capita income.

Economic development cannot take place unless certain basic conditions are fulfilled. It also has to be approached in accordance with each nation's particular conditions.

First, it is essential that the government creates general conditions favorable to development. Among the four such requirements proposed by Tinbergen (2, pp. 4-5), one, "to provide a minimum of social security

and to correct the most extreme inequalities in income--inequality easily conducive to social unrest and lack of cooperative spirit in production", appears applicable in pre-reform Taiwan. [Extreme inequality in income distribution between landlords and tenants together with its economic, social, and political implications has already been pointed out.

Second, with more than one-half of the population engaged in agriculture, the over-all development of Taiwan will be conditioned much by the pace of development taking place in the agricultural sector. In Taiwan, the institutional framework of tenancy was such that it formed a serious obstacle to the economic progress and social stability. Thus attention was focused on, and initial priority was given to the tenancy improvement in post-war Taiwan.

A relevant question in the analysis and improvement of tenancy conditions is: what functions will the tenancy improvements be expected to perform? Two essential economic functions of tenancy improvements are given by Dr. Timmons as follows (8, pp. 7-8):

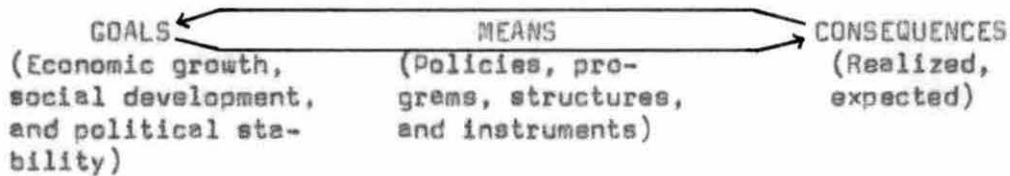
(a) Tenancy improvements should provide an institutional framework within which individuals can work to better their own position and that of their society. To help less fortunate individuals so that neither party can take advantage of the other while at the same time retaining the incentive of individual betterment as a result of hard work and skillful management, are requisites of tenancy improvement.

(b) Tenancy structures should furnish the basis for the economic allocation of resources and for the equitable distribution of the returns in accordance with the productivities of contributed resources.

Within this construct, tenancy improvement is needed whenever security, social justice, efficiency in production, and equality in income distribution are at stake.

2. Analytical model and procedure of this study

The analytical model of a program or measure contains three elements, all of them closely related: (a) the goals which guide improvement, (b) the means which link goals and the consequences, and (c) the consequences both expected and realized. This concept may be expressed in an equation-like form (7, p. 21):



Goals in the above equation are fixed and given as determined by the people. They represent the ideal situation people strive to achieve. Means is a variable. Usually there are many alternatives open to the people. Each means, however, leads to specific consequences which may or may not fit the given goals. Therefore, effectiveness of the particular means must be evaluated in light of the goals. Generally, consequences expected are the goals themselves. Consequences realized, however, are another matter. The wider the difference between these two, the less effective the means are.

The interrelationships between goals, means, and consequences must

be formulated in the context of the present study. For this purpose we shall first (a) identify the goals and targets of the program and (b) examine existing tenancy situations. The goals will actually become "target variables" (7, p. 23) whenever people assign a certain level of accomplishment (like a 5 per cent increase in agricultural productivity per year) to the goals. In any case, from the economist's point of view, goals (including targets) are fixed and the problem of identifying them arises. The divergence between existing situations and the goals consists of a problematic area or intervening gap (7, p. 22). It is this gap that the remedial means is expected to fill. These three topics, goals and targets, problematic areas, and means will be treated in Chapters II, III, and IV, respectively.

Analysis of consequences expected and realized by the program, i.e., evaluation of the program, is given in Chapter V and is done in terms of goals and targets identified. In this chapter, the diagnosis is made to discover the success elements of the program--the extent to which goals are actually realized. Then, the failure elements of the program are examined--the extent to which goals are expected but not realized by this particular program. Since means are variables it is possible to develop or discover alternative or complementary means to eliminate these failure elements. These will be considered also. Third, the program is but a part of the integral policy. Although it limits its scope to farm tenancy structural change only, it certainly will exercise some side effects on other facets both within and outside of agriculture. These side effects are called "non-target variables" (7, p. 23). These

inter-sectional relationships and effects will be analyzed and, in the case of adverse side effects, remedial steps will be suggested. Finally, in the face of the dynamic economy, constant modifications of the program are necessary in order to maintain and expand the success elements. These longer term effects will also be considered.

II. PROBLEMATIC AREAS

The land reform of modern free China was born out of the observation that the tenants' level of living had been pressed to the bare subsistence level (9, p. 187). This brings us to the question: what were "the evils of the traditional system of land tenure which hindered agricultural production and forced down the farmers' standard of living" (10, p. 9)?

Since the landlord and tenant share the product of farming, their interests may be in conflict. Under the conditions of rapid population growth and relatively scarce resources, the trend was for the landlords to possess increasingly stronger bargaining power. As a result tenants had to bear heavy rental charges, yet, their tenure rights were never secure.

A. Problematic Areas Responsible for Poverty of Tenants

Excessive rental charges were the core of the problem here. At this point the concept of fair rent may be raised to serve as the point of departure, i.e., rents larger than that qualified by fair rent are declared to be unfair or too high. Theoretically, fair rent may be determined by the marginal productivity of the land resources. The drawback of this approach is that it is not practical. Calculation of the marginal revenue product of land is always difficult, if not impossible. The other approach to the fair rent is socio-economical. According to Dr. Schickele, one criterion of the optimum income distribution

is the "subsistence principle" which establishes that each member of a society should have access to employment that will yield a minimum acceptable level of living (11, p. 45). Poverty is in part a social responsibility, since if a man cannot earn enough to support his family, it is likely that institutional structure either prevents him from receiving what he deserves or prevents him from demonstrating his potential ability. Relating this reasoning to the tenancy problems, we conclude that if the tenant's living is found to be below the acceptable subsistence level, then the rent must have been excessive (unfair rent). Thus, fair rent in this context means the guarantee of a minimum acceptable level of living to the tenants.

1. High rental rates

Were the rents in Taiwan unfair before the reform? Let us look at the actual rental rates first. By rental rate is meant a ratio between rent which goes to the landlord and the total yield. The higher the rental rate, the lower the tenant's income.

The rough and widely assumed rental rate was 50 per cent. A survey carried out in 1927 revealed that the average rental rate of double crop paddy land was 48 per cent, that of single crop paddy land was 46 per cent, and that of dry land was 28 per cent. A similar survey was made again in 1937. This time the figures were as follows: 49 per cent for paddy land and 33 per cent for dry land. We learn, then, that rental rates of paddy land were close to 50 per cent. In the case of dry land, however, the rental rates were considerably lower (12, p. 18).

The same situation continued into the post-war period. Tang, Hui-sun, Chief of the Land Division, Joint Commission on Rural Reconstruction (10, p. 27) reports that it was not unusual to find rents of 50 per cent or more of the total harvest. A 50-50 division was most common, but a 60-40 division was not exceptional on more fertile land. In some of the most densely populated fertile land, the landlords took 70 per cent of the total harvest. In fact, rental rates in Taiwan were among the highest in the Far East (13, p. 21).

Many authors assert that levels such as these are indeed above those warranted by the marginal productivity of the land. Even a foreign observer like Bate (14, p. 165) declares that the former rents in Taiwan were "far above the level justified by the productivity of the soil." It was also observed that, after paying such a high rental charge, what was left for tenants was not sufficient to provide the minimum essentials of living. A great many farmers had little or no rice to carry them from one crop to another. In the principal rice-growing areas more than 30 per cent of them fell into this category and in the southernmost part of the island the proportion was approximately 70 per cent (14, p. 165). Thus, the level of rental charge in Taiwan prior to the recent reform may be safely judged as exorbitant (8, pp. 28-29) from either criterion.

2. "Ironclad rent"--rigid rent

"Ironclad rent" means a fixed rental charge regardless of the yield. As the yield varies considerably from year to year in the agricultural production, this practice forced tenants to offer sometimes even a

majority of the product to landlords in the years of natural disaster. Rent should be allowed to be variable in the case of crop failures caused by natural forces. Otherwise the tenant's minimum level of living may be threatened.

3. Extra-rental payments

Rental payments proper were not all that tenants had to bear. Some landlords charged rent on by-products. Some required tenants to make rent deposits to safeguard their interest. Still others urged tenants to pay rents in advance. All these added to the financial difficulties of the tenants. Moreover, personal or household services, a holdover from feudalistic practices, were still found in some of the rural areas. Also commonly found was the practice of having the tenants grow bamboo and fruits or raise chickens and ducks for the landlords as a tribute. Such practices were in reality an added hidden cost to the tenants.

Perhaps the non-economic impact is equally important here. If tenants are to be encouraged to take pride in their work and to become respected members of the community, then feudalistic practices such as these cannot continue. It is inconsistent with democracy in that it denies individual independence.

B. Problematic Areas Related to Insecurity of Tenure

In addition to the high rental charges, the tenants' life was threatened by the insecurity of their rights to remain on the farms. The effects of tenant insecurity were not limited to "poverty" only.

It also hindered efficiency in agricultural production, and thereby pressed the income to the lower level and thus contributed to a vicious circle.

Problems of insecurity of tenure have been centered on the following two subjects: (a) length of lease, and (b) forms of contract.

1. Length of lease

Farming is a complex business with a slow turnover of investment. Usually it takes several years to reap the benefits of some important investments or improvements. A long production period and long-term planning horizon are often prerequisites for efficient farming. The time span required for the realization of investments or improvements is called the planning horizon (8, p. 12). Relating this planning horizon to the security of tenure, we can say that the less secure the tenant's expectations are, either on his stay on that same farm or on the compensation of unrealized investments made by him, the more likely that he is to adopt such projects having shorter planning horizons and less efficient results. Such a case is illustrated in Figure 1, where capitalized total returns expected by a cultivator from some investment or by the use of some particular farming practice are shown on the vertical axis as related to time, shown on the horizontal axis (8, pp. 11-12).

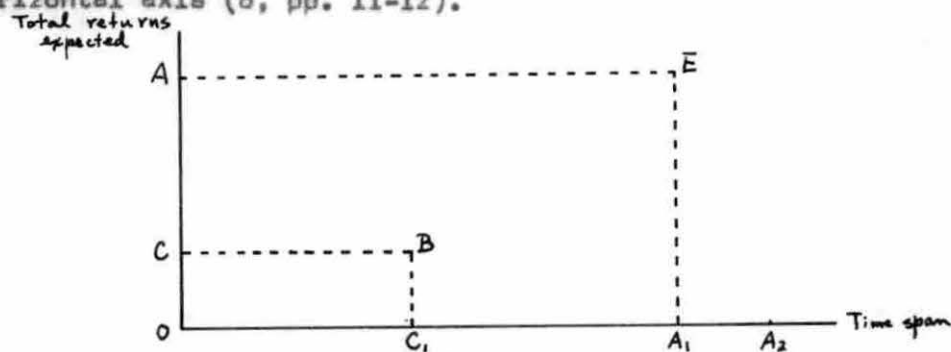


Figure 1. Expected planning horizon

In Figure 1, B represents one production choice, say, rice growing. E is another production choice, say, livestock production. B indicates that compared to the other choice (E), this production choice requires a shorter planning horizon (OC_1) but smaller returns (OC). In terms of rice production, the tenant has to wait about four months (OC_1) to be able to reap OC dollars worth of returns. Similarly, E shows that if he raises livestock, he must wait longer but the returns are also higher, i.e., more efficient. Tenants whose expectations could not stretch to cover OA_1 are forced to adopt a quickly-realized but less efficient production choice, B. It is only after he becomes sure about staying on the farm to reap its benefits or obtain due compensation from the landlord that he is willing to adopt a more efficient production method represented by E. That is to say, the degree of security determines the actual production chosen. The more secure his expectation, the longer the planning horizon and the more efficient his farming will be. If he is extremely insecure, he might try to reap the most from the land during his short period of expectations. This often results in the so-called "exploitative agriculture" which invites, among other things, soil exploitation. Lastly, length of lease need not be infinitely long. All that theory requires is that it should be sufficiently long to cover the most profitable planning horizon. In terms of Figure 1, if B and E exhaust all the possible choices, then OA_1 may be taken as a norm of length of lease. To extend it to, say, OA_2 , is not necessary.

Prior to the reform, the most common practice was tenancy from year to year. Under this type of tenancy contract, no specification was made

on the length of lease. Landlords wanting to terminate the contract were able to do so by notifying the tenants, in advance, at the date fixed by local custom. So practically all tenants enjoyed a one year expectation only. Thus, sometimes they had to forego longer-term, yet more efficient, production choices. Therefore, the harvest was often small and the income shared meager. Here we witness both inefficient farming and poverty existing side by side.

The social impact of the insecurity is equally crucial. The same reason that discouraged the tenant's interest in longer-term and more profitable production choices, also worked to prevent him from being interested in social life. He just could not think of himself as a member of the society. He belonged to no particular society. Therefore, having no definite idea of his length of stay, he showed no interest in participating in social affairs, not to mention taking any positive actions on community development. Dr. Timmons has said that (8, p. 13): "the tenant family continually faced with the possibility of eviction cannot develop socially, economically, or politically."

2. Forms of contract

Between the two forms of contract, written and verbal, the latter prevailed in Taiwan. About nine out of ten contracts were verbal (10, p.27). Admittedly, there is nothing wrong with a verbal contract so long as it is a clear straightforward agreement. Unfortunately this qualification is rarely met. Especially when both parties differed as greatly in social and economic positions as did the landlords and tenants in Taiwan, verbal

contracts meant almost nothing. Subsequent unnecessary disputes were all too frequent, and when disputes arose, it was usually the tenants who were the losers.

All in all, tenants were entirely at the mercy of their landlords. They enjoyed no protection. As a consequence, they did not work hard or utilize the resources efficiently. They knew that increased production, arising from the fruits of their hard work and skillful management, merely gave landlords another opportunity to charge more. Thus, one of the most powerful weapons which pushes an economy forward, the profit incentive, had faded completely from tenants' economic life.

Finally, in order to show how unfavorable and unbearable to the tenants the former tenancy arrangements were, tenancy disputes brought up for settlement in the pre-reform period are classified by their nature in Table 2.

Table 2. Tenancy disputes by nature (1911-1940)^a

Year	Rental issues		Tenure rights issues		Other issues		Total	
	(Cases)	(%)	(Cases)	(%)	(Cases)	(%)	(Cases)	(%)
1911-1929	568	66	217	25	70	8	855	100
1930	273	44	244	40	99	16	616	100
1931	504	54	299	32	126	14	929	100
1932	403	48	331	39	112	13	846	100
1933	511	56	300	33	109	12	920	100
1934	325	45	315	44	79	11	719	100
1935	337	50	265	40	64	10	666	100
1936	200	41	240	50	43	9	483	100
1937	205	56	142	39	20	6	367	100
1938	119	49	98	41	24	10	241	100
1939	174	59	102	38	19	3	295	100
1940	1,271	85	220	15	11	1	1,295	100
Total	4,890	58	2,773	33	776	9	8,439	100

^aSource: (1, p. 34).

It can be seen that disputes centered around rents and tenure rights. Rental issues occupied 58 per cent of the total issues and tenure rights, 33 per cent. Among the rental issues, the most frequently disputed topics were rent reduction and failure to pay rents which recorded 1,933 and 1,819 cases respectively, in 1911-1940. Cancellation of contracts before their expiration date was the one with the highest frequency in the category of tenure rights. During 1911-1940 altogether there occurred 1,199 cases of this nature (1, p. 34).

III. THE GOALS AND TARGETS

In Chapter II, the problematic areas have been discussed. These were the unsatisfactory phases of the pre-reform tenancy system. Since such dissatisfactions could arise only after contrasting the existing situations with some sort of satisfactory situations, we might well ask what these satisfactory or ideal situations are. Goals of the tenancy improvement measures refer to these ideal situations, which are presented in terms of income distribution, production, and social goals and targets.

A. Income Distribution Goal and Targets

1. More equal income distribution as a goal

From the necessary conditions for economic development and basic economic functions of tenancy improvement discussed in Chapter I, it is clear that the tenancy improvement measures must be directed toward more equal income distribution.

Two criteria are most commonly used to measure the equitability of income distribution. One is the functional income distribution theory, which states that the factor reward should be determined by the marginal productivity of each factor. If the factor is paid by the product then each factor will receive that part of the output which corresponds to its marginal product. If paid with money, as is usually the case, then the price of the factor service will be equal to its marginal revenue product. The other criterion is socio-economical and stems from a subsistence oriented point of view. The criterion here is whether the

number of persons in the community whose level of living falls below an acceptable standard of subsistence has been reduced to a practical minimum (11, p. 46).

Actual observations on the pre-reform income distribution between tenants and landlords revealed that the product was not shared in proportion to the contribution made by each party. Nor was it equitable in the face of the extreme misery and poverty that the tenants were burdened with. It follows that a tenancy improvement measure such as the program under study should have a more equal income distribution as a goal of prime importance.

Vice-president Chen Cheng, under whose supervision the program was carried out, delivered a speech before the annual Farmers' Day meeting in Taiwan on February 4, 1949, two months before the inception of the program. The title of the speech reads "...to implement rent reduction, to increase production, as well as to improve the farmers' living" (15-16, p. 99). Also, on another occasion, he said:

...Now the farmers toil so bitterly throughout the year and still have not enough to support themselves. It is only natural that they do not work hard. Therefore the implementation of the 37.5 per cent farm rent limitation program could...improve the farmers' living and increase the production of food. (15-16, pp. 101-102)

2. Income distribution targets

The goal of more equal income distribution is, in a sense, one of the ultimate goals toward which every policy and program is eventually directed. It is the "common" goal of all distributive policies and

programs. In contrast, there might be "specific" goals of each particular policy or program. These specific goals must be a translation of the "common" goal to suit the special need of the individual program. Being such, they must be varied from policy to policy and from program to program. This is the already mentioned concept of "target variables." Or expressed differently, they are ends-in-view to be accomplished by that particular policy or program.

What were the targets of the program under study concerning income distribution? The direction of the income redistribution was clear: the income should be transferred from landlords to the tenants. How much income transformation did the program intend to accomplish? To answer this question is to identify the targets.

Theoretically, the amount to be transferred would be based either on the functional fair rent or on the subsistence level of living. However, this was practically impossible to work out. The actual figure adopted as the target for the program was an increase in tenants' income of 12.5 per cent of the total yield, i.e., rent was reduced from the pre-reform estimate of 50 per cent to 37.5 per cent of the total product (Appendix, The Farm Rent Reduction to 37.5% Act, Article 2).

At this point it is appropriate to introduce the other target, namely income stability or a guarantee of minimum income. In the pre-reform years, incomes of some tenants fluctuated widely from year to year due to (a) the rigid, so-called "iron-clad" rent practice and (b) insecurity of tenure rights. The importance of income stabilization to tenants is more fully realized if we recall that they lived at about the

bare subsistence level. For these poverty-stricken people, a small decrease in income would easily become a death-blow. This target provides tenants with minimum fear of starvation, i.e., with maximum assurance of an income necessary to meet the subsistence level of living.

B. Production Goal and Targets

The quotations from Vice-president Chen Cheng in the preceding section indicate that the program was a dual-purpose one. The income redistribution aspect of the goals has already been developed in the last section. This section deals with the other goal, that of increases in agricultural production. Strictly speaking, an increase in agricultural production is the specific target of the program which could be broadened to form the over-all, ultimate goal of production--increase in national product. Following the procedure in the last section, we shall start with this "common" production goal first and then turn to the "specific" targets of the program relevant to the production goal.

1. Maximum national product as an ultimate goal

The goal of maximum national product requires that the national product be maximized under the present conditions of technology and resources. This is another way of saying that resources must be allocated in such a way that they yield the same marginal revenue product throughout every line of production in the society. In short, "maximum national product" is the same as "optimum resource allocation" or "efficient production."

2. Increase in agricultural production as a target

If, through the program, the incentive to work and the willingness to improve each individual's lot have been restored to the tenant, then the increase in agricultural production may be expected. And since Taiwan's economy relies on agriculture rather heavily, the increase in agricultural production would undoubtedly increase the national product considerably. Moreover, since an increase in agricultural production will bring about an increased consumption of goods and services of non-agricultural origin by tenants, the production of these goods and services will be stimulated and their markets expanded. Thus, an increase in agricultural production is capable of acting as the target--the ends-in-view--to further serve the ultimate goal, namely, maximum national product.

How much of an increase in agricultural production was desired as the target to be attained by the program? Unlike the case in income redistribution, no specification was made for this target. This is understandable because, though these two were listed side by side as the major goals of the program in the quotations they did not carry the same weight in the minds of political leaders. The focus of tenancy improvement problems was traditionally on the income distribution. Hence, the cure for the rural poverty situation occupied a predominant place in the plan. In contrast, the goal of increased production was rather casually recognized by relatively few, and never succeeded in attracting the appropriate attention it deserved.

This section may be concluded as follows: (a) the increase in agricultural production was expected and desired, (b) this increase will

further contribute to general economic prosperity and development, and (c) in achieving the target of agricultural production increases, providing incentives to tenants to improve their economic status would play a central role as an end-in-view to the above target. Then, stronger incentives to work harder and to improve production efficiency may be added as a secondary target here.

3. More security in tenure rights as a target

More security in tenure rights is the other target related to agricultural production. It has already been demonstrated that agricultural production under tenancy is in part determined by the degree of security the tenant enjoys. The less secure tenure rights are often associated with less efficient farming. The tenant will have a smaller total product and his share of the output (his income) is likely to be small also. The crucial part played by the security in tenure rights thus becomes obvious. Its effect spreads out from production to distribution end to the level of living.

C. Social Targets of the Program

Aside from the economic targets, the program had some social targets, too. The feudalistic elements of the rural community, like personal or household services by tenants, are not conducive to individual independence. Further, the class conflict between tenants and landlords was the cause of much of the political agitation and civil dissension. If a democratic and progressive rural Taiwan is wanted, then all these undesirable

elements must be eliminated. Thus elimination of feudalistic holdovers and minimization of social conflict as well as an increase in (a) human independence and (b) interest and participation in social development by tenants became the social targets of the program.

IV. THE MEANS

Means are the measures taken to close the gap between problematic areas in existing situations and the targets. Usually many means are available for achieving given targets, i.e., means are variables.

These variables may be divided into two separate but related categories, i.e., the instrumental variables and the structural variables. Structural variables relate to the structures fashioned by decree and legislation. Referring to agriculture, the existing agrarian structures are, of course, the product of the people in the past and may be changed by the people of the present whenever they see fit. The agrarian reform, of which the land reform is a part, is the process of altering the agrarian structures through the passing of new decrees and legislation.

Obviously men's actions can take place only within the framework of the structures. Therefore, the structures are basic in the sense that they govern economic activities and control behaviors of instrumental variables, such as interest rates, wage rates, rental rates, capital investments, etc. Hence, structures are influential in determining the amount and the way that the resources can be combined and utilized. These, in turn, set the level for the final outcome of the economic activity--productivity and national income.

While we are aware that there are many means to achieve given targets, we shall concentrate, in this chapter, on the means which were actually adopted. The alternative means will be brought out when we appraise the effectiveness of these means in the next chapter.

The 37.5 per cent farm rent limitation program of 1949 in Taiwan is the measure to change the tenancy aspect of the agrarian structures in accordance with the targets set forth in the previous chapter. The program is legally backed by The Regulations Governing the Lease of Private Farm Lands in Taiwan as quoted in Tang (10), and a companion piece, The Farm Rent Reduction to 37.5% Act as quoted in Tang (10), which were promulgated on April 14, 1949, and June 7, 1951, respectively. Of these two, the second is more drastic and complete, and therefore will be the one referred to in this study. Only the principal features of the program are presented below. Readers wishing to grasp the whole picture should refer to the Appendix.

A. Provisions Directed toward Income Targets

1. Rent limitation as a means to increase tenants' income

Rent was cut from the pre-reform estimate of 50 per cent or more to 37.5 per cent or less. The exact meaning of 37.5 per cent farm rent limitation is given in Article 2 as follows:

The farm rental rate shall not exceed 37.5% of the total annual main crop harvest. If the rental exceeds that rate, it should be reduced to 37.5%. If the rate is below 37.5%, it shall not be raised.

The main crop as referred to in the preceding section denotes such crop which is mostly planted according to the local farming practice or such rotation crops actually planted and the main crop harvest denotes the main harvest of such crop for the purpose of which it is planted.

Obviously this is a price ceiling. Here the highest price for the use of land is set at 37.5 per cent of the total annual main crop harvest. The total annual main crop harvest is the estimated average yield of the

main crop and is hereafter called the standard yield. Such a figure was estimated for each plot and the rent is based on this estimate. Being an average based on past production, the standard yield does not vary from year to year with the harvest. Notice also that the rent is in terms of the major crop even though some other crop might be raised. Since the standard yield is a fixed amount, the rent thus determined is a fixed amount. Moreover, the provision implies that future production increases due to harder work and more skillful management will solely belong to the tenants. Thus this provision may increase tenants' income in two ways. One is an immediate, direct effect coming from the limitation of farm rent. The other is the secondary, indirect effect originating in production increase stimulated by the rent ceiling.

2. Reduction and exemption of rent as a means to guarantee minimum income

It has been pointed out that tenants lived at the mercy of landlords and often were not guaranteed even a bare subsistence. In order to achieve social justice, i.e., in order that tenants might receive at least a minimum amount of necessities in years of bad harvest due to the unfavorable natural forces beyond men's control, Article 11 provides that:

(a) When a harvest is small as a result of natural catastrophes or uncontrollable disasters, and when the loss is less than 70 per cent of the standard yield, the Farm Tenancy Committee, which was set up under the provision of Article 3, shall decide the rate of reduction.

(b) If the loss is more than 70 per cent, then the tenant shall be exempted from paying rent for that year.

B. Provisions Directed toward the Production Targets

1. Minimum length of lease as a means to promote efficient farming

As developed in Chapter II, the length of lease is a crucial factor in determining resource allocation and farming practice. After studying the existing farm systems and possible enterprises that might be introduced into Taiwanese agriculture, the conclusion was reached that six years (Article 5) would be long enough to meet the expectation horizon for advantageous resource allocation and efficient farming practice.

2. Protecting tenants so that they may remain on the farm

Moreover, the lease is renewable. The conditions under which landlords can evict the tenants were severely restricted (Articles 17 through 20 and Article 25) so that for practical purposes tenants may regard their term of occupancy as lasting indefinitely and may act accordingly. These provisions carry special meaning to Taiwanese tenants because rapid population growth coupled with the lack of job opportunities within and without agriculture has resulted in keen competition for renting available land, and this, in turn, has caused them to remain in the vulnerable group. Were there no provisions of this sort, landlords would take every opportunity to evict present tenants and the "black market" leases would soon arise. The final outcome of this unhappy occurrence would be the complete collapse of the program.

3. Compensation on the unexhausted investment

As a rule, efficient farming requires substantial investments. And,

in most instances, the heavier the investment the slower the capital turnover. Unless tenants are assured of compensation on the unexhausted part of investment made by them, they will not be interested in investment, especially investment of the heavier and slower turnover type. As a result, agricultural development would be slowed down considerably. It is in recognition of this need that Article 13 of the Act concerning compensation was provided. The first part of Article 13 reads:

The lessee may freely make any special improvements on the farm. When the lease expires and the land is returned, the lessor should give compensations to the lessee for such improvements, but only for those parts of the improvements which are still useful at the time of making the compensation.

Thus the program encourages tenants freely engaged in "keeping the original quality and utility of the farm unimpaired" and also in increasing "the productivity or farming capacity" (Appendix, Article 13). The upshot of this would be (a) the extension of tenants' planning horizons and (b) increase in tenants' capital investments on farms with resultant increase in efficiency.

It should be pointed out, however, that the Act fails to make it explicit just how the compensation may be evaluated. There are three general methods of calculation (8, p. 20): (a) compensation may be based upon original cost of various improvements; (b) it may be based upon the replacement cost; or, (c) it may be based on the added return which the improvement will bring to future cultivators.

Each of these has its own problems. When there are price changes during the period covered, the former two methods will bring windfall gains to some and corresponding losses to others. The added return

method is the most sound one in theory, but it is difficult to assess the value of added returns in practice.

C. Provisions Directed toward Social Targets

1. Cancellation of extra burdens

In the pre-reform days, in addition to the rent, tenants were often asked to pay (a) rent in advance and (b) deposit money. These are made illegal in Articles 12 and 14. Moreover, all obligations each party must adhere to are now clearly listed in the Act. There is no room for the feudalistic holdovers, or extra burdens to be put on tenants' shoulders.

Tenants will gradually come to realize individual independence. With added security in tenure rights, they will develop themselves toward the goal of being respectable members of the society and begin to participate in community development.

2. Establishment of farm tenancy committees

As shown earlier, many conflicts and disputes developed between tenants and landlords prior to the reform. Of course, these could be brought to the court for settlement. However, appeals to the court take time and require money. Moreover, tenants were not accustomed to courts and showed ignorance as well as fear toward this way of settlement. The government, too, was anxious to see the program fully effective and desired to obviate these conflicts and to provide a means for their settlement. It is under these circumstances that the special committees were set up to provide for settlement of the tenancy disputes.

According to Article 3, the two major objectives of such committees are (a) to insure that all farm tenancy contracts are made to follow strictly the directions given in the Act and (b) to settle disputes arising in landlord-tenant relationships.

It is seen that through enforcement of the program (a) the tenancy arrangements were brought under close supervision, and (b) tenure rights were carefully protected. No more would tenants suffer from abuses of landlords. The reform has guaranteed tenants with returns for their resources contributed. It has injected the tenants with the incentives to produce more and to better their economic as well as social positions. It has also furnished the basis for production improvement, especially for the long-term investment. What kind of reactions have tenants showed in resource use and production? What kind of effects has the reform given to the over-all economic development of Taiwan? These questions, with others, will be analyzed in the following chapter.

V. EVALUATION

Success and failure of the program must be judged in light of its goals and targets. We conclude from Chapter III that the program was a multi-purpose one with three major goals and even more targets. Instead of appraising the program in terms of each and every target and goal, however, we propose to analyze the effects of the program in terms of two major targets--increases in tenant's income and increases in agricultural production. It is clear from the above argument that the program was capable of achieving other targets. This is especially so in the argument of the last chapter where the straightforwardness of the means--the program--toward these other targets is shown. In contrast, the effects of the program upon two targets mentioned above are not altogether certain and plain. Here the more distant, long-run effects may have a quite different picture than the immediate or short-run effects.

The need for distinguishing short-run and long-run effects of the program on these two targets becomes apparent through an analysis of the program's impact on the pattern of resource allocation. This is a non-target variable of the program and is a crucial one, for the level of income is determined by the productivity, i.e., by the way the resources are combined and used. Has the program changed the combination and utilization of resources in tenants' farming? What kind of impact will this change in the pattern of resource use have on the agricultural as well as the over-all development of Taiwan? What are the shortcomings of the program? What other steps might be suggested in order to insure the

program's enduring success in the context of both narrower agricultural development and broader economic development?

This chapter will proceed with a discussion of accomplishments of the program in terms of income and production increases. This will be followed by a discussion of the points raised in question form above. Finally, the chapter concludes with the presentation of the further steps needed.

A. Accomplishment of the Program in Terms of Income Distribution

1. Increase in tenants' income

The merit of the program in this aspect becomes clear when one considers what the extra crops meant to the tenants who had been suffering from starvation, disease, and misery. The principle of diminishing marginal utility holds that the marginal utility decreases as the units one possesses increase. Thus it may be said that the marginal utility would be much greater for the poor who has little than for the rich who already has much. An additional basket of rice, for instance, might hold a key position in the life of the tenants who were habitually short of rice between crops. In fact, in the poor years many tenants were forced to borrow a basket of rice at a high rate of interest until the next crop was harvested. In this sense, the meaning of their gain, no matter how small the increment might be, can hardly be overestimated.

But the effect of the rent reduction on tenants' incomes does not stop here. Further increase in tenants' incomes would be expected through the provision of incentives to produce more. This incentive arose because

the 37.5 per cent rental rate was a fixed rent and the security of tenure rights assured them the whole fruits of their labor in excess of the standard harvest. Increased production would be expected under the Act because tenants' incomes have increased and they are certain that they can receive the reward for what they put into land, and therefore they are willing to spend part of the increment of their incomes for the production purposes.

Just how much reduction in rent was made or how much increase in tenants' incomes was brought about as a result of the program? Remember, the target here was an increment being 12.5 per cent of the total yield.

According to the survey carried out in 1950 by the Chinese Research Institute of Land Economics, the average increase in rice-growing tenants' shares was about 660 kilograms per hectare (12, p. 31). Assuming average size of farms in that year to be 1.4 hectares, and converting the above figure into per family basis, the rise in tenants' income was about 900 kilograms. Since the total yield could be estimated as somewhere around 5,700 kilograms, the 900 kilogram increment would be about 16 per cent of the total yield.

Increased incomes may be used either on consumption or on production. It is the money spent on consumption that directly contributes to the level of living. One report (17, pp. 37-38) states that, in 1950, about one-third of the increased income was spent on living expenses among which "food and clothing" were the largest items to draw tenants' money. Again, the proportion spent on living expenses is found related to the size of farms, reflecting the hard-pressed living of the small-holding farmers.

In the case of smallest farms (less than one hectare) all of the increased income resulting from the rent reduction was absorbed by the living expenses. While in the case of second smallest farms (one to two hectares), farmers spent 63 per cent for this purpose (18, p. 240).

This evidence is consistent with the hypothesis that the program has had the effect of increasing incomes and levels of living for tenants. Other programs, e.g., the recovery and rehabilitation programs of the government, may also be operating here. Available statistics also reveal that these initial increases in income and the level of living have continued in the years that followed. This is shown in Table 3.

Table 3. Disposable income, consumption expenditures, and savings per farm family in 1952 constant dollars^a

Year	Disposable income		Consumption expenditures		Savings	
	(N.T.\$) ^b	(%)	(N.T.\$)	(%)	(N.T.\$)	(%)
1950	8,258	100	7,639	92.5	620	7.5
1954	9,100	100	8,611	94.6	619	5.4
1957	8,708	100	8,031	92.2	677	7.8
1958	10,078	100	9,110	90.4	968	9.6
1959	8,560	100	7,336	85.7	1,224	14.3
1960	9,743	100	8,185	84.0	1,557	16.0
1961	10,827	100	9,280	85.8	1,542	14.2

^aSource: (19, p. 19).

^bN.T.\$: New Taiwan dollars. The current official rate is N.T.\$40 to U.S.\$1.

The disposable income per farm family increased from \$8,258 to \$10,827 during 1950 and 1961. The partition of income among consumption expenditures and savings is also convincing. The increase in consumption expenditures indicates a higher level of living enjoyed, while the increase in savings, remarkable both in value terms and percentage terms, suggests the greater ability to invest among farmers. (Whether the savings actually reached such a high level is open to question. However, an increase in savings may be safely accepted.)

2. Inflation and low price policy as offsetting forces

Income comparisons in the preceding section are expressed in terms of "real value" because of the inflation in those years.

Indeed, inflation and resultant low price policy have swallowed part of the increase in tenants' incomes. This is so because what was increased was the tenants' shares in real product. Therefore, if during these inflationary years, the agricultural prices became relatively cheap in comparison to other goods, as actually happened in Taiwan, the farmers' real incomes shrank. If the divergency becomes considerable, most of the benefits tenants derived from the program may be cancelled out by this offsetting deflation of the value of agricultural products.

The Taiwanese economy had suffered from hyper-inflation since the end of World War II, which eventually led to the monetary reform of 1949 in Taiwan. Since then the government has become very sensitive about price movement and followed the general low price policy. Naturally, the government's price control did not exercise equal pressure on all goods.

The focus has always been on rice and other agricultural products which comprise the staples in everyday living. This is to say, the general low price policy worked to the detriment of farmers' interests, for the goods they sold were cheap as compared to the goods they bought. The following table shows severe inflationary trends, as well as the divergency between prices of rice and other goods.

Table 4. Comparison of rice price level and general price level, 1935-1937=100^a

Year	Rice price index (1)	General price index (2)	Relative price (1)/(2)
1935	97.4	92.8	1.05
1940	121.6	168.2	0.72
1946	20,176.9	10,574.7	1.91
1950	568.0	987.1	0.58
1955	1,735.7	2,562.5	0.68
1957	1,905.5	3,096.7	0.62

^aSource: (20, p. 183).

The above unfavorable price structure has been somewhat corrected recently. During 1958-1962 the general price level went up about 35 per cent while price of rice increased nearly 60 per cent. Yet there still exist both inflationary power and time-lag in agricultural prices. As long as they exist the farmers are likely to be relatively worse off. As inflation develops, their products become worth relatively less and their incomes shrink.

In this vein, the importance of correcting the price structure to

bring agricultural prices up to par, as well as checking the inflationary pressure becomes obvious as a means of guaranteeing to the tenants the results of the program.

B. Accomplishment of the Program in Terms of Agricultural Production

In the previous section it was argued and shown that the program would provide tenants with stronger incentives and greater abilities to produce more, and that this in turn would further increase their incomes. How much did the agricultural production increase after the implementation of the program?

Everywhere in the reports the marked increase in agricultural production is stressed. For example, Yang (10, p. 61) reports that within the six year span from 1947 to 1952, total agricultural production increased by more than 57 per cent and the productivity per land unit increased by nearly 35 per cent.

Production increase is the result of either expansion of arable land or more efficient farming or both. In view of the rather constant arable land area during these past thirty years (21, Appendix Table 3) it may be concluded that the production increase is due largely to more efficient farming. Hsieh and Lee (21, p. 53) give us the clue to resource productivity in recent years. From Table 5 the general upward trend in productivity is seen. Except capital productivity, all show an increase. Between 1950 and 1956, the aggregate resource productivity increased about 15 per cent, while the land productivity per unit of land area increased 33 per cent. Labor productivity increased about 20 per cent. The

trend for capital productivity seems to be declining, but its level is still relatively high. Later on we shall have an opportunity to come back to the problem of changes in individual resource productivity and its implications. Here we note that resource productivity was, generally speaking, increasing following the program.

Table 5. Indexes of resource productivity in agriculture^a (1935-1937=100)^b

Year	Index of aggregate resource productivity	Index of land productivity per unit land area	Index of labor productivity per agricultural worker	Index of labor productivity per man-day labor input	Index of capital productivity
1935-1937	100.00	100.00	100.00	100.00	100.00
1945	63.74	50.00	59.48	61.00	175.57
1950	103.54	99.34	77.01	87.00	144.25
1955	110.64	120.70	92.24	98.50	105.17
1956	118.55	131.94	100.29	104.50	110.06

^aNote: Whole agriculture, not only that of tenants'.

^bSource: (21, p. 53).

In passing, it may be added that not only crop production increased sharply but the major side-lines of Taiwanese agriculture, livestock and poultry production also increased. Between 1949 and 1953, the number of hogs raised more than doubled, cattle increased 9 per cent and poultry increased around 30 per cent (4, pp. 109-110). These increases may be a direct result of the program and are, in any case, consistent with the hypothesis that because of the program, tenants are able and willing to improve their own lot.

Of course, the actual production increase is a combined outcome of various forces, such as advancement in technology, expansion in irrigation facilities, etc. The program was merely one of the forces but an important one.

We know "the means" consist of structural variables and instrumental variables. We know, too, that the program belongs to the former. After the implementation of the program, the structure of the tenancy system changed in such a way that now tenants possessed a stronger incentive to work hard and to produce more. This incentive, in turn, brought out the changes in instrumental variables, which took shape of more intensive farming, both in terms of labor and of capital. This will be explained below.

The tenants were willing to produce more, and they had means to do so. First of all, their incomes have now risen. Part of the increased incomes would be, without doubt, used on the consumption phase. Equally true is that part of the increased incomes, perhaps a greater portion as times pass by, would certainly be invested on farms for improvement purposes. Their tenure on the land became secure, for by law, their leases were of six years duration or longer and the landlord could no longer evict them at will. Thus, they could be sure of reaping the benefit of their investments. Secondly, under the rent reduction statutes, their rent was fixed at 37.5 per cent of the standard yield (i.e., a fixed rent) and not the actual yield harvested, so that when the actual harvest exceeded the standard yield they could keep all such excess products for themselves and did not have to share it with landlords. Hence, they spent,

on the average, two-thirds of their immediate increase in incomes caused by the enforcement of the program on investment in the farm, especially on fertilizer. In fact, fertilizer alone absorbed two-fifths of the increased incomes, and so far is the largest sole outlet. This is shown in Table 6.

Table 6. Use of increased income in 1950^a

Use	Percentage
Fertilizers	39.8
Draft animals	14.2
Farm implements	12.8
Food and clothing	7.3
Health and education	5.5
Housing and transport	4.8
Amusement	2.3
Miscellaneous	13.3
Total	100.0

^aSource: (17, pp. 37-38).

Labor has been the most plentiful resource in Taiwanese agriculture as discussed earlier in this study. Now equipped with stronger incentives and higher income, tenants' farming naturally moved in the direction of labor intensified farming accompanied by larger capital inputs, especially working capital. This movement, during 1949-1956, is indicated in Table 7.

Table 7. Indexes of agricultural inputs^a (1949=100)^b

Year	Land area	Labor input	Working capital	Fixed capital
1949	100.0	100.0	100.0	100.0
1950	100.7	101.9	135.8	94.7
1951	101.0	103.5	152.6	95.4
1952	101.3	109.3	182.9	103.3
1953	100.9	111.3	199.0	111.8
1954	101.1	111.2	225.5	122.5
1955	100.9	109.7	238.0	118.4
1956	101.3	113.7	250.4	121.4

^aNote: Whole agricultural inputs, not only tenants' inputs.

^bSource: Compiled from the data (21, Appendix Table 3).

Table 7 shows that more and more labor and capital have been associated with practically fixed land area after the enforcement of the program, i.e., farming has been intensified. This is especially clear in the case of working capital, attributable mainly to the great increase in fertilizer use. Are these paces of intensification more rapid than the past pace? Compared, for instance, with the peak period in Japanese regime, i.e., compared with the years 1935-1939, we notice that (a) the annual increase in labor input during 1950-1956 is 2 per cent while that of 1935-1939 is 0.8 per cent and (b) for working capital, the same rates were nearly 20 per cent versus less than 2 per cent (21, Appendix Table 3).

C. Impact of the Program on Resource Use

--Non-target Variables--

In the previous sections, the immediate as well as shorter-term effects of the program on income and production increases have been discussed. As a whole, the program succeeded in achieving these targets. Now turning to the longer-term effects of the program on income and production increases one must, of necessity, pay close attention to the impact of the program on resource use. Here our discussion will be expanded not only from shorter-term effects to the longer-term effects but also from a narrower context to a wider one covering the relationship with non-agricultural sectors. That is, we propose to analyze the position of the present program in the long-term over-all economic development framework.

This section is divided into two parts. The first part is devoted to a brief sketch of the recent pattern of resource use in Taiwanese agriculture, together with the accompanying allocative problems. Then, in the latter part, the effects which are probably closer to the repercussion of the program on the resource use problems will be discussed. Throughout the whole section, the major point of departure is the optimum resource allocation in the whole economy. That is the reason we said we would encounter the over-all economic development framework. We will be concerned with the relationships between the agricultural sector and the non-agricultural sector.

Another point, which will become obvious as one proceeds, is that we are getting into the realm of the possible shortcomings of the program.

1. Pattern of resource use in recent years

One of the outstanding features of Taiwanese agrarian structures is the extremely small size of holding. Large numbers of farms are too small to meet even the subsistence minimum, not to mention the full utilization of the farmer's equipment.

Table 8. Average size of farms in Taiwan, selected years^a

Year	Size of farms (hectares)	Index (1942=100)
1942	1.89	100
1947	1.51	80
1949	1.39	74
1951	1.32	70
1953	1.24	66
1955	1.19	63
1957	1.15	61
1959	1.12	59
1961	1.09	58

^aSource: Compiled from the data (6).

During the past twenty years, as Table 8 shows, the average size of farms in Taiwan has been steadily declining; from nearly 2 hectares in 1942 to slightly over one hectare in 1961. These sizes are hardly deemed large enough for providing full utilization of farmers' resources. For one thing, their labor has never been fully utilized, as will be pointed out later. Again, the decline in size of farms is serious in the sense that technological development, especially mechanization, usually favors larger farms. At least, some minimum size of farms is a "must" for

mechanization. A fairly large size is "preferable" for mechanization to speed up.

Are farms big enough to provide a subsistence minimum? Obviously 0.5 hectares appears to be too small. One study carried out in 1957 reveals that the total farm family income earned by farmers operating less than 0.5 hectares was not sufficient to meet all their expenses (22, p. 130). A rough estimate is that nearly one hectare (in the case of better land, such as paddy land, approximately 0.75 hectares) is needed for the farm family to break even financially (23, p. 1). Regarded from this subsistence minimum, it may be said to be fortunate that the average size of farms in Taiwan is still above that minimum. But the prospects for the future appear extremely pessimistic. Should the declining trend continue, it would not be too long before the average size of farms drops into the "under the minimum" bracket.

Although the average size of farms is still above the "minimum" required, many farms have long ago sunk into the below-subsistence-minimum. Farmers in this category have supplemented their incomes by some non-farm sources.

Table 9. Classification of farms by size, selected years^a

Classes (ha)	1939		1949		1956		1961	
	(Number)	(%)	(Number)	(%)	(Number)	(%)	(Number)	(%)
Less than 1.0	197,730	46.23	322,039	56.87	422,948	56.86	492,529	60.99
1.0-2.0	112,555	25.91	157,446	27.81	198,245	26.65	195,183	24.17
2.0-3.0	57,404	13.17	54,197	9.57	69,382	9.33	65,916	8.16
3.0-5.0	41,711	9.56	25,641	4.53	37,749	5.07	36,695	4.54
Above 5.0	22,384	5.13	6,947	1.22	15,604	2.10	17,277	2.14
Total	431,784	100	566,270	100	743,928	100	807,600	100

^aSource: Compiled from the data (24, p. 10, 25, pp. 12-19, and 26, pp. 26-27).

Two things stand out clearly in Table 9. One is that during the twenty years just passed, the number of farm families has greatly increased. It has nearly doubled. This does not imply, however, that the farm family has been divided into smaller households, say approximately half as big as before. Rather, this is a sign of the decline of size of farms to almost one-half of the size they were twenty years ago. The size of the farm family remained almost the same as shown in Table 10. Thus Tables 8, 9, and 10 put together, warn us (a) how serious the man-land ratio has already become and further (b) how increasingly acute this problem has become through passage of time. Almost the same size farm family operates smaller and smaller farms. In less than a generation, the same acreage of land must now support two farm households, on the average.

Table 10. Average size of farm household in Taiwan^a

Year	Persons per farm household
1931-1940 average	6.6
1941-1950 average	6.7
1955	6.4
1960	6.8

^aSource: Compiled from the data (4, pp. 7-8 and 19, p. 12).

The other point is the steady tendency of the size of farms to decrease. Noteworthy is the increase in the smallest size class, acreage less than one hectare. Farms in this class which are supposedly "too

small" have been increasing both in number and in percentage. The number of farm families in this class has more than doubled. Percentage wise, it has increased from 46 per cent in 1939 to 61 per cent in 1961. On the other hand, larger farms are declining, both in number and in percentage. Overall, Table 9 shows us clearly how pessimistic the outlook is. There is a steady increase in the number of supposedly "too small" farms, the presence of which is a burden to the society; for this is where inefficiency and poverty originate. Also witnessed is the steady decline in the number of larger farms, the presence of which should be an asset to society, for this is usually where advancement and prosperity take place. It is apparent that the small size of farms is a very critical obstacle to the development of agriculture and of the economy in general in Taiwan. Having succeeded in removing undesirable aspects of tenancy arrangements in Taiwan, now it is time to tackle this size of farms problem, lest the upward trend in income and production be dampened. This issue will be taken up in the next section.

Size of farms as we have just discussed, is really a special type of expression of combination of resources. For instance, small farms mean an undesirable man-land ratio. It means too many people crowded in small areas, or super abundant labor combined with scarce land. Therefore, we propose to look into the supply of land, population growth, and the related labor supply in agriculture.

It has been pointed out that land is the limiting factor in Taiwanese agriculture. Other resources must be geared to this limiting factor since its amount is, in a practical sense, relatively fixed. The percentage of

cultivated land to the total land has remained 24 per cent (around 873,000 ha.) for more than a decade. Moreover, an increase in cultivated land is not feasible, according to experts.

Since land is scarce and fixed, the small farms indicate that there are heavy population pressures and excess agricultural labor.

Taiwan has always experienced a high population density. It is reported that there were 285 persons per square kilometer in Taiwan and that this was the third highest density in the world (27). Making things worse is an ever more rapidly increasing population. Annual population growth in Taiwan has been tremendous. Recent statistics on the population growth rate indicate it is always above 3.0 per cent, usually close to or even exceeding 3.5 per cent. For instance, annual rate of growth during 1958-1961 averaged 3.7 per cent (28, p. 114). In fact, this has been one of the world's highest rates of population growth. As classified by Thompson, (29, p. 35) our population trend belongs to the Class II, characterized by high birth rate and low death rate. In 1960, the live birth rate was 3.95 per cent while the death rate was 0.69 per cent (30, pp. 311 and 314). How to feed (this relates to level of living) and to provide work (this relates to productivity and national income) for this already vast and still rapidly increasing population are certainly the most acute challenges Taiwan is destined to face. This is the very problem that worried Malthus profoundly years ago.

In spite of the economic development that has taken place in the past one-half century, Taiwan is still heavily oriented toward agriculture. The agricultural population has remained large and stable

relative to total population as shown in Table 11.

Table 11. Increase in total and agricultural populations^a
(Thousand persons)

Year	Total population (A)	Agricultural population (B)	Percentage $\frac{(B)}{(A)}$
1910	3,299	2,087	63
1919	3,715	2,297	62
1930	4,679	2,534	54
1940	6,077	2,984	49
1950	7,554	3,998	53
1960	10,792	5,373	50

^aSource: (4, p. 7 and 19, p. 12).

As a result of this relation, rural Taiwan is now seriously overcrowded. This, coupled with the restriction of scarce land resources and the limited work opportunities outside of agriculture, inevitably cause the underemployment of productive resources in agriculture, although every effort is expended to utilize the only abundant resource, farm labor, more fully. Average labor input per hectare of land increased from 228 man-days in 1935-1939 to 281 man-days in 1952-1956 (21, p. 37). This is a 23 per cent increase in the direction of labor intensive farming. However, contrasted to the above trend is an opposing movement of the annual average working days per farm worker. This decreased from 172 man-days in 1935-1939 to 164 man-days in 1952-1956 (21, p. 38), about a 5 per cent decrease. The study made by Huang, Lun-zu gives a more pessimistic picture. According

to that study (24, p. 25), in 1931-1932 rice growing farmers did utilize 67.8 per cent of their labor but this ratio dropped to 46.3 per cent in 1950-1951. This 46.3 per cent is the average for all farmers. For tenants alone, Huang reports that this ratio was only 42.7 per cent.

If society cannot successfully provide enough jobs for the population, i.e., if there is serious unemployment or underemployment or both, Malthus' "misery and poverty" are unavoidable. So we become concerned with the key position of population pressure in Taiwan. Its impact is far reaching. It sets the pace for economic development through its influence, both on the standard of living and on resource allocation. Indeed, in a country where population pressure is strong, little improvement in the material things of life can be generated. Rather, in such a country, economic stagnation accompanied by "misery and poverty" will be the most likely outcome. Therefore, in most of the Class II countries, Taiwan for one, it is the population that must be checked and adjusted to the technology and resources.

Of course, there is another way to lead the economy to increased development. That is the industrialization process. This will be dealt with later on.

Capital, like land, has been scarce. Hsieh and Lee (21, Appendix Table 5) classified capital into two categories. Chemical fertilizers, seed, feed and material and miscellaneous items compose working capital whereas interest on cattle, depreciation on house, farm improvement and fees for irrigation and draining service belong to fixed capital. The relative places of these two categories of capital in various agricultural

inputs are shown in Table 12.

Table 12. Percentage distribution of input categories in Taiwanese agriculture

Year	Land area (%)	Labor input (%)	Working capital (%)	Fixed capital (%)	Total (%)
1935	51.11	25.24	17.03	6.62	100
1940	52.95	26.69	15.14	5.22	100
1945	65.27	26.07	5.06	3.60	100
1950	53.30	29.56	14.19	2.95	100
1955	46.96	27.95	21.85	3.24	100

^aSource: Compiled from data (21, p. 40 and Appendix Table 5).

It is seen that compared to land and labor, capital is relatively scarce. It comprises less than one-fourth of the total agricultural inputs in Taiwan. The scarcity is especially evident in the case of fixed capital, which has never exceeded 10 per cent of total inputs. Furthermore, in the post-war period it has remained at about 3 per cent of total inputs, which is less than one-half of the pre-war level.

In contrast, working capital fares well. It is becoming more important as can be seen from the remarkable increase in percentage. Working capital gained predominance among various inputs in the recent years because, as discussed earlier, the program increased tenants' income and encouraged them to invest it on farms.

Yet, capital, especially fixed capital, is felt to be in short supply. Three major causes for the (fixed) capital shortage are listed here.

First, there is the unfavorable price ratio; the interest rate of bank loans increased by 4.5 times, and one of the most important types of working capital, fertilizer, doubled in price during 1935-1956, whereas wage rates remained practically unchanged (21, p. 42). Secondly, due to requirements for tangible security, many small farmers and tenants have been denied loans entirely. Consequently, when severely pressed, farmers turned to the rural money lender for a loan bearing a usurious rate of interest. Finally, farmers traditionally looked upon a loan as a consumption loan. Even those loans lent out as production loans are often used for consumption purposes in reality.

In summation, Taiwanese agriculture has been constructed on limited land resources and equally inadequate capital on the one hand, and plentiful, cheap labor on the other, so that labor has been wasted (under-employment) on the very small, poorly equipped farms. This implies, as we have seen earlier, that the marginal productivity of land has been extremely high, closely followed by that of capital, while that of labor has been extremely low, probably equal to zero. At least the opportunity cost of labor is zero. This in turn explains why rents and interest rates were so high and wages so low in the pre-reform years. Unless opportunities are improved, the productive efficiency and hence income will not be increased.

2. Impact of the program on resource allocation

The average size of farms in Taiwan has been declared to be too small and continuously declining. Will the program accelerate the

declining trend of size of farms or will it act as a brake to the trend? The answer is that the program is likely to induce farms to divide into smaller ones. Under a situation without rigid controls such as are included in the program, size of farms will be fairly flexible. For although the total area of arable land is fixed, from the individual farmer's point of view, size of farms can be changed. Then, there is always someone wanting to sell or rent out farms in the course of family expansion and contraction or due to occupational changes. In short, without control, competitive market conditions prevail and the size of farms is rather adjustable to the need and capacity of the individual farmer. Not so under the program. The program exercises such rigid restrictions and controls that if one rents out his farm, he does, in effect, lease it to the tenant forever. And since tenure rights have been so thoroughly protected, no tenant would presumably give his rights away to someone else. Therefore, those farmers who either have greater ability or an expanding family would find themselves involved in seeking additional land in vain. This is a price paid when the program was chosen.

Perhaps this is an appropriate place to point out another restriction which has to do with the rigidity of the program. That is, the qualitative combination of the resources would be changed. Were there no program of this sort, i.e., were the land market regulated by competitive forces, then we expect that the more industrious or more capable farmers would eventually take over the better farms. However, in reality, there is strict control and protection for the tenants. Therefore, first, the coincidence of resources of the same quality (capacity) may not be

realized. Second, a lazy or low-capacity farmer can remain on a farm whereas, were there a competitive market, he would have been long ago driven out of that farm. Under such conditions, the national product is not up to its potential level. This is to say that departure from the achievable level was another price paid in exchange for a more equal income distribution.

Size of farms is the reflection of man-land ratio. The human elements, population growth and agricultural labor will be taken up next. What kind of influence does the program give to the population growth and the supply of agricultural labor?

First, consider the impact of the program on agricultural labor. After the program tenants are willing to work more, for the program assures them the opportunity to reap the fruits of their labor. Thus it is natural to find an increase in labor input. Most of the increase in labor input will come from family labor, for family labor has been the major source of labor supply and it has been underemployed in Taiwan. Given the rather small and declining size of farms, this movement leads to more labor-intensive farming. To the extent that this labor intensification is due to employing idle labor, thereby reducing the underemployment, the program is said to make a contribution to resource use.

As Table 13 indicates the labor input per unit of land has increased markedly after the War. Noteworthy are the jumps in 1947-1949 and in 1951-1953. The first jump in intensification has come primarily from the efforts expended in the recovery and rehabilitation of agriculture from the war damage. The second jump, of 1951-1953, giving added impetus to

Table 13. Indexes of agricultural labor input in Taiwan, 1935-1937=100^a

Year	Index of total land area	Index of total agricultural workers	Index of labor input		
			total	per ha	per worker
1935-1937	100.0	100.0	100.0	100.0	100.0
1940	101.9	106.7	105.6	103.6	99.0
1945	96.6	81.4	79.3	82.1	97.4
1947	98.7	125.1	86.3	87.4	69.0
1949	102.4	133.5	115.4	112.6	86.4
1951	103.5	133.8	119.3	115.3	89.2
1953	103.3	135.3	128.4	124.3	95.0
1955	103.4	135.3	126.5	122.4	93.5

^aSource: Compiled from the data (21, Appendix Table 3).

the previously mentioned extensive rehabilitation efforts, came from the program. These forces have been strong and persuasive. Whenever one considers the post-war agricultural development in Taiwan, the fundamental role of these forces should be always kept in mind. Indeed, the high mark Taiwanese agriculture has reached in recent years may be attributed jointly to the rehabilitation efforts and the success of the land reform. Yet these forces were not strong enough to utilize all the available labor forces as can be seen in Table 13. In the last column of Table 13, for instance, are shown the labor inputs per worker in recent years. All figures in this column are less than 100 indicating that labor utilization has been less than in 1935-1937.

It follows from the above discussion that the labor force should be encouraged to move to the non-agricultural sector, leaving more land for those who remain, and thus contribute toward more optimum allocation of

resources as well as toward industrialization. There is reason to believe that the program might impair this movement. For now the tenants' life has become easier. To that extent, they would not consider moving as seriously as they would if there were no program such as this. In other words, some of the tenants who would have eventually left agriculture, had there been no program of this kind, will be found still remaining on the farms. More farmers than otherwise means heavier population pressure and less job opportunities, or it means more severe underemployment than otherwise.

The existence of underemployment implies that the population increase outran the job opportunities. Now we are going to see if the program has accelerated the pace of population growth.

The answer to the above question will be affirmative. With the program came the increase in tenants' incomes, the betterment in their level of living. These, with simultaneous improvements in sanitary conditions and medical care, are among the major factors that caused the rapid population growth in recent years.

Table 14 reconfirms our earlier statement concerning the population growth in Taiwan. It shows clearly that the gross birth rates were exceptionally high, the gross death rates quite low and declining. As a result, the natural growth rates are high in the past fifteen years. Among the gross birth rates and death rates the program would most directly exercise its influence on the latter. Now, after the program, tenants' income increased, their level of living bettered. They became healthier, childhood mortality decreased, the life span lengthened. These

Table 14. Birth and death rates in Taiwanese population^a

Year	Gross birth rate (%)	Gross death rate (%)	Natural growth rate (%)
1947	3.83	1.81	2.02
1948	3.97	1.43	2.54
1949	4.24	1.31	2.93
1950	4.33	1.15	3.18
1951	5.00	1.16	3.84
1952	4.66	0.99	3.67
1955	4.53	0.86	3.67
1958	4.17	0.76	3.41
1961	3.83	0.67	3.16

^aSources: Figures for 1947-1952 (3, pp. 10 and 14).
Figures for 1955-1961 (28, pp. 477 and 525).

all combine to pull down the gross death rate and thus push up the natural growth rate. Malthus anticipated this effect when he warned us that the mere increase in the means of living would easily lead to an increase in population to such an extent that eventually the bare subsistence level of living will again prevail.

The western world need not be as fearful of Malthusian population pressure, but in the underdeveloped countries, like China and India, the Malthusian theory of population still proves to be valid in many cases. Taiwan is hardly an exception. Thus, the immediate increase in the level of living the tenants have enjoyed after the program, may have given way to population pressure. The already over-crowded rural areas of Taiwan shall have more children to feed and more old men to support, each of them having but a minimum amount of food to keep their stomachs

from being completely empty. This is to say that while one of the major goals of the program is to improve the level of living of tenants, this is only possible in the short-run. In the long-run, due to the increase in population brought about by the increase in income, sooner or later, the per capita income shall be pushed down again and the over-all level of living shall come back to the lower level unless there occurs some considerable expansion of job opportunities and technological advancement. The program, by transferring the income from the landlords to the tenants, has certainly lessened the poverty problem but it failed to remove the deeper roots of the poverty. The population pressure, resource malallocation and associated inefficiency, all have been left for further solutions.

Thus the effect of the program on the labor resource (including population) may be summed up as follows. The program caused improvement by encouraging the tenants to practice more labor-intensive farming, but it had also offsetting effects. It was partly responsible for the rapid population growth. It tended to make farm labor less mobile than otherwise.

We have seen that the population pressures have become more acute and serious after the program. What would be their influence on the overall capital formation, agricultural mechanization, industrialization, and economic development in Taiwan?

In old, densely-populated countries like Taiwan, the large population has been a burden to the society. People must be fed and the large population requires tremendous amounts of food. Therefore, it is not surprising that in these countries practically all production has been of necessities, leaving little capacity, if any, for the production of capital

goods. In other words, people in these countries are forced to live from "hand to mouth" and saving is generally difficult and therefore small. Without saving, capital formation is impossible. And capital formation is, in effect, a process of industrialization and agricultural mechanization. It will also contribute to the technological advancement of agriculture by providing more of the cheaper chemical fertilizers, insecticides, and the like. No savings means none of these. Instead, one will find a stagnant economy with a low level of living and rather backward agriculture. One added obstacle caused by over-population and underemployment is that the low wage rate prevailing in the society makes agricultural mechanization more difficult to instigate. However, the low wage rate may also have a counter-influence. It will make industrialization easier because cheap labor means low cost, though capital and job opportunities in the non-agricultural sector are the prerequisites.

The impact of population growth with its resultant underemployment on the economic development (i.e., increase in real income) is even more crucial. Tinbergen (2, p. 14) estimates that in the short-run, a 3 per cent increase in per capita income in a year would be the maximum attainable. If this rate is set as a target then it is necessary that 2 to 4 ($X + 3$) per cent of the national income be saved and invested where X stands for annual population growth rate. Applied to the case in Taiwan, or other Asian countries for this matter, this would account for about 12 to 20 per cent of the national income. To ask a country to save and invest 12 to 20 per cent of the national income is extremely difficult if not altogether impossible. Indeed, Tinbergen observes that

"(it is) well above what has so far been possible" (2, p. 14). The numerical relationship given above illustrates, more eloquently than words, the importance of a check on the increase in population. Any reduction in the percentage population increase means a two to four-fold reduction in the rate of saving needed to achieve a given rise in the standard of living (2, p. 15).

Now let us turn to the impact of the program on the supply of capital in the agricultural sector.

On the credit side we may note the rapid increase in the capital input, especially working capital, in recent years. The marked increase in the relative weight of the working capital among the resources has been pointed out earlier (Table 12). There it is shown that working capital was the only resource that definitely gained relative weight.

Table 15. Indexes of capital investment in Taiwan, 1935-1937=100^a

Year	Index of working capital	Index of fixed capital	Index of total inputs
1935-1937	100.00	100.00	100.00
1935	93.99	109.55	98.64
1940	83.51	86.49	98.60
1945	21.47	45.91	75.85
1947	43.98	29.33	81.71
1949	57.90	51.85	94.66
1951	88.35	49.43	101.50
1953	115.24	57.94	109.02
1955	137.83	61.37	112.79

^aSource: (21, Appendix Table 3).

Table 15 indicates the yearly change of capital investment in agriculture. It is seen that working capital is very sensitive to economic changes. It fluctuates widely. Comparison of the changes in working capital and total inputs further reveal that the supply of working capital recovered from the war late, but progressed rapidly. Before 1950, it was still far behind, in 1950 and thereafter, however, it came to lead other inputs and within five years or so it increased by more than 100 per cent. Such a tremendous increase might have happened without the program, for the period covered is characterized by recovery and rehabilitation and equally strong further development movements. Yet it is quite conceivable that the program gave added impetus to it.

The program could give added impetus to it because the most significant item of the working capital has been the fertilizer and it was the fertilizer that the Taiwanese farmers relied heavily upon for their production increase. Earlier we have seen that the program brought about a stronger incentive to produce more among tenants. We have also seen that this, in turn, resulted in more labor-intensive farming. However, it is not the simple labor-intensive farming that actually took place but a combined case of intensification, labor-intensive with capital-intensive farming. New methods of farming, mainly improved biological techniques, have been continuously introduced into agriculture. These new ways of farming usually require more of both inputs, labor and working capital, such as improved seeds, chemical fertilizers, insecticides, etc. The result appears in Table 16. As is evident from Table 16, both the capital intensity (in a practical sense, working capital) and the labor

intensity have increased but the increase is greater in the former than in the latter.

Table 16. Changes of capital and labor intensities in Taiwan^a

Year	Capital intensity	Labor intensity
1935-1937	100	100
1953	127	124
1955	150	122

^aSource: Compiled from the data (21, p. 58 and Appendix Table 3).

The effect of the program on fixed capital points to the opposite direction (Table 15). Fixed capital input has always lagged behind: (a) Fixed capital is the only input that is still short of the 1935-1937 level. In 1955 it was only 61 per cent of the base period. Land, labor, and working capital, in contrast, have all long ago surpassed the base period. This is shown in Tables 13 and 15. (b) Percentage wise, fixed capital is the least important among the various inputs and its relative significance during the past twenty years has declined to half of that held in 1935 as shown in Table 12.

The reason for this low level of fixed capital may be traced back to the landlords' reaction to the program. Before the initiation of the program, some landlords showed keen interest in production improvement. They took responsibility for and actually financed the fixed capital investment (sometimes, part of the working capital, too), such as construction

of irrigation and drainage facilities, terracing, soil improvement; sometimes alone, sometimes cooperating with the government. Indeed, the development of the irrigation and drainage system which is the foundation of the modern agriculture in Taiwan owed much to the landlords for their cooperative works on the construction and maintenance of irrigation and drainage systems. However, after the program neither their interest in land nor their activity in fixed capital investment survived, because their share of the product from the land has been cut and fixed. The significance of landlords' role in this respect may be visualized from the wide divergence of the fixed capital investment between 1935 and 1955 (Refer to Table 15).

Are either tenants or the government not able to take over the job previously done by the landlords? Although tenants' income increased, it would still be too much to expect them to make a fixed capital investment. Their level of living urgently needed betterment. On the production side, the working capital such as chemical fertilizers and pesticides was first in line to draw their money. There is simply no extra money available for fixed capital investment.

The government has its own financial difficulty, too. Unlike its predecessor, the Japanese government which during its occupation of Taiwan enjoyed a sizable public revenue every year, the present government has been involved in financial difficulty. Therefore the present government cannot afford to conduct as many large-scale projects in quick succession as the Japanese government did.

Although the low level of fixed capital inputs may not manifest

itself in the shorter-run, certainly the lack of them will be felt in the future. It is anticipated that this will become an obstacle to long-run agricultural development in Taiwan.

We have learned that population growth handicapped the over-all capital formation in the economy. Through the landlords' reaction to the program, the over-all capital formation will be further slowed down. Generally speaking, the larger part of the society's savings comes from the wealthier class. Japan provides an appropriate example. Much of the capital needed for its industrialization, along the course of its westernization, came from the agricultural sector. More specifically it came from the landed property (21, pp. 242-245). The landlords were one of the central figures in the capital supply. The capital originated on land, accumulated by the landlords, was then transferred to the industrial centers and turned into machines and the like to promote the industrialization process. Nearly a century was required for Japanese landlords to fulfill their historical duty. Taiwanese landlords had performed the same kind of task but possibly to a lesser degree. After the program, with the drain of their income from the land, the transformation of any surplus from agriculture into the industrial capital investment has also declined. As the Japanese case illustrates clearly, in the early stage of economic development, industrialization may be fed by the surplus from the agriculture (32, pp. 611-612). This surplus had never been sizable in Taiwan, and with the redistribution of income accomplished by the program it has become smaller. It is hoped that rapid advancement in technology will increase the production so rapidly that it may eventually

match and even exceed the amount of surplus provided in the pre-reform days.

Also the lack of entrepreneurship has been felt keenly after the program. In the past, many landlords participated in farming both in planning and administration. People should realize that in an under-developed country such as Taiwan, tenants or farmers are generally poorly equipped for the role of entrepreneur or manager. The role played by the landlords in this regard is too often overlooked. Schumpeter singled out "innovation" as the basic characteristic of entrepreneurship, and profit, the reward to successful "innovation".

That economic development depends heavily on innovation is too obvious to be stressed. Yet innovation requires education and experience. The level of education received by the tenants and that by the landlords was in a sharp contrast. It is safe to say none of the tenants was college-educated whereas many landlords were college graduates and were in respectable positions. At the other extreme, many tenants (farmers) were illiterate which was in sharp contrast to the high literacy among the landlords.

D. Further Steps Suggested

In the preceding section it was found that the program tends (a) to accelerate the population growth, (b) to cause agricultural labor to be more tightly tied to the land, (c) to retard the fixed capital investment, and (d) to cause a decline in entrepreneurship. All of these problems must be solved. Further steps, timely and in sufficient scale, are

strongly suggested, for failure to do so may eventually cause the achievements of the program to be short-lived.

1. Population checks

The population problem is a most critical and difficult problem. A vicious circle among the population pressure, poverty, saving, capital formation, industrialization and agricultural mechanization, underemployment, and finally the backwardness in the economy has been demonstrated earlier. It is seen, then, no one policy, being income distribution oriented or resource allocation oriented, can hardly achieve an enduring success in the face of the heavy population pressure. Population is so crucial a factor that every effort must be exercised to check the population growth without delay. It is a pity that only effective measure here is education, birth control, family planning, etc. This is, of necessity, a long-term project. The fact that it requires time, however, should not discourage people from taking an active role in promoting such an education. The family planning program was launched in Taiwan in 1956. The effect so far is negligible (33, p. 364) because this program has never been pushed as strongly as it should be, due to the conflict between this goal and the political as well as military goals.

2. Technological advancement in agriculture

Closely related to the population problem is the excessive labor supply with its resultant underemployment problem in agriculture. There are two approaches to this problem. The first approach is the development

in agricultural production technique and farm organization which make fuller use of the agricultural labor possible. However, the prospect here is rather dismal, owing to the highly labor-intensive farming already in existence. At least potentiality in this route will be diminishing in the future. In the future, mere labor-intensive methods are unlikely to be developed. Instead, development in science such as biological improvements or advancements in equipment will receive more emphasis. In particular, effort will be directed to the kind of technological advancements that make labor as well as capital intensification possible in agriculture.

3. Industrialization

The second approach is the process of industrialization. Indeed, agriculture has dominated Taiwanese economy to too great an extent. Diversification of the national economy through industrial development is long overdue. Industrialization may take many forms. One that suits the underdeveloped country with its already over-crowded rural community is the so-called cottage or village industries (34, pp. 84-87). They may be the fairly large-scale, heavily mechanized type, like sugar factories or textiles mills found in rural Taiwan. Or they may take the form of small-scale, mainly handicraft plants. In any case, the type of industry that absorbs more of the idle agricultural labor, yet requires a small amount of capital to establish, is much to be preferred. The extent to which labor can be absorbed from agriculture into industry will be vital because it will determine the extent to which productivity can be raised

in the economy (35, p. 1337). As part of the excess labor supply is drawn off the land with the progress of industrialization, the productivity and the value of labor in agriculture will rise. This rise in value of agricultural labor will, in turn, promote agricultural mechanization. With the use of improved agricultural equipment better farm practices can be introduced and the result will be cumulative. The above argument amply emphasizes the key role of industrialization in the development of agriculture (35, p. 1335).

4. Correction of the unfavorable price structure

One of the factors that barred capital in-flow to agriculture has been the unfavorable price structure for the farmers. This issue was touched upon when we discussed the effects of the inflationary pressures and price stabilization policy of the government. There it was pointed out that the prices of agricultural products have been strictly controlled, so that the prices farmers received tended to lag behind the prices farmers had to pay. This means that prices of fertilizers, cement, etc., have become relatively high. This unfavorable price structure certainly made it difficult for farmers to undertake capital investment. It is the relatively high price of producers' goods, such as fertilizer, and high interest rates on the one hand, and the low value of the agricultural labor on the other that serve to handicap the capital investment in agriculture. In this vein, one way of encouraging capital investment lies in price incentives. Here again industrialization plays a vital part. Industrialization will absorb excess labor in rural areas. It will also

increase the supply of and hence pull down the price of producers' goods needed for better farming. All these will bring the resource allocation nearer to the optimum. Meanwhile the productivity of resources will be increased.

As another means of correcting the unfavorable price structure, the government may be asked to subsidize the producers' goods industry, as well as to improve the marketing of these goods so that farmers may obtain them at the cheapest possible price. Even government participation in either production or marketing (including importing) of producers' goods may be suggested.

5. Agricultural credit improvement

In view of the greater and greater capital required for modern, advanced farming, it is essential that a wholesome agricultural credit system be established to provide capital for farmers at reasonable terms.

As far as the credit system is concerned, Taiwan has several credit institutes engaged in the agricultural finance business. The only difficulty is that their lending activities have to be severely restricted due to the drain of loanable funds. As a result, (a) practically no long-term loans have been available to farmers, (b) to get a loan from the credit institutes has been difficult, and even if one succeeded in getting one the amount is usually too small. In the case of tenants, this is especially true because of the general custom of requirements for tangible security.

Since agricultural credit is specific and handicapped compared to

the credit in other sectors of the economy, the task of improving the present inadequate credit system must fall on the government. First, only the government can collect large sums of money to be used to make the agricultural loans. This is especially so because the domestic savings are rather small and the major source of the loanable funds must come from foreign countries. This is especially so, also, because only the government can go into business without making a profit, even bearing some losses if necessary.

In view of the limited funds available for agricultural loans, the efficiency of loans would presumably be increased were there only one institute rather than many as at present. In other words, it is strongly suggested that these institutes be merged into one and all the funds be pooled together.

Farmers are also responsible for the shortage of agricultural capital supply. It is observed that farmers do not yet appreciate the nature and benefit of the production loans. Also, loans made for production are often used for consumption purposes. For them, borrowing has been the last resort, and has been done traditionally as a consumption loan. This trend helped the rise of the usurers and the abuses connected with them (8, pp. 36-39). To remedy the misuse of the loans, closely supervised loans may be an effective device. The supervised loans are really a multi-purpose activity. In addition to the original function of supplying capital, this activity also provides information and knowledge concerning efficient organization and advanced techniques to the farmers. General education, in particular knowledge about the nature of loans, significance

of the bookkeeping, etc., will also greatly facilitate making the loans.

6. Government's direct investment

Besides providing loans to the farmers under favorable terms the government is also encouraged to carry out some large-scale projects like construction of dams and irrigation systems; for farmers will never initiate, nor can they afford, such a vast investment by themselves. The government in the underdeveloped countries is thus always in a dilemma. It happens that it is in these poor countries that the government is also poor, although the need for government aid is urgent and tremendous. In this respect, the development of international cooperative credit facilities like the World Bank is eagerly sought.

Government participation in the field of agricultural capital supply is not limited to loans and projects directly contributing to agricultural production. The government may be equally qualified to invest on communal facilities and services such as roads, schools, medical care, electricity, running water, and preventive medicine. These are social investments because they narrow the gap between urban life and rural life. These are economic investments also because they facilitate economic activities and make farmers better equipped.

7. Education and extension

So we come to deal with entrepreneurship. Like population adjustment, the only effective measure in this respect is education. Education is used here in its broadest sense. It includes vocational training as

well as general education, and also the extension services. Presently a six-year grade school education is provided to everyone at no cost. However, in view of the recent rapidly advancing production techniques, what the grade schools can give is too limited to equip one to handle the modern farm business successfully. There is also a tendency for secondary and higher level schools to concentrate in urban areas. To make higher education accessible to everyone in the nation should be the goal here. No less important are the short courses in off-farm job training to help farmers moving out of farms.

Next, coming to extension services, what the widespread extension efforts could accomplish has been clearly demonstrated in the United States. Indeed, it is hard to conceive an effective tenancy improvement measure which is not integrated with education and extension activities (8, pp. 47-48). Moreover, as the various sectors of the economy become mutually more closely interrelated, information services concerning new agricultural materials, equipment and techniques, job opportunities outside of agriculture, general outlooks for prices and markets, etc., will become more important.

8. Increase in the supply of land and improvement in land utilization

It was pointed out that size of farms in Taiwan is too small. Since size of farms is the result of the man-land ratio, the increase in the supply of land might increase the size of farms, too. Supply of land has two meanings, physical and economic.

Physical supply of land is rather fixed although it is still possible

for it to be expanded. For example, the government has been engaged in the reclamation of tidal land. The feasibility of converting forest land in the mountainous areas into arable land is now under inspection. However, not much increase could be expected from either measure. In contrast, it is certain that some of the present cultivated land will be converted into non-agricultural uses as industrialization proceeds. The net result would be for the cultivated land to decline slowly or, at best, to remain at the current level.

Economic supply of land is rather flexible, and its expansion fairly hopeful. Economic supply of land will increase whenever technological and biological innovations take place. These innovations, unlike the physical supply of land, do not require more land. All they do is to improve the land utilization. Again, since these innovations seem to be limitless, the improvement of land utilization seems to be possible.

9. Consolidation of holdings and prevention of segmentation

One serious drawback related to the small farms is the custom of dividing the already small farm holdings equally among the male heirs. In this way, not only do the holdings become smaller, but the number of plots that comprise the individual holding tend to increase. These tendencies bring about (a) waste of land, (b) waste of labor hours and (c) inefficient farming practice. Either the custom has to be modified or the land consolidation movement must be pushed forward. Japanese experience on the latter shows that the consolidation would result in an increase of ten to fifteen per cent of the arable land and a twenty

per cent labor saving (36, p. 135).

10. Research needs

Inasmuch as the steps suggested above are all fundamental to the program under study, some further research is equally strongly needed. This is so because unless one has gathered enough empirical data to support his theoretical reasoning one cannot select a correct, most efficient step to adopt.

Too little has so far been known about the organization of farms and hence the resource productivity in Taiwanese agriculture. Without this basic knowledge one cannot get very far in his analysis. Production economics research is urgently needed to provide general background information upon the basis of which various policy recommendations can be made. For instance, a theoretical basis for compensation for the investment or improvement made on the farm can be worked out only if we have enough information about the marginal return product of the investment made by the tenants.

As we have seen, the program must have exercised some effects on the resource allocation. Just in what way and to what extent has the program specifically changed the pattern of resource allocation in Taiwanese agriculture? What have been the similar effects on productivity? These questions can be answered only after further research has been done.

Savings and capital formation determine the pace of economic growth. We don't know much about the savings and capital formation in the pre-reform

days. We don't know much about the program's effects on these points either. Comparison between the landlords and the tenants concerning the potential as well as the actual savings and agricultural investment has not yet been available. Until we have collected all this data, we cannot reach any final conclusion about the "net" effect of the program on the capital investment in agriculture and the capital formation in the Taiwanese economy as a whole.

Size of farms is another field toward which further research must be directed. Because of the steady decrease in size of farms, research on (a) relationship between size of farms versus efficiency and size of farms versus minimum level of living and (b) causes of breaking the farms into smaller farms and the efficient measures to prevent further break down, are among the more important points to be studied.

Related to this is the research on population growth. Especially needed is a comparative study on the nature of rural versus urban population growth. Studies on labor supply and employment situations are also very much in need.

Agricultural markets and marketing have not been studied. Agriculture is but one sector of the whole economy. Modern farming is a business. Research on expansion of the markets as well as improvement in marketing must not be neglected. Since Taiwan is a small island, international trade should attract more and more attention here.

Many of these problems are not peculiar to Taiwan. Other densely populated countries face similar problems and may possibly have worked out the solutions. Therefore, it is of advantage to all that information

concerning the current research projects, as well as past findings be
interchanged between these countries.

VI. SUMMARY AND CONCLUSIONS

The Taiwanese rent limitation program of 1949 was an epoch-making program upon whose success later development policies and the resultant economic growth were made possible.

Prior to the program, one of the striking features of the agrarian structure in Taiwan was the wide-spread tenancy system with many abuses exercised by the landlords. Tenants lived under the pressures of exorbitant rent and insecure tenure. Incentives, technical knowledge, and capital all were lacking in tenants' farming. Instead, the economic stagnation and the social unrest remained. A release of tenants from "poverty and inefficiency" was the prerequisite to the economic progress of Taiwan.

It is then natural that the over-all goals of the program were set on a more equal income distribution and production increase. Within the context of these two master goals, the program offered the following specific targets as the ends-in-view. They are: (a) to increase tenants' share of income by 12.5 per cent of the total yield, (b) to guarantee them with a minimum level of living not interrupted by the natural disasters, (c) to increase the agricultural production, (d) to provide them with security of tenure and finally (e) to establish human independence conducive to the development of a progressive and democratic society.

The program as a remedial measure centered around the rent limitation and the protection of tenure rights. It tried to bring the tenure aspect of the agrarian structures more in line with equal income distribution

as well as efficient farming. What the program accomplished was the structural change. This structural change, in turn, inevitably caused some changes in instrumental variables, especially the changes in resource use.

Although increases in the tenants' income and in agricultural production were observed, there is reason to believe that these may be short-run phenomena. In the long-run, due to changes in resource use, it will become more and more difficult for the program to maintain the accomplishment it has achieved in the short-run.

Indeed, after the implementation of the program, resource use has further diverged from the optimum. First, we have pointed out that the already heavy population pressure tends to strengthen its effect as the program tends to pull down the death rate through increases in income and level of living. Lower death rates accompanied by high birth rates mean a higher population growth rate. This, in turn, will pull down the level of living to the subsistence level. Here we have the Malthusian pessimism revived in rural Taiwan.

Although the population problem is severe, no less critical is the excess labor supply in agriculture. Excess labor supply and the consequent underemployment have long been the core of resource malallocation problems. The program tends to retard the movement of the labor force away from farms because of its effects on income and living. This will not only worsen the resource allocation in agriculture, it will also slow down the pace of industrialization and mechanization.

Arable land in Taiwan is practically fixed. Therefore, the

ever-growing population pressure as well as the super abundant agricultural labor supply means small size of holdings. The already too small farms have become even smaller after the program. Farm size is now smaller than that required for efficient farming and threatens to decrease below the level required to maintain minimum living standards.

Although the program has encouraged the investment of working capital, fixed capital investment has declined from the pre-reform level. Decline in the fixed capital originated from two sources. First, in the past, as in Japan, Taiwanese landlords participated and took the main responsibility in providing the fixed capital in agriculture. The foundation of oriental agriculture, irrigation and drainage facilities were constructed by them in cooperation with the government. The latter is the second source of the fixed capital investment in agriculture. Now after the program, landlords' returns from the land have been cut and fixed. Their interest in land improvement has been wiped out. The government, too, unlike its predecessor, the Japanese government, has been suffering from financial difficulties.

Offsetting the withdrawal of fixed capital supply from agriculture by landlords and a decrease of the government's participation in this field is the tenants' stronger incentive to improve the farms, generated by (a) an extended planning horizon made possible by secure tenure rights and the compensation provision and (b) an increase in income through both rent reduction and the price ceiling nature of the rent. Although the available data indicate that tenants were not yet ready to make the fixed capital investment needed, it is conceivable that in the future

they may become able to do so. Whether or when such a time may come must await future developments. In any event, further increases in production, or for this matter the long term success of the program, depend heavily on the increment of the tenants' and/or governments' fixed capital investment which must exceed the amount previously provided by the landlords and Japanese government.

The program is likely to slow down the pace of economic development through its effect on savings and capital formation. The program is likely to decrease savings and capital formation in agriculture due to the income redistribution accomplished by the program. This decline of savings and capital formation in agriculture is quite influential in the developing economy. As the Japanese example shows well, in the beginning of industrialization and economic growth, it is the surplus of agriculture that functions as fuel or feed. Agricultural surplus (savings) was accumulated in the hands of landlords, transferred into the industry to be transformed into machines and industrial goods. Would the tenants be able to accumulate enough agricultural surplus to feed industrialization and economic growth? The answer to this question must await future study.

Finally, a decline in the level of entrepreneurship is also anticipated.

Faced with these repercussions on resource use in agriculture, we offer the following complementary measures to the program:

(a) Checks on the growth of population are most fundamental. With the present heavy population burden, it is impossible for the economy to save and invest the amount needed for steady increase of national income.

(b) Technological advancement can improve the man-land ratio by increasing resource productivity. In view of the already high labor intensive farming existing in Taiwan, the technical advancement that makes capital intensive farming possible will be mostly welcome.

(c) Industrialization must take high priority in Taiwan. The type of industry that absorbs more laborers yet requires less capital is preferred.

(d) One of the reasons why capital inputs lag recently is found in the unfavorable price ratios. Industrial goods have been relatively expensive compared to the agricultural products. Correction of these unfavorable price ratios can certainly inject incentive to invest among farmers.

(e) The credit improvement is another measure. Here the emphasis should be on government regulation and participation. From the collection of funds to be loaned out, to the terms of and supervision of loans, the government should be the major responsible agent.

(f) Direct government investments on a large scale are urgently needed. These projects may be of a type that contribute to agriculture directly, such as the construction of dams. Alternatively, they may be the kind of social investment contributing to the economic activity and welfare of the rural people.

(g) Education and extension services, often unduly neglected, are other basic measures leading to economic development. Modern farming is a complicated profession. In order to let farmers understand, as well as take advantage of, the up-to-date farming techniques and market information,

the education and extension services should be pushed as vigorously as possible to reach every corner of the society. Equally important is the vocational training in off-farm jobs in the rural areas to release part of the excess agricultural labor from farms.

(h) Finally, efforts to increase the land supply and the improvement of land utilization are also helpful. In an old country like Taiwan further supply of land may be rather limited but the improvement of land utilization seems to be limitless. For instance, technological progress will lessen the burden put on land and so will the land consolidation program. So will the education and extension services. By the same token the custom of unlimited succession must be modified.

All these measures are complementary to the program. Moreover, their immediate adoption is strongly suggested because they can attack the "poverty and inefficiency" at its deepest roots.

Admittedly this study is not without limitations. Only the more important aspects of the subject matter have been taken up for discussion. Further study, expanded to other aspects, is needed in order to overcome these limitations imposed on the present study and to obtain a more comprehensive understanding of the subject matter.

(a) Extension of the scope of this study toward the second stage of the land reform is necessary in evaluating the reform. The subject matter of this study is merely the first part of the land reform. Study of the second stage, the "land-to-the-tiller" program, is needed to obtain the complete picture of the recent land reform in Taiwan.

(b) Within its own scope, this study is handicapped by the limited

data. We know very little about the changes in farm organization and resource productivity in tenants' farming which took place in the post-reform days. Further study must be extended to the tenants' behavior in the face of increased income and the greater freedom and responsibility in farming, such as changes in their attitudes toward work and leisure, toward consumption and saving, toward outlets of savings, especially toward working and fixed capital investments in agriculture. The study of markets and marketing, including international trade, is the other field we have not touched. In order to allow a tenant to get the most out of his farming, the possibility of development of agricultural markets and marketing in the face of increasing products urgently call for our attention. Finally, but no less important is the population study. Especially felt is the need for the comparative study of the nature of population growth in rural and urban areas.

(c) Social aspects of the program have been discussed too briefly. The drastic structural change brought about by the program must have changed social characteristics of rural Taiwan profoundly. The way people act, motivations behind those social activities, all aspects of the social life must be changed. And this social change, in turn, must exercise some effects on the economic life of the farmers. The intensive study of the program from the sociologist's point of view is thus warmly invited.

VII. BIBLIOGRAPHY

1. Wang, Yi-teo. Tenancy problems and policies in Taiwan (in Chinese). *The financial and Economic Monthly* 2, No. 5: [inclusive pages not available]. 1952.
2. Tinbergen, Jan. *The design of development*. Baltimore, Maryland, The Johns Hopkins Press. 1958.
3. Barclay, G. W. *Report on the Taiwanese population* (in Chinese). Taipei, Taiwan, Chinese-American Joint Commission on Rural Reconstruction. 1955.
4. Chinese-American Joint Commission on Rural Reconstruction. *Taiwan agricultural statistics, 1901-1955*. Chinese-American Joint Commission on Rural Reconstruction Economic Digest Series No. 8. 1956.
5. Buck, J. Lossing. Land reform and economic development in Asia: some general considerations. In Froehlich, Walter, ed. *Land tenure, industrialization and social stability*. pp. 80-94. Milwaukee 3, Wisconsin, The Marquette University Press. 1961.
6. Taiwan Provincial Government. Department of Agriculture and Forestry. *Taiwan agricultural yearbook, 1958*. 1959.
7. Timmons, John F. Analytical structural change model for analyzing agrarian reform structures and remedial alternatives in the Sierra. In *Economic development through agrarian reform in Peru*. Mimeographed. pp. 18-29. Ames, Iowa, Department of Economics and Sociology, Iowa State University of Science and Technology. ca. 1963.
8. Timmons, John F. *Improving agricultural tenancy*. United Nations Food and Agriculture Organization Agricultural Studies No. 35. 1957.
9. Sun, Yat-sen. *San Min Chu I: the three principles of the people* (translated into English by F. W. Price). Taipei, Taiwan, Cultural Service. 1953.
10. Teng, Hui-sun. *Land reform in Free China*. Taipei, Taiwan, Chinese-American Joint Commission on Rural Reconstruction. 1954.
11. Schickele, Rainer. *Agricultural policy*. New York, New York, McGraw-Hill Book Company, Inc. 1954.

12. Weng, Yi-tao. Farm rent reduction and tenants' economy. In Report of the investigation of farm rent reduction (in Chinese). [inclusive pages not available]. Taipei, Taiwan, Research Institute of Land Economics. 1951.
13. Chen, Cheng. An approach to China's land reform. Taipei, Taiwan, Cheng Chung Book Co. 1951.
14. Bate, H. Maclear. Report from Formosa. New York, New York, E. P. Dutton and Co., Inc. 1952.
- 15-16. Chen, Cheng. How to realize "Land-to-the-tiller" (in Chinese). Taipei, Taiwan, Cheng Chung Book Co. 1951.
17. Taiwan Provincial Land Bureau. Implementation of the 37.5% farm rent limitation program. Taipei, Taiwan, author. 1950.
18. Klein, K. The pattern of land tenure reform in East Asia after World War II. New York, New York, Bookman Associates. 1958.
19. Taiwan Provincial Government. Department of Agriculture and Forestry. Analysis of agricultural and farm economy in Taiwan (in Chinese). Taichung, Taiwan, author. 1963.
20. Lee, T. H. Agricultural prices in Taiwan (in Chinese). Bank of Taiwan. Taiwan Studies Series No. 75: [inclusive pages not available]. 1962.
21. Hsieh, S. C. and Lee, T. H. An analytical review of agricultural development in Taiwan. Taipei, Taiwan, Chinese-American Joint Commission on Rural Reconstruction. 1958.
22. Su, I-su. Farm family income in Taiwan (in Chinese). Bank of Taiwan. Taiwan Studies Series No. 75: [inclusive pages not available]. 1962.
23. Rada, E. L. and Lee, T. H. Irrigation investment in Taiwan. Taipei, Taiwan, Chinese-American Joint Commission on Rural Reconstruction. 1963.
24. Huang, Lun-zu. Rice farm economy in Taiwan (in Chinese). Bank of Taiwan. Taiwan Studies Series No. 72. 1959.
25. Taiwan Provincial Government. Committee of sample census of agriculture. Report on the 1956 sample census of agriculture. Taichung, Taiwan, author. 1959.

26. Taiwan Provincial Government. Committee on census of agriculture. General report on the 1961 census of agriculture. Taichung, Taiwan, author. 1963.
27. [Recent population growth in Taiwan]. The Shin Sheng Pao [Taipei, Taiwan (in Chinese)]. February 24, 1962:[3]. 1962.
28. United Nations. Department of Economic and Social Affairs. Statistical Office. Demographic Yearbook. 1962 ed. New York, New York, author. c1963.
29. Thompson, Warren S. World population trends, problems and policies. In Timmons, J. F. and Murray, W. G., eds. Land problems and policies. pp. 31-44. Ames, Iowa, Iowa State College Press. 1950.
30. Population Index. Vol. 28. Princeton, New Jersey, Office of Population Research, Princeton University. 1962.
31. Lindholm, Richard W. The farm: the misused income expansion. Journal of Farm Economics 43:236-246. 1961.
32. Pesto, Jerome K. The role of farm management. Journal of Farm Economics 43:606-615. 1961.
33. Tsui, Yung-chi. Land use improvement: a key to the economic development of Taiwan. Journal of Farm Economics 44:363-372. 1962.
34. United Nations. Department of Economic Affairs. Land reform; defects in agrarian structure as obstacles to economic development. New York, New York, author. 1951.
35. Bredo, William. Rural industrialization for agricultural development. Journal of Farm Economics 41:1332-1344. 1959.
36. Hewes, Lawrence I., Jr. Japan; land and men. Ames, Iowa, Iowa State College Press. 1955.

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IX. APPENDIX: THE FARM RENT REDUCTION TO 37.5% ACT
(Promulgated on June 7, 1951)

Article 1

The leasing of farmland shall be required to comply with the provisions of this Act. Those matters which are not provided in this Act shall be governed by the Land Law and the Civil Code.

Article 2

The farm rental rate shall not exceed 37.5% of the total annual main crop harvest. If the rental exceeds that rate, it should be reduced to 37.5%. If the rate is below 37.5%, it shall not be raised.

The "main crop" as referred to in the preceding section denotes such crop which is mostly planted according to the local farming practice or such rotation crops actually planted and the "main crop harvest" denotes the main harvest of such crop for the purpose of which it is planted.

Article 3

A Farm Tenancy Committee shall be established in each Hsien, City, Village, Hsiang and Chu respectively. The membership of the tenant farmers in the Committee shall not be less than the total membership of the landowners and owner farmers. The organizational rules of the Committee shall be fixed by the Provincial Government and approved by the Executive Yuan.

Article 4

The standard volume of the total annual main crop harvest on the farm shall be decided by the Hsiang, Village and Chu Committee according to the land grade and approved by the Hsien and City Committee and reported to the Provincial Government for confirmation.

Article 5

The tenure of farm lease shall not be less than six years. If the agreed tenure stipulated in the original lease is longer than six years, it shall remain valid.

Article 6

After the enforcement of this Act, all farm leases shall be made in written form. The lessor and the lessee shall be required to apply to the Government for registering any conclusion, alteration, expiration or revision of farm lease.

The procedure of registration as referred to in the preceding section will be fixed by the Provincial Government and approved by the Executive Yuan.

Article 7.

The amount, kinds, quality and standard of farm rent, date and place of payment and other relevant matters shall be specifically stipulated in the lease contract. If the rent is to be paid in kind and to be transported for payment by the lessee, the transportation cost shall be calculated according to the distance and be borne by the lessor.

Article 8

The lessee should duly pay the rent to the lessor. When the lessor accepts the rent in kind, he shall receive only such quantity as allowed by the sanctioned instruments of measurement and weight.

Article 9

If the other crop is planted during the growing season in place of the main crops agreed in the contract, the lessee shall still be required to pay to the lessor the rent in terms of such main crops as stipulated in the lease contract. But if the lessor agrees, rent in cash or in kind of other crops planted may be paid as substitute according to the local market price at that time.

Article 10

If the lessor refuses to accept the rent paid according to the provisions of this Act and the terms of the lease contract without legitimate reason, the lessee may, with the certificate of the village and neighborhood chiefs and the farmers' association, pay the rent to the hsiang, chen or chu government on behalf of the lessor. The government shall notify the lessor to come and take the rent within ten days. If the lessor does not come within ten days, the said government may sell the rent in kind according to the local market price at that time and keep the sale proceeds for the lessor as it deems necessary. The validity of this procedure is the same as payment in kind.

Article 11

In areas where harvest loss is caused by natural catastrophes or other irresistible disasters, the lessee may request the local hsiang, chen or chu Farm Tenancy Committee to investigate the percentage of harvest loss and to decide the percentage of rent reduction. The hsiang, chen or chu Farm Tenancy Committee shall be required to take up the case within 3 days. If an extensive harvest loss takes place in the area, the hsiang, chen or chu Farm Tenancy Committee shall immediately investigate and decide the percentage of harvest loss and report to the Hsien or Municipal Farm Tenancy Committee to decide on the reduction of rent.

If the crop harvested is less than 30% of the total harvest, rent shall be exempted.

Article 12

The farm house provided by the lessor and used free of charge by the lessee shall continue to be used by the lessee after the enforcement of this Act. The lessor shall not refuse the continuous use by the lessee under any excuse or collect any rent for the use of such house.

Article 13

The lessee may freely make any special improvements on the farm but he should notify in written form the lessor of the items and cost of such improvements. When the lease expires and the land is returned, the lessor should give compensations to the lessee for such improvements, but only for those parts of the improvements which are still useful at the time of making the compensation.

The special improvements on the land as referred to in the preceding section denote such efforts which, besides keeping the original quality and utility of the farm unimpaired, have increased the productivity or farming capacity as a result of the increased investment of labor and capital.

Article 14

The lessor shall not collect farm rent in advance or collect any deposit money. The deposit money which was collected before the enforcement of this Act shall be paid back to the lessee in installments or to be deducted by installments from the rent to be paid by the lessee.

If the deposit money as referred to in the preceding section is in cash, the amount to be redeemed should be calculated in terms of farm crop in kind by the Hsian or Municipal Farm Tenancy Committee according to the local market price at the time when it was collected.

Article 15

When the farm is to be sold or mortgaged, the lessee shall have the first priority to accept the sale or the mortgage. The lessor should inform the lessee of the terms of such sale or mortgage. If no written reply is made by the lessee within 15 days, the lessee shall be considered as giving up his right of priority of accepting the sale or the mortgage.

If farm is put on re-sale or re-mortgage at a lower price because no purchaser or mortgagee was found at the previous sale or mortgage, the lessee shall have the same priority right of accepting the purchase or mortgage as prescribed in the preceding section.

If the lessor sells or mortgages the farm to the third party in violation of the provisions in the two preceding sections, such sale or mortgage shall be declared as invalid against the lessee.

Article 16

The lessee should till the land himself and should not sub-rent the whole or a part of the land to the other persons.

In case the lessee violates the provision of the preceding section, the lease contract will be declared null and void and the lessor may withdraw the land and till it himself or re-rent to the other tenants. When such cases occurred before the enforcement of this Act, the actual cultivation of that part of the land which has been subleased and the original lessee cultivating the other part which has not subleased shall, individually and separately, sign new lease contracts with the original lessor, and these new contracts shall expire on the date when the original contract expires.

When the lessee entrusts the whole or a part of the leased land to other person for cultivation because of less farm labor he possesses as a result of military service, such act of entrust shall not be deemed as an act of sub-renting.

Article 17

Farm lease shall not be terminated before the expiration of the lease unless under one of the following conditions:

- a. When the lessee dies without heir.

- b. When the lessee gives up the right of lease because of change of his profession or moving of his residence.
- c. When the lessee fails to pay the farm rent in arrear of two years' amount.

Article 18

The termination of farm lease should be made after the current harvesting season is over and before the next planting season begins. If special farming practice of the locality provides otherwise, the termination may be made according to the practice.

Article 19

The lessor shall not be allowed to take back the leased land for self-cultivation at the time of the expiration of lease when one of the following conditions occurs.

- a. When the lessor has no ability to till the land himself.
- b. When the lessor's income is sufficient to support his family.
- c. When the lessee and his family would lose their means of living as a result of losing the land.

If the lessor's income can not support his family and at the same time the lessee will lose his means of living as a result of losing the land as provided in Item c under the preceding section, the lessor may request the village, chen or chu Farm Tenancy Committee to mediate the case.

Article 20

The lessor shall be required to extend the lease at the time of the lease expiration if the lessee wishes to continue to till the land unless the lessor's act of lease termination is in full compliance with the provision of this Act.

Article 21

The lessor who forces the lessee to give up the land by means of duress and violence shall be punished by imprisonment for a term of not more than three years.

Article 22

The lessor shall be punished by detainment or imprisonment for a term of not more than one year under one of the following conditions:

- a. Terminating lease in violation of Article 17 of this Act.
- b. Taking back land for self-cultivation in violation of Article 19 of this Act.
- c. Refusing to extend the lease in violation of Article 20 of this Act.

Article 23

The lessor shall be punished by detainment or a fine of not more than 200 dollars under one of the following conditions:

- a. Collecting rent in excess of 37.5% rate in violation of Article 2 of this Act.
- b. Collecting rent in advance or collecting deposit money in

violation of Article 14 of this Act.

Article 24

The lessee shall be punished by detainment or a fine of not more than 200 dollars if he violates Section I of Article 16 of this Act by sub-leasing the land to other persons.

Article 25

In case the lessor transfers or mortgages the land ownership to the third person before the lease expires, the original lease contract shall remain still valid to the transferee or mortgagee. The transferee or mortgagee shall, with the original lessee, jointly apply for registration of the lease alteration.

Article 26

If rent dispute arises between the lessor and lessee, it should be mediated by the local hsiang, chen or chu Farm Tenancy Committee. If the mediation fails, it should be remediated by the Hsien or Municipal Farm Tenancy Committee. If the re-mediation fails, the Hsien or Municipal Committee should transfer the dispute to the local court for settlement. The court should immediately try the case without collecting any procedural fee from the disputing parties. The disputing parties shall not appeal to the court before committee mediation is tried. A written certificate shall be issued to those disputes which are settled by the committee mediation.

Article 27

All provisions of this Act shall be applicable to the case of right of perpetual tenure.

Article 28

After the enforcement of this Act, the Provincial Government shall fix protective measures for the farm-laborers according to the local conditions. The measure shall be approved by the Executive Yuan.

Article 29

The application area of this Act shall be decided by the order of the Executive Yuan.

Article 30

This Act shall become effective on the day of its promulgation.