

## THE ROLE OF LAND PAWNING IN SECURING LOANS: THE CASE OF *SANGLA* IN THE PHILIPPINES

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### I. INTRODUCTION

SINCE 1970, various rural development projects, such as the introduction and diffusion of high-yielding varieties of rice and land reform programs, have been implemented to address problems stemming from rural poverty. These projects have caused drastic changes in the socioeconomic structures of rural areas (see Hayami and Kikuchi [6] and David and Otsuka [3]).

One of these changes is the emergence of the custom known as *sangla*, which became common in the 1980s in progressive rice-farming areas of Inner Central Luzon and Panay.<sup>1</sup> *Sangla* is a land-pawning contract in which the pawner temporarily transfers his cultivation rights to the pawnee in return for a loan and can redeem these rights upon loan repayment. It is a characteristic feature of *sangla* that cultivation rights are not forfeited in the event of loan default. During the contract period, the returns from the land accruing to the pawnee, who assumes all operating expenses including land rent payments, represent implicit interest earned (paid) by the pawnee (pawner).<sup>2</sup> *Sangla* has been expected to facilitate the mobilization of surplus funds in rural areas, while fears have also been expressed that land pawning will lead to a concentration of landownership and economic stratification (Nagarajan, David, and Meyer [10, p. 104]).

As to the background and the determinants of choosing *sangla*, Nagarajan, David, and Meyer [10] and Nagarajan, Quisumbing, and Otsuka [11] argue that (1) due to a severe contraction in formal lending during the 1980s, land collateral was typically required in financial markets for long-term credit, (2) in the 1980s the declining profitability of rice farming due to decreasing real rice prices and increasing overseas employment opportunities induced a shift in investment patterns toward nonfarm employment and human capital, which in turn increased the de-

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<sup>1</sup> Concerning the emergence of *sangla*, see Hayami, Quisumbing, and Adriano [7], Umehara [17], and Nishimura [12]. Concerning its origin (a Tagalog word meaning pawn or mortgage), see McLennan [9].

<sup>2</sup> The importance of land pawning in lending practices in developing countries such as Bangladesh, Indonesia, and Thailand is reported in Ghate [5], Wijaya and Sturgess [18], and Siamwalla et al. [15].

mand for large amounts of long-term funds, (3) the increased demand for such loans could not be met by the formal financial institutions, because restriction on the transfer of beneficiary land titles limited the use of land as loan collateral, and (4) *sangla* became common in order for land reform beneficiaries to circumvent transfer restrictions on their cultivation rights to meet financial requirements.<sup>3</sup>

The above-mentioned views, however, have the following problems. First, we have observed that large-scale farmers do not necessarily lend out their surplus funds to small-scale farmers, thus refuting the prediction that land pawning accelerates stratification (see Umehara [17] as well). Concerning reasons (3) and (4), a number of counter examples were observed in our area of study. First, the effectiveness of land reform regulations under the Aquino and Ramos regimes is questionable.<sup>4</sup> Second, in our area of study, a number of OLH (Operation Leasehold) beneficiaries who were allowed to transfer their cultivation rights if the landowners agreed, also borrowed money under *sangla* in addition to OLT (Operation Land Transfer) beneficiaries who were prohibited from mortgaging their land as loan collateral. This fact indicates that *sangla* is the more profitable measure for borrowing than the land-pawning contract stipulating that mortgaged land can be forfeited in the event of loan default.<sup>5</sup>

The objectives of this paper are (1) to elucidate the facts behind the emergence of *sangla* based on our field survey results and (2) to present an alternative hypothesis about the process of choosing *sangla*. Therefore, in the next section we show the actual situation of land pawning and the basic conditions under which *sangla* increased during the 1980s through a comparison of five rice-growing villages with access to irrigation systems, their socioeconomic structures, and the frequency of choosing *sangla*. Based on these findings, Section III contains a comparative profitability analysis of two types of land pawning, in order to reexamine the implicit assumption in the research to date that the land-pawning contract in which mortgaged land will be forfeited in the event of default is more profitable than *sangla*. Then in Section IV, we present an alternative hypothesis on the determinants of choosing *sangla* and offer empirical evidence to support the hypothesis, which explains the reason why small-scale farmers who are engaged in high-salaried off-farm jobs, prefer to lend their surplus funds to the large-scale farmers. Finally, we summarize the results of the investigation and add concluding remarks on implications for policy reform.

<sup>3</sup> Nagarajan, David, and Meyer [10, p. 95]. Concerning reason (4), also see Nagarajan, Quisumbing, and Otsuka [11].

<sup>4</sup> For the effectiveness of agrarian land reform law in the Philippines, see Nozawa [13]. In addition, judging from the results of our field survey and the other research, we cannot tell that the land reform regulations on mortgaging OLT (Operation Land Transfer) land are restrictive during recent years, although under Marcos-era land reform law, large haciendas were broken up and land rents drastically reduced.

<sup>5</sup> See Hayami, Quisumbing, and Adriano [7] for a more detailed description of the OLH and OLT programs.

TABLE I  
SOCIOECONOMIC CHARACTERISTICS OF THE SAMPLE HOUSEHOLDS IN FIVE VILLAGES, 1990–91

Item	Village				
	Ba	Ca	Tu	Du	Aq
No. of households	136	62	41	56	40
Area irrigated (%)	100	64	98	66	21
Farm size (ha)	2.45	1.39	2.24	0.83	0.72
Yield (cavan / ha / crop)	108 (1 cavan = 46kg)	86 (1 cavan = 46kg)	80 (1 cavan = 41kg)	75 (1cavan = 41kg)	40 (1 cavan = 41kg)
Average household income (peso)	97,864	97,320	78,029	24,897	35,023
Tenure (% area):					
OLT	29.5	61.4	4.2	0	0
OLH	42.3	22.9	51.4	28.3	22.7
Share	0	1.2	26.0	27.0	51.7
Owner cultivator	6.4	0	6.6	21.5	25.6
Pawning	21.8	14.5	1.5	0	0
Others	0	0	10.3	23.2	0

## II. OVERVIEW OF THE VILLAGES STUDIED AND LAND PAWNING

We conducted our field survey during 1990–91. The villages surveyed are located in Nueva Ecija, Laguna, and Aklan provinces, which are all typical rice-growing regions in the Philippines. We sampled households at random and interviewed them for information on educational background and employment of family members, rice-growing practices, asset holdings, household income, revenues and expenditures in rice production, etc.

Favorability of irrigation, average farm size, yield of rice, and tenurial status in the villages are shown in Table I. In villages Ba and Ca, which are located in Nueva Ecija Province, the land reform law (Presidential Degree 27) passed under the Marcos regime had been almost perfectly implemented. In Ba, since medium- and small-scale landowners had occupied land before the land reform law was enacted, OLH beneficiaries were predominant. On the other hand, in Ca, where the large-scale (more than 1,000 hectares) haciendas (plantation) had been dominant, OLT beneficiaries were predominant. In villages Tu, Du, and Aq, since medium- and small-scale landowners had occupied the land, OLT beneficiaries were few. Tu is in Laguna Province and is a progressive rice-growing village where land reform was implemented primarily during the Marcos era. Consequently “illegal” share tenancy contracts with higher land rents are found only among relatives. Du and Aq are in Aklan Province, Panay. In Du, Marcos’s land reform successfully led to the decline of share tenancies and increase in fixed-rent leaseholds, while the implementation of land reform in Aq had not progressed, so that most of the tenants had not yet shifted from share to fixed-rent leasehold tenancy.

TABLE II  
DESCRIPTION OF THE PAWNING CONTRACTS IN FIVE VILLAGES, 1990-91

Item	Village				
	Ba	Ca	Tu	Du	Aq
No. of farm households (a)	136	62	41	56	40
No. of pawning (in) households (b)	35	5	3	0	0
b / a (%)	25.7	8.1	7.3	0	0
No. of pawning contracts	51	11	4	0	0
Pawned land by tenure (% , area):					
OLT	17.4	20.0	92.6	—	—
OLH	82.6	80.0	7.4	—	—
Profit from rice farming (peso / ha / crop)	14,748.6	9,560.8	10,048.0	6,382.9	5,340.0
Implicit interest rate (% / year)	52.6	23.1	12.1		
Loan size of pawning by tenure (peso / ha):					
OLT	31,102.0	43,200.0	105,600.0	—	—
OLH	24,946.5	39,500.0	60,000.0	—	—
Loan size (peso / household):					
Total (c)	30,726.0	17,375.2	16,905.9		
Pawning (d)	15,963.2	1,612.9	3,285.7	0	0
d / c (%)	52.0	9.3	19.4	0	0
Common interest rate (% / crop)	30	30	100	100	100

In villages Ba and Tu, plentiful irrigation water drawn from the river and canals allowed farmers to cultivate rice crops twice a year. Ca is irrigated during the rainy season, while irrigation is unfavorable for growing a rice crop during the dry season due to the lack of water resources. Vegetable cultivation is done during the dry season using deep well irrigation. In Du, more than half of the farmers practice double cropping, while in drought prone rain-fed Aq only a few farmers can grow two rice crops a year. Due to the environmental conditions of irrigation the rice yield is the highest in Ba and decreases in order from Ca, Tu, Du to Aq.

The average rice farm size is the largest in Ba. The next largest is found in Tu and Ca. Farm size in Du and Aq is the smallest, less than one hectare. Land pawning was mainly observed in Ba and Ca, and little practiced in the other villages. The reason why the percentage of pawned land is large in Ca, is not because the frequency of land-pawning contracts is higher in Ca, but because a large-scale farmer cultivates ten hectares of land acquired through *sangla*. From the above-mentioned findings, we discover that *sangla* is most frequently observed in Ba, where the average annual yield of rice and the average farm size were largest.

Next, from the characteristics of *sangla* shown in Table II, we investigated the determinants of contractual choice regarding land pawning. In Ba, the profitability of rice farming was higher than the other villages, while the loan amount from pawning was smaller. Consequently, the implicit interest rate (around 50 per cent per one growing season) was higher than the prevailing market interest rate (30 per cent) in the region populated by professional moneylenders. This fact indicates that lenders preferred to loan through *sangla*. On the other hand, in Ca and Tu, where land pawning was also observed, the implicit interest rate for land-pawning

TABLE III  
SELECTED VARIABLES FOR PAWNER, PAWNEE, AND OTHER FARM HOUSEHOLDS IN VILLAGE BA

Variable	Pawner (N = 44)	Pawnee (N = 35)	Others (N = 57)
Family labor (person)	2.227	2.400	1.930
Permanent labor (use = 1; not use = 0)	6	19	9
Pawned area (ha)	1.317	1.613	0
Pawning contract (peso)	49,340.8 (37,464.5 / ha)	52,905.7 (32,799.6 / ha)	0
Implicit interest rate (% / year)	60.7	101.5	—
Non-rice income (peso / household)	67,559.9	149,826.2	89,350.3
Profit from rice farming (peso / ha / crop) <sup>a</sup>	14,088.9	15,986.0	14,497.9
School year of household head	6.636	11.229	7.158
Family asset (peso)	11,817.2	66,238.7	24,788.8
Agricultural fixed capital (peso / ha) <sup>b</sup>	30.277	150.456	87.203
Farm size (ha)	2.533	0.889	2.346
CLT (certificate of land transfer) holder	17	2	22
Duration of land pawning (year):			
-1.0	3	0	—
1.5-3.0	17	15	—
3.5-5.0	3	6	—
5.0-	1	1	—
No definite time	20	13	—

<sup>a</sup> Annual gross revenue from rice production minus total sum of fixed capital cost, variable capital cost, labor cost, and land rent. Fixed capital cost = the sum of flow costs of tractor, thresher, pump, and draft animal; variable capital cost = total costs of chemical inputs and seeds; labor cost = the sum of labor costs, including the all payments for hired laborers and imputed family labor costs; and land rent = the imputed land rent in case of owned land, and the actual land rent in case of rented land.

<sup>b</sup> Owned tractor, thresher, and pump per planted area.

contracts was lower than the market interest rate. This means that lenders had less incentive to loan through *sangla* in these areas.

However, why do the borrowers prefer *sangla*? To consider this point, we estimated the implicit interest rate demanded from pawners (see Table III). This figure shows that the implicit interest rate was almost equal to the annual market rate. That is to say, it would not make any difference in terms of cost whether the borrowers obtained funds through *sangla* or from moneylenders, if the transaction cost and discount rate were negligible.

The tenurial status of pawned land in Ba and Ca contained in Table II shows that 82.6 per cent of land pawned through *sangla* was OLH land. This finding suggests that *sangla* was chosen because of its profitability, as mentioned in Section I, regardless of land reform regulations.

These findings seem to show that Ba is full of the causes for choosing *sangla*; but this would be valid only on the assumptions that (1) loan default would not occur and (2) the present value of future income is equal to its future value. Therefore, in the next section, to consider the effectiveness of restriction imposed by land re-

form, we have made a comparative analysis of expected profits between *sangla* and the land-pawning contract in which loan default resulted in forfeiture of land cultivation rights, thus taking into account the possibility of default and a positive discount rate.

### III. SANGLA VERSUS LAND-PAWNING CONTRACTS WITH CULTIVATION RIGHTS FORFEITURE STIPULATIONS

In order to compare the profitability of these two types of land-pawning contracts, we use a simple two-period model so that the basic idea would not be lost.

First, we formulated the expected incomes of the pawnee, who employs his surplus funds to gain a livelihood through *sangla* and that of the pawner who borrows money via *sangla* to invest in nonagricultural enterprises. The two-period expected income of pawnee,  $V$ , is the sum of his income in the first period (agricultural income from cultivation of pawned land  $f(A)$  minus a loan  $L$ ) and the discounted value of the income in the second period (total expected incomes after receiving  $L$ , which occurs with probability  $P$ , and after receiving  $f(A)$ , which occurs with probability  $(1 - P)$ ),

$$V = -L + f(A) + \delta[PL + (1 - P) \cdot f(A)]. \quad (1)$$

Here,  $A$  indicates land area pawned,  $P$  indicates the probability of the pawner succeeding in his investment and repayment of the loan. Delta ( $\delta$ ) indicates the discount factor.

Similarly, the expected income of the pawner  $W$  is

$$W = g(\bar{A} - A) + \gamma\{P[R + g(\bar{A}) - L] + (1 - P) \cdot g(\bar{A} - A)\}. \quad (2)$$

Hence,  $\bar{A}$  indicates land area owned by the pawner and  $g(\cdot)$  indicates net profit function of land which differs from pawnee's  $f(A)$ . Further,  $R$  indicates the profit from the investment if the pawner succeeds. We assume that profit is zero if the pawner fails. Gamma ( $\gamma$ ) indicates the discount factor of the pawner.

Next, we formulated the expected incomes of pawnee and pawner who conclude a land-pawning contract stipulating forfeiture of land cultivation rights. In this case, we assume that the pawner who holds on to his cultivation rights in the first period repays the principal and interest in the second period, given he succeeds in his investment in the first period, while the pawnee takes over the mortgaged land if he does not.<sup>6</sup> In addition, we assume that pawned land area  $A^*$  is at the level at which the capital value of the net profit stream is equal to the debt of the pawner if the pawnee continues to cultivate the land indefinitely. That is to say,  $f(A^*) / r = \delta L$ , where  $r$  indicates the market interest rate.

The expected income of the pawnee  $V^0$  is

$$V^0 = -L + \delta[PL(1 + r) + (1 - P) \cdot f(A^*)]. \quad (3)$$

<sup>6</sup> It is implicitly assumed in the conventional economic analysis of collateral that the collateral will be forfeited in the event of default. See Benjamin [1], Stiglitz and Weiss [16], Plaut [14], Chan and Thakor [2].

TABLE IV  
INFORMATION OBTAINED THROUGH A QUESTIONNAIRE ON LAND PAWNING IN VILLAGE BA

Question	Yes		No		Total
	Pawner	Pawnee	Pawner	Pawnee	
1. Would you prefer <i>sangla</i> to a collateral contract in which the borrower agrees to forfeit in the event of loan default?	26	44	7	14	91
2. Did you have your <i>sangla</i> contract witnessed to?	73		20		93
3. Do you see the possibility of your pawner failing to repay the loan?	1		32		33

The expected income of the pawner  $W^0$  is

$$W^0 = g(\bar{A}) + \gamma\{P[R + g(\bar{A}) - (1 + r)L] + (1 - P) \cdot g(\bar{A} - A^*)\}. \quad (4)$$

Using these formulations, we compared expected incomes under the two contractual arrangements for pawnee and pawner respectively.

From equations (1) and (3),

$$V - V^0 = f(A) - \delta PrL + \delta(1 - P) [f(A) - f(A^*)]. \quad (5)$$

From equations (2) and (4),

$$W - W^0 = [g(\bar{A} - A) - g(\bar{A})] + \gamma PrL + \gamma(1 - P) [g(\bar{A} - A) - g(\bar{A} - A^*)]. \quad (6)$$

From equations (5) and (6), the sufficient condition for *sangla* is that the contract should not be less profitable for both of pawnee and pawner:

$$f(A) / L \geq \delta Pr - \{\delta(1 - P) [f(A) - f(A^*)]\} / L, \quad \text{and} \\ \gamma Pr \geq [g(\bar{A}) - g(\bar{A} - A)] / L - \{\gamma(1 - P) [g(\bar{A} - A) - g(\bar{A} - A^*)]\} / L. \quad (7)$$

Based on information obtained through questionnaires, we investigated this condition to test the feasibility of *sangla*.

Table IV shows that pawnees consider that there is little possibility that pawners will fail to repay the loan. This finding indicates that the probability of repayment  $P$  in equation (6) is nearly equal to one. If this is the case, equation (7) may be reduced to

$$f(A) / L \geq \delta r, \quad \text{and} \\ \gamma r \geq [g(\bar{A}) - g(\bar{A} - A)] / L.$$

The figures of implicit interest rates and market interest rates in Tables II and III indicate that this condition is satisfied on the average, if discount rates  $\delta$  and  $\gamma$  tend to one.

The above argument holds only if both the pawnee and pawner abide by the contract. For example, in the case of *sangla*, a pawner may demand the return of

his cultivation rights although he has not yet repaid loan, or a pawnee may refuse to receive the repayment and return cultivation rights although pawner is willing to repay loan before the term of payment. In these cases the argument does not necessarily hold.

Therefore, we need to investigate the actual ways in which contracts are observed in the area under study. Table IV shows that nearly 80 per cent of pawnees and pawners who concluded *sangla* contracts put them in writing and had them witnessed by such figure as village heads and chairmen of cooperatives. This fact indicates that it was very difficult for either side to default through a one-sided decision. In the case of oral contracts, most of them were made between relatives or close friends. Thus, the transaction cost for enforcement of the contracts seems to be negligible. We can conclude that the sufficient condition for choosing *sangla* was satisfied for the "average" farmer in Ba, where *sangla* was the most frequently observed, regardless of legal restrictions.

#### IV. THE CONCEPTUAL MODEL OF SANGLA

Based on the observed facts and information from previous research, we hypothesize about the causes of an increase in *sangla* contracts as follows.

The change in economic circumstances during the 1980s is an important precondition for the emergence of *sangla*. As mentioned in Section I, the investment opportunities for nonagricultural ventures in such industries as transportation, trading, and overseas work increased in the 1980s. This change induced a shift in investment patterns toward nonfarm employment and human capital, which in turn increased demand for a large amounts of nonagricultural funds. On the other hand, as for the supply side of these funds, rural financial markets experienced strict credit rationing by severe contraction in formal lending due to the insolvency of many rural banks. As a result, for long-term credit land collateral was required in rural financial markets. It is a matter of course that if a borrower who held land cultivation rights mortgaged those rights, credit rationing could be mitigated because he could certainly settle his debt. But even if the borrower had creditworthiness, he could not necessarily afford to obtain sufficient funds to meet his demand. The less the productivity and profitability of his land is, the more land he had to mortgage to raise these funds and the greater risk he had to take is having to transfer his cultivation rights to a larger part of his land. Therefore, only large-scale farmers could afford desired funds, given the large demand and low productivity and profitability of land cultivation.

However, farmers who succeeded in the green revolution and achieved higher productivity and profitability in rice farming could borrow the same amount of money in return for mortgaging less of their land cultivation rights. In turn, lenders were motivated to furnish them with more funds than before. The findings from Tables I and II that show profitability the highest and farm size the largest in village Ba where *sangla* was most frequently practiced, support this hypothetical view.

Next, we postulate a conceptual model for choosing the *sangla* contract from the

viewpoint of rational behavior by both lender and borrower. First, we assume that there exists a number of farmers who expect that nonagricultural investment opportunities are more profitable than rice cultivation, and, facing such profitable opportunities, rationally demand investment funds. On the other hand, there exist a number of wealthy families with surplus funds who expect that the cultivation of land acquired through *sangla* would be more profitable than investment in nonagricultural ventures, taking into consideration the higher labor opportunity cost for off-farm work.

Here, we have to explain why agriculture is more profitable than nonagricultural business for the lenders, not for the borrowers. Nagarajan, David, and Meyer [10, pp. 99–101] argue that this kind of asymmetry is caused by differences of profitability in rice cultivation between the pawnee and pawner due to differences in land quality and farm scale. However, a number of facts do not fit their view.

First, differences in profitability cannot be caused by the differences in soil condition and irrigation because both pawnees and pawners cultivate the same land; and the farm scale could not be a determinant for the difference, because the average farm size of pawner is larger than that of the pawnee in our area of study (see Table III). Therefore, we can conclude that differences in land quality and farm scale do not cause differences in the profitability of rice cultivation.

More fundamentally, our findings do not support the hypothesis that the profitability in land cultivation of pawnees is higher than that in nonagricultural business ventures. The actual profitability of overseas work, the transportation business, and trading was higher than rice farming in our area of study. A better explanation is that the pawnees prefer to acquire cultivation rights through *sangla* because it is more remunerative over a change to off-farm work, which would incur high labor opportunity costs.<sup>7</sup>

From these consideration, we can offer a hypothesis that *sangla* would be chosen when desires of smaller-scale but wealthier farmer for higher household incomes by efficient employment of their surplus funds matches the motivation of larger-scale but less wealthy farmers to invest in more profitable nonagricultural ventures with funds borrowed through *sangla*.

## V. EMPIRICAL ANALYSIS

In this section, we first assume that the *sangla* contract will be chosen if the funds available to the lender are not smaller than the borrower's demand for them under the contractual terms offered. On this assumption, we will clarify via empirical evidence the determinants of *sangla* using a probit-type qualitative response model. The model may be formulated as follows.

We assume that the pawnee will agree to lend if his planned supply of funds is not smaller than the loan demanded by the pawner, taking into account the profitability of mortgaged land, the amount of surplus funds, etc. Otherwise the pawnee will refuse the pawner's offer. This indicates that if loan supply  $S$  is not smaller

<sup>7</sup> Evidence on this point is shown in Fukui [4].

than loan demand  $D$  made by the pawner (regarded as constant by the pawnee), the pawnee will decide to supply the funds. We expect that household income  $D$ , which depends on (1) human capital represented by education and number of family labor, (2) the profitability of the loan represented by implicit interest rate, (3) the amount of family assets, and (4) employment of permanent labor will all have positive effects on the choice of *sangla*, while farm size of the pawnee will have a negative effect on it.

Based on such a consideration, we present a following empirical model.

$$\text{If } y = S - \bar{D} \geq 0, \quad y^* = 1; \text{ otherwise, } \quad y^* = 0.$$

$$S - \bar{D} = \alpha_0 + \alpha_1(\text{family labor}) + \alpha_2(\text{education level [years of schooling] of household head}) + \alpha_3(\text{implicit interest rate}) + \alpha_4 \ln(\text{family asset}) + \alpha_5(\text{permanent labor dummy}) + \alpha_6(\text{farm size}).$$

Here, the permanent labor dummy variable is equal to one, if a farmer uses permanent labor; otherwise, it equals zero. The  $\alpha$ 's are parametric.

On the other hand, we assume that pawner will request the loan and the other contract terms if his demand is positive; otherwise, he will not. Here, we expect that (1) household income represented by human capital, (2) the profitability of the loan, and (3) the amount of family assets (agricultural fixed capital) will have negative effects on the choice of *sangla*, while farm size of the pawner will have a positive effect on it.

From this, we may formulate the following empirical model.

$$\text{If } Z = D > 0, \quad Z^* = 1; \text{ otherwise, } \quad Z^* = 0.$$

$$D = \beta_0 + \beta_1(\text{family labor}) + \beta_2(\text{education level [years of schooling] of household head}) + \beta_3(\text{implicit interest rate}) + \beta_4(\text{agricultural fixed capital}) + \beta_5(\text{farm size}) + \beta_6(\text{OLT dummy}).$$

Here, an OLT dummy variable is introduced to test the hypothesis in previous studies that OLT beneficiaries tend to acquire loans through *sangla* in order to escape the regulations under land reform laws. If the pawner is an OLT beneficiary, the OLT dummy variable is equal to one; otherwise, it is equal to zero.

The results of our estimation are presented in Tables V and VI. All the explanatory variables for the choices of pawnees are significant and the signs are what we expected. The variables for employment of permanent labor, implicit interest rate, education level of household head, and the number of family labors are significantly positive, while the farm size variable is significantly negative. The explanatory variables for pawner's choice of *sangla*—education level of household head, implicit interest rate, and agricultural fixed capital—are significantly negative, while the farm size variable is significantly positive. However, the other variables are insignificant, although their signs are nearly as we expected. It is worthy of special mention that the insignificance of the OLT dummy variable supports our hypothesis that land reform laws are not restrictive.

TABLE V  
ESTIMATION OF SAMPLE SELECTION MODEL FOR PAWNING IN VILLAGE BA

Variable	Probit Dependent Variable (Pawnee = 1; Otherwise = 0)	
	Estimate	t-statistic
Constant	-4.0074	-4.8766**
Family labor	0.46359	2.8754**
Education level of household head	0.12576	2.3415*
Implicit interest rate	1.4163	3.3686**
Family asset	0.11268	2.5373**
Permanent labor dummy	1.4030	2.9032**
Farm size	-0.68457	-4.9694**
Log of likelihood function	-29.8177	
No. of observations	136	
No. of positive observations	35	
% of positive observations	25.74	

\* indicates significance at 5 per cent level.

\*\* indicates significance at 1 per cent level.

TABLE VI  
ESTIMATION OF SAMPLE SELECTION MODEL FOR PAWNING IN VILLAGE BA

Variable	Probit Dependent Variable (Pawnee = 1; Otherwise = 0)	
	Estimate	t-statistic
Constant	0.19441	0.39735
Family labor	0.042325	0.39283
Education level of household head	-0.068973	-2.0393*
Implicit interest rate	-0.73303	-1.9624*
Agricultural fixed capital	-0.072781	-2.4850**
Farm size	0.25886	2.7125**
OLT dummy	0.11233	0.42396
Log of likelihood function	-72.3492	
No. of observations	136	
No. of positive observations	44	
% of positive observations	32.35	

\* indicates significance at 5 per cent level.

\*\* indicates significance at 1 per cent level.

## VI. SUMMARY AND CONCLUSIONS

We can summarize the results of our investigation as follows. (1) *Sangla* contracts became more common in regions where increases in rice yields had been achieved and high-salaried job opportunities had increased. (2) The typical money stream does not flow toward small-scale farmers from large-scale farmers. Rather, it was

very common in our area of study that small-scale farmers engaged in high-salaried off-farm jobs lent out their surplus funds to large-scale farmers. (3) *Sangla* contracts were chosen by income-maximizing farmers, on the basis of rationality irrespective of reform law restrictions. From these results we can draw the following implications for the debates mentioned in Section I.

First, the results of our analyses allay fears that land pawning will lead to a concentration of landownership and social stratification. The fact that the duration of temporary transfer of cultivation rights is short, as shown in Table III, also supports this implication. Second, the same results also deny the view that *sangla* contracts have been chosen partly because land reform law prohibits land mortgaging by OLT beneficiaries. The legal regulations are not as restrictive as assumed in such a view. Finally, if our fact-finding is matched by surveys of other regions, we can conclude that *sangla* is a rational institution which promotes mobilization of unused investment funds in rural areas and is an institutional innovation devised by farmers themselves to adapt to changing economic circumstances.

Presently, the Philippine government has been implementing rural financial projects through multipurpose village cooperatives and the Land Bank to promote growth of cheap noninstitutional credit (see Llanto [8]), but our observation that only a few cases were successful in 1994 suggests that these projects are yet unsatisfactory.

The government should rather put priority on reforming the legislative system to improve rural informal credit markets and promote and foster indigenous institutional innovations like *sangla* rather than try to supply cheap credit to farmers through various institutional outlets aiming at mitigating credit rationing. This is because the effectiveness of a supply-led approach in which government takes the initiative has been questionable, as pointed out in the conventional research. The time is ripe for the government to decide to carry out financial policy reforms in the direction we have recommended.

#### REFERENCES

1. BENJAMIN, D. K. "The Use of Collateral to Enforce Debt Contracts," *Economic Inquiry*, Vol. 16, No. 3 (July 1978).
2. CHAN, Y., and THAKOR, A. V. "Collateral and Competitive Equilibria with Moral Hazard and Private Information," *Journal of Finance*, Vol. 17, No. 2 (June 1987).
3. DAVID, C. C., and OTSUKA, K. *Modern Rice Technology and Income Distribution in Asia* (Manila: International Rice Research Institute, 1994).
4. FUKUI, S. "The Efficiency of the Permanent Labor Contract: A Case Study in the Philippine Rice Bowl," *Developing Economies*, Vol. 33, No. 1 (March 1995).
5. GHATE, P. B. "Informal Credit Markets in Asian Developing Countries," *Asian Development Review*, Vol. 6, No. 1 (February 1988).
6. HAYAMI, Y., and KIKUCHI, M. *Asian Village Economy at the Crossroads* (Tokyo: University of Tokyo Press, 1982).
7. HAYAMI, Y.; QUISUMBING, M. A.; and ADRIANO, L. *Toward an Alternative Land Reform Paradigm: A Philippine Perspective* (Quezon City: Ateneo de Manila University Press, 1990).
8. LLANTO, G. M. "Agricultural Credit and Banking in the Philippines: Efficiency and Access Issues," in *Structures and Reforms for Rural Development in the Philippines*, ed. A. M. Balisacan and K. Nozawa (Tokyo: Institute of Developing Economies, 1993).

9. McLENNAN, M. S. "Land and Tenancy in the Central Luzon Plain," *Philippine Studies*, Vol. 17, No. 4 (October 1969).
10. NAGARAJAN, G.; DAVID, C. C.; and MEYER, R. L. "Informal Finance through Land Pawning Contracts: Evidence from the Philippines," *Journal of Development Studies*, Vol. 29, No. 1 (October 1992).
11. NAGARAJAN, G.; QUISUMBING, M. A.; and OTSUKA, K. "Land Pawning in the Philippines: An Exploration into the Consequences of Land Reform Regulations," *Developing Economies*, Vol. 29, No. 2 (June 1991).
12. NISHIMURA, S. "Firipin nishi Bizaya chihō inasaku nōson no nōgyō hatten—Iroiro shū Pototan mura no jirei o chūshin to shite" [Agricultural development in a rice-growing village in Visayas: a case study of barangay Pajo in Iloilo], *Keizai-gaku kenkyū*, Vol. 60, No. 1 · 2 (June 1994).
13. NOZAWA, K. "Agrarian Reform and Rural Development in the Philippines," in *Structures and Reforms for Rural Development in the Philippines*, ed. A. M. Balisacan and K. Nozawa (Tokyo: Institute of Developing Economies, 1993).
14. PLAUT, S. E. "The Theory of Collateral," *Journal of Banking and Finance*, Vol. 9, No. 3 (September 1985).
15. SIAMWALLA, A.; PINTHONG, C.; POAPONGSAKORN, N.; SATANGUAN, P.; NETTAYARAK, P.; MINGMANEENAKIN, W.; and TUBPUN, Y. "The Thai Segmented Markets," *World Bank Economic Review*, Vol. 4, No. 3 (July 1990).
16. STIGLITZ, J. E., and WEISS, A. "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, Vol. 71, No. 3 (June 1981).
17. UMEHARA, H. "Firipin inasaku nōka no keiei henka—chūbu Ruson heiya no ichi sonraku chōsa jirei o megutte" [Changing patterns of a rice-growing village in the Philippines: a case study of a village in Central Luzon], *Nōgyō keiei kenkyū*, Vol. 31, No. 4 (March 1994).
18. WIJAYA, H., and STURGESS, N. H. "Land Leasing in East Java," *Bulletin of Indonesian Economic Studies*, Vol. 15, No. 2 (July 1979).