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## The Thai Rural Credit System: Public Subsidies, Private Information, and Segmented Markets

Ammar Siamwalla, Chirmsak Pinthong, Nipon Poapongsakorn, Ploenpit  
Satsanguan, Prayong Nettayarak, Wanrak Mingmaneeakin,  
and Yuavares Tubpun

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*Thailand has sought to increase farmers' access to credit by government intervention. In 1966 it created a government agricultural bank to lend solely to farm households, and beginning in the late 1970s it required commercial banks to lend heavily in the rural sector, either directly or by making deposits in the agricultural bank. The result was an enormous expansion of credit in the rural sector. But because formal lenders were either unable or unwilling to solve the information problems involved in the broad range of rural credit transactions, the informal credit sector (which charged interest rates many times higher than the formal sector) continued to thrive. Using household surveys and surveys of moneylenders, this article provides a detailed analysis of the ways in which lenders in the informal sector have solved the information problems of providing credit. The authors argue that the informal sector is competitive, and that high interest rates reflect high information costs, not the scarcity of funds.*

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This article reports on a set of investigations of the impact of Thai government policies to expand bank lending in the rural sector. Their purpose was to increase farmers' access to capital and reduce their dependence on informal lenders. Fifteen years after the principal government measures were introduced, we hope to be able to answer several questions: How has the expansion of formal sector lending affected the informal sector? Did the increase in the supply of formal credit reduce the business of informal lenders and lower interest rates in the informal market? What has been the performance of the formal credit system in terms of coverage, efficiency, and incidence?

Lacking time-series data on the informal sector, we cannot give a direct answer to these questions. But we can with confidence say that the informal lenders are still very much alive. By examining the behavior of the rural credit market at the present time, we can throw an indirect light on what transpired over the last fifteen years. Our main findings are the following:

- On the basis of our 1984-85 survey of households and moneylenders,

Ammar Siamwalla is president, Thailand Development Research Institute. The other authors are members of the economics faculty at Thammasat University, Bangkok, Thailand.

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credit from the banking system and cooperatives provided 40 percent of the total credit reported, compared with (very roughly) 10 percent in 1975. But it is impossible to determine whether the absolute volume of informal lending has increased or decreased in the past fifteen years. Almost 75 percent of those active in the credit market still used the informal sector; in many cases, those households also used the formal sector during the survey period. The persistence of the informal sector is the result of the rich variety of contractual relations that enable informal lenders to solve information problems that are currently beyond the ability of the banks and cooperatives.

- The formal sector has evolved a very cost-effective method of channeling credit to the rural sector through its peer monitoring system. But loans provided under this system are only short-term and reach primarily farmers with above average incomes. The credit needs of poor farmers are still served by the informal market or not at all.

- Neither the formal sector nor nonresident informal lenders appear able to provide consumption loans needed in periods of bad harvests or low output prices. Resident lenders also are not able to make these loans because their financial state covaries with their borrowers'.

- Real interest rates in the informal sector have been fairly stable at least for the last two decades despite changes in government credit policies and varying monetary policies.

From our analysis of the Thai rural credit market, we draw the implication that mere injection of funds into the rural areas does not lower informal sector interest rates or drive informal lenders out of business; funds are not the scarce factor. The injection of funds into the Thai rural credit market after 1976 did not achieve its objective of providing low-cost funds for most credit needs, although it was successful in the (very important) market for working capital. Despite repeated attempts, the Bank for Agriculture and Agricultural Cooperatives (BAAC) has been unsuccessful in expanding its scope of activities. A successful formal credit program that can compete with informal lenders over a broad range of their activities requires innovations in institution-building to compete with the information-solving devices in place in the informal rural sector.

This article is in six sections. After describing our data sources (section I), we analyze the structure of the rural credit system (section II) and the rich variety of ways in which different lenders solve their selection, monitoring, and enforcement problems (section III). We present results of a regression analysis of informal interest rates (section IV). In a brief critique of the theoretical literature, we argue that the extant theoretical tools, which focus on contractual relations between anonymous lenders and borrowers, do not fit the highly personal informal market in Thailand (section V). In our concluding section, we comment on the efficiency and distributional consequences of the Thai government policies for rural credit.

## I. DATA SOURCES

Available secondary sources provide consistent information only on formal sector credit activities. For our study, we undertook three new surveys—two surveys mostly in Nakhon Ratchasima province (hereafter NR), and one survey in six provinces across Thailand. NR province, although officially a part of the impoverished Northeastern region, is close to the Central Plains and therefore somewhat more prosperous than its Northeastern neighbors. It is also Thailand's largest province and has within its borders a wide variety of physical and socioeconomic environments. The scope of our three studies was as follows:

- *Household survey of fifty-two villages, NR province, 1985.* The survey covered the economic activities of 1,600 rural households, including their borrowing activities but not their lending activities. The latter were excluded as we felt that to raise such sensitive issues in a questionnaire would endanger the quality of the data in other areas, as well.

- *Survey of moneylenders in six villages, NR province, 1984–85.* We sent six researchers to live in six villages for about six to eight weeks, using informal methods to analyze in depth the social relations and borrowing and lending activities within the villages and with people outside. This approach enabled the research team to identify the key lenders inside the villages and to gain their confidence. Two principal researchers then interviewed these lenders in depth to gauge their method of procedure. At no time did we attempt to get a precise measure of the size and turnover of these lenders' activities—the price we gladly paid to get valuable information that would not have been available otherwise.

- *National survey of informal interest rates, fourteen villages in ten provinces of Thailand, 1987.* To obtain information on regional variations in rural interest rates in the informal credit market, enumerators lived for two weeks in each village and administered a survey questionnaire to a total of 293 randomly selected borrowers and 37 lenders in the last five days of their stay.

## II. STRUCTURE OF THE THAI RURAL CREDIT MARKET

The main factor separating formal from informal lenders is that the former are generally bureaucratic organizations within which there could be problems of monitoring and control. Informal lenders tend to be individuals or husband-and-wife teams. In our surveys we came across only one category of lender that was difficult to classify—sellers of durable goods on the installment plan. In many but not all instances they are large-scale, bureaucratically run companies. We chose to treat them as informal lenders. This particular choice was convenient in that it grouped together in the informal sector all lenders who receive no subsidies, and into the formal sector all subsidized lenders to rural households.

### *Historical Overview of the Formal Sector*

Beginning in 1916, the government of Thailand has experimented with different institutional frameworks to provide cheap credit to the rural sector. The method usually employed was to encourage farmers to set up credit cooperatives to which the government would provide loans, with the regular government agencies responsible for disbursing to and collecting from the cooperatives. Typically the default rate would be high and the finance would dry up after a few years. In 1966, the government created the Bank for Agriculture and Agricultural Cooperatives (the BAAC), a specialized financial institution to provide loans directly to farm households as well as to the cooperatives.<sup>1</sup> Between 1966 and 1974, the BAAC grew at moderate speed and succeeded in establishing branches in 58 out of Thailand's 71 provinces (Mingmaneeakin 1988, p. 123).

Radical changes took place in 1975. The 1973 departure of a military-dominated regime had ushered in a more democratic government. The countryside was the scene of intense struggles for the proverbial "hearts and minds" between the Bangkok government and the Communist Party of Thailand. The new democratic government was under pressure to transfer resources to the rural areas. In August 1975, in the middle of the planting season for most major agricultural crops, the Bank of Thailand sent a memorandum to all commercial banks, requesting each bank to lend to farm households an amount equal to at least 5 percent of its total stock of loans and advances outstanding at the end of 1974. Should any bank find it impossible to lend the full amount, it was to make a 12-month deposit of the remaining sum with the BAAC.<sup>2</sup>

At the same time, the BAAC, a public enterprise under the Ministry of Finance, was ordered to expand its loan portfolio to 3.5 billion baht from the level of 2.65 billion baht lent out in 1974 (billion = 1,000 million; Mingmaneeakin 1988, p. 84).<sup>3</sup> Thus both the commercial banks and the BAAC found themselves suddenly having to extend a vast amount of new loans to farmers. The commercial banks, particularly the smaller ones, were unable to meet the new lending requirements. The BAAC consequently received substantial deposits from them and had to expand its operations very quickly (see table 1, column 8). The rural credit system was entirely transformed by this policy.

1. The BAAC's mandate is to lend to farm households and for agricultural activities. It is now trying to lend to nonagricultural activities of farm households.

2. In 1975, the Bank of Thailand had no legal authority to impose selective credit control. It could do so only after an amendment to the Commercial Bank Act in 1979. This change, however, did not cause the central bank to impose this requirement as a legally mandated regulation. Its preferred style of regulation in this matter remains what it calls "moral suasion."

3. In 1985, approximately 25 baht equaled one U.S. dollar. Between 1955 and 1981, the baht fluctuated between 20 and 21 baht to the dollar, with the country practicing a relatively open trading regime. The domestic inflation rate therefore corresponds fairly closely to the dollar inflation rate, reaching double digits in the aftermath of the two oil shocks, but staying at fairly low levels after that, including in 1981 and again in 1984 when there were devaluations of 15 percent.

Table 1. *Targets and Performance of Commercial Banks in Agricultural Loans, 1975-85*  
(millions of baht)

Year	Commercial banks							
	Target (1)	Percentage of deposits (2)	Direct lending <sup>a</sup> (3)	Deposits with BAAC (4)	Total agricultural loans (5)	Deposits in central bank <sup>b</sup> (6)	Excess (+) or shortfall (-) =(5)+(6)-(1) (7)	BAAC, Total agricultural loans (8)
1975	4,333.3	5	2,233.6	1,670.8	3,904.4	n.a.	-428.9	4,556.1
1976	6,139.0	7	3,810.9	3,160.6	6,971.5	n.a.	+832.5	6,554.6
1977	9,647.0	9	5,891.8	4,528.0	10,419.8	n.a.	+772.8	8,280.2
1978	11,771.0	9	8,099.5	5,511.4	13,610.9	n.a.	+1,839.9	10,207.8
1979	17,322.4	11	9,970.0	6,330.1	16,300.1	n.a.	-1,022.3	11,698.6
1980	19,208.7	11	11,553.1	7,000.3	18,553.4	1,230.0	-655.3	13,448.3
1981	23,649.3	11	14,562.3	7,803.9	22,366.2	1,230.0	-1,283.1	15,208.3
1982	28,293.7	11	20,140.4	8,405.2	28,545.6	1,096.1	+251.9	17,013.7
1983	35,330.0	11	28,613.2	8,806.0	37,419.2	765.0	+2,089.2	18,271.4
1984	44,340.9	11	35,915.4	9,534.5	45,449.9	656.6	+1,109.0	21,078.9
1985	53,819.5	11	37,726.7	10,685.2	48,411.9	n.a.	-5,407.6	23,308.8
1986	60,347.6	11	39,681.7	11,112.8	50,794.5	n.a.	-9,553.1	—

n.a. Not applicable.

—Not available.

a. Excluding loans to agribusinesses.

b. In 1980, commercial banks were unable to lend the required amount to farmers and the BAAC was willing to accept only part of the shortfall for deposit, so the banks were required to deposit at the Bank of Thailand.

Source: Bank of Thailand, cited in Satsanguan (1989, p. 90).

After 1976, the commercial banks' required lending to farm households was gradually increased until it stabilized in 1979 at 11 percent of total deposits. This requirement appears to make the commercial banks the key source of funds for the agricultural sector. The official figures in table 1 show, for example, that at the end of 1984, commercial banks' direct loans to farm households were 70 percent higher than the BAAC's. Of the BAAC lending, 45 percent was financed by the commercial banks.

The official figures, however, exaggerate commercial banks' direct lending to farm households. The central bank's monitoring of the quasi-regulation it imposed on the commercial banks is extremely lax. The central bank follows up on the implementation of its policies not by audits, but only through occasional general studies. The central bank's approach is in line with the position that it has maintained all along, namely, that this measure is enforced through "moral suasion," not regulation. Commercial banks have found it prudent to go along substantially with this pretense, as the central bank has considerable discretionary power in many other areas, for example, in the number of new branches each of them may open.

The consequence is that the commercial banks have tended to include more loans under the agricultural category than would be warranted by a strict definition of the term. The size of the exaggeration may be gleaned from our

statistical survey of NR province, which shows that in April 1985 the outstanding debt of rural households to the BAAC was higher than that owed to the commercial banks in the ratio of 4 to 3. The absolute figures for the BAAC loans to farmers according to the BAAC and according to our sample survey are of the same order to magnitude. The figures submitted by the commercial banks to the Bank of Thailand, however, show the amount owed to them by agricultural households (a narrower category than rural households) of NR province to be more than *twice* that owed to the BAAC, and about twice what our survey indicates (Poapongsakorn 1988, p. 26). In one of its studies, the Bank of Thailand, tracing from the actual transactions classified as agricultural loans by the banks, estimates the degree of exaggeration to be roughly 25 percent (Satsanguan 1988, p. 115).

Aside from the exaggeration of the relative importance of the commercial banks as a result of sheer misreporting, there is also an exaggeration of its impact in terms of the number of farm households affected. In our survey, the average size of the commercial banks' loans was three times as large as the BAAC's (see table 2). The number of rural households with BAAC loans was higher than that with commercial bank loans in the ratio of 4 to 1 (see table 3).

The BAAC also lends to cooperatives. Despite (perhaps because of) considerable efforts put into these institutions by the government and lately by the BAAC, the performance of the credit cooperatives has always been poor. The default rate was high, and therefore the number of farmers reached dwindled rapidly after the initial flush of lending. From our statistical survey of NR province, during 1984-85 cooperatives disbursed 20 percent of the amount borrowed by NR farm households from formal institutions. Almost all the funds for these loans came from the BAAC (Poapongsakorn 1988, p. 33).

Table 2. *Size of Loan per Transaction, Nakhon Ratchasima Province, 1984-85*  
(baht)

<i>Sector</i>	<i>Average size of transaction</i>
<i>Formal</i>	11,000
BAAC	8,480
Commercial banks	23,462
Cooperatives	8,348
<i>Informal<sup>a</sup></i>	6,360
Cash loans	6,986
Suppliers' credits	1,246
Installment loans	21,965

a. Excludes loans of less than 100 baht (\$4), which are mostly loans contracted when food and household goods are purchased from a general store on credit, with repayment due at harvest time.

Source: 52-village survey of 1,600 rural households in Nakhon Ratchasima Province, tabulated in Poapongsakorn (1988, p. 35).

Table 3. *Characteristics of Households Borrowing from Formal and Informal Sectors, Nakhon Ratchasima Province, 1984-85*

<i>Sector or source of loan</i>	<i>Number of households (1)</i>	<i>Average assets (baht) (2)</i>	<i>Average gross income<sup>a</sup> (baht) (3)</i>	<i>Average net income per capita (baht) (4)</i>
<i>By sector</i>				
Borrowers from formal sector only	43,743	188,697	45,558	4,141
Borrowers from informal sector only	88,145	126,754	30,626	3,171
Borrowers from both sectors	26,671	204,702	47,673	4,413
<i>Nonborrowers</i>				
Unable	4,670	116,927	25,016	2,583
Unwilling	111,976	145,022	32,400	4,094
<i>By source of loan in formal sector</i>				
BAAC	31,272	191,109	45,105	—
Commercial banks	7,902	202,298	82,890	—
Cooperatives	11,521	198,538	34,545	—
Farmers' associations	430	268,945	27,058	—
Others	1,580	109,164	50,367	—

—Not available.

Note: All figures extrapolated to province level.

a. Gross income is income gross of farm production costs. This measure is useful when considering demand for credit.

Source: 52-village survey of 1,600 rural households in Nakhon Ratchasima Province, tabulated in Poapongsakorn (1988, p. 204) and Tubpun (1988, pp. 8, 10).

### *Informal Lenders*

Despite the enormous expansion of formal credit after 1975, informal lenders continue to do a thriving business. Their share of total loans given out has indeed declined from, very roughly, 90 percent to 50 percent, but it is impossible to determine whether the absolute volume of their lending has increased or decreased. The decline in their market share seems to have occurred in every region of the country (Siamwalla 1989, pp. 197-98; Poapongsakorn and Nettayarak 1988, p. 15). Our own survey in NR province indicates that of the households who reported some borrowing or repayment activity during 1984-85, 72.4 percent borrowed from the informal sector, accounting for 56.0 percent of the amount borrowed.

Informal lenders are very thick on the ground. In our fifty-two-village survey, each village headman was asked to give the total number of resident or outside lenders who are known to lend to the villagers. The modal number of lenders resident in the village is three, and the modal number of outside lenders is two (Siamwalla 1989, p. 234).<sup>4</sup> A question addressed to each resident lender as to

4. A more recent survey conducted in more regions indicated the same (Poapongsakorn and Nettayarak 1988, p. 40). In our survey, the average number of households per village is 112. The average number of people per rural household in Thailand is about 5.

Table 4. *Characteristics of Lenders in the Informal Credit Market, Nakhon Ratchasima Province, 1984-85*

<i>Lender's occupation</i>	<i>Number of contracts (thousands)</i>	<i>Interest-free contracts as percentage of total</i>	<i>Total volume of loans (millions of baht)</i>	<i>Share of total (percent)</i>	<i>Size per transaction (baht)</i>
Resident farmers	66.4	36.4	394.6	32.6	5,945
Resident traders	25.9	22.5	135.7	11.2	5,240
Resident salaried individuals	20.5	23.1	204.1	16.9	9,970
Resident rentiers	3.8	26.6	39.9	3.3	10,425
Temple funds <sup>a</sup>	1.6	45.6	17.4	1.4	11,455
Nonresident farmers	6.3	11.8	55.9	4.6	8,882
Nonresident traders	31.1	1.6	209.5	17.3	6,740
Nonresident salaried individuals	1.7	0.0	19.4	1.6	11,455
Nonresident rentiers	0.9	0.0	1.4	0.1	1,524
Illegal trusts <sup>b</sup>	1.9	0.0	14.6	1.2	7,792
Unknown	13.2	36.3	117.4	9.7	8,870

*Note:* Figures extrapolated to province level.

a. Temple funds are set up after a collection among villages, and loaned out at low interest rates.

b. These are trader partnerships, some of which accept deposits without requisite registration with the Ministry of Finance.

*Source:* 52-village survey of 1,600 rural households (borrowers) in Nakhon Ratchasima Province, tabulated in Poapongsakorn (1988, p. 128).

the number of borrowers in his clientele yields numbers that range from one to forty-five borrowers, with the average loan portfolio being 36,000 baht (or \$1,440) per lender (Poapongsakorn and Nettayarak 1988, pp. 41-44). The portfolio of nonresident lenders, particularly the traders, would of course be much larger as they lend to many villages, but we had no way of obtaining this number. The size per transaction in the informal sector is typically much smaller than in the formal sector, although this is not true of installment loans (see table 2).

Table 4 classifies informal lenders by occupation and residence. About one-fourth of informal credit in the sample villages was supplied by nonresidents and, of that, most was supplied by traders. As shown in column 2, over one-fourth of loans were interest-free. Such loans are between relatives and close friends and probably contain an implicit exchange component.

#### *Sorting of Borrowers across Lending Sources*

The above account gives the structure of the credit system as it would appear to an outsider. From the borrower's point of view it would look quite different. Whereas the data thus far presented may suggest a high degree of competitiveness among lenders, in fact most borrowers are unable to use multiple sources of informal loans or to switch easily from one lender to another. Of the

households surveyed in NR province who reported some borrowing from the informal sector, about five-sixths reported that they borrowed from only one informal source. Many of these also borrowed from formal sources, but as we shall argue below, formal and informal lenders are noncompeting.

A more telling set of figures comes from our national survey. A total of 72 percent of the informal sector borrowers in that survey reported that they had not attempted to borrow from other informal lenders during the past three years. Creditworthiness vis-à-vis an individual lender takes considerable time to build up; the average period of contact involving credit transactions reported by these 72 percent was close to seven years! Switching of lenders does take place, but it has to be done slowly and may involve some costs and risks to the borrower.

More important, borrowers do not have equal access to all credit sources, particularly to those in the formal sector. Table 3 shows how borrowers appear to be sorted by wealth and income.<sup>5</sup> A total of 42 percent of households did not report any credit transactions at all during the survey period, and these are the poorest group in the villages. We did ask an admittedly vague question of these households: whether the reason they did not borrow was because they were unable to borrow, or because they did not wish to borrow. Only a small minority, whose mean income is lower than those that were able to borrow, reported that they wished to but were unable to borrow. It is not clear whether the households that reported that they had no wish to borrow (a) knew that a request for credit would be turned down by all lenders; or (b) knew that they would be turned down by the formal sector, whose terms they were willing to accept, but were unwilling to borrow from the informal sector, whose terms they considered too onerous; or (c) really did not need to borrow at all. The mean income figure of this particular group in table 3 indicates that reason (b) is probably the dominant explanation.

Table 3 also shows the mean levels of assets of households who succeeded in obtaining loans from various sources. Well-to-do farmers are more apt to obtain credit from formal sources. Households that borrow from the commercial banks in particular clearly belong to the richest strata.<sup>6</sup> That different strata sort themselves in this fashion is not a choice of the borrower but the

5. To obtain a sense of these figures, note that average income per capita in the northeast of Thailand is 2,983 baht. Average income for agriculturalists throughout Thailand is slightly greater, at 3,062 baht. These figures are not strictly comparable to those of table 3 because of somewhat different definitions of income.

6. Actually, the wealthiest farmers borrow from farmers' associations, but these are quantitatively unimportant, as can be seen in column 1 of table 3. Farmers' associations are groups of about 50-100 farmers formed hurriedly in 1975 by the Department of Agricultural Extension to obtain loans from the BAAC, in conjunction with the credit program of that year (see historical overview above). Because their formation was politically motivated, their members tend to be rich and influential and, precisely for that reason, their repayment rate was poor. The BAAC has been trying to remove them from its rolls ever since. Those that remained in 1984 to be reported in this paper were presumably those that behaved better than the vast majority of these associations.

result of sorting by lenders, as we shall indicate in the next section when we discuss how lenders solve their information problems.

### III. HOW DO LENDERS SOLVE THEIR INFORMATION PROBLEMS?

The size of rural loans in both the formal and informal sectors is typically small, on the order of 10,000 baht (\$400; see table 2 above). Recourse to the state judicial system to enforce contracts would be absurdly uneconomical. The most important consideration facing a lender is therefore to ensure that the borrower will perform according to his contract. One can imagine him trading off among (a) a strict collateral requirement, (b) a stringent vetting of the borrower prior to making a loan, and (c) use of third party guarantees or peer monitoring. Measures (b) and (c) could be supplemented by (d) a strong effort in following up on a debt, sometimes with *ex post* penalties and rewards tailored to repayment performance. Lenders mix the various modes of enforcement in different proportions corresponding to their comparative advantage. Because the ease of implementing modes (a) to (d) also varies across potential borrowers, the result is a sorting of borrowers across lenders. Each of these modes takes on a variety of forms, and we describe the most important ones below.

#### *Collateral*

A total of 87 percent of commercial bank loans and 43 percent of cooperatives' loans were backed by collateral (Mingmaneeakin 1988, p. 107). The sphere of operations of commercial banks and cooperatives therefore has been almost exclusively in villages where land titles have been issued (Tubpun 1988, pp. 55, 66-69).

Long-term loans from nearly all sources, including informal lenders, involve the use of land as collateral. The main exception is installment purchases, where the goods purchased are themselves the collateral. In cases where land title exists, farmers generally find little problem obtaining long-term loans, particularly from the commercial banks.<sup>7</sup>

The use of collateral is also central to the *modus operandi* of the illegal trusts. A would-be borrower from one of these trusts obtains his loan by bringing in his land title and signing over the power of attorney to the trust's lawyer, which enables the lawyer to dispose of the land, should the occasion require.<sup>8</sup> Loans are usually given for about one-quarter of the value of the land

7. Nevertheless many farmers still prefer to borrow long-term from the informal sector at a higher interest rate. The explanation given is that if the creditor forecloses on the loan, the borrowing farmer stands a better chance to lease his land back from the creditor than if he had borrowed from the formal sector.

8. This is not a mortgage. The arrangement allows the lawyer to take over the land any time he wishes.

for a period of six months. Late payment results first in a fine of 100 baht (\$4) a day, followed if need be by forfeiture. The only information required for such transactions is the quality of the land. Most of these trusts require only that the land submitted as collateral be in the same or a neighboring district.

#### *Vetting of the Borrower Before Making a Loan*

Resident informal lenders, of course, have a natural comparative advantage in screening loan applicants and ensuring loan performance. Those who live in the same village as their borrowers are aware of the goings-on inside the village and can evaluate the risks of each particular borrower better than could any outside bureaucratic organization. They reinforce these advantages through other means. Many operate a small general goods store, thereby creating a center for village gossip to which they can tune in without much effort.<sup>9</sup>

#### *Peer Monitoring*

The BAAC has a peer monitoring system for working capital loans with maturity of less than one year (about 75 percent of its annual loan disbursements). These loans are given to groups of eight to fifteen farmers. The group is jointly liable for each member's loan. Before the first loan is given out and during the growing season of the crop, as well, the bank's officer goes to the borrowers' village to examine their activities.

The most stringent requirement imposed by the BAAC is its refusal to roll over any working-capital loans. All borrowers are required to repay the principal when the loan falls due, even though in the vast majority of cases, both the bank and the borrowers expect the loan to be recontracted within a month after borrowing. There is consequently a secondary credit market, with funds provided by informal lenders at 10 percent a month interest rate to enable farmers with liquidity problems to tide over this particular gap. The BAAC is fully aware of the existence of this secondary market, yet it insists on the ritual repayment. According to its management, this is its way of ensuring performance.

The BAAC has a preference for better-off farmers. This fact, together with the requirement that the group has to be a minimum size, effectively limits who is able to borrow from the BAAC. This is because group members themselves do not wish to have as their colleague anyone who will be a bigger risk than they themselves will pose. The consequence is that a village whose mean income is one standard deviation above the mean of all villages has a 21 percent higher probability of having a BAAC group than a village whose average income is equal to the mean for all villages (Tubpun 1988, p. 53).

9. Because Thai village kinship structure is matrilineal and matrilocal, lines of influence tend to run through the women, and women tend to predominate among resident lenders.

### *Trade-Credit Interlinkages*

The most important enforcement mechanism used by a nonresident trader appears to be the requirement that borrowers sell their output to him. Failure to do so is considered tantamount to default, even if the borrower repays the money on time. The insistence on this trade-credit linkage makes the information on the size of the borrower's operations (and their changes) available to the creditor and to no one else. Trade-credit linkage thus closes the borrower's access to other lenders.<sup>10</sup> Interestingly, most nonresident traders prefer their borrowers to settle accounts at the time of the harvest, and have very little debt carried over from one season to the next.

Nonresident traders solve the problem of screening borrowers by relying on agents. An individual who wishes to borrow from a trader has to be introduced by someone whom the lender knows. If the trader wishes to expand his clientele, he engages an agent from among the villagers to recommend prospects to him. In return, the trader provides the agent an interest-free loan.

### *Spot Transactions as a Substitute for Credit*

One type of farmer who finds it difficult to borrow from nonresident traders is the cassava growers, for the simple reason that cassava, unlike other crops, can be harvested any time between four and fourteen months after planting. Without a fixed harvesting period, the enforcement problem becomes very difficult. Generally, cassava growers faced with liquidity problems can obtain credit only by selling outright the standing crop, subject to some conditions on the harvesting date when the land reverts back to them. An active market in standing crops exists in cassava-growing areas—and only in such areas.

### *Interlinkage between the Credit and Land Rental Markets*

A common reason for borrowing in northeastern Thailand is to finance migration for work in foreign countries, particularly in the Middle East. Because fraudulent practices among labor contractors who arrange such migrations are widespread,<sup>11</sup> these investments are quite risky. For those with land,

10. There are other hypotheses to explain the insistence of the nonresident trader-lender that the borrower market his output through him. One hypothesis is that the trader makes a profit by buying at below-market prices. We made thorough inquiries with both lenders and borrowers on this question and are satisfied that, with few exceptions, very little underpaying occurs. It does stand to reason that the trader should not encourage the borrower to default on the loan by underpaying at this stage. Whatever monopoly power the lender may have, he can already exercise through a higher interest rate.

Another hypothesis is that traders operate under conditions of excess capacity on account of Chamberlinian monopolistic competition. Any measure that boosts demand for their services would therefore increase their profits.

11. A study in one northeastern village with a large number of migrants to the Middle East indicates that as many as 50 percent of the households have been cheated by labor contractors during the last seven years (Sangthanapruk 1988, p. 49).

however, usufruct loans<sup>12</sup> sometimes provide a neat solution to their problems. These are loans in which a borrower allows the lender to occupy and make use of his land until the principal is repaid. The borrower may not reoccupy the land until at least a stipulated minimum of two or three years has elapsed; the reason given for the condition is that the yield risk for two or three years' production is less than for one year. This sort of loan is free of default risk. It is used particularly by those who intend to emigrate from the village.

#### *Deposit of Land Title with the Lender*

Standard practice when the size of a loan approaches 10,000 baht (\$400) is for the borrower to deposit his land title with the lender. The deposit of title has no legal significance but prevents the debtor from borrowing a substantial sum from another source or from selling the land to a third party.

The topics just discussed—collateral, vetting of the borrower before making a loan, peer monitoring, trade-credit interlinkages, spot transactions as a substitute for credit, interlinkage between the credit and land rental markets, deposit of land title with the lender—are all devices that alleviate the selection, monitoring, and/or enforcement problems arising from a credit transaction. In Thailand we also found evidence of interlinked credit transactions that were intended to solve information problems arising in labor and output markets. In these cases, credit was an instrument for a forward transaction that would otherwise have been highly uncertain.

#### *Credit as an Instrument for Forward Transactions*

Credit can be used as an instrument for forward transactions in the labor or output markets. We provide three examples:

(a) The Thai sugar industry, located mostly in the Central Plains, imports an estimated 84,000 workers from the northeast during the harvesting season (Busayawit 1978, pp. 20–21). To obtain this labor, employers advance 5,000–10,000 baht (\$200–\$400) to a village recruiter, who will then contact another 10 to 50 fellow villagers, passing on part of the advance money two months before the harvest. If a group has already been working with the employer, its leader would get the advance as soon as the group completed the previous harvest (Poapongsakorn 1988, p. 77). The laborers would then come to work at the same rate as those who are recruited from the vicinity without any such advance.

(b) Cassava harvesting requires a few days' work in succession but, unlike the case of sugarcane above, the time of the harvest is highly unpredictable because it depends on cassava prices. In recent years cassava prices have fluctuated a great deal over short periods. To ensure that labor is available when needed, large cassava farmers will retain a laborer by giving him access to

12. The NR province has a low incidence of tenancy. Usufruct loans are the only important case of interlinkage between the credit and land rental markets.

credit involving extremely small sums (100–300 baht or \$4–\$12) needed for immediate subsistence purchases. The wages paid are again not affected by whether the laborers have borrowed. The loan is in this sense interest-free.

(c) Early-season custard apple (a local fruit) is highly desired, while the mid- and late-season output is less desired. Middlemen have developed season-long relationships with custard apple farmers. Provided the farmers do not sell their early season output to itinerant spot traders, the middlemen agree to take up the entire mid- and late-season output from the farmers. The prices paid by the middlemen will vary with market prices, except that during the early part of the season, farmers would normally get a better price from the itinerant traders. To put the relationship on a firm footing, middlemen advance money interest-free to the farmers during the pruning season, about five months ahead of the harvest.

#### IV. INTEREST RATES AND THEIR VARIATIONS

As in many developing countries, in Thailand there is a vast gap between the interest rates charged in the formal and informal credit markets. Commercial banks and the BAAC charge 12–14 percent per year, whereas informal lenders charge much higher rates, 25 percent per year being the minimum mostly to be found in the Central Plains—elsewhere 60 percent or more is usual. Based on regressions that we have run, the variation in interest rates in the informal sector appears to reflect variations in information costs and risks arising, for instance, from differences in collateral used.

##### *Formal Sector*

Although the central bank has been regulating the amount of credit that the commercial banks have to provide to the agricultural sector, it did not specify the rate of interest that they should charge. The banks' practice has been to charge 12 percent per year on loans (about the same rate as the BAAC) and 15 percent per year on overdrafts. These rates put the agricultural sector in an even more favored position than the banks' prime borrowers. It appears that the central bank has ignored the role of interest rates in inducing the commercial banks to lend more to the agricultural sector. However, it is uncertain that the commercial banks would respond to such an inducement. Their practice before the 1975 regulations was to ignore the agricultural sector, largely because they never had to face serious competition on the lending side of their operations. Entry into the commercial bank business is subject to approval by the Bank of Thailand, and it has not approved a new domestic bank since 1966. Commercial banks have therefore tended to look at the agricultural loans regulation as a burden to be avoided as much as possible.

The BAAC's policy toward interest-rate setting has been subject to political constraints—its chairman is Thailand's minister of finance. Within these con-

straints, its practice has been to set interest rates according to its average cost of funds. The BAAC obtains soft loans from foreign donors and can rediscount its bills at the central bank at rates between 3.5 to 5 percent per year.<sup>13</sup> The BAAC charges interest varying between 12 and 14 percent per year and still makes a small profit. Obtaining subsidized funds from the central bank, the commercial banks and foreign sources, the BAAC has never felt it necessary to expand the fund-mobilization side of its business. It must be added that given its smaller branch network, it is doubtful whether it could be as effective as the commercial banks in marshaling deposits.

#### *Informal Sector*

In much of Thailand except the commercialized Central Plains, the informal interest rate usually hovers around 5 to 7 percent per month for a loan of 8,000 baht (\$320) for a period of six months, with no collateral but with the land title deposited with the creditor (see figure 1). Some of the more remote provinces report a rate of 10 percent per month, while the rate in the Central Plains is only 2 or 3 percent per month. Despite the significant variations observed in individual contracts from our survey data, there is a sense of a standard rate over quite broad areas, provided one controls for (a) the size of the loan, (b) the length of the loan, and (c) the nature of the security offered by the borrower. Moreover, from our interviews, it appears that the standard rates and their regional differentials appear to have been quite stable for at least the last two decades, despite varying experiences with respect to government credit and monetary policies and inflation rates.

That the key factors determining interest rates in the informal sector are the size, duration, and required collateral of the loan has been confirmed by a number of regressions that were run with interest rates as the dependent variable. Table 5 shows the results of one such regression. It indicates that borrower characteristics do not seem to account for much of the variations. The regression also indicates some anomalous results. Irrigated areas and tree-crop areas which are less risk-prone than upland areas show a much higher interest rate. Since this is a villagewide characteristic, it is likely that there is a sampling bias, as there are only fourteen villages in the survey, among which four are irrigated and two are tree-crop villages.

Lender and contract characteristics account for some variations. For instance, by pledging land as collateral the borrower obtains lower interest than by pledging jewelry. This is probably because many lenders (commercial banks, illegal trusts, as well as other informal lenders) accept land as collateral; the market for such loans is more competitive than for loans obtained by pawning jewelry.

13. The rediscount facility provided 12 percent of the total liabilities of the BAAC in 1984 (Siamwalla 1989, p. 40).

Figure 1. *Map of Thailand Showing Monthly Interest Rates for the 8,000 Baht Loan Contract, with the Borrower Surrenduring Land Documents*

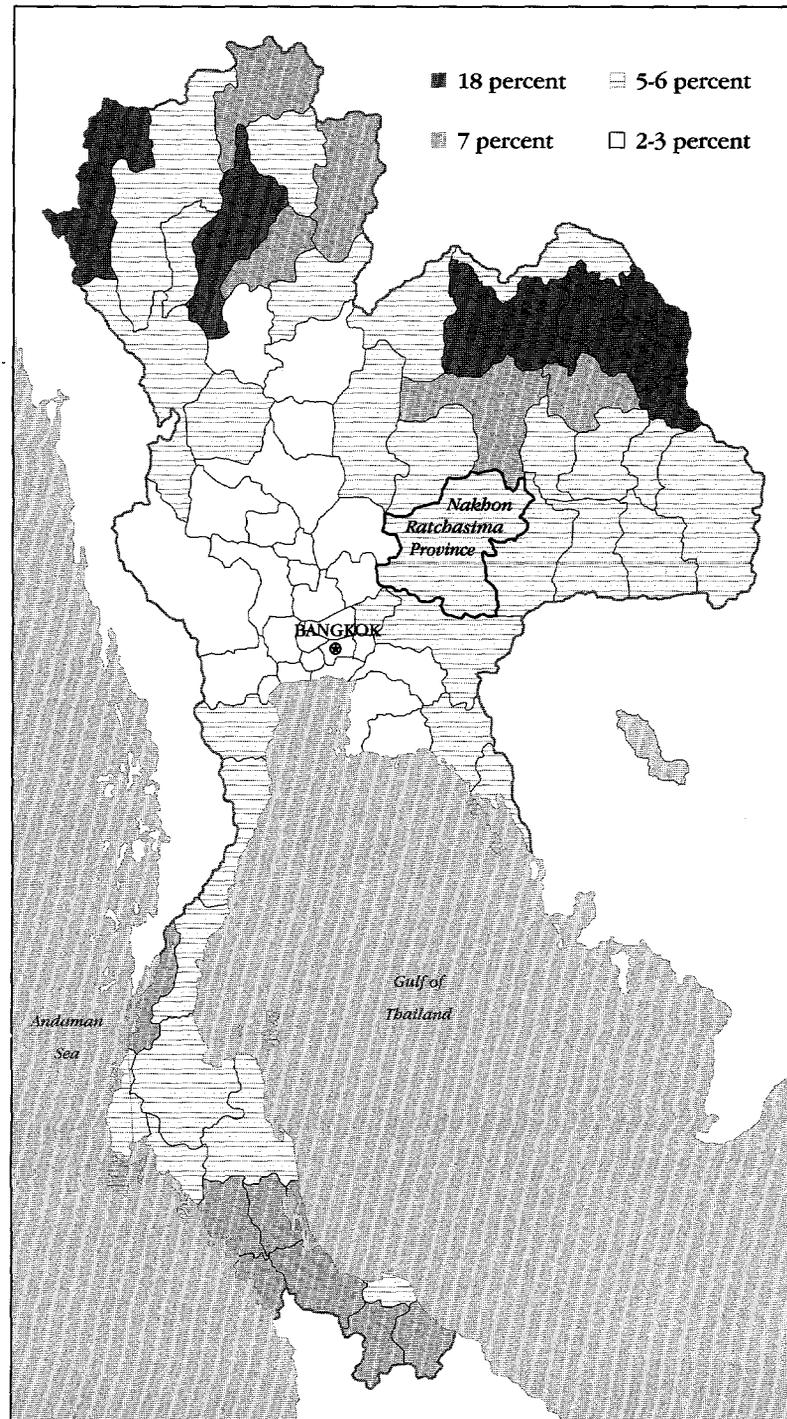


Table 5. Results of "Hedonic" Regression of Interest Rates in the Informal Sector, Thailand, 1987

Variable <sup>a</sup>	Regression coefficient	t-statistic
<i>Contract terms</i>		
Logarithm of loan size	-0.072	-2.83
Logarithm of loan duration	-0.177	-6.29
Usufruct loan (dummy)	0.390	0.16
Surrender of title to lender (dummy)	0.160	1.80
Land mortgage (dummy)	-0.217	-1.31
Pawning of jewelry (dummy)	0.324	0.75
Written contract (dummy)	-0.165	-1.82
<i>In-kind loans</i>		
Payment of interest in kind	0.094	0.16
<i>Purpose of loan</i>		
Consumption (dummy)	0.032	0.51
Repayment of other debts (dummy)	-0.201	-1.10
<i>Borrowers' characteristics</i>		
Logarithm of landholdings	-0.032	-0.83
Ownership of titled lands (dummy)	-0.064	-0.93
Logarithm of borrowers' income	-0.028	-0.96
Borrower also a formal sector loanee (dummy)	0.123	2.09
<i>Lenders' characteristics</i>		
Nonresidency (dummy)	-0.155	-2.48
Farmers (dummy)	-0.145	-1.73
Traders (dummy)	0.058	0.51
Rice-mill owners (dummy)	-0.513	-4.59
Professional lenders of landlords (dummy)	-0.150	-1.13
Salaried workers (dummy)	-0.198	-1.12
<i>Relationship and interlinkages</i>		
Requirement to sell crops to creditor (dummy)	0.010	0.13
Logarithm of number of years of acquaintance	-0.010	-0.39
Direct kinship (parents, offspring of siblings)	0.097	0.70
<i>Socioeconomic environment<sup>b</sup></i>		
Irrigated (dummy)	0.601	3.56
Upland-crop growing (dummy)	-0.019	-0.24
Tree-crop growing (dummy)	0.407	2.43
<i>Region<sup>c</sup></i>		
Eastern	-0.688	-2.85
Central	-0.120	-1.12
Lower north	0.170	1.75
Upper north	-0.120	-1.17

a. The dependent variable is the natural logarithm of the monthly compounded interest rate.

b. Rainfed village has all dummy values equaling zero.

c. Northeast has all dummy values equaling zero.

Source: Based on survey of borrowers in the ten-province survey of Thailand in 1987, reported in Poapongsakorn and Nettayarak (1988, p. 119).

## V. CRITIQUE OF THE THEORETICAL LITERATURE

Three major sets of views have dominated the rural credit literature. According to the traditional view, rural financial markets were shot through with monopolies, with inordinately high interest rates as the consequence. This view led to many heavily subsidized credit schemes in developing countries.

This traditional view of rural financial markets was strongly criticized in a series of papers, later collected in the volume by Von Pischke, Adams, and Donald (1983). The critique was enlivened by observations of credit policies in developing countries. Even a cursory look revealed a rich crop of disasters induced by poorly designed policies. This critical literature stressed the distortions introduced by government policies and, in doing so, tended to idealize the informal credit markets that did exist or that might have existed in the absence of the massive government intervention in the credit market. There was a presumption that an intervention-free rural financial market would approximate the perfect competition model.

A third view emphasizes the informational problems that make credit markets inherently imperfect, even in the presence of competition among a large number of lenders. Inspired by the earlier model of Stiglitz and Weiss (1981), this view stresses the contractual aspects of the market under imperfect information but maintains the notion of a "credit market" as an arena where strangers meet to borrow and lend. Lenders cannot observe or monitor the behavior of borrowers in certain respects, which leads to moral hazard and adverse selection. The lenders' solution to these problems may give rise to credit rationing in competitive equilibrium, as in Stiglitz's article in this issue.

We accept the view that the information problem in the credit market is a serious one in Thailand. We have argued that lenders' attempt to solve it effectively sorts borrowers into different parts of a highly segmented credit market. We would argue, however, that many informal rural lenders (at least in Thailand) incur costs to acquire nearly complete information regarding their borrowers. For those lenders that reside in the same village as their borrowers, this cost is not particularly great. As a consequence, nearer the mark would be a model that portrays the lender to have complete information about her borrower's resource endowment, tastes, and investment opportunities, so that she can conduct a Fisherian analysis of the borrower's credit requirements as efficiently as he can. What therefore appears as a borrower's decision on intertemporal consumption and production is, in reality, a joint decision of lender and borrower. After lending out the money, the lender can also completely monitor and regulate the borrower's behavior that may affect his intertemporal resource allocation. In particular, she can prevent him from acquiring credit from other lenders. Because of these advantages, resident lenders can provide "consumption" loans more readily than can any other type of lender.

For nonresident lenders and formal lenders, the problem is more complex. Here, the Stiglitz-Weiss model in which information is asymmetric may be

appropriate. What has not yet been explained in the theoretical literature is the coexistence of the various forms of informal lending and how these interact to determine interest rates.

From table 4, it is clear that resident lenders are a very important part of the credit scene, accounting for close to two-thirds of all the loans obtained from the informal sector. Quantitatively, therefore, it appears that models of symmetric information would repay closer investigation than models of asymmetric information in vogue in the literature.

Some of the answers given in the literature to the central question of why interest rates in rural areas are inordinately high appear unsatisfactory. Also, much of the criticism of government policies that limit informal financial intermediation (for example, Von Pischke, Adams, and Donald 1983, pp. 108–89) is misplaced (at least in the Thai context) in that it emphasizes the generation of new funds whose increased supply is then expected to lower interest rates. In our extensive interviews with informal lenders in Thailand, there is very little evidence that the volume of their business is constrained by the availability of funds. Besides, many informal lenders are engaged in other activities that could not possibly yield the 4–5 percent per month return that they obtain from moneylending (if we ignore the transaction costs). The cash flows from these other activities are siphoned to the moneylending business when the need arises. Indeed, if a particularly valued prospect wishes to borrow and the lender is short of cash, the lender will borrow from the formal sector or even from another informal lender to relend to the prospect.<sup>14</sup>

We are inclined to accept the view that interest rates are high because transaction costs are high, particularly at the margin. For the borrowers who are already among the clientele of a particular lender, the transaction costs may not be very high, but if a borrower among this clientele were to shift to another lender, the marginal transaction cost that that lender would have to cover may be quite high. Knowing this, the present lender can then obtain an economic rent equal to the difference between his closest competitor's transaction cost and his own.

Our view is based on the hypothesis that rural credit supply requires two factors: namely, loanable funds themselves and something that we will call "lending effort." Lending effort entails transaction costs. In our view, the supply of loanable funds is almost perfectly elastic at the formal sector interest rates, as the rural sector is now a relatively small part of the Thai economy (agriculture currently contributes only about 16 percent of the gross domestic product). But the lender's supply price of enlarging his clientele is high (much higher than the interest rate), because it is a fixed cost incurred to make a (typically) small loan. Moreover, the lender's supply curve may be inelastic

14. There is one important exception here. Loans to maintain consumption in the face of poor harvests or low output prices may not be available because of the shortage of equity among resident lenders arising from the covariance of risks.

with respect to clientele size. As he expands his clientele, he faces borrowers with whom he has had fewer contacts or who intrinsically have greater risk of default.

If we push these arguments to their logical limits, then the following observations would be relevant to our evaluation of the Thai government's credit policies during the last two decades. First, mere injection of funds into the rural areas will not necessarily reduce informal interest rates, because for that sector funds are not the constraining factor. Second, a successful credit program would require the building up of formal institutions that can supply the additional lending effort to compete effectively with informal lenders in a wide range of segments of the rural credit market. In this view, if government credit subsidies crowd out informal financial intermediation, a cost arises not from the displacement of local efforts to mobilize deposits, but from the possible displacement of the information services provided by the informal lender. The key to successful government intervention in rural credit is institution-building that is innovative and efficient in tackling the information problems entailed in lending.

## VI. PERFORMANCE OF THE THAI RURAL CREDIT SYSTEM

Given the arguments above, what has been the performance of the Thai rural credit system? And what is the place of a policy that has as its objective injecting a huge amount of funds into the countryside? We will briefly consider the Thai rural credit system's performance in terms of coverage, efficiency, and redistribution effects.

### *Coverage*

It is useful to distinguish loans for purposes of consumption, working capital, and long-term investment. The first two types of loans generally have repayment periods of less than one year and have been aptly termed "flow credit." Long-term loans have been called "stock credit." For flow credit, the information required by the creditor is the income flow of the borrower. By contrast, with stock credit it is the borrower's asset-and-liability situation that is of interest to the creditor.

A total of 75 percent of loans dispensed countrywide by the BAAC (Mingma-noonakin 1988, p. 177) and about 40 percent of the informal sector loans in NR province (Poapongsakorn 1988, pp. 110-11) are flow credit to finance working capital. For this category of loan, and also for long-term loans with collateral, the credit market appears to function smoothly. In both cases the formal-sector lenders are active participants, although they have not succeeded in driving out the informal lenders. The rise of the BAAC in the last two decades probably undercut the position of the nonresident lender more than that of any other lender. However, in our interviews these lenders do not report any falloff in the absolute size of their businesses. The increasing use of agricultural

chemicals in NR province may have more than compensated for the inroads the BAAC made in the nonresident traders' market share.

Rural households that have transitory income shortfalls or unexpected consumption needs still seek credit primarily from the resident lenders. Resident lenders are particularly suited for the task. Time and again in our interviews, both borrowers and lenders described the scenario of illness in a family that triggers an urgent need for cash. It is very difficult to design a bureaucratic credit system that would provide the household with that cash. Lenders resident in the village are perfectly suited to the task, even though the interest rate charged may be high.

However, when a region suffers a collective shock, such as low rainfall, the consumption loans market ceases to function (Pinthong and Nettayarak 1988, p. 38).<sup>15</sup> In theory, nonresident lenders and even bureaucratic organizations such as the BAAC could form a judgment not only of the credit needs but, more important, of the households' ability to repay, in order to provide consumption-smoothing opportunities to households. In practice, both the formal and nonresident informal lenders in Thailand appear not to be able to perform this function satisfactorily. Resident lenders, however, are not adequate to the task because their equity is least when demand for credit is greatest.<sup>16</sup>

#### *Efficiency: The BAAC's Achievements through Group Lending*

The fund injection that resulted from compelling commercial banks to lend to the agricultural sector is workable only because they can satisfy the requirement by making deposits with the BAAC, which then on-lends the money to the farmers. It is the ability of the BAAC to perform its task that lies at the heart of the sustained impact that the government has had on rural credit.

The major achievement of the BAAC lies in its approach to administering credit, which is totally different from that of the informal sector. In its group-lending method, it discovered the means to achieve an initially high rate of loan repayment, which was increased further as the BAAC came to appear in farmers' eyes as a permanent institution.<sup>17</sup> The BAAC penalizes default in two ways: (a) the amount overdue is subject to a higher (by about 3 percent per year) interest rate (which is as assiduously followed up on as the repayment of principal), and (b) no new loan is given to the delinquent borrower until the old debt is repaid, and even then the individual cannot be sure of getting a new loan. The

15. The main recourse of farmers in this situation is to seek dry-season employment. If the sale proceeds from the poor year's harvest carry the affected farmers through part of the following year, and if that year is not also a bad year, then some loans would be forthcoming during the planting season from nonresident lenders.

16. The influence of covariant risk on the functioning of credit markets is emphasized in Binswanger and Rosenzweig (1986).

17. Actually, the idea of group responsibility and peer monitoring is not new. The cooperatives in a sense embody this approach. What is new is the very small size of the BAAC groups (between eight and fifteen people).

Table 6. *Collection Records of Overdue Short-Term Working Capital Loans from the BAAC*  
(millions of baht)

Loan cohort (loan falling due during)	Amount due during year	Overdue at end of year	Overdue at end of year + 1	Overdue at end of year + 2	Overdue at end of year + 3	Overdue at end of year + 4	Overdue at end of year + 5
1981-82	7,444	1,765	1,141	545	361	258	193
1982-83	8,451	1,883	760	346	251	180	
1983-84	10,493	2,298	1,169	637	413		
1984-85	12,056	2,865	1,374	623			
1985-86	12,782	2,593	925				

Note: The accounting year for the BAAC ends on March 31.

Source: BAAC, *Annual Reports*, various issues.

group as a whole becomes ineligible for new loans when the BAAC decides that the debt will never be repaid.

Moreover, the BAAC has achieved this high repayment rate at a small cost. The BAAC reports its administrative costs to be around 5 percent of the loans administered. Reckoning the costs of bad debts is problematic, but we may assume from table 6 that of the working capital loans that fall due each year, only about 3 percent eventually will be written off. If we further suppose that the *marginal* cost of its funds in 1984 was 12 percent, then the BAAC could comfortably lend without any subsidies to the rural sector at 20 percent per year, well below the 90 percent per year that was being lent in the northeast or the 36 percent or more in the Central Plains.

True, from the point of view of borrowers, BAAC credit has a number of disadvantages, most notably a higher transaction cost imposed on them. We estimate this transaction cost to be about 9 percent.<sup>18</sup> With this cost included, the resulting effective social interest cost would be 29 percent, still well below the rates in the informal markets, at least for areas outside the Central Plains. Thus, for the loans that the BAAC made, the informal lenders would not be competitive even if the subsidies to the BAAC were removed. This is different from saying that the informal sector is altogether inefficient. The BAAC has been successful in one segment of the credit market, albeit a very important one, namely for short-term working capital loans. It has found a technology to "mass-produce" this kind of loan and in that way has overcome the problems that normally beset a bureaucratic organization engaged in giving small loans.

But despite repeated attempts, the BAAC remains unsuccessful in expanding its scope of activities. Even in its traditional working capital loans, it has been reluctant to expand its clientele to poor farmers or those in riskier areas. That the informal sector appears still to thrive, either by lending to those left out by

18. This leaves out the cost of risk, discussed by Stiglitz in an article in this issue.

the formal sector or for activities that the BAAC does not finance, indicates that the informal sector also has a role to play within its sphere.

Whether the interest rate that the BAAC charges the farmers should remain subsidized is questionable.<sup>19</sup> A somewhat convoluted excuse that may be given, at least as far as one component of the subsidy (the implicit subsidy from the compulsory lending requirement) is concerned, is as follows: because the ban on new entrants has made commercial banks financially more sound, they have become a very efficient gatherer of deposits, including from the rural areas. As a quid pro quo for the economic rent that they can thus earn, they should be asked to engage in this cross-subsidization scheme.

It is possible that if subsidies to the BAAC were removed and the BAAC forced to obtain its funds in the money markets—from the commercial banks or from any source willing to lend to it—it could still survive. New kinds of private institutions would probably enter the scene, obtain funds from the commercial banks (which would likely remain the most efficient deposit-taking machines), and lend to the farmers using the BAAC technology. At the moment, this possibility will have to remain a matter of speculation.

#### *Redistribution*

What are the redistributive effects of the expansion of the role of the formal credit system into the countryside? In Thailand as elsewhere, most formal credit goes to the better-off rural households. Subsidies to rural credit would ipso facto seem to be a regressive policy within the rural sector. But the average urban per capita income is 2.5–3 times higher than the average rural income in Thailand. Thus, the impact of rural credit subsidies on the overall Thai income distribution remains unclear.

Rural credit also affects income distribution through its impact on the product market. By lowering the cost of working capital, it lowers the production cost of agricultural goods for farmers lucky enough to get the credit. For poor farmers there is now the added insult of lower product prices to add to the injury of having no access to the subsidized credit. This effect is not very large, however. Our computable general equilibrium exercise found that a policy of allocating 10 percent of bank deposits to the rural sector would lower agricultural product prices by 1.04 percent, increase per capita real income in rural

19. There are two major subsidy elements in the Thai government's credit policies. First is the requirement that the commercial banks lend 11 percent of their deposits to agricultural households or to the BAAC. This imposes an implicit tax on nonagricultural borrowers. Second, the BAAC uses an average-cost pricing rule in setting interest rates. In doing so it includes in its average the rates on many soft loans it receives from foreign donors (the BAAC is a favorite of many donors). A recent calculation indicates that the major portion of the subsidy arises from the average-cost pricing rule, because the elasticity of demand for bank loans is quite high. Nonetheless, the total size of the implicit subsidy turns out to be only about 1 billion baht (\$40 million; Siamwalla and Nettayarak 1988), surprisingly small compared with the total BAAC loan portfolio of 25 billion baht in 1987, or to the stated agricultural portfolio of the commercial banks of 46 billion baht.

areas by only 0.3 percent (per capita real urban income increased by 1.3 percent), and increase the Gini coefficient of rural incomes from 0.575 very marginally to 0.578 (Nijathaworn 1988, table 4-1).

The effect is small because Thai agricultural output is mostly traded (hence the small impact on prices), because working capital for agricultural production is mostly self-financed (hence the small impact on all variables), and because poorer farmers have lower marketable surplus (hence the small impact on the Gini coefficient).

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