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Agricultural Credit in Brazil

by

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U.S. Agency for International Development  
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## Agricultural Credit in Brazil

The following discussion of agricultural credit in Brazil is based on five weeks of data collection and analysis in Rio de Janeiro, as well as some limited interviewing, during the months of August and September 1969. This report should be considered part of a two-phase investigation, the present work to be followed by intensive interviewing in the field. Needless to say, the following analysis lacks the insights that such field interviewing would provide. Data obtained was mainly from the Central Bank, the Bank of Brazil, and the Serviço Estatístico e Financeiro (SEEF) of the Ministry of Finance. The following persons were interviewed:

Dr. Diogo Paes Lemê, Manager, GECRI, Central Bank  
Prof. Edward Schuh, Ford Foundation, Program Advisor in Agriculture  
Dr. Ribamar Galiss, GECRI, Central Bank  
Dr. Victor Pellegrini, Agricultural Department, IPEA  
Dr. Ruy Miller Paiva, Agricultural Department, IPEA  
Dr. Adolfo Beeck, Agricultural Representative, IDB-Rio  
Dr. Paulo Pooek Corrêa, Director, Banco Lar  
Dr. Julio Gutiérrez, Manager, Agricultural Credit, Banco Lar  
Dr. Rivail Lacerda, Chief, Statistical Department, CREA, Bank of Brazil  
Dr. Basílio Martins, Chief, Economic Department, Central Bank  
Dr. Alexandre Caminha, GECRI, Central Bank  
Dr. Fernando Murgel, Agricultural Advisory Group, Ministry of Finance  
Dr. Klaus Bethke, Agricultural Economist, IDB-Washington  
Sr. Pardi, CONDEPE, Central Bank  
Sr. Jose Luiz Vicente, Consultoria Técnica, Banco do Brasil

I am most indebted to the Brazilians listed above, who received me with considerable courtesy and responsiveness.

I owe special thanks to Dr. Everaldo da Silva, who was of invaluable assistance in preparing much of the calculation work. Professor Kenneth Frederick of Cal Tech was most helpful in discussing with me the intricacies of Brazilian agricultural credit legislation. I would also like to thank Mr. Ralph Miller of ARDO for lending me his extensive

library on agricultural credit in Brazil, and for helping me to get established at the Central Bank. I am quite indebted to Mrs. John Wheeler, without whose tact, dependability and fine sense of judgment, I would not have been able to accomplish half of what I did. I am also most appreciative of the assistance of Miss Janet McConnell of AID/ Washington, in enabling me to complete preparation of the report under severe time pressures.

I - Summary and Recommendations

Growth of Agricultural Credit. Despite the chronicling of Brazilian Government neglect of the agricultural sector during the 1950's and early '60's, credit to that sector, as a percent of total bank credit, has grown at a steady rate since 1954. Moreover, while agricultural credit as a percent of agricultural product showed a tendency to grow slightly during the same period, commercial and industrial credit declined as a share of those sectors' product. The greatest increases in agricultural credit occurred during the 1960-1964 period, although the greatest official attempts to increase such credit were made by the post-1964 governments. During the 1958-1967 period, the Bank of Brazil, dominating agricultural production credit with its 90% share of the total, showed a tendency to diminish its concentration of credit among a few crops (especially coffee), and registers a trend toward a more dispersed distribution of credit among borrowers.

The distribution of agricultural credit in Brazil today shows that regions get more or less the same share of agricultural credit that they contribute to the country's agricultural product. The Northeast, surprisingly, gets only slightly less than its share, while the South and East, also surprisingly, get only slightly more than their share. The biggest disparity between share of credit and agricultural product is the Center-West, which is supplied by the Bank of Brazil with several percentage points more than its share of agricultural product. Needless to say, the Bank of the Northeast, and to a lesser extent the Northeast state banks, have made a major contribution toward bringing the Northeast's share of agricultural credit closer to that region's contribution to agricultural product.

Compared to other Latin American countries, Brazil seems to be committing an average amount of its total bank credit to agriculture, in comparison to that sector's contribution to national product.

Post-1964 Agricultural Credit Policies. The main features of recent agricultural credit policy have been: (1) Resolution 69 and implementing regulations, requiring that banks invest 10% of deposits in rural credit; (2) the special rediscounting facilities of the Central Bank for agricultural credit, funded in great part by AID counterpart, and amounting to 10-15% of total outstanding agricultural credit; and, (3) the rural credit legislation requiring that the interest rate for rural credit be no more than 75% of the interest rate for commercial credit. (Although Resolution 5 is often cited as one of these agricultural credit measures, it was principally a measure of monetary control, and no longer has effective application to agricultural credit.)

Resolution 69 was intended to bring the private banking sector into agricultural lending, dominated by the semi-official Bank of Brazil. The measure has not been in effect long enough to evaluate its impact, although it is associated with a slight increase in agriculture's share of total credit. There has been widespread evasion of Resolution 69, and the lending under its provisions that has gone for agricultural purposes has largely benefited agricultural intermediaries rather than producers. The legislation authorizing Resolution 69, as well as other implementing resolutions, tend to divert from agriculture, rather than attract, the supply of private banking credit, as well as favoring intermediaries rather than farmers--namely, the legally required lower interest rate for agricultural loans, the lower legal return to banks on

agricultural production credit as opposed to short-term agricultural marketing credit, and the manner in which the 10%-of-deposits calculation is made. The Central Bank is now making attempts to tighten its fiscalization of Resolution 69 lending, and is also assisting banks in setting up services for agricultural lending.

Recommendations:

-- that the Mission sponsor or encourage an economic analysis of the price elasticity of demand to changes in the interest rate, and an analysis of the cost of credit in total agricultural production costs. This type of analysis is quite feasible for Brazil, given the availability of the data and the fact that because agricultural credit has been mainly official credit, it has therefore been subject to discrete and significant changes in the interest rate. Such a study is crucial in determining whether a policy that is so costly on the supply side (i.e., legal lower interest rate for agricultural credit drying up commercial bank supply of such credit) is truly justified by elasticities on the demand side.

Such an analysis should also explore the question of whether the major part of agricultural credit finances products for which the price is known to the farmer before taking the credit; if this is true, then a nominal rate of interest that is less than the rate of inflation may to the farmer still represent a positive real rate of interest.

-- that the Mission explore the possibility of financing a program that would combine credit to farmers for undertaking specified changes in their production techniques. Such financing would include a guarantee against failure, so as to increase the economic rationality to the individual farmer of adopting more efficient techniques.

## II - The Growth of Agricultural Credit in Brazil

The Share of Agricultural Credit. The history of Brazil's industrialization during the 1950's and early 60's is considered a history of the neglect of agriculture--reflected principally in the policy of price ceilings on agricultural products, the declining terms of trade between the agricultural and non-agricultural sector, and in the large share of public revenues that went toward direct investment in and subsidization of Brazil's industrialization effort. It is generally acknowledged that starting in 1964 the traditional neglect of agriculture turned into an active concern for that sector, expressed principally in the federal minimum price program and the legislation encouraging and requiring the direction of a larger share of bank credit to the agricultural sector.

The data on agricultural credit<sup>1/</sup> for the 1954-1967 period do not reflect the trend of the above story. Although no spectacular increases occur in the share of agricultural credit in the total, this share never shows a decline and, indeed, increases steadily throughout the period--from about 16% in 1954 to about 29% in 1967 (see Table I). The real value of that credit more than doubles, with marketing credit rising a little faster than production credit--the former representing 34% of total agricultural credit in 1954 and 39% in 1967; during the same period, the real value of credit to commerce and industry remains almost constant

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<sup>1/</sup> Throughout this paper, "agricultural credit" refers to credit for both production and marketing, and "agricultural production credit" refers to credit to the agricultural producer for working capital and investment. "Marketing credit" refers to financing the purchase of agricultural crops, and benefits mainly agricultural intermediaries.

Table I  
Commercial Banks and Bank of Brazil: Agricultural Credit as Percent  
of Total Credit to Private Sector, 1954-1968

(Year-end Balances, Constant NCr \$ Millions of 1968)

	<u>TOTAL CREDIT</u> to <u>Private Sector</u>	<u>A G R I C U L T U R A L C R E D I T</u>				<u>Agri Product</u> as % of <u>GNP<sup>e/</sup></u>		
		<u>Production<sup>a/</sup></u>		<u>Marketing</u>			<u>Total</u>	
		<u>Value</u>	<u>% Total</u>	<u>Value</u>	<u>% Total</u>	<u>Value</u>	<u>% Total</u>	
1954	10,527.0	1,162.7	11.0	605.7	5.8	1,768.4	16.8	29.0
1955	10,393.2	1,132.9	11.9	554.1	5.3	1,687.0	16.2	29.6
1956	10,421.6	1,075.7	10.3	636.1	6.1	1,711.8	16.4	26.9
1957	11,444.7	1,277.2	11.2	739.7	6.5	2,016.9	17.6	27.4
1958	12,558.6	1,523.5	12.1	675.8	5.4	2,199.3	17.5	24.8
1959	11,653.5	1,433.3	12.3	673.6	5.8	2,106.9	18.1	25.5
1960	12,582.9	1,526.6	12.1	775.8	6.2	2,302.4	18.2	26.5
1961	12,530.4	1,639.6	12.6	929.7	7.4	2,505.4	20.0	26.1
1962	13,109.0	1,912.9	14.6	945.8	7.2	2,858.7	21.8	30.0
1963	11,676.3	1,800.3	15.4	1,114.7	9.5	2,915.0	25.0	26.4
1964	10,959.3	1,888.1	17.2	1,262.9	11.5	3,151.0	28.8	28.0
1965	11,850.1	2,113.2	17.8	1,433.6	12.1	3,546.8	29.9	28.2
1966	11,359.2	1,941.3	17.1	1,352.2	11.9	3,293.5	28.9	24.0
1967	14,105.5	2,528.0	17.9	1,648.7	11.7	4,176.7	29.6	23.7
1968 <sup>b/</sup>	{ 19,581.3	2,856.7 <sup>c/</sup>	14.6	1,865.2	9.5	4,721.9	24.1	n.a.
		4,721.9 <sup>d/</sup>	24.1	1,651.1	8.4	6,373.0	32.6	

Source: Based on data from SEEF, Movimento Bancário Brasileiro.

<sup>a/</sup> Working and investment capital. Estimates of rural credit which exclude marketing do not exist. I have based my estimate on the SEEF breakdown of rural credit into "loans", and "discounted notes." The latter are promissory notes (up to 120 days) used in the purchase of agricultural crops. This estimate probably overstates production credit and understates marketing credit, because the share of these notes in total

BB rural credit (ranging between 13% and 20% during 1962-1967) is less than the amount of BB credit that normally goes for marketing (20%-40%). (The BB accounts for about 80%-90% of rural production credit.)

b/ See footnote g/ of Table XV.

c/ 1968 SEEF figure for production credit reduced by 60%, which is 1967 share of production credit in total rural credit.

d/ 1968 SEEF figure for production credit.

e/ Based on data from Fundação Getulio Vargas.

(see Table II). As Table I shows, most of the increase in the share of agricultural credit occurs before 1964--an increase from 18% to 29% being registered between 1960 and 1964. After 1964, the share of credit in the total remains about the same.

Another interesting measure of the claim of the agricultural sector on credit is a comparison of the latter percentage to the sector's contribution to total product.<sup>2/</sup> Before 1964, agriculture's share of credit was less than its percentage contribution to national product (see Table I), which had a slight tendency to fall since 1954, when it registered 29% of total product and 17% of credit. Starting in 1964, the percentage share of agriculture in credit was for the first time equal or slightly higher (around 29%) than the sector's contribution to national product. In any one year, agricultural credit seems to have accounted for about 11% of annual agricultural product (see Table III).<sup>3/</sup> This percentage has shown an upward trend, from about 9% in the mid-fifties to about 11% in the mid-sixties. The interesting thing about this series is not only that one would expect this percentage to have decreased because of the neglect of agriculture, but because total credit itself hardly increased

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<sup>2/</sup> I include marketing credit in this comparison because it covers only the purchase of the crop and not the food processing industry. Thus, although marketing financing may not be directed to the agricultural producer, it still contributes to the economic activity classified as agricultural product.

<sup>3/</sup> It is difficult to make a precise percentage comparison because the most complete total credit figures are based on year-end balances rather than total loans, which means that one is comparing a stock (year-end balance) to a flow (agricultural production). On the other hand, credit flow figures (new loans granted) are available for CREA of the Bank of Brazil (90% of agricultural production credit). Although there is some difficulty in determining which agricultural production period to relate the flow credit figures to, the resulting percentages bear a striking consistency with those relating year-end balances to agricultural product. The footnotes to Table III explain how this estimate was made.

Table II

Growth of Agricultural and Industrial-CommercialProduct and Credit, 1954-1966(Constant NCr \$ Billions of 1968)<sup>a/</sup>

	<u>Product</u>		<u>Credit<sup>d/</sup></u> <u>(Year-End Balance)</u>		<u>Credit as %</u> <u>of Product</u>	
	<u>Agri<sup>b/</sup></u>	<u>Ind. and</u> <u>Commerce<sup>c/</sup></u>	<u>Agri</u>	<u>Ind. and</u> <u>Commerce</u>	<u>Agri<sup>e/</sup></u>	<u>Ind. and</u> <u>Commerce</u>
1954	12.6	15.2	1.2	7.4	---	49.3
1955	12.8	16.7	1.1	7.5	9.4	45.0
1956	12.4	17.4	1.1	7.7	8.9	44.0
1957	13.6	18.6	1.3	8.4	8.0	44.9
1958	13.7	19.6	1.5	9.1	9.5	46.4
1959	13.6	19.5	1.4	8.4	11.0	43.3
1960	13.4	20.5	1.5	9.1	10.4	44.5
1961	13.8	22.0	1.6	9.0	10.9	40.8
1962	15.8	23.2	1.9	9.2	10.1	39.9
1963	14.4	25.7	1.8	8.0	13.1	31.2
1964	16.8	24.2	1.9	7.2	10.7	29.5
1965	18.9	24.3	2.1	7.5	10.0	31.0
1966	15.2	26.9	2.5	7.1	13.9	26.4

<sup>a/</sup> FGV Wholesale Price Index<sup>b/</sup> Agriculture, Livestock and Vegetable Extracts. Figure includes purchased inputs, accounting for about 15%; Industrial-Commercial column includes value-added only. Gross figures used here so as to be consistent with Table III. Source: Based on data from FGV, Instituto Brasileiro de Economia.<sup>c/</sup> Domestic Income (value added) rather than gross product. Source: Based on data from FGV, Instituto Brasileiro de Economia.

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- d/ BB, BNB, BNCC, Bank of Amazônia, State banks and private banks. Total credit to private sector.  
Source: Based on data from SEEF, Movimento Bancario Brasileiro.
- e/ Previous year-end balances as percent of current year production. See footnote d/ to Table III.
- f/ It is difficult to interpret this relationship since industrial product includes the product of government enterprises, and since private credit also includes some credit to these enterprises (e. g., PETROBRAS). For example, the declining share of credit as a percent of industrial-commercial product might be a function of an increase in government-enterprise production which was financed outside the banking system (e. g., BNDE).

Table III  
Agricultural Credit and Gross Agricultural Product, 1954-1966

(Constant NCr \$ Billions of 1968)<sup>a/</sup>

	<u>Agri. Product<sup>b/</sup></u>	<u>Agri. Prod. Credit<sup>c/</sup></u> <u>Year-End Balances</u>	<u>Credit as %<sup>d/</sup></u> <u>of Agri Prod.</u>	<u>CREAI, Agri Prod. Credit<sup>e/</sup></u> <u>Loans Granted</u>	<u>CREAI Credit as<sup>f/</sup></u> <u>% of Agri Prod.</u>
1954	12.6	1.2	---	n.a.	---
1955	12.8	1.1	9.4	n.a.	---
1956	12.4	1.1	8.9	n.a.	---
1957	13.6	1.3	8.0	1.1	7.7
1958	13.7	1.5	9.5	1.1	7.7
1959	13.6	1.4	11.0	1.0	7.7
1960	13.4	1.5	10.4	1.1	7.9
1961	13.8	1.6	10.9	1.0	7.0
1962	15.8	1.9	10.1	1.4	9.1
1963	14.4	1.8	13.1	1.1	7.1
1964	16.8	1.9	10.7	1.5	8.6
1965	18.9	2.1	10.0	1.3	7.4
1966	15.2	1.9	13.9	1.5	9.9
1967	16.0	2.5	11.9	1.7	---

<sup>a/</sup> FGV Wholesale Price Index.

<sup>b/</sup> Agriculture, Livestock and Vegetable Extracts. Source: Based on data from FGV, Instituto Bras de Economia.

<sup>c/</sup> Commercial banks and Bank of Brazil. Source: Based on data from SEEF, Movimento Bancário Brasileiro.

<sup>d/</sup> Previous year-end balances as percent of current year's agricultural production. Although percent value is not accurate because relates to year-end balances rather than total annual credit flows, the total variation and slightly upward trend in this relation is more or less reflected in the relation between total flows of credit and agricultural product shown in the following two columns.

<sup>e/</sup> CREAI accounts for about 80 to 90% of agricultural production credit, and is the only institution that reports rural lending according to total flows rather than year-end balances. Source: Bank of Brazil, CREAI, Annual Reports.

<sup>f/</sup> Annual credit flow as percent of average agricultural production of same and following year. Percentages calculated on basis of Ncr \$ Millions.

in real terms during the whole period (see Table I). That is, in order for the share of agricultural credit in a growing agricultural product to increase under these circumstances, the share of non-agricultural credit in non-agricultural product would have to decrease, which is precisely what happened (see Table II).

The above evidence may not be as contradictory of the chronicled neglect of agriculture as seems, for much of the financing of Brazilian industry and commerce occurred outside the commercial and official banking system--for example, the BNDE, letras de câmbio, budgetary appropriations, etc.<sup>4/</sup> Nevertheless, the agricultural sector also got much of its credit outside the banking system; it is estimated that non-institutional credit accounted for 82% of the agricultural credit in the early 1950's.<sup>5/</sup> The increase in credit outside the banking system for industry and commerce, however, was probably greater than the increase in institutional and non-institutional credit to the agricultural sector, though there is no way of verifying this fact. On balance, the figures do show that in terms of official and commercial bank credit, the agricultural sector did not show

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<sup>4/</sup> Moreover, the industrial product data include production of government enterprises like PETROBRAS, while at the same time, the credit data for the private sector includes some credit to these enterprises (see footnote e. to Table III). Because it is not possible to separate out this state enterprise production from the product accounts, and to separate credit to these state firms from the data on bank credit to the private sector, it is difficult to obtain an accurate idea from these comparisons of the historical growth of total relative availabilities of credit to the agricultural vs. the commercial-industrial sector.

<sup>5/</sup> Gordon Smith, "Brazilian Agricultural Policy: 1950-1957," University of California at Berkeley, n.d.

a tendency to neglect during the 1950's and early 1960's.<sup>6/</sup>

The Bank of Brazil, until 1967, has accounted for about 90% of agricultural production credit and about 25-30% of agricultural marketing credit (see Table IV). The Bank has steadily increased the share of agricultural production credit in its total credit outstanding, this share having more than doubled between 1952 and 1967--rising from 21% to 46% (see Table V). Moreover, the Bank's financing has shown a definite trend toward lessening of concentration among crops and in size of loan. The real average value of working capital loans has decreased between 1958 and 1967 for the seven major crops financed except wheat (see Table VI).

Crops Financed. Where as coffee received the major share of Bank of Brazil agricultural working capital credit in 1958 (40%)--more than its percentage contribution to agricultural product (23%)--it now has been demoted to the third largest share (10%), less than its 14% contribution to agricultural product (see Table VI). At the same time, however, a new, though not as extreme concentration seems to have arisen in rice and cotton. Rice gets the highest share of Bank of Brazil working capital credit (27%) while contributing 14% to agricultural product credit; cotton gets the second highest share of this credit (13%) while contributing 8% to agricultural product. Though cotton in 1958 was receiving less a share of credit than its contribution to agricultural product, rice was even at that time receiving more credit than its share of agricultural product. Moreover, its contribution to agricultural

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<sup>6/</sup> The data on agricultural credit can give only a rough indication even of the amount of banking system credit going to the agricultural sector. There is no way of estimating the amount of trade credit that finances the accounts receivable of stores selling to farmers, nor the amount of non-agricultural credit diverted to agricultural purposes, or vice versa.

Table IV

Role of the Bank of Brazil  
in Agricultural Credit, 1954-1967

(Year-end Balances, Constant NCr \$ Millions of 1968)<sup>a/</sup>

	<u>Total Agri Production Credit</u> <sup>b/</sup>	<u>B of B Agri Prod. Credit</u>	<u>B of B % of Total</u>	<u>Total Agri Marketing Credit</u> <sup>c/</sup>	<u>B of B Agri Marketing Credit</u>	<u>B of B % of Total</u>
1954	1,162.7	1,072.2	92.2	605.7	125.3	20.7
1955	1,132.9	1,034.4	91.3	554.1	123.1	22.2
1956	1,075.8	967.2	89.9	636.2	108.6	17.7
1957	1,277.2	1,130.2	88.8	739.7	105.7	14.3
1958	1,523.5	1,363.8	89.5	675.8	94.2	13.9
1959	1,433.3	1,264.2	88.2	673.6	77.2	11.5
1960	1,526.6	1,367.9	89.6	775.8	117.9	16.2
1961	1,575.7	1,420.0	90.1	929.7	329.6	35.4
1962	1,914.0	1,734.2	90.1	945.8	341.3	36.1
1963	1,800.9	1,638.2	91.0	1,114.7	425.4	38.2
1964	1,888.1	1,696.3	89.8	1,262.9	417.3	33.0
1965	2,113.2	1,941.5	91.9	1,433.6	316.8	22.1
1966	1,941.3	1,739.4	89.6	1,352.2	361.6	26.7
1967	2,527.8	2,102.8	83.2	1,648.7	317.8	19.3
1968		n.a. <sup>d/</sup>			n.a. <sup>d/</sup>	

Source: Based on data from SEEF, Movimento Bancário Brasileiro, "Empréstimos."

a/ FGV Wholesale Price Index.

b/ Bank of Brazil and Commercial banks, "Empréstimos."

c/ "Títulos Descontados."

d/ Available only on basis of estimation from percentages for 1967.

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Table V

Bank of Brazil: Share of Agricultural Production Credit  
in Total BB Credit to Private Sector, 1952-1967

(Year-end Balances, Constant NCr\$ Millions of 1968)<sup>a/</sup>

	<u>Total Credit to</u> <u>Private Sector</u>	<u>Agri Production</u> <u>Credit</u>	<u>% of Agri Credit</u> <u>In Total</u>
1952	4,005.3	842.7	21.0
1953	4,317.3	877.9	20.3
1954	4,532.5	1,072.2	23.6
1955	4,439.3	1,034.4	23.3
1956	4,241.0	967.2	22.8
1957	4,511.7	1,130.2	25.0
1958	5,160.3	1,363.8	26.4
1959	4,296.9	1,264.2	29.4
1960	4,452.9	1,367.9	30.7
1961	4,774.7	1,420.0	29.7
1962	5,236.9	1,734.2	33.1
1963	4,614.3	1,638.2	35.5
1964	4,142.3	1,696.3	41.0
1965	3,916.4	1,941.5	49.6
1966	4,122.4	1,739.4	42.1
1967	4,568.8	2,102.8	46.0

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Source: Based on data from SEEF, Movimento Bancário Brasileiro.

<sup>a/</sup> FGV Wholesale Price Index.

Table VI

**CREAI: Share of Principal Crops in Agricultural Product  
and in Credit for Working Capital,<sup>a/</sup> 1958 and 1967<sup>b/</sup>**

Crop	% of Credit		% of Agri Prod.		Average Value of Loan (Constant NCr \$1,000 of 1968)	
	1958	1967	1958	1967	1958	1967
Coffee	39.8	10.1	22.9	14.1	10.6	6.2
Rice	17.7	26.7	13.4	13.6	10.6	4.2
Sugar	13.2	7.0	7.4	10.2	6.6	6.0
Wheat	12.8	5.3	2.6	2.2	13.2	16.4
Cotton	5.6	13.0	7.7	8.0	3.1	2.5
Corn	5.3	5.3	12.6	12.6	4.3	2.0
Beans	.9	3.1	7.0	7.5	4.7	2.1
Sub-Total	95.3	84.7	73.6	68.2		
Others	4.7	15.3	26.4	31.8		
TOTAL	100.0	100.0	100.0	100.0		

Source: Credit: Based on data from Bank of Brazil, CREA; product: Anuário Estatístico.

a/ Working Capital, excluding marketing varies between 60% and 75% of CREA agricultural financing. CREA accounts for about 80% to 90% of the institutional credit available for agricultural working capital.

b/ Average of 1957-1959 and average of 1966-1968 for credit, and 1965-1967 for agricultural product.

product remained constant during this period of an increasing share of credit. No doubt the privileged position of rice in credit is related to the political organizability of rice growers (e.g., Instituto Riograndense de Arroz), and the obviousness of investments requirements--i.e., for irrigation. Rice has the largest single and rapidly growing share of Bank of Brazil investment credit--rising from 11% in 1966 to 31% in 1968 (see Table VII).

Two other major products have received less a concentration of Bank of Brazil working capital credit during the 1958-1967 period: sugar, accounting for 13% of the credit in 1958 and 7% of agricultural product, now receives 7% of the credit and contributes 10% of the product; wheat, receiving 13% of the credit in 1958 and contributing 3% of the product, now receives 5% of the credit and accounts for 2% of agricultural product. The share of corn in credit and product has remained the same during this period (5% and 13%), and the share of beans has risen from 1 to 3%, much less than its contribution to product (about 7%). Also indicative of a trend toward de-concentration of Bank of Brazil credit is the increase in the percentage share of other agricultural products outside of the major seven cited, from 5% in 1958 to 15% in 1967, still much less than their contribution to product, which was 26% and 32% in 1958 and 1967.

It would be useful to analyze further the rise and fall of various crops in their claims on agricultural credit. Are these variations related to interest-group power? Are these concentrations of credit associated with increases in productivity? If so, does this mean that credit must be applied in indivisible concentrations over a certain period, in order to boost a crop over a certain productivity barrier? In other Latin American countries, rice and cotton also frequently claim a share

Table VII

Bank of Brazil (CREAI): Agricultural Investment Credit by Crop, 1966-1968

(Loans Granted, NCr \$ Millions)

Product <sup>a/</sup>	1 9 6 6		1 9 6 7		1 9 6 8	
	<u>Agri Investment Credit</u>	<u>Share of Total Agri Inv. Credit %</u>	<u>Agri Investment Credit</u>	<u>Share of Total Agri Inv. Credit %</u>	<u>Agri Investment Credit</u>	<u>Share of Total Agri Inv. Credit %</u>
Peanut	5.1	2.5	0.8	0.3	1.6	0.4
Rice	21.9	11.0	51.9	20.2	118.6	30.5
Potato	5.1	2.6	5.8	2.3	2.7	0.7
Coffee	10.9	5.5	7.6	3.0	11.9	3.1
Sugar Cane	6.1	3.0	9.4	3.7	16.2	4.2
Cotton	17.7	8.9	16.1	6.3	33.0	8.5
Banana	3.3	1.7	4.1	1.6	5.0	1.3
Orange	1.0	0.5	3.3	1.3	5.0	1.3
Tobacco	0.8	0.4	1.1	0.4	4.4	1.1
Mandioca	2.5	1.3	3.4	1.3	6.5	1.7
Corn	23.7	11.9	36.0	14.0	38.4	9.9
Soy Bean	4.2	2.1	8.1	3.2	9.5	2.5
Wheat	<u>4.2</u>	<u>2.1</u>	<u>11.4</u>	<u>4.4</u>	<u>22.6</u>	<u>5.8</u>
Sub-Total	106.5	53.5%	156.0	60.7%	275.6	71.0%
Others	<u>92.4</u>		<u>100.8</u>		<u>112.5</u>	
TOTAL Agri Inv. Credit	198.9		256.8		388.1	
TOTAL Agri Prod. Credit	888.8		1,293.5		1,824.4	
Investment as % of Total	22.4%		19.9%		21.3%	

Source: Based on data from Banco do Brasil, CREAI, Annual Reports.

<sup>a/</sup> These products account for approximately 85% of total credit for working and investment capital.USAID/B-DPEG  
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of credit much greater than their contribution to national product, just as in Brazil. The phenomenon is even more curious given the fact that these commodities are not controlled by international price or quota arrangements (which is usually associated with high shares of credit), nor, in the case of cotton, by internal price support programs. It would be interesting to determine whether the technology of the two crops is somehow conducive to especially effective grower organization.

Regional Distribution of Credit. As to the regional distribution of agricultural credit, the current data does not exhibit the extreme regional concentration that one might expect, which indicates that the tendency toward de-concentration of agricultural credit has also been prevalent in a regional sense. Table VIII shows that, contrary to what one would expect, the South and the East are receiving a share of agricultural credit that is not greater than, but is approximately equivalent to their share of agricultural product (50% and 26% respectively). Just as unexpected, regions receiving more than their share of agricultural product are the Center-West (7-9% of the credit and 6% of the product), and to a lesser extent, the North (2-3% of the credit and 2% of the product). The Northeast is the only region receiving less than its contribution to product, although the discrepancy is slight--13-15% of the credit, compared to 16% of the product. (I have adjusted the Northeast and North figures to take account of the fact that their agricultural credit peak does not come at year's end, as it does in the South and East; the adjustment makes for one or two percentage points of difference in the regional percentage shares--see footnote f. to Table VIIIa.)

Table VIII-b

Regional Breakdown of Agricultural Credit<sup>a/</sup> and Agricultural Product, 1967-1968

(Percentages)

Region <sup>b/</sup>	P R I V A T E B A N K S <sup>c/</sup>		O F S T A T E B A N K S <sup>c/</sup>		C R E D I T <sup>d/</sup>		% Agri Product <sup>e/</sup>
	Year-end Balances		Year-end Balances		Loans Granted		
	1967	1968	1967	1968	1967	1968	
North <sup>f/</sup>	0.2	0.6	15.9	8.7	1.4	1.3	1.9
Northeast <sup>f/</sup>	4.0	3.6	42.6	45.8	12.5	11.3	16.4
East	40.5	37.1	17.1	21.1	21.8	19.8	25.8
South	51.0	54.5	21.9	21.5	54.9	55.2	50.2
Center-West	1.8	1.1	2.5	2.4	9.4	12.4	5.8
TOTAL Sample	97.5	96.9	100.0	99.5			
TOTAL %	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL Value (NCR \$ Millions)	787.0	1,272.4 <sup>g/</sup>	457.4 <sup>g/</sup>	601.4 <sup>g/</sup>	1,579.1	2,283.5	13,897.0

a/ Including Marketing.

b/ North: Amazonas, Pará, Acre, Território Amapá, Território Roraima. Northeast: Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas. East: Sergipe, Bahia, Espírito Santo, Rio de Janeiro, Guanabara, Minas Gerais. South: São Paulo, Paraná, Santa Catarina, Rio Grande do Sul. Center-West: Mato Grosso, Goiás, Território Rondônia, Distrito Federal.

c/ Source: Based on data from Central Bank, GECRI, "Credito Rural, Aplicações," 31.12.67 and 31.12.68. Central Bank does not have a regional breakdown by location of borrower; I based this estimate on regional breakdown by location of head office of bank, which may slightly overestimate the role of the South and East to the extent that banks in Rio, São Paulo and Minas Gerais have rural credit operations outside the region in which the head office is located. Includes BNB and Banco da Amazônia, as well as State Banks; excluding BNCC.  
(cont.)

- 22-
- d/ CREAM regional breakdown not available on consistent basis for year-end balances (breaks down its data into North, Center, and South). This flow figure, however, avoids the possible distortions of the year-end balance figures which arise from the variance of crop cycles between the Northeast and other regions. (See footnote f/) Source: Based on data from Bank of Brazil, CREAM.
- e/ Average of 1965-1967. Source: Based on unpublished data of Fundação Getúlio Vargas.
- f/ Rural credit reaches its peak at the end of December in the Center-South regions and at the end of August and September in the North and Northeast, due to the regional differences in crop cycles. Year-end balances, therefore, are likely to underestimate the share of the Northeast in the total. I have, therefore, increased the North and Northeast figures for state and private banks by an index of credit seasonality, in order to make them comparable with those for the Center and South. The peak figures for the North and Northeast (August-September) are 8.79% higher than the year-end balances; hence, all North and Northeast figures were increased by 8.79%. Source of Index: Bank of Brazil, Consultoria Técnica.
- g/ These totals are inconsistent with those of Table XI. The figures here are from the same Central Bank GECRI document, but I derived these totals for the private banks by summing the individual amounts of each bank, which did not amount to the sum reported by the Bank in the summary total. I also had adjusted upward one of the items in the other table (see footnote f/ of Table XI), which would further contribute to the discrepancy.

Regarding the state bank totals (which include here BNB and Bank of Amazônia, as well as state banks, and exclude BNCC), the discrepancy in totals is also a result of the summing.

Table VIII-b

Regional Breakdown of Agricultural Credit and Agricultural Product, 1967-1968

(Percentages)

Region	P E R C E N T		O F		C R E D I T		<u>% Agri Product<sup>c/</sup></u>
	<u>Private and State Banks<sup>a/</sup></u>		<u>Bank of Brazil<sup>b/</sup></u>		<u>Total</u>		
	<u>1967</u>	<u>1968</u>	<u>1967</u>	<u>1968</u>	<u>1967</u>	<u>1968</u>	
North	6.1	3.2	1.4	1.3	3.1	2.0	1.9
Northeast	18.5	17.6	12.5	11.3	14.7	13.5	16.4
East	31.7	31.8	21.8	19.8	25.4	24.0	25.8
South	40.1	43.6	54.9	55.2	49.5	51.0	50.2
Center-West	<u>2.1</u>	<u>1.5</u>	<u>9.4</u>	<u>12.4</u>	<u>6.8</u>	<u>8.5</u>	<u>5.8</u>
TOTAL Sample	98.5	97.7			99.5	99.0	
TOTAL %	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL Value (NGr \$ Millions)	1,269.7	1,905.8	2,239.2	3,422.9	3,508.9	5,328.7	

a/ Based on previous table.

b/ Bank of Brazil does not break down agricultural credit for 1967 and 1968 by this regional distinction and by year-end balances. In order to arrive at a regional credit breakdown for the BB consistent with that for State and private banks, I have estimated the regional values by applying the CREA I percentages of the previous table to the total for agricultural credit year-end balances (including marketing) as shown in the Relatório 1968 of the Bank of Brazil. These year-end balance totals are higher than the CREA I flow figures of the previous table because they include agricultural marketing loans, which are made outside CREA I. I include marketing here because it is impossible to separate it out from the private and State bank data.

c/ From previous table.

It is clear that the Bank of the Northeast and the state banks make up for the tendency to neglect by CREA I (11-13% of credit) and the much larger tendency to neglect by the private banks (4% of credit--see Table VIIIa).<sup>7/</sup> The BNB accounts for 31% of the agricultural credit outstanding in the Northeast, second only to the 56% share of the Bank of Brazil (see Table IX).<sup>8/</sup> The Bank of the Northeast, moreover, is the largest agricultural lender of the state and regional banks--it had NCr\$153.9 millions of agricultural credit outstanding in 1967 and NCr\$218.0 millions in 1968, as compared to the second largest bank in the category, the State Bank of São Paulo, with NCr\$73.3 million outstanding in 1967 and NCr\$93.1 million in 1968. The data seem to indicate, in sum, that the Northeast is now receiving almost the same share of agricultural credit that it contributes to agricultural product.

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<sup>7/</sup> It is often heard that one of the few realized benefits of Resolution 69, which was issued in late 1967 and took full effect in 1968, was that it increased the relative supply of private bank agricultural credit to the Northeast. This does not seem to be verified by Tables VIII or IX.

<sup>8/</sup> The BB share may be exaggerated because I did not adjust the year-end balances of the BNB and state and private banks to be consistent with the BB estimate, which is based on a percentage regional distribution of total CREA I loans granted, and therefore not affected by the seasonality of the year-end balances. The adjustment would decrease the BB share by only a few percentage points. The BB total figure on which the percentage is applied may itself be high, given that it may include some financing to food processing industries (see footnote c. of Table XI).

Table IX  
Northeast<sup>a/</sup> Agricultural Credit, 1967-1968

(Year-end Balances, NCr \$ Millions)

<u>Institution</u>	<u>1 9 6 7</u>		<u>1 9 6 8</u>	
	<u>Value</u>	<u>% of Total</u>	<u>Value</u>	<u>% of Total</u>
Bank of Brazil	279.9 <sup>b/</sup>	56.4	386.8 <sup>b/</sup>	55.7
Bank of Northeast	153.9	31.0	218.0	31.4
<u>Private Banks</u>	28.7	5.7	42.6	6.1
<u>State Banks</u>	34.0	6.8	47.4	6.8
Pernambuco State Bank	13.8		16.1	
Alagoas State Bank	7.3		12.1	
Piaui State Bank	4.0		7.4	
Rio Grande do Norte State Bank	3.3		2.9	
Ceara State Bank	2.1		3.8	
Maranhao State Bank	1.9		2.2	
Paraiba State Bank	1.6		2.9	
T O T A L	495.5	100.0	694.8	100.0

Source: Based on data from Central Bank, GECRI, "Credito Rural, Aplicações," 12.31.67 and 12.31.68.

a/ Not including Bahia, whose State Bank had Ncr \$11.4 million outstanding in agricultural credit in 1967, and NCr \$28.9 million in 1968.

b/ Estimate, based on Table XI, footnote c/.

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October, 1969

Table X

Selected Latin American Countries: Share of Agricultural Credit  
in Total Credit (1967) and of Agricultural Product in Total Product (1966)

<u>Country</u> <u>(ordered by</u> <u>size of GNP)</u>	<u>(1)</u> <u>Agri Credit,</u> <u>1967 Year-end Balances<sup>a/</sup></u>		<u>(2)</u>	<u>(3)</u>
	<u>Value</u> <u>(1963</u> <u>U. S. Millions)</u>	<u>% of Total</u> <u>Credit to</u> <u>Pri. Sector</u>	<u>Agri Product</u> <u>as % of</u> <u>GNP, 1966<sup>b/</sup></u>	<u>Index of % Agri in</u> <u>Credit to % Agri in</u> <u>Product, <math>1 \div 2</math></u>
Brazil	936.1	30 <sup>c/</sup>	24.0 <sup>c/</sup>	123 <sup>c/</sup>
Mexico	985.0	56	16.5	339
Argentina	516.0	23	15.3	150
Venezuela	448.2 <sup>d/</sup>	21	7.9 <sup>e/</sup>	266
Chile	128.0	30	11.2	268
Colombia	331.0	34	32.1 <sup>f/</sup>	106
Peru	160.0	36	18.5 <sup>f/</sup>	195
Uruguay	42.5 <sup>f/</sup>	9	15.6 <sup>g/</sup>	58
Guatemala	60.0 <sup>h/</sup>	30	28.4	106
Ecuador	47.0 <sup>h/</sup>	24	34.6	69
Dominican Republic	57.0 <sup>d/</sup>	33	24.2	136
El Salvador	51.4	27	27.0	100
Panama	23.0	10	23.6	42
Bolivia	6.1 <sup>i/</sup>	24	21.7 <sup>f/</sup>	111
Costa Rica	102.0	72	31.0 <sup>f/</sup>	232
Nicaragua	72.8	57	29.6	193
Honduras	27.8	43	44.2	97
Paraguay	32.5	39	35.3	110

<sup>a/</sup> Source: Dale Adams, AID/PPC, unpublished paper. Total credit figures from IMF, International Financial Statistics; agricultural credit figures mostly from annual or monthly reports of central banks (in several cases, annual reports of individual banks used, and in a few cases, unpublished AID reports). To arrive

(cont.)

at dollar figures, local currency values were adjusted by yearly consumer price index figures with base in 1963 (IMF, International Financial Statistics). The 1963 exchange rate of local currency for dollars was used to convert an "adjusted dollar value." Figures, therefore, show 1963 purchasing power of local credit expressed in dollars.

- b/ Based on GDP and agricultural product values (in local currency) from UN, ECLA, Statistical Bulletin for Latin America, Vol. V, No. 1, March, 1968. 1967 series not available; on the other hand, Adams' credit figures for 1966 not compiled.
- c/ My data, from Table I. Adams' figure for percent of agricultural credit in total is 28%; ECLA figures not available for 1966.
- d/ 1968.
- e/ 1963.
- f/ 1965.
- g/ 1964.
- h/ New loans, rather than year-end balances.
- i/ 1966.



Source: Based on data from Banco Central, GECRI/ASSES, "Crédito Rural, Aplicações," 31.12.67 and 31.12.68. This type of bank and source breakdown does not exist for years previous to 1967.

- a/ Rediscounts by the Gerencia de Crédito Rural e Industrial (GECRI) of the Central Bank.
- b/ Rediscounts by the Gerencia de Crédito Bancário (GEBAN) of the Central Bank (Exclusively marketing).
- c/ Adjusted. GECRI figure does not include BB agricultural marketing loans; "Other banks" include marketing. So as not to underestimate relative contribution of BB, BB agricultural marketing added to GECRI figure -- respectively, NCr \$879.2 million and NCr \$12,543.7 million for 1968 and NCr \$153.3 million and NCr \$1,798.0 million for 1967.
- d/ This total differs from 1967 BB total in SEEF series because of new 1968 system of accounting which BB applied to 1967 figures. BB figure for 1967 is 18% higher than SEEF figure, but former is used here so as to be consistent with 1968. (1968 BB figure same as 1968 SEEF figure.)
- e/ Excluding coffee (NCr \$263.1 million).
- f/ Estimate. Based on June 1968 and March 1969 balances (NCr \$237 million and NCr \$379 million respectively).

Inter-Country Comparisons. Table X compares Brazil's agricultural credit situation to other Latin American countries. It shows that Brazil dedicates a not unusually small or large proportion of total bank credit to agriculture. It should be pointed out, however, that most of the countries with percentages higher than Brazil are dominated by agricultural interest groups--e.g., Paraguay, Honduras, Nicaragua, Peru and Costa Rica. In contrast, the industrial and commercial sectors of Brazil represent significant counterbalancing pressure-group claims on credit, not existent in the former countries. Mexico is known for its exceptional percentage of agricultural credit in the total. It would be useful to analyze the special features of the Mexican situation, since it is one of the few countries in the sample which is comparable enough in size to Brazil to make such a comparison relevant. It may be that the high percentage of Mexican agricultural credit is partially a result of the widespread credit insurance system whose establishment was sponsored by the Mexican government. Also, of the numerous public financial institutions established by the government in the nineteen thirties, the agricultural credit banks were at that time the most successful.

Brazil does not seem to stand out one way or the other in terms of the percent of its agricultural credit in total credit, as related to the percent of agricultural product in total product (col. 3 of Table X). Such inter-country comparisons, needless to say, are of quite limited utility because of the varying degrees to which marketing credit is included in the figures, the varying degrees to which non-agricultural credit is provided outside the banking system, and because of the fact that Brazil is so many times larger than the countries it is being

compared to--a difference which must affect the institutional forms in which credit is supplied to the agricultural sector. Nevertheless, the comparison does not give reason to suspect particularly poor or particularly impressive performance in Brazilian agricultural credit.

Summary. The story told by the data on the growth and distribution of Brazilian agricultural credit does not seem to be indicative of problems in the share of total bank credit, regional distribution or agriculture's share of credit in relation to agriculture's share of gross product. The Bank of Brazil data shows a definite improving trend in the size distribution of loans, implying more lending to smaller-size farmers, as well a movement away from concentration on a few crops. As the next section suggests, the new agricultural lending by commercial banks may be reversing this trend.

Agricultural credit, in sum, unlike other agricultural indicators, does not exhibit two successive and markedly different period--one of neglect, and one of favor. Although this aggregate data can provide only a very rough idea of the actual agricultural credit situation in the country, this picture leads one to believe that significant relative increases in agricultural credit are not the pressing need in Brazil,<sup>9/</sup> and that any program of additional agricultural credit resources might do well to be built around qualitative goals. One such approach is suggested in Section IV.

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<sup>9/</sup> It is difficult to take farmer's complaints about lack of credit as evidence of a shortage of total credit. A felt shortage of any good is a partial function of its price, so that it is almost certain that at the negative real interest rate prevailing for agricultural credit in Brazil, there will be an excess demand for it, no matter what its relative abundance in the economy.

III -- Post-1964 Agricultural Credit Policies

Governmental emphasis on agricultural sector problems has mainly taken the form of bringing about agricultural price behavior that would serve as an inducement to increase the supply of Brazil's agricultural product. The major instruments of this approach were the elimination of agricultural price ceilings, the attempt to expand and improve the minimum price guarantee program, and the maintenance of a realistic exchange rate. The government has complemented this price-incentive approach with a determination to increase the supply of one of the major inputs of agricultural production -- credit -- and at the same time, to put a low ceiling on its price.

Law 4829 of November, 1965, the "Rural Credit Law," outlined this policy, stating as its objective: (1) The stimulation of an increase in worthwhile rural investments, including those for storage, processing and industrialization of agricultural products, (2) the facilitating of appropriate amounts of credit for working capital and marketing of agricultural products, (3) the economic strengthening of rural producers, especially small and medium-sized, and (4) the encouragement of the adoption of rational production techniques, with a view toward increasing productivity and improving the standard of living of the rural population, as well as toward conserving the country's soil resources (Chap. I, Article 3). The law directed that at least 10% of commercial bank deposits be committed to agricultural lending (Chap. IV, Article 15). This meant that the increase in agricultural credit was to be required of and channeled through the private banks, since these had been the only banking institutions lending less than 10% of their deposits in agriculture at the time the Rural Credit Law was issued. Hence, the new law represented a significant institutional as well as quantitative change in

agricultural credit policy, since this sector had been almost totally serviced by the semi-official Bank of Brazil and its far-flung network of agencies.

The rural credit law also fixed a price ceiling for this type of credit, prohibiting that the interest rise above 75% of the interest for normal commercial lending--resulting in a current 18% rate including commissions (sole paragraph). An even lower price ceiling was placed on small loans (up to 50 times the minimum wage), which were exempted from the fiscalization commission of about 6% (Chap. VIII, Art. 34). This was subsequently changed to limiting the fiscalization commission to 2% in loans up to 50 times the minimum wage, and 6% on loans over 50 times that wage--resulting in a total interest rate of 14% for the former and 18% for the latter (Central Bank Resolution 69 of September 1967). Circular 120 also allows the continued discounting of interest on notes arising from agricultural marketing transactions, while prohibiting this discounting from the principal of all other agricultural loans (para. 6.1).

The Central Bank's authority for regulating the flow and terms of rural credit derives from Law 4595 of December 1964, which specified the basic structure of the national financial system. The law established the National Monetary Council, charging it with the formulation of national credit and monetary policy, and provided for the creation of the Central Bank, which would be the government's organ of monetary control. The primary functions of the Central Bank would be to keep credit expansion in line with the government financial plan, and to direct credit to priority areas of the economy. The instruments for pursuing these objectives would be the compulsory deposit and rediscounting mechanism.

Central Bank Agricultural Rediscounting.<sup>10/</sup> Two of the operating branches of the Central Bank, GECRI and GEBAN, have a direct impact on the flow of rural credit. GECRI (Gerência da Coordenação de Crédito Rural e Industrial) channels funds to priority areas by rediscounting notes of banks serving as financial agents of the Central Bank. GECRI funds for agricultural rediscounting are provided by the FNRR (Fundo Nacional de Refinanciamento Rural) and FUNDEPE (Fundo para o Desenvolvimento da Pecuária), both of which fall under FUNAGRI (Fundo Geral de Agricultura e Industria). The FNRR was created in July 1964, primarily with the purpose of coordinating the use of external resources for rural credit. FUNAGRI was established within GECRI of the Central Bank in September 1964 to centralize control of the various funds that had been acting independently and competing in the mobilization of external and internal resources. At this time, the FNRR was transferred to FUNAGRI from the CNCR (Coordenação Nacional de Crédito Rural), which was dissolved. FUNDEPE (Fundo para o Desenvolvimento da Pecuária) was established in July 1964 as a fund with FUNAGRI for administering the U.S. \$40 million World Bank livestock development loan.

GECRI funds are used to rediscount notes which satisfy preestablished criteria regarding the use, terms and supervision of the funds.<sup>11/</sup> GECRI rediscounts amounted to NCr\$134.8 million in outstanding balances at the end of 1967, and NCr\$276.6 million at the end of 1968--about 4% of total credit outstanding for agricultural production and marketing (see Table XI). AID's contribution to FNRR funds has been about 35 % of the total

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<sup>10/</sup> Most of this section relies on a description written by Kenneth Frederick.

<sup>11/</sup> An analysis of GECRI agricultural rediscounting activities is contained in Kenneth Frederick's evaluation (September 1969) of A.I.D.

since 1966 (see Table XII), which means that the Aid share of funds for agricultural lending in relation to total agricultural credit outstanding in 1968 (NCr\$147.5 million and NCr\$6.3 billion respectively) was a little over 2%. The Central Bank requires that 30% of FUNAGRI rediscounts be applied for investment and operating capital purposes, while no more than 70% can be applied to marketing. The Bank hopes eventually to eliminate marketing as eligible for these funds, since marketing is allowed to take the lion's share (67%) of Resolution 69 credit (see below).

GEBAN, the other operating branch of the Central Bank, also provides funds for the agricultural sector through its rediscounting operations. GEBAN's rural operations cover only short-term financing, up to 90 days, most of which goes for the marketing of agricultural crops. GEBAN's funds include the compulsory deposits of the entire banking system. At the end of 1968, NCr\$709 million of the outstanding credit for agriculture was facilitated by the rediscounting operations of GEBAN, amounting to about 11% of the total (see Table XI). In sum, the Central Bank, through FUNAGRI and other rediscounting instruments, accounted for an average of 11.8% of total agricultural credit outstanding at the end of 1967 and 1968.<sup>12/</sup>

Resolution 5. The most important implementing measures of the Agricultural Credit Law were Central Bank Resolutions No. 69 of September 1967, No. 97 of August 1968--and, to a lesser extent, No. 5 of August 1965.

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<sup>12/</sup> The percent share of GEBAN varies sharply between 1967 and 1968 because year-end balances often register wide fluctuations owing to the nature of the credit.

Table XII

Fundo Nacional de Refinanciamento Rural (FNRR) -- Source of Funds

(NCr \$ Millions)

<u>Source of Funds</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969<sup>a/</sup></u>
Exchange Differential on Petroleum, Wheat, and Derivatives	2.2	2.3	3.2	3.4	3.4
Operations	0.7	2.6	8.2	18.8	18.8
Agricultural Bonds (Res. 5)	----	0.8	2.1	0.7	----
FUNAGRI Deposits (Res. 69)	----	----	22.3	18.2	20.6
Advances:					
Central Bank	----	----	1.1	0.5	0.5
Central Bank -- To Account of IDB Loan 71 SF/BR	----	50.0	44.1	----	----
Central Bank -- To Account of FUNAGRI (Res. 69)	----	----	----	143.1	143.1
GERCA <sup>b/</sup> (Res. 69 Account)	----	----	----	50.0	----
F. R. D. C. -- Fundo Reserva Defesa Cafe	----	----	----	----	50.0
AID 512-K024 (Program Loan)	20.0	20.0	20.0	20.0	20.0
AID 512-L028 (Fertilizer Loan)	14.9	25.2	27.6	26.3	26.3
AID 512-L055 (Program Loan)	----	----	25.0	45.0	45.0
AID 512-L061 (Fertilizer Loan)	----	----	----	0.3	0.3
IDB 71-SF/BR	----	----	6.0	21.7	32.7
7th Wheat Agreement	----	----	----	55.9	55.9
<b>TOTAL</b>	<b>37.8</b>	<b>100.9</b>	<b>209.6</b>	<b>403.9</b>	<b>416.6</b>
<b>TOTAL AID</b>	<b>34.9</b>	<b>45.2</b>	<b>72.6</b>	<b>147.5</b>	<b>147.5</b>
<b>% AID IN TOTAL</b>	<b>92.3%</b>	<b>44.8%</b>	<b>34.6%</b>	<b>36.5%</b>	<b>35.4%</b>

Source: Central Bank, GECRI/ASSES

a/ First Quarter

b/ Grupo Executivo de Racionalização da Cafeicultura.

USAID/B-DPEC  
September, 1969

Resolution 5 required that commercial banks hold 75% of their compulsory deposits in cash; the remaining 25% could be invested in Adjustable Treasury Bonds (ORTN's), up to a share of 60% of that 25%, or in either certain types of rural loans, or agricultural bonds yielding 3% per annum, up to a share of 40% of that 25% (see following table). Since Resolution 5 raised compulsory deposits from 20 to 25%, this meant that 10% of these deposits could be directed to rural lending, and 15% to ORTN's--reducing the amount of total cash compulsory deposits to 18.75% of total deposits. Hence, although Resolution 5 on the surface seemed to be a restrictionary monetary measure, raising compulsory deposits from 20 to 25%, its real effect was expansionary, since it decreased sterilized (cash) compulsory deposits from 20% to 18.75%.

Effect of Resolution 5 on Compulsory Deposits

	<u>% of Compulsory Deposits</u>	<u>% of Total Deposits</u>
Compulsory	-	25.0
Cash	75.0	18.75
Investible	25.0	6.25
ORTN's	15.0	3.75
Agri	10.0	2.5

Eligible agricultural loans under Resolution 5 could not exceed a fairly low maximum (initially NCr\$3,300), could not have terms of less than 120 days (or more than one year), and could not carry charges of more than 15% (including commission); loans for agricultural marketing could account for no more than 25% of the total.

In October 1968, the rural credit incentive of Resolution 5 was effectively terminated with the issuance of Resolution 100, which offered

banks the additional alternative of investing the 10% of compulsory deposits in ORTN's. ORTN's yield a real interest rate of about 6% (6% nominal interest plus monetary correction), whereas the Agricultural Credit Law limits the interest rate plus commission on agricultural lending to 75% of the commercial rate; this limitation means that rural lending has until now yielded a negative real rate of interest (currently 12% plus 6% commission on loans that are more than 50 times the minimum wage, and 12% plus 2% commission on those up to 50 times the minimum wage). Hence Resolution 100 effectively terminated the incentive effects of Resolution 5 for agricultural lending, due to the higher returns available on ORTN's. As Table XIII shows, the year 1968 already shows the effect of Resolution 100, with Resolution 5 year-end balances showing a drop from NCr\$219.7 million in 1967 (1968 constant cruzeiros) to NCr\$63.7 million in 1968.

Table XIV shows the value of rural loans and agricultural bonds of commercial banks that were applied toward compulsory deposits under Resolution 5. In view of the much higher rate of return on direct agricultural loans in contrast to bonds (14-18% vs. 3%), it is not surprising that the share of the 3%-rural bonds in Resolution 5 lending is minor.

It is difficult to assess the impact of Resolution 5 on agricultural lending, not only because of its short life, but because it was devised by the monetary authorities primarily as an instrument for regulating monetary expansion, even though it may have been publicized for political purposes as a new and significant incentive for agriculture. An illustration of its secondary importance to the monetary authorities as an agricultural credit incentive is the fact that the Central Bank did not take the data collecting, fiscalization and implementation measures for

Table XIII.

## Commercial Banks: Resolution 5 and Agricultural Production Credit

(Year-end Balances, Constant NCr \$ Millions of 1968)<sup>a/</sup>

	<u>Total Credit to Private Sector<sup>b/</sup></u>	<u>Annual Variation %</u>	<u>Agricultural Production Credit<sup>c/</sup></u>	<u>Annual Variation %</u>	<u>Res. 5<sup>d/</sup></u>	<u>% of Res. 5 in Agri Prod. Credit</u>
1960	8,129.0	----	157.1	----	----	----
1961	7,765.1	-4.7	155.1	-1.3	----	----
1962	7,872.7	1.5	178.9	15.4	----	----
1963	7,062.6	-10.3	162.3	-9.3	----	----
1964	6,817.3	-3.5	191.5	18.0	----	----
1965	7,933.7	16.4	171.8	-10.3	----	----
1966	7,236.8	-8.8	201.9	17.5	133.4	66.1
1967	9,536.7	31.8	425.0	110.5	219.7	51.7
1968	12,813.3	34.4	n.a.	----	63.7	----

Source: Based on data from SEEF, Movimento Bancário Brasileiro.

a/ FGV Wholesale Price Index.

b/ Loans and discounted notes. Discounted notes represent about 90% of total commercial bank lending to the private sector.

c/ Under Resolution 5, loans for less than 120 days are not eligible; moreover, marketing is eligible for only 25%. Hence, Resolution 5 is compared here to commercial bank loans for agricultural production only, exclusive of discounted notes, which account for 75% to 80% of commercial bank lending to agriculture.

d/ Source: For 1967-1968: Central Bank, GECRI, "Fundo Nacional de Refinanciamento Rural, Recursos," 1965-1968, "Crédito Rural, Aplicações," 12.31.67, 12.31.68; for 1966: Central Bank, Boletim, Jan. 1969 (Boletim figure for 1967 about 10% lower than GECRI figure; accordingly, 1966 figure may be underestimated.) Boletim figure for 1965, when Resolution 5 started (August), seems totally inaccurate and is, therefore, not included.

Table XIV

Commercial Banks: Investment of Resolution 69 and Resolution 5  
Resources in Direct Agricultural Credit and in Central Bank  
Instruments, 1966-1968

(Year-end Balances, NCr \$ Millions)

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Resolution 5 <sup>a/</sup>	133.4	221.0	64.4
Agri Loans	133.4	219.7	63.7
Agri Bonds	n.a.	2.1	0.7
TOTAL Agri Prod. Credit <sup>b/</sup>	201.9	425.0	737.6 <sup>c/</sup>
% Resolution 5	66.0%	64.7%	8.7%
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Resolution 69 <sup>d/</sup>	---	554.8	1,287.3
Agri Loans	---	532.5	1,269.1
FUNAGRI	---	22.3	18.2
TOTAL Agri Credit <sup>e/</sup>	---	1,290.2	2,848.1
% Resolution 69		43.0%	45.1%

a/ Resolution 5 investments begin in 1965. Central Bank Boletim data (Jan. 1969) for 1965 totally inconsistent with GECRI data as well as with SEEF data for total rural lending. Therefore, 1965 omitted. Source: Based on data from Central Bank, GECRI, "Crédito Rural, Aplicações," 12.31.67 and 12.31.68; and "Fundo Nacional de Refinanciamento Rural, Recursos," 1965-1968.

b/ Excludes Bank of Brazil. Excludes marketing, because under Res. 5 marketing eligible for no more than 25%. Source: Based on data from SEEF, Movimento Bancário Brasileiro.

c/ Estimate, based on 1968 SEEF figure for agricultural production and marketing (NCr \$2,950.4 millions) reduced by 75%, which was share of marketing loans (discounted notes) in commercial bank lending in 1967.

- d/ Source: Based on data from GECRI, "Credito Rural, Aplicações," 12.31.67 and 12.31.68, and "Fundo Nacional de Refinanciamento Rural, Recursos," 1965-1968.
- e/ Excludes Bank of Brazil. Includes marketing, since it is eligible under Resolution 69. 1968 increase likely to be overestimated because of increase in private bank reporting to GECRI between 1967 and 1968.

Resolution 5 that it did for Resolution 69 (see below); the latter was issued two years later, and considered as turning the former superfluous as an instrument of stimulating agricultural credit. Certainly, Resolution 5's combination of varying reserve requirements, and the exemptions to them that produced opposite net effects, was a sophisticated political-economic instrument, enabling the monetary authorities to do one thing, while making it appear to differing groups with different policy demands that they were doing something else.

Despite the monetary authorities' casualness about Resolution 5's agricultural attractiveness, the data seem to demonstrate more evidence of a net relative increase in agricultural lending owing to the measure than they do in the case of Resolution 69 -- although the magnitude of credit that could be facilitated by Resolution 5 was much less than the amount made mandatory under Resolution 69 (e.g., in 1967, NCr \$219.7 million outstanding in constant 1968 cruzeiros for Resolution 5, and in 1968, NCr \$1.3 billion outstanding for Resolution 69 -- see Tables XI and XIII). Table XIII shows that in 1967, commercial bank lending for agricultural production credit increased by 110% in real terms<sup>13/</sup> -- the largest increase

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<sup>13/</sup> Although commercial banks represent only 10% of total lending for agricultural production credit, and although Resolution 5 (and 69) also apply to the Bank aimed at increasing commercial bank agricultural lending. The Bank of Brazil already commits 46% of its credit to agricultural production and accounts for 90% of its credit to agricultural production and accounts for 90% of outstanding agricultural production credit. Since the Bank of Brazil had already been lending to agriculture in amounts significantly higher than those involved under Resolutions 5 and 69, these measures would have no net effect on its lending. Hence the impact of these resolutions is discussed in terms of commercial banks only, which include state banks, the BNB, BNCC, and Banco da Amazônia (private commercial banks account for about 65% of the commercial bank total in agricultural credit).

for this category on record, and much higher than the corresponding increases in other credit categories. The increase in Resolution 5 in that year accounted for 40% of the increase in commercial bank agricultural production credit. Moreover, although commercial banks accounted for only 17% of agricultural production credit in 1967, the increase in their lending in this category in 1967 accounted for 45% of the total increase in agricultural production credit that year.

<u>Category</u>	<u>Real Variation in Yr-End Bals, 1967/1968</u>
Total credit, commer. Banks & BB	24%
Total credit, commer. Banks	32%
Agri. Prod. Credit, commer. Banks & BB	30%
Agri. marketing credit, commer. Banks & BB	22%
Agri. Prod. Credit, BB	21%
Agri. Prod. Credit, commer. banks	110%
Resolution 5 credit, commer. banks	65%

Source: Tables I, V, XIII.

Because Resolution 5 represented about 50% of commercial bank agricultural production credit in 1967, it is possible that banks counted as Resolution 5 loans those loans that they would normally have made in agriculture. Nevertheless, it is difficult, given the significantly smaller increases in other categories and the lack of other incentives,<sup>14/</sup> to explain the 110% increase in agricultural production credit in 1967 without attributing some causality to Resolution 5.

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<sup>14/</sup> Although Resolution 69 became effective in late 1967, it had little effect on agricultural production credit (see next section).

Resolution 69. Resolution 69 of Sept. 1967 directed all banks to commit at least 10% of their deposits<sup>15/</sup> to agricultural credit. This measure would make it mandatory for the commercial banks to direct four to six times more credit to agriculture than the incentive provisions of Resolution 5. (Of course both measures allowed banks to count loans that they were already making in agriculture, as long as they qualified, so that these relative increases are not net increases.) In that banks were allowed to charge only 75% of normal interest rates on Resolution 69 credit, this measure represented a cost, whereas Resolution 5 represented a reward. To the extent that the commercial bank, to fill its Resolution 69 requirements, would have to use resources that would otherwise have been invested outside agriculture, Resolution 69 exacted a price in terms of the forfeited 25% interest-rate differential; Resolution 5, on the other hand, offered a return on resources that were otherwise sterile (compulsory deposits).

Resolution 69 directed that banks comply with the 10% requirement by the October 1967 month-end balance. Those banks unable to comply would have to deposit the resources with FUNAGRI, to be used in the rediscounting program of GECRI; these deposits would yield 6%, in comparison to the 18% return the banks could earn on direct agricultural lending. Banks could not count Resolution 5 loans, or loans rediscounted with GEBAN and GECRI, as part of the Resolution 69 lending. And finally,

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15/ Includes demand and time deposits of the private sector. Excludes time deposits with monetary correction, deposits tied to foreign exchange operations, temporary deposits of public entities for purposes of future wage payments or arising from tax collections or Social Security contributions, deposits of state and municipal governments, and compulsory deposits. Amounts to about 85-90% of total commercial bank deposits.

Resolution 69 referred to Art. 11 of Decree 58380 (May 1966) as specifying the type of activities for which such lending would be eligible:

(1) Working capital for agriculture, livestock, agricultural processing and industrialization; (2) investment capital for establishing permanent crops (including pasture); forestation and reforestation; construction, remodeling, or expansion of permanent installations; acquisition of machinery and equipment of long useful life; rural electrification; irrigation, drainage, damming, or soil recuperation works; clearing of forestland and brush; acquisition of animals for breeding, fattening, or service; acquisition of machines, implements, vehicles, equipment and other installations of short- and medium-term useful life used in agricultural activities; (3) marketing credit: a) to be conceded separately, or as an extension of working capital credit, including storage, insurance, preservation, drying, taxes, transport, b) to be conceded through the discounting of notes arising from the sale of agriculture goods, and c) to be conceded as part of the Federal Government minimum price acquisition program; and (4) credit for the fishing industry (in accordance with Article 18 of Decree Law 221 of February 1967). In sum, Resolution 69 did not make ineligible any activity associated with the agricultural sector.

With no obstacles to financing agricultural marketing, Resolution 69 credit would logically tend to concentrate on that activity, rather than in the financing of agricultural production--that is, the credit would tend to benefit the intermediaries more than the farmers. The financing of the agricultural sale is much less riskier and shorter-term proposition than the financing of production. The purchase and sale of agricultural crops is an operation that can be covered with a financing of 60 to 120

days; the purchaser issues a promissory to the farmer, who in turn discounts it at the bank. The farmer's operating costs, on the other hand, cover a crop cycle--which is rarely less than 120 days and is more often than not closer to 280-360 days, before which time the loan cannot be amortized. Moreover, although the lending bank may take a lien on the farmer's future crop as security for a working capital loan, it has no guarantee that the harvest will be realized, or if it is, that it will cover the value of the loan. Hence the financing of a farmer's operating costs--not to mention his investment costs-- is a much less desirable option for a bank which has the alternative of financing the intermediary's purchase.

Certain incentives in the rural credit legislation itself make it desirable to concentrate agricultural credit on short-term loans of large individual amounts. With respect to loan size, Resolution 69 allows banks to charge a 6% fiscalization commission only on loans above 50 times the minimum wage, requiring them to charge 4% less on loans below that amount (Item 7). Hence because banks can earn 4% more on larger loans, this requirement represents a disincentive to loans to small and medium-size farmers. For agricultural marketing credit, banks are allowed to discount the interest from the principal at the time the loan is made, while the practice is specifically prohibited for other agricultural lending (Central Bank Circular 120 of August 1968). Moreover, banks are allowed to charge the "fiscalization commission" on agricultural marketing loans (6%) as well as on agricultural production credit, but on the other hand are not required to carry out the normal fiscalization procedures for the marketing loans, aside from verifying that the produce

for which the note is being discounted belongs to the producer bearing the note (Decree 58.380 of May 1966, Art. 13, Item III).

Representing another incentive to short-term marketing credit, Resolution 69 requires that total deposits and the 10% agricultural loans be calculated quarterly on the basis of month-end balances, rather than taken as averages. Because bank deposits fluctuate unpredictably throughout the year, a level of agricultural lending that amounts to 10% of the first quarter's deposits could well represent significantly more (or less) than 10% of the second quarter's deposits. Many banks do not want to get caught with any percentage of rural lending over 10%, since anything beyond that which is required by Resolution 69 represents a loss to them, because of the lower ceiling on agricultural interest rates. The best way for banks to avoid inadvertently lending more than 10% in agriculture is to lend at the shortest terms possible, in order to have maximum flexibility in adjusting their agricultural balances to fluctuations in deposits.

In order to cover the risk of being "caught" with more than 10%, some banks make a small portion of their Resolution 69 lending in the form of FUNAGRI deposits (see Table XIV); they earn 6% on these deposits, in comparison to the 18% they earn on direct agricultural lending. They take this loss because the FUNAGRI deposits are refundable if a bank is caught with more than 10% agricultural loans during any particular quarter, according to Central Bank Circular 100 of February 1969, Item 2 (the refund is the excess over 10%). The fact that the banks are willing to risk a 12% interest loss in order to avoid the possibility of a 6% interest loss (which would result from their lending at 18% what they could have lent at 24%), illustrates the discouraging effects on agricul-

tural credit caused by the very legislation and regulations designed to increase it.<sup>16/</sup>

The Central Bank has recognized the 10%-calculation disincentive to long-term lending caused by Resolution 69, and is now thinking of offering to rediscount on favorable terms any excess over 10% that a commercial bank may find itself with at the end of a quarter. Though this measure might counteract the Resolution 69 disincentive, it could on the other hand limit the flexibility that the monetary authorities have in containing credit as an instrument of stabilization policy. The disincentive to longer-term agricultural lending might be more efficiently and less cumbersomely removed by calculating the 10% as an average of deposits and rural loans during a certain period. If this were to cause an undesirable lumping of agricultural lending during certain peak periods, then the calculation might be made on the basis of quarterly rural credit outstanding as a percent of a moving average of past deposits; the period of the average could be lagged enough so that banks could anticipate in advance decreases in their deposit averages, thus being able to adjust their rural balances in a more leisurely fashion.

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<sup>16/</sup> This "hedging" approach to Resolution 69 agricultural lending described in the above paragraphs is used by one of the private banks often cited as a Resolution 69 success story--i.e., a bank which is said to be going into agricultural credit for the first time and in a big way because of Resolution 69. If this kind of operation is among the best that Resolution 69 can stimulate, then the measure cannot be considered to have much potential as an instrument of institutional and qualitative change in agricultural lending.

Resolution 97. The Central Bank, recognizing the disincentives of its agricultural credit regulations with respect to financing the agricultural producer rather than the intermediary, and to financing the small-to-medium farmer, issued Resolution 97 in August 1968, one year after Resolution 69. Resolution 97 went into effect in May 1969, and required that: (1) No more than 67% of the rural loans eligible under Resolution 69 could be granted for marketing, the remaining 33% being eligible for working capital and/or investment (excluding coffee and sugar cane); (2) the individual value of at least 70% of working capital and investment loans could not exceed 500 times the highest minimum wage (5,000 times the minimum wage for loans to cooperatives); (3) the individual value of at least 70% of the loans for agricultural marketing could not exceed 600 times the minimum wage (10,000 times for cooperatives); (4) 10% of total Resolution 69 applications would have to be made to small farmers in amounts no larger than 50 times the highest minimum wage in the country; (5) no more than 10% of Resolution 69 operations could finance the purchase of jeeps, station wagons and cattle; and (6) banks which did not have a bona fide agricultural credit department could extend up to 50% of their Resolution 69 loans for agricultural marketing, but would have to deposit the rest with FUNAGRI, at a return of 6%.

Resolution 97 was accompanied by efforts on the part of GECRI of the Central Bank to institute a comprehensive inspection system which would assure that banks were complying with the various criteria outlined, that they had bona fide agricultural credit departments, and that the loans they are reporting as filling the Resolution 69 requirement are actually being applied in agriculture. Moreover, GECRI has set up a training program to instruct employees of commercial banks in the techniques of

rural credit loan evaluation and execution (see Airgram Rio A-1121 of 10/17/68).

Impact of Resolutions 69 and 97. The effect of Resolution 69 is difficult to determine from the data, given the short history of the program, the activation of Resolution 97 and fiscalization measures only in mid-1969 and the fact that bank reporting procedures were totally changed in 1968, according to Central Bank regulations. The SEEF distinction between loans and discounted notes, which enabled a rough distinction between financing of agricultural production and marketing, is dropped starting in 1968. Instead, agricultural and marketing credit are now specified separately in the data; but "marketing" now contains credit to the agricultural processing industry, as well as credit for the purchase of crops. Moreover, it is clear from the 1968 SEEF data for commercial banks that "production" includes a significant amount of marketing credit.<sup>17/</sup>

Despite these difficulties, an estimate of upper and lower limits of commercial bank agricultural credit for 1968 seems to indicate that there was not extraordinary growth in this particular category; this means that most of the lending classified as Resolution 69 would probably have occurred even in that measure's absence. Resolution 69 was issued on September 22, 1967, to be effective with the October 1967 month-end balances. By the end of the year 1967 (see Table XI), Resolution 69

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<sup>17/</sup> Because the 1968 agricultural production credit figure for commercial banks (NCr\$2.3 billion) represents a 650% increase over the 1967 SEEF figure for "loans"; and the 1968 agricultural marketing figure for commercial banks (NCr\$689.9 mil.) represents a 50% decrease over the 1967 figure for "discounted notes." These variations are inconsistent with other credit variations for that period; moreover, the data would be expected to show increases, not decreases, in marketing, since the latter was the most attractive investment under Resolution 69.

lending (NCr\$530.7 million) represented 40% of commercial bank lending for agricultural production and marketing (NCr\$1.3 billion), and 5.7% of deposits (see Table XV).

The rapid 1967 adjustment to Resolution 69 leads one to believe that banks classified as eligible those agricultural loans that they would normally grant; hence in 1967, one would suspect, the measure probably would have resulted in no net increase in agricultural lending. Commercial bank agricultural lending, however, increased by 47% (real) in 1967, in comparison to a real decrease of 8% in 1966 (see following table). At the same time, total commercial bank lending also increased significantly, but not as much--by 29% (real) in 1967--in comparison to a real decrease of 10% in 1966. In comparison to the commercial banks, Bank of Brazil agricultural credit outstanding increased by only 15% (real) in 1967, compared to a decrease of 7% in real terms in 1966. Moreover, commercial bank agricultural loans, minus Resolution 5 loans, demonstrated a significantly higher rate of increase (nominal) in the second half of 1967 (43%) when Resolution 69 took effect, than in the first half (26%), the increase being a little too high to be explained entirely by the normal concentration of agricultural credit at the end of the calendar year.<sup>18/</sup>

Another indication of a possible net increase in agricultural lending in 1967 resulting from Resolution 69 was a corresponding increase in agricultural credit as a percent of deposits, which moved from 12.4% in 1966 to 15.2% in 1967--an increase relatively greater than the increase in

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<sup>18/</sup> Based on data from Banco Central, Boletim, April 1968, pp. 72-73. Other percentages in this paragraph based on Tables IV and XV.

Table XV

Commercial Banks<sup>a/</sup>: Agricultural Credit, Including Marketing<sup>b/</sup>  
as Percent of Deposits, 1954-1968

(Year-end Balances, Constant NCr \$ millions of 1968)<sup>c/</sup>

	<u>Agri</u> <u>Credit<sup>d/</sup></u>	<u>Non-Agri</u> <u>Credit<sup>d/</sup></u>	<u>Deposits<sup>e/</sup></u>	<u>Agri Credit</u> <u>as Percent</u> <u>of Deposits</u>	<u>Non-Agri</u> <u>Credit as %</u> <u>of Deposits</u>	<u>Res. 69</u> <u>Loans<sup>f/</sup></u>	<u>Res. 69</u> <u>as % of</u> <u>Deposits</u>
1954	577.9	5,994.5	6,941.4	8.3	78.0	----	----
1955	523.3	5,953.9	7,080.7	7.4	76.7	----	----
1956	646.5	6,180.5	6,997.7	9.3	79.1	----	----
1957	776.4	6,932.9	8,453.7	9.2	72.8	----	----
1958	741.3	7,392.9	9,137.0	8.1	72.8	----	----
1959	765.6	7,356.6	9,481.3	8.1	69.5	----	----
1960	816.6	7,312.4	9,899.4	8.3	73.9	----	----
1961	749.3	7,015.8	9,895.4	7.6	70.9	----	----
1962	782.1	7,090.6	10,753.1	7.3	66.0	----	----
1963	850.8	6,211.8	10,234.8	8.3	69.2	----	----
1964	1,037.0	5,780.3	9,320.0	11.1	62.0	----	----
1965	1,288.5	6,645.2	11,906.5	10.8	55.8	----	----
1966	1,192.5	6,044.3	9,597.5	12.4	63.0	----	----
1967	1,755.9	7,780.8	11,552.0	15.2	67.4	660.1	5.7 <sup>h/</sup>
1968 <sup>g/</sup>	{ 2,260.4	10,552.9	12,094.8	18.9	87.3	1,269.1	10.5
	{ 2,950.4	9,862.9	12,094.8	24.4	81.5	1,269.1	10.5

<sup>a/</sup> Private and state banks, BNB, BNCC, Banco da Amazônia --excludes Bank of Brazil.

<sup>b/</sup> Marketing included because it qualifies for Res. 69 loans. Although Res. 97 requires that marketing cannot exceed 67% of Res. 69 loans, this requirement is too recent to appear in the 1968 data.

<sup>c/</sup> FGV Wholesale Price Index.

<sup>d/</sup> Source: Based on data from SEEF., Movimento Bancário Brasileiro. Non-agricultural credit calculated as residual of total minus agricultural.

(cont.)

- 53-
- e/ Source: Based on data from Banco Central, Boletim, March 1966 (for 1952-1963, Boletim, March, 1969 (for 1964-1963). Includes only demand and time deposits of the private sector (excluding time deposits with monetary correction). Resolution 69 excludes, for purposes of calculating the 10% rural loan requirement, those deposits (1) with monetary correction, (2) tied to foreign exchange operations, (3) of public entities which are temporary, deposited for purposes of future wage payments, or arising from tax collections or Social Security contributions, (4) of state and municipal governments, and (5) representing compulsory deposits maintained at the Central Bank.
- f/ Banco Central, GECRI/ASSES, "Crédito Rural, Aplicações," 31.12.67 and 31.12.68.
- g/ Changed system of accounting in 1968 makes accurate comparison with previous series impossible. Before 1968, agricultural credit divided into loans and discounted notes, which allowed an approximate corresponding categorization of production vs. marketing credit. New series separates industry in marketing (which was previously part of the "commerce" category), as well as credit for purchase of agricultural products. Moreover, it is clear that the new "production credit" category still contains a considerable proportion of discounted notes for financing crop purchases. Therefore, two 1968 figures are given, representing an estimate of lower and upper limits. First figure is SEEF figure for "production credit" and second figure is SEEF for production-plus-marketing credit.
- h/ Since Resolution 69 took effect only in late 1967, it would not show a total 10% in the 1967 year-end balances.

the percentage relation of non-agricultural credit to deposits (see Table XV). The percentage share of commercial bank agricultural credit in total credit outstanding increased from 16.5% in 1966 to 18.4% in 1967, an increase which is nevertheless not significant, given the normal fluctuations in this category from year to year. There was a significant increase, however, in the share of commercial bank agricultural credit outstanding in total agricultural credit (including the Bank of Brazil), which rose from 36% in 1965 and 1966 to 42% in 1967. In sum, then, it seems that Resolution 69, along with Resolution 5, had some effect in increasing agricultural credit outstanding in 1967.<sup>19/</sup>

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<sup>19/</sup> That Resolution 69 took effect one month before the close of 1967 is not inconsistent with this result. Banks had known since September 1967 that they would have to comply by November 1. Moreover, agricultural marketing loans could probably be made easily by banks lacking agricultural credit departments, without any change in their procedures or personnel. Lastly, the peak agricultural marketing cycle starts in November and lasts about three months.

Year-end Balances, Percentages  
(Based on 1968 NCr\$ Millions)

<u>Item</u>	Real Variation over		
	<u>Preceding Year</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Agri credit, commer banks	- 8	47	29-68
Total credit, commer banks	-10	29	34
Agri credit, Bank of Brazil	- 7	15	28
Total credit, commer banks & BB	-14	24	39
	<u>Percent Values</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Res. 69 as % agri credit, commer banks	-	40	43-56
Res. 69 as % deposits, commer banks	-	6	10
Agri credit as % deposits, commer banks	12	15	19-24
Non-agri credit as % deposits, commer banks	63	67	82-87
Agri credit as % commer bank credit	17	18	18-23
Commer bank agri credit as % agri credit	36	42	35-48

Source: Tables I, IV, XV

An estimation of the increases in agricultural credit in 1968 brought about by Resolution 69 is more difficult, given the change in reporting procedures referred to above. Estimating a lower and upper limit consistent with the 1967 data for commercial bank agricultural credit outstanding at the end of 1968 (NCr\$2.3 billion and NCr\$3.0 billion respectively, see Table XV), one finds a real increase over 1967 of between 29% and 68%. In comparison, total commercial bank credit increased in real terms by 34%, from NCr\$9.5 billion to NCr\$12.8 billion, while total credit of the commercial system and Bank of Brazil increased by 39% in real terms from NCr\$14.1 billion to NCr\$19.6 billion. Agricultural credit outstanding as a percent of deposits rose in real terms from

15.2% to about 22% in 1968, about twice as much as the increase in non-rural credit as a percent of deposits (from 67.4% to about 84%). Bank of Brazil outstanding agricultural credit seems to have increased about 28% in real terms in 1968. Finally, the percentage share of agricultural credit seems to have increased about 28% in real terms in 1968. Finally, the percentage share of agricultural credit in total commercial bank credit outstanding changed from 18.4% in 1967 to somewhere between 18% and 23% in 1968 -- and the percentage share of commercial bank agricultural credit in total agricultural credit changed from 42% in 1967 to somewhere between 35% and 48% in 1968. The data seem to indicate, then, that commercial bank agricultural credit experienced a somewhat more than proportionate increase in 1968 -- compared to increases in other credit categories and increases in previous years.

Other evidence suggests that, although there may have been some net increase in agricultural credit owing to Resolution 69, this increase has not been significant, and that none of it went to farmers, but rather, to agricultural intermediaries. It is generally conceded by commercial banks and Central Bank officials that a considerable proportion of Resolution 69 loans is going for totally non-agricultural ends, and that of those which are being directed to agriculture, a majority are going for agricultural marketing. The monetary authorities admit that inspection has been very difficult, and that evasion in one form or another has been widespread. (One Central Bank official guesses that 50% of Resolution 69 lending has nothing to do with agriculture.) The authorities hope, however, that the current fiscalization campaign being mounted will help to bring the program into line.

The Emphasis on Marketing. Since Resolution 97 imposed a ceiling of 67% on Resolution 69 loans going for marketing, it can be assumed that at least 67%, and probably much more, went for marketing in 1967 and 1968 -- given the need to impose such a ceiling, given the higher returns to banks on marketing as opposed to production loans, and given the judgments related above. Moreover, in view of the fact that marketing loans are of much shorter duration than production loans, 67% of outstanding balances could represent a much higher percent of the total annual flow of credit.

Although the agricultural marketing sector may be in need of credit to an equal extent as agricultural production, Resolution 69 nevertheless was part of an array of policy moves that pointed to agricultural production and not marketing as a needy sector. "The Government and the business sector," stated a Central Bank document on agricultural credit, "are convinced that the modernization and dynamization of the country's agriculture is a goal of the highest priority for the stability of the economy. Agricultural credit, appropriately applied, is the most efficient instrument for achieving this end."<sup>20/</sup>

Marketing had already been the object of bottleneck-removing policies in the 50's and early 60's (see Smith). Currently, the problem of financing the storage and sale of agricultural products is being dealt with directly by the government's other major policy measure in agriculture, the minimum price program. Under this program, NCr \$220.4 million was granted in marketing loans in 1968 by CREA1 (not including acquisitions),

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<sup>20/</sup> Central Bank Circular 120, Item 8, August 1968.

which represented 12% of their agricultural lending in that year. Although Resolution 97 attempts to limit the marketing credit of Resolution 69 lending, the ceiling percentage (67%) still represents a majority of the credit eligible under the measure. The remaining 33% for working capital and investment amounts to about the same level of commercial bank agricultural production credit already reached in 1967.<sup>21/</sup> In sum, the Resolution 69 program, along with other rural credit measures, although intended to direct more credit to agricultural production and although accompanied by considerable Central Bank activity in encouraging and training commercial banks in rural production credit procedures, have the effect of directing the major part of agricultural credit to the agricultural intermediary.

Another estimate of the impact of Resolution 69 can be made by referring to Table XV, which shows that commercial bank agricultural lending had already reached more than 10% of commercial bank deposits for the three years preceding Resolution 69. Commercial bank agricultural production credit, required by Resolution 97 to be at least 3.3% of deposits (33% of 10%), had not quite reached that level before 1967 --having been 2.0% in 1964, 1.4% in 1965, and 2.1% in 1966 -- but reached 3.7% in 1967, before the 33% requirement was in effect. These comparisons mean that banks who were already doing more agricultural lending than the average, would not be forced or encouraged by Resolution 69 to do more, since they had already been lending in agriculture more than 10% of their deposits. It was those banks who had been doing little agricultural

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<sup>21/</sup> Thirty-three percent of 1968 commercial bank Resolution 69 loans is NCr \$423 million, slightly less than the NCr \$425 million (in constant 1968 cruzeiros) of commercial bank agricultural production credit in 1967.

lending that would be forced to do more, in order to reach 10% of their deposits. Needless to say, lending for agricultural production credit requires an overhead of specialized personnel and procedures and the development of totally different "business" connections--an overhead most likely to be subject to economies of scale. Agricultural marketing lending, as mentioned above, doesn't need this overhead; the Central Bank recognizes this fact by forcing banks without agricultural credit departments to invest 50% of their Resolution 69 funds in FUNAGRI 6% deposits (to be used for agricultural rediscounting operations of GECRI), but at the same time, allowing them to invest the remaining 50% in marketing loans (Resolution 97, Item II).

The 10% Approach. The 10% "average" approach of Resolution 69 seems to be inefficient to the extent that banks with an already existing overhead and specialization in agricultural lending are neither forced, nor encouraged to expand their operations; at the same time, many banks with no agricultural lending experience or predilections are forced to set up their own separate agricultural credit service in order to meet their 10% requirements. If not, they must forfeit 50% of their Resolution 69 lending to FUNAGRI deposits, where they earn 6% instead of the 13% rate for direct agricultural lending. This means that to the extent that FUNAGRI deposits are used for increasing Central Bank rediscounting of agricultural loans made by banks with established agricultural credit departments, Resolution 97 implies a subsidy by banks without agricultural credit departments to banks with those departments. This could mean that the Resolution 69 program was in effect a way of increasing agricultural credit by rewarding agricultural lenders at the cost of the

non-agricultural lenders. But, as Table XIV shows, very few Resolution 69 funds took the form of FUNAGRI deposits, which shows that banks without rural credit departments preferred to establish them, even if, in some rudimentary form, in order to avoid forfeiting the 12% interest spread between FUNAGRI deposits and direct rural lending.

The Private Sector Emphasis. Resolution 69 turns out to be a strange combination of a new private sector approach to a resource allocation problem, along with regulations that are private sector disincentives. In many developing countries, agricultural credit has been to a considerable extent a public sector function, because of the higher administrative costs than for commercial credit, because of the greater risks, and because of the difficulty of insuring against such risks because of their bunching at one point in time (i.e., weather caused failures). Hence, in many countries of the world, commercial banks account for only a small proportion of institution agricultural credit -- i.e., in Japan, 3% (1961); in Venezuela, 11% (1960); in the Philippines, 8% (1957); in Iran, zero (1963); and in India, zero (1961). The exceptions are Mexico, with 66% (1959); and to a lesser extent, the United States, with 52% (1960).<sup>22/</sup> Hence, Brazil, with 35 to 45% of agricultural credit accounted for by private banks, may be closer to the advanced countries in this field than the less advanced.

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<sup>22/</sup> Based on data from, Changes in Agriculture in 26 Developing Nations, 1948 to 1963, Foreign Agricultural Economic Report No. 27, USDA, p. 82. Another source cites the Mexican percentage of private agricultural credit in the total as 16.7% in 1960. (Dwight Brothers and Leopoldo Solis, Mexican Financial Development, University of Texas Press, 1966.) This major discrepancy between the two figures most likely results from different ways of classifying the government-owned banks -- whether as commercial or public. Such a discrepancy of this data, unless clear specification is made as to what is included in commercial banks, and whether agricultural marketing credit is included.

CREAI, of the Bank of Brazil, was created in 1938 with the express purpose of providing official credit at subsidized rates to Brazilian agriculture. Resolution 69 thus represents a decision to place new emphasis on the private sector for bringing about an increase in the flow of credit to agriculture, as opposed to the past domination by the public sector. Since the regulation offers no incentives for banks to increase agricultural credit, and indeed penalizes such increases by requiring that a lower interest rate be charged, it would have no effect on official banks like the Bank of Brazil, Bank of the Northeast, and Bank of the State of São Paulo, which are already lending more than 10% of their deposits in agriculture. It is difficult to understand what the virtue of the private sector approach to the problem could be; it certainly isn't an experience and capacity in agricultural lending in the private sector, for that capacity exists in the official and semi-official banking sector. Nor can it be a preference for the allocative efficiency of the free market or profit motive, since the price of credit is not allowed to rise to at least the level of other credit instruments, and since banks are not allowed to maximize profits under this program.

Perhaps one explanation of this combination of private sector approach with private sector disincentives -- and the resulting inefficiencies and evasions -- is that Resolution 69 and the legislation on which it is based were really not serious attempts to deal with agricultural problems, but rather, were hastily devised political moves to show that the government was "doing something about agriculture." Even as a political ploy to agriculture, however, the legislation is not that beneficent; that is, even if the farmer gets more credit, it is at increased prices, for the private banks charge higher interest rates and/or



2. Another example, cited above, is the built-in disincentive to longer-term loans caused by (a) the calculation of the 10% on the basis of month-end rather than average credit and deposit figures, and (b) the gains to be had on short-term loans through the discounting of interest at the start. The monetary authorities, instead of attempting to diminish the interest-rate incentive to short-term lending, or make the 10% calculation in a way that does not punish longer-term lending, decide to offer rediscount possibilities to the banks that get caught with more than 10%. This corrective seems to be a tacit capitulation to elements of a public sector subsidy approach, which is what the Central Bank's rediscounting operations represent. Once this is recognized, it is possible to think of more efficient methods of administering such a subsidy. For example, instead of requiring every bank to invest 10% in agriculture and then offering to rediscount anything above 10% that they happen to find themselves with, the Central Bank might decide to allow higher-than-commercial interest rates for agricultural loans, and subsidize, if necessary part of the interest cost to the farmer.<sup>24/</sup> In such a case, the private sector approach makes some sense, for the price distortion is removed from the supply side, although it remains on the demand side. The interest differential between agricultural and commercial credit could be set high enough so as to attract banks already involved in agricultural lending and low enough so as not to attract banks for whom the setting up of an agricultural credit department would not be compensated by the extra interest return. Nevertheless, such a solution is second best, for a higher interest rate for agriculture that was subsidized

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<sup>24/</sup> This approach was used by AID in the fertilizer loan.

for the borrower would still encourage evasion, and the credit might not end up in agriculture. In short, once prices are artificially determined, a policy is no longer a private-sector approach.

3. Another example of counterbalancing distortions is the Central Bank's recent decision to allow banks to charge the borrower up to 1% for the cost of contracting out the agricultural credit application evaluation and follow-up visits to a consulting firm or a state extension agency; alternatively, the borrower may opt to include the cost of this evaluation in the loan principal. The cost of the contracted assistance may go up to 2% of the loan, with the bank paying the remaining 1%. This measure was intended to facilitate implementation of the Central Bank's requirement that agricultural lending be based on well-conceived projects. Although some banks are making evaluation contracts with state extension agencies, much of this evaluation work is being done by private consulting firms, who contract "stringers" living in the prospective borrower's region. The "stringer" usually has other jobs in the same or related fields, is paid "by the visit," and is assured employment for the follow-up inspection visits if the farmer gets the loan. In the case of state extension agencies, this measure could perhaps have interesting results to the extent that it channels both new demand and resources to these entities. The consulting firm "commission system" approach, however, probably does not contribute much to serious project evaluation. In fact, the effect on who gets loans and for what is probably the same as the traditional and much-maligned banker's pure concern for the prospective borrower's guarantee -- precisely the kind of criteria that the Central Bank's measures were intended to overcome.

The Central Bank's requirement of individual project evaluation along with permission to contract it out and charge for it would seem to result in a dispersion of agricultural credit administration among various public and private sector entities. This may represent a costly splintering of the overhead function, inconsistent with the kind of qualitative and quantitative change in agricultural credit which the monetary authorities intended. In short, the disincentive of an interest rate too low to cover administrative cost, and the questionable efficiency of a measure which requires every bank to give a little bit of a costly kind of credit, is countered by other measures which guarantee a new business to the private consulting firms, add to the proliferation of administering institutions, and hence increase even more the cost of agricultural credit.<sup>25/</sup>

The Interest Rate. One suspects that the difficulty of turning the bad beginning of the rural credit law and Resolution 69 into better going is to some extent a function of the political aspects of the interest rate question. An inconsistency of the monetary authorities' new agricultural credit policy is that, (1) the policy is not set in a context of social welfare and subsidization of the farmer or rural worker,

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<sup>25/</sup> This is not to say that the separation of the evaluative and the financing function is always inefficient. This separation works quite well in the supervised credit program of ACAR of Minas Gerais, where the extension service does all the evaluation work and the Caixa Economica of the state makes the loan. The ACAR program differs from the Resolution 69 approach, however, in that each institution covers a very wide area (the whole state of Minas Gerais), and the program deals with supervised credit, which has the kind of administrative costs and structure which may make such separation desirable and efficient.

but of turning agriculture into a good business, a highly commercialized sector, yet, (2) the justification that one hears in the Central Bank and other official sectors for a subsidized interest rate in agriculture is that the farmer is in a bad way, costs are high, and he needs to be encouraged to produce. It is generally known, however, that many farmers pay much higher interest rates for non-institutional credit in Brazil as well as in all developing countries. CIDA estimates non-institutional interest rates for agricultural credit in Brazil at the yearly equivalent of roughly 60%, in comparison to 15-20% for institutional rates.<sup>26/</sup> As mentioned above, the amount of agricultural credit from non-institutional sources is probably quite significant, having been estimated by Smith at about 82% for the early fifties in Brazil. Even in the United States, non-institutional credit is reputed to represent more than half (52%) of total agricultural credit to the private sector.<sup>27/</sup>

Clearly, then, it is a relatively privileged few who must take up a large part of the supply of scarce institutional agricultural credit. Hence, a change in interest rate policy -- even if it were the simplest and most efficient measure for achieving the desired objective -- may be a method of last resort in political terms. This perhaps explains the seeming cumbersomeness of the actions and reactions by the monetary authorities in attempting to increase the supply of agricultural credit.

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<sup>26/</sup> CIDA, Estudo de Credito Agricola no Brazil, Versao Preliminar, February, 1969, p. 161.

<sup>27/</sup> USDA, Changes in Agriculture..., p. 82.

Moreover, it is politically difficult in any sector to argue that one is going to favor that sector by raising the price of one of its inputs -- in order to increase the supply of that input.

Political unpleasantness as an obstacle to raising the interest rate in agriculture is probably at least equally matched by the hypersensitivity to price increases of a government bent on bringing an end to inflation -- especially with regard to the prices of inputs in a sector whose production is considered lacking. Prices normally controlled in a mixed economy -- like utility, transport, and interest rates -- are often perceived as the only direct controls that a government has when it is desperately trying to navigate in a sea of rising prices. There is considerable evidence to suggest, for example, that the early Kubitschek government was sympathetic to the need for rate increases in electric power, and aware of the harmful effects that inflation-eroded rates would have on power supply. Nevertheless, that government did not facilitate or fight for legislation which would authorize such increases. One can not argue that this lack of action resulted totally from its expected political costs or from the government's desire not to reward a foreign utility. For, at the same time that the Kubitschek government was not facilitating rate increases; it was facilitating all kinds of other income-increasing (but not price-increasing) measures for the electric utilities (e.g., preferential exchange rates for equipment importation, profit remittance, debt amortization). In sum, the Kubitschek government's rate policy was no doubt influenced by the expectation that one more price increase was a greater and more immediate cost than the eventual deleterious effects that low rates would have on power supply.

Although the post-1964 governments have been willing to act on more long-range perceptions, and have put up politically brave fronts with respect to the prices of utilities and agricultural products; their action with respect to the agricultural interest rate seems to be a continuation, rather than a break from the pre-1964 array of policy responses to inflation. The present lower interest rate for agriculture represents a shifting of the price-ceiling approach to inflation from the agricultural sector back one step in the production process to the banking sector. The agricultural interest rate ceiling may also reflect a tendency toward over-compensation by the government for the many years of price ceilings on agricultural products, and their harmful effects on supply.

The banking sector, of course, will not be anywhere near as harmed by this price ceiling as was agriculture during the days of its price ceiling. Agriculture is a small portion of the banking system's total portfolio, and the banking business, in contrast to agriculture, flourishes considerably when operating in an inflationary atmosphere. Hence, the cost of the price ceiling to the sector on which it is imposed is considerably less in the case of banking than in the case of agriculture; at the same time, the cost to the consuming sector (agriculture) in terms of supply of the input is proportionately greater, precisely because the supplying sector has the alternative of selling its product elsewhere at higher prices (commercial bank lending).

Perhaps more to the point, the agricultural sector -- in comparison to electric power or other industries -- faces a highly elastic demand curve for its products. This means that, whereas industrial firms can

often pass on much of their inflationary cost increases to the consumer, the farmer has almost no such possibility. Although the longer-run equilibration of agricultural supply and demand resulting from the increase in the cost of an input might well result in a higher price for the product, this will occur only after the adjustment mechanism has wiped out the farmers on the lower end of the profit range. It may well be, then, that the present government's concern for keeping down the price of agricultural credit is quite unlike the case of Kubitschek and electric power; that is, the case of agriculture has much less to do with a feared increase in prices than it has to do with a concern for squeezing out many farmers whose profits could not withstand the blow that a credit cost increase would deal.

Since the interest rate question is so crucial in determining the supply of credit to agriculture and in agricultural policy-making, it seems imperative that a study of the price elasticity of demand for agricultural credit be undertaken. The data of the Bank of Brazil is more than adequate for such an analysis, and since agricultural credit has been almost totally subject to officially declared and observed rates (i.e., the Bank of Brazil), it is possible to locate moments in time when specific increases were made, and the reactions in demand to them. Superficially, the behavior of agricultural credit does not seem to show a particularly notable price sensitivity to the rate of interest, at least over the prevailing range of rates.

An analysis of the price elasticity of demand for credit should be matched by a study of the cost of credit as a percent of the price of agricultural products, because of the concern of policymakers over

possible agricultural price increases arising from an increase in the cost of credit. One point that is sometimes neglected in considering the cost of credit is the fact that the farmer receives his working capital in stages, corresponding to his staggered input needs during the preparing, planting, caring-for, and harvest period. Since the interest is charged on the balance outstanding of credit actually in use -- rather than on the amount of the credit contract -- the total interest costs are much less for the credit taken prior to the harvest, for example, than for the credit utilized months earlier for the planting.

CIDA has made an estimate of the cost of credit as a percent of principal, on the basis of this phased receipt of the principal.<sup>28/</sup> For crops of short cycle, like corn, beans, and potatoes an annual interest rate of 12% generally represents no more than 7% of the amount of credit received; on the basis of 18% annual interest, the interest charges amount to about 10.5% of the principal. Assuming that the credit finances 100% of the farmer's working capital costs and that these costs are 100% of total costs (both overestimates), CIDA calculates that interest costs amount to about 7% of the total cost of production in the case of a 12% annual interest rate, and 10.5% in the case of an 18% annual interest rate. In sum, a difference of 6% in the rate of interest, which is the present differential between commercial and agricultural interest rates, can cause under these assumptions an increase of 3.5% in the cost of production. This increase, of course, would be slightly larger for the current 18%-24% agricultural interest rate spread.

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<sup>28/</sup> CIDA, p. 160.

The CIDA estimates are only suggestive. A more comprehensive analysis should, among other things, take into account the price elasticities of demand for credit and agricultural products, which would indicate how much an interest rate increase would be transferred into agricultural price increases and how much of it would come out of farmer profits. Such an analysis is an essential complement to a study of the price elasticity of demand for agricultural credit.

Another question that could be examined in the case of the interest rate for agricultural credit is the following: It may be that the effect of inflation on the costs and future returns for agricultural borrowers is quite different than that for non-agricultural borrowers. That is, by the time commercial borrowers repay their loans, they have reaped the inflationary price increases that occurred between the taking of the loan (purchase of inputs) and its repayment (sale of outputs). Hence, a nominal rate of interest that is less than the rate of inflation is, in their case, a truly negative rate of interest. In the case of farmers, however, most credit goes for working capital to cover the planting-harvest cycle, usually between 180 to 360 days. Because of the current government minimum price program and the public fixing of prices of the agricultural products subject to international agreements or quotas, it may be that the prices of the agricultural products that account for most of the agricultural credit in Brazil are known to the farmer before the planting (coffee, rice, wheat, sugar, corn, and beans). If this is true, his cost and credit calculations would be based on a known future price, not subject to inflation during the planting-harvesting period. In this case, the nominal

rate of interest would, to a certain extent, be the real rate of interest to the farmer. Hence, there would be some validity in charging a lower nominal rate of interest to the farmer; but then again, the distorting effects that such a move would have on the supply of loan capital for agriculture would have to be recognized, and an appropriate form of the subsidy devised.

The Amortization Period. Another important point concerning agricultural credit terms that should be given more attention is that relating to medium-to-long term credit vs. short-term credit. Criticism is often made of the relative deficiency of longer-term credit in comparison to short-term credit (up to one year) in Brazil, as well as in other developing countries. The Bank of Brazil, for example, which supplies about 90% of agricultural production credit, divides that credit thirty-to-seventy between investment and working capital credit. Along with the criticism that there isn't enough longer-term credit, it is often said that banks pay too much attention to the security of the borrower in determining the amortization period, instead of the profitability of the project being financed, and the time period of its payout. This results in an undesirably high rate of rollover of short-term credit and insecurity for the farmer-borrower, instead of an efficiently granted supply of longer-term credit.<sup>29/</sup>

It may be, however, that in the conditions of uncertainty of an agricultural developing economy experiencing substantial rates of inflation, that the rollover system is the only way -- and rather effi-

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<sup>29/</sup> e.g., CIDA reports that the percentage of banks which cope with overdue loans by new financing is about 4 to 5 (out of a total number of respondents of 43, of which four were federal, 14 were state, and 35 were private banks). CIDA, Annex, p. 22.

cient, too -- of getting banks to finance agricultural investment and, just as important, of getting farmers to seek credit for and to undertake investment. The rollover, or "inadvertent" long-term credit, gives the bank the opportunity to cut its expected losses to one year's credit -- rather than take the risk of losing repayment on an amortization period of several years. From the borrower's point of view, it may be much easier to meet the bank's security requirements for successive doses of one-year credit than for lump-sum financing of several years.

The World Bank's U.S. \$40 million livestock loan, granted in 1967, may be a case in point. One and a half years after the signing of the loan, almost no sub-loans have been made. Most people point to the monetary correction features of the sub-loans as the reason for borrower disinterest in the credit -- even though the correction formula is quite gentle,<sup>30/</sup> and is tied to an index of the wholesale price of the product that the borrower sells. Of course, in that monetary correction results in a higher interest rate than most official credit; this

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<sup>30/</sup> Livestock loans would be for up to 12 years with four-year grace period. The balance of the principal would be adjusted annually by an index based on cattle and/or wool prices. The adjustment index would be obtained by deducting ten points from the price index for each year of grace or the inflation rate during the year, whichever is lower; base year for adjustments would be year in which loan made. An interest rate of 14% would be applied to adjusted principal, except during grace period, when interest would be computed on adjusted balance as of year one. Adjustment of loan and payment of interest and amortizations would be annual and take place at loan's anniversary. If rate of inflation rises no higher than 40 to 50% per annum, these lending terms would yield a real lending rate to farmers of at least 7% per annum. From IBRD, Report No. TO-566, "Report and Recommendation of the President to the Executive Directors on the Proposed Loan to Brazil for a Livestock Development Project," August 31, 1967.

probably accounts for some of the loan's difficulty, given the fact that it is directed to large livestock investors who probably already have easy access to official credit, and given the fact that SUDENE and SUDAM tax credit incentives are now available for livestock investment (amounting to about 70% of free capital for livestock projects).

Despite these factors, there are two other significant reasons for the disinterest of cattlemen in the investment credit of the World Bank loan. One is that because of the long amortization period (ten years), the participating banks have, in some cases, been requiring co-signers; yet, the friends of prospective borrowers, who would normally co-sign for shorter-term credit, were not willing to accept co-responsibility for such a long period. The other related reason was uncertainty about beef prices over such a long period of time; even though the monetary correction was tied to the wholesale index of beef prices, it was felt that these prices could fall low enough as to liquidate such operations. In short, deliberate long-term credit -- in contrast to the inadvertent rollover kind -- simply might not find takers in an economy where horizons are shorter and uncertainty is greater. The insecurity of the rollover process for the investing farmer might be less an obstacle to his investing than the uncertainty about undertaking a long-term financial commitment.

If the above is true, then one might want to facilitate the rollover technique, rather than curb it, so that credit for worthwhile investments would not be cut off in midstream. With respect to the criticism of the banking system's myopic approach to agricultural investment credit, it should be remembered that it is a function of the interest rate

and not the bank to select the most economically efficient projects for financing. Even though the interest rate, in reality, may not be performing this function, it is difficult to ask the private banking system to adopt this role, since it may well interfere with the bank's function of guaranteeing a return on its capital.

IV -- Recommendation

This analysis has tended to demonstrate that quantitative increases in the supply of agricultural credit have occurred steadily for the last 15 years, and these increases have not been associated with desired improvements in agricultural productivity and the well-being of the rural population. Moreover, it seems that the current governmental attempts to increase the supply of credit through the private banking sector have not had, and perhaps cannot have, the kind of impact desired. Indeed, the Central Bank's current pronouncements on agricultural credit have laid much more emphasis on qualitative change, as compared to the quantitative emphasis with which the agricultural credit measures were announced. It is my feeling that the qualitative improvements in agricultural credit sought by the Central Bank will be quite difficult to achieve within the context of a lack of incentives to such lending, not to mention outright disincentives which are part of the agricultural credit legislation and regulations.

Even if the proper incentives could be devised and were politically feasible, it is still doubtful that the changes desired in Brazil's agricultural sector could be contributed to significantly by commercial bank credit. I would like to present a proposal for the type of approach that might come closer to achieving the kind of results desired, as well as touching on other problem areas of the agricultural economy that would not be affected by increases in the supply of agricultural credit.

It has been widely acknowledged<sup>31/</sup> that farmers often do not improve

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<sup>31/</sup> e.g., Theodore Schultz, Transforming Traditional Agriculture.

on the efficiency of their production techniques not only because of the added costs of such change, but because of the uncertainty over whether the added returns from the new techniques will be realized. Traditional farmers may well be acting rationally by not switching to more profit-yielding, modern techniques, because they perceive the probability of the expected return from these techniques -- and not the return itself -- as low. An "innovation-guarantee" credit program could change that economic rationale. It would not only provide credit for the adoption of more efficient combinations of inputs, but would guarantee against the risk of failure of the new approach. Take a case where it has been proven that certain techniques could result in enormous increases in the yield of a certain crop, to the point where the cost of the new inputs could be covered out of the increase in the farmer's return from that yield. The innovation-guarantee would constitute a guarantee to the farmer by the credit-granting institution that he would have to amortize his debt only to the extent that those additional returns were realized.

I take this idea from a similar practice used by a fertilizer company in Central America. The difference in the approach of this company from the idea outlined above is that the company works only with increases in the use of fertilizer, rather than with changes in the whole spectrum of input combinations. The fertilizer company "takes over" the farm of one of the more innovating farmers of the region, and provides credit and close supervision, in addition to a proviso that the credit need only be repaid if the increased use of fertilizer results in correspondingly higher returns. More important, the ferti-

lizer company works only with large farmers, since the return to the company on such supervision, credit, and guarantees is only worth the cost when dealing with large land units. The company has rarely had a case of failure with this technique -- that is, it never had to forfeit receiving debt repayment because of failure of the supervised use of fertilizer to bring improved returns.

The fertilizer company experience suggests that close supervision and some form of guarantee can be necessary to promote modernization even among large, well-established farmers -- let alone small ones. Moreover, while the return to the fertilizer company on such an activity is profitable, the social return necessarily must be even greater, since the efficiency with which agricultural products are produced by the country is being thereby increased, not to mention the additional productivity increases induced by the demonstration effect of these success cases on other farmers.

Because the company cutoff point for profitability on such a program is somewhere between the large and medium-size farmer, and since the social returns are considerably greater than the private returns, it is to be expected that the social profitability cutoff point would be at a farm of much lower size. Hence, the importance of having the public sector undertake such a program -- rather than, or in addition to, private input distributors -- is that the social returns are considerably higher than the private returns. Because the private company does not reap these social returns, the program is not expanded as much as it profitably could be. In short, the program is not expanded to the point where the marginal social costs are equal to the marginal

social returns.

Such a program might be administered in the way that ACAR (Associação de Crédito and Assistência Rural) of Minas Gerais works, where the supervision function is carried out by the extension agency, and the financing operation by a state bank (the Caixa Economica). The point of extending the operation outside the banking system would be to include the necessary participation of a research-extension entity in determining what particular modernization programs were profitable for which crops, and in which regions; the entity would provide the necessary supervision as well. The bank could charge an extra point or two of interest for the guarantee fund; or the defaults due to failure might be met out of a state or federal budgetary item under the heading "investment in agriculture." The line of credit could come from a foreign loan, from an earmarking of Program Loan counterpart funds that now contribute to the agricultural rediscounting program of the Central Bank, or from a direct designation of those rediscounting facilities by the Central Bank to that end.

It should be pointed out that the innovation-guarantee approach is substantially different from the traditional idea of a credit or crop insurance scheme. The goal of a credit insurance scheme is twofold: (1) on the supply side, it aims to increase the quantity of total credit by guaranteeing banks against loss; (2) on the demand side, it seeks to protect the efficient farmer from losses that are beyond his control. The implicit assumption behind the traditional credit guarantee or insurance scheme is that increased credit is an essential input for, and agent of, agricultural progress; the scheme implies, moreover,

that guarantee against the unpredictable calamities peculiar to the business of agriculture are necessary in order to keep efficient businessmen in farming, or to make farmers into successful businessmen. Such an insurance scheme may result in an increased supply of agricultural credit and goods, although not necessarily so, for the scheme may end up simply guaranteeing against loss the total stock of credit already in existence. If this were the case, it would result in greater efficiency of the credit mechanism, but for those already participating in it and for the amounts already being lent out. Yet, even if increased agricultural credit and production are generated by a credit insurance scheme, it cannot be assumed that productivity will also increase, or that a desired redistribution of agricultural economic activity will occur.

The basic difference of the innovation-guarantee idea from the credit insurance scheme is that the former assumes that credit is a "neutral" input, which in itself is not capable of bringing about change in significant quantities. Put in another way, in the credit insurance scheme, it is the farmer who is active in seeking the credit, while the lending agency is "passive." In the innovation-guarantee scheme, it is the lending agency which plays the active role; it decides on the kind of technique it wants to finance and seeks out qualified borrowers. This, of course, makes the innovation-guarantee idea much more dependent on the efficiency and dynamism of the administering agency; and, hence, perhaps a more difficult program to carry out than credit insurance which, once established, will be more or less taken care of by the forces of the market. As suggested here, however, the returns from innovation guarantee may be much higher than from credit insurance in a country with substantial gains yet to be made in agri-

culture. Needless to say, the two schemes can be mutually complementary. I simply wanted to point out a very significant distinction between them.

An innovation-guarantee program could have various advantages. Most obviously, it increases the productivity of the agricultural sector -- not only with an increased availability of credit, but, more important, by changing one of the most important components of the economic rationality to the individual farmer of adopting new techniques -- i.e., the expected probability of return.

Another feature of such a program is that each sub-loan has a specific economic objective -- i.e., bringing about a certain yield increase in a certain crop. This is an important distinction from most supervised or small-farmer credit programs whose purpose is basically social -- to make available a certain input on subsidized terms to a class that previously had no access to it. Although the proposed innovation-guarantee program could have a strong social content through the selection of regions or groups of farmers on which to concentrate, a previously defined and quantified economic end would, nevertheless, be pursued.

The very measurement of results that would be a necessary part of the financing and amortization process of such a program would give an ongoing and unavoidable reading on how the program was doing, and how future sub-projects could be modified so as to improve results even further. The importance of this ex-ante and ex-post specificity and quantifiability of ends and results cannot be underestimated. One of the main problems of agricultural policy-making and remedy-devising

is that it is very difficult to determine what the result will be -- or what it was -- from certain agricultural policy moves or resource investments in agriculture. This explains the superficiality of many agricultural policies, and the great difficulty in learning from one policy experience when moving to another. For example, when aggregate agricultural credit is increased, policymakers have no idea what effect this has on agricultural productivity; or, in the case of the successful, long-lived, and much analyzed supervised credit program in Minas Gerais, nobody has yet been able to come up with conclusive results as to whether supervised credit leads to an increase, decrease, or has no effect on agricultural productivity.<sup>32/</sup> Hence, one always hears that the costs of supervised credit are high, yet one never hears whether these costs are high in comparison to their social returns. The innovation-guarantee approach specifies the return in advance; and if it is not realized, the evidence is quite clear.

An equally important aspect of such a program would be the demand-generating impact it could have on research and extension entities, the former often being criticized for the aloofness of their research and its irrelevance to applied agronomic matters. Such a program would give these entities region-sized experimental "laboratories," and the financial resources (the innovation credit) to put into effect the results of their experimentation. The public knowledge that a significant agricultural modernization program depended on the productivity and ingenuity of these entities might spur public officials and politicians

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<sup>32/</sup> Despite the careful analyses by Clifton Wharton and Edward Schuh,

to grant them the necessary financial support. More important, such a program might endow these entities with the sense of importance (and financial return) necessary to interest them in making an important contribution to Brazilian agriculture.

Lastly, in that the application of any particular new production technique would have to be approved by the financing entity as part of the innovation-guarantee loan procedure, the research and extension entities would be forced to consider economic as well as technical feasibility. This would help to curb the tendency by research entities toward an "engineering" approach to change in agriculture, which sometimes emphasizes increases in yield without paying significant attention to corresponding changes in the cost/return ratio at prevailing relative prices. This forced financial proof of a new method's feasibility might also contribute to channeling the work of research entities into more applicable areas.

As mentioned above, such a program could be limited to regions and beneficiaries according to criteria directed toward lessening the inequality of income distribution in agriculture, which would, in turn, enhance the program's social return. Nevertheless, the program could never serve as -- and should not be considered as a substitute for -- a policy that attempts directly to make significant quantitative inroads into the problem of rural unemployment, hunger, and poverty.