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Brazilian Agricultural Credit Policy Revisited in the Eighties

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Several developing countries have used credit policies to achieve agricultural development goals. The Brazilian case is especially revealing because huge amounts of rural credit have been channeled to agriculture, and credit policy was such an important part of agricultural policy during the past couple of decades. This paper reviews Brazilian credit policies and the impact of credit on agriculture over the 1960-1985 period. It serves as an important updating of our earlier paper that analyzed developments as of the mid-1970's [Araujo and Meyer (1978)]. This paper includes data from the 1980 census which confirm some of the trends identified in the earlier paper. It also includes new information on the highly controversial issue in Brazil of the magnitude and impact of subsidies provided through negative real interest rates on agricultural loans.

1. A Brief Review of Agricultural Credit Policy

Brazil pursued a rapid growth strategy during most of the period following the military takeover in 1964. Financial policy has served the function of financing the Federal budget, compensating certain sectors (notably agriculture and exports) for the adverse consequences of price controls and exchange overvaluation, and attracting foreign funds to support the current account deficit

[World Bank (1984)]. The strategy clearly suggested a "supply-leading" approach to finance and economic development.

The stated objectives of agricultural credit were established in 1965 by the Agricultural Credit Law no. 4829: (a) finance a portion of operating costs of agricultural production and marketing, (b) stimulate capital formation, (c) accelerate the adoption of modern technology, and (d) strengthen the economic position of farmers, especially small and medium ones. Credit policies have also been frequently adjusted to address short-term problems like changing input and product prices and weather problems. Agricultural pricing and input policies have been used in conjunction with credit policy to influence factor use, enterprise selection and total output.

In the mid-1960's, the National Monetary Council was given the responsibility for formulation of agricultural credit policy while the Central Bank was given the responsibility for administration. By 1978 the National System of Rural Credit had evolved to include the Central Bank, the Bank of Brazil and four other Federal banks, thirty-three (33) state banks, fifty-six (56) private banks and several other financial institutions of minor importance [World Bank (1984)]. The Bank of Brazil, however, has been by far the single most important credit source, especially in poorer areas and for small, low income farmers.

A complex system of rules, regulations and programs was used during most of the past two decades to influence the quantity, price and allocation of credit. At times more than 30 special

credit programs were in effect for the benefit of target regions and borrowers. Three general features of agricultural credit policies dominated most of the period. First, nominal interest rates on agricultural loans have been controlled at levels below those permitted for other types of loans. These controls frequently resulted in negative real rates of interest (i.e., nominal interest rates lower than the rate of inflation). Second, nominal interest rates for small agricultural loans (supposedly made to small farmers) have been set several percentage points below the ceilings specified for large loans. Third, incentives and controls have been used to induce banks to lend more of their own deposits and/or government funds to agriculture.

2. Credit and Performance of the Agricultural Sector

The most striking feature of the Brazilian agricultural credit system has been the vast amount of money involved. In some years, the volume of credit approached the volume of agricultural output. Recent data show that the rapid growth in credit we noted through the mid-1970's continued through the rest of the decade, but fell sharply in the 1980's for reasons described below.

Table 1 shows loans made each year and agricultural production for the 1960-85 period[1]. Columns 1 and 2 report operating loans, usually with terms of less than a year, which represented as much as 70% of the number and 60% of the value of loans made in recent years. The remainder of the credit is split between marketing loans[2] with terms of a few months and investment loans payable over

Table 1. - Agricultural Credit and Output, Brazil, 1960-85.

Year	Loans Made During Year[a]				Gross Domestic Product (GDP) from Agriculture in 1975 Cruzeiros[d,e]	Ratio of Operating Loans Made to Agricultural GDP (2/5)	Ratio of Total Agricultural Loans to Agricultural GDP (4/5)
	Operating Loans[b]		Total Agricultural Loans				
	Number[c]	Value in 1975 Cruzeiros[d]	Number[c]	Value in 1975 Cruzeiros[d]			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1960	112	3,180	231	6,176	49,957	0.06	0.12
1961	184	3,280	285	6,157	50,755	0.06	0.12
1962	337	4,910	441	8,382	57,883	0.08	0.14
1963	416	4,410	549	7,267	49,131	0.09	0.15
1964	527	6,560	771	9,864	54,965	0.12	0.18
1965	509	5,730	666	8,483	57,366	0.10	0.15
1966	529	6,700	856	11,539	50,128	0.13	0.23
1967	633	9,040	1,029	14,925	53,194	0.17	0.28
1968	733	11,470	1,500	21,019	53,341	0.22	0.39
1969	675	9,624	1,145	20,718	56,866	0.17	0.36
1970	649	10,992	1,191	24,648	53,717	0.20	0.46
1971	686	12,394	1,253	28,481	63,380	0.20	0.45
1972	687	14,706	1,266	35,321	72,701	0.20	0.49
1973	771	21,288	1,400	49,852	91,297	0.23	0.55
1974	789	27,757	1,450	61,648	102,307	0.27	0.60
1975	1,076	39,446	1,856	89,997	107,349	0.37	0.84
1976	1,059	38,886	1,832	92,143	132,007	0.29	0.70
1977	1,011	38,901	1,722	82,266	159,734	0.24	0.52
1978	1,104	45,698	1,896	83,659	133,280	0.34	0.63
1979	1,375	52,433	2,373	104,248	139,354	0.38	0.75
1980	1,876	56,406	2,766	99,686	142,952	0.39	0.70
1981	1,944	50,705	2,613	86,458	122,372	0.41	0.71
1982	1,826	53,857	2,604	83,725	104,495	0.52	0.80
1983	1,670	38,990	2,470	62,707	130,843	0.30	0.48
1984	1,194	27,010	1,585	38,319	140,504	0.19	0.27
1985	1,805	38,839	2,271	54,623	151,424	0.26	0.36

[a] Source: Various Central Bank and Bank of Brazil reports (Brazil, Banco Central). Figures represent number and value of new loans made.

[b] From 1960 to 1968, the estimates for operating loans are based on loans made by the Bank of Brazil, which was responsible for the majority of agricultural credit lent during the period.

[c] Thousands of loans.

[d] 1 million cruzeiros. Values adjusted by the index "2" of Conjuntura Economica (Brazil, Fundaçao Getulio Vargas).

[e] Source: Brazil, Fundaçao Getulio Vargas.

several years.[3] In this twenty-five year period, agricultural output approximately tripled while new loans made per year rose almost 9 times. The ratio of operating loans to agricultural output (column 6) rose from 0.06 in 1960 to a peak of 0.52 in 1982 then fell to 0.26 in 1985, while the ratio of total loans to output rose from 0.12 to 0.80 then fell to 0.36. In 1975, the first ratio reached 0.37 and the second rose to 0.84 due, in part, to major funding for drought relief and coffee recuperation. The droughts of 1981 and 1982 reduced the value of agricultural output so the ratios appeared more favorable than they would have been if output would have continued its upward trend. These ratios are amongst the highest found in any Latin American country [Adams (1971)].

This huge amount of agricultural credit should have made a significant impact on the agricultural sector. Because of the problem of fungibility, however, it is difficult to conclusively attribute to credit the changes that have occurred in Brazilian agriculture during these past two decades. Although there appears to be a positive correlation between credit and output up to the late seventies, as shown by the data reported in Table 1, it is also evident that credit has grown faster than output, and output continued at high levels in some years when loan disbursements declined.

In the first half of the 1980s, however, credit availability experienced significant contraction, but in spite of that decline agricultural output has increased. In the 1980-1985 period, the

real value of new loans decreased 48% while agricultural GDP increased 6%.

It is frequently argued that credit accelerated the adoption of both biological and mechanical technology. In the 1974-1981 period, credit lines were available for purchasing so-called "modern inputs" including improved seeds, fertilizer, lime, agricultural chemicals, and livestock rations. Nominal interest rates for these credit lines varied from 0 to 7% much of the time. Chemical fertilizer use rose dramatically from 380,000 metric tons in 1966 to a peak of 4.2 million tons in 1980, then falling to 3.3 million in 1984. There have been reports of fraud in credit use because the quantity of fertilizer supposedly financed in some regions has exceeded the amount actually sold. Purchasers of domestically manufactured machinery had access to credit lines with five-year loans with nominal interest rates ranging up to 15%, occasionally with a two-year initial grace period. Domestic tractor production per year grew from 6,300 units in 1967 to over 63,000 in 1976 but then declined to 44,687 units in 1984[4] [Brazil, Fundação Getulio Vargas (1983)]. Over half of the investment loans are typically reported for machinery purchase, and about two-thirds of these loans have been made in the states of Rio Grande do Sul, Paraná, and São Paulo, which accounted for over 70% of the tractors reported on farms in the 1970 and 1980 census. It is quite likely, then, that credit for investment has been highly correlated with new machinery purchases.[5] This conclusion is

consistent with the tractor demand models estimated by Sanders (1973) for 1950-71, and by Barros (1980) for 1960-76.

The 1970 and 1980 census offer insights into the nature of investment occurring on Brazilian farms. Farmers reported investing Cr$ 4.4 billion in on-farm investments for the year of the 1970 census, of which Cr$ 2.2 billion was spent for machinery, livestock, and permanent crops, all of which were eligible for loans. The Central Bank reported Cr$ 2.5 billion in new institutional loans for agricultural investments that year [Brazil, Banco Central (1971)]. For the 1980 census, aggregate on-farm investments amounted to Cr$ 579.1 billion (equivalent to 25 billion in 1970 cruzeiros), of which Cr$ 359.7 billion (15.6 billion in 1970 cruzeiros) were eligible for institutional loans. However, Central Bank statistics indicate only 7.0 billion (in 1970 cruzeiros) as the total value of new investment loans contracted by farmers in 1980. The data from both periods suggest that farmers self-finance a considerable amount of on-farm investment in spite of the large amount of credit borrowed.

Changes in on-farm investment patterns should be reflected in the changing structure of farm capital. It was believed that the share of equipment rose while the share in real estate declined between 1940 and 1965 [Schuh (1970)]. Census data do not appear to support this trend, however. The 1970 census shows that 68% of total capital assets were represented by land and buildings, 18% in productive and work animals, 9% in permanent crops, and 5% in farm machinery and vehicles [Brazil, Fundação Instituto Brasileiro

de Gergrafia e Estatistica (1975)]. Surprisingly, in the 1980 census, these proportions were 74% for land and buildings, 12% for animals, 9.6% for permanent crops and 4.4% for machinery and vehicles [Brazil, Fundação Instituto Brasileiro de Geografia e Estatistica (1984)]. Thus, it appears that the value of land and buildings still commands a large and growing share of farm capital because of increases in farming area and land prices. Some of the large increase in credit availability may have been capitalized in land prices so that the land share has continued strong.

3. Distribution of Farms and Credit

One of the key issues presented in our earlier paper which has been the source of considerable debate concerns the distribution of loans made. Table 2 shows the size distribution of farms as reported in the 1970 and 1980 censuses.[6] The total number of farms increased from 3.3 million in 1960 to 4.9 million in 1970, and to 5.2 million in 1980. The total farm area increased from about 250 million hectares in 1960 to almost 295 million in 1970, and to 365 million in 1980. From 1960 to 1970, over a million new farms were added to the less than 10 hectares group, while the 1980 census reports an increase of only 78.4 thousand farms in this group. During the 1960-1980 period, the average size of the less than 10 hectare group decreased from almost 4 to 3.5 hectares.

The inverse relationship between farm size and value of production found in many countries was observed in Brazil in 1970 and 1980. In the latter year, the first two size strata represented

Table 2 - Size Distribution of Farms[a], Brazil, 1970 and 1980.

Farm Size Strata (Ha.)	1970 Census				1980 Census			
	Farms		Percent of Area[b]	Percent of Product	Farms		Percent of Area[b]	Percent of Product
	Number	Percent			Number	Percent		
Less than 10	2,519,630	51.1	3.1	17.8	2,598,019	50.4	2.5	13.0
10 to less than 100	1,934,392	39.3	20.4	40.0	2,016,774	39.1	17.7	37.7
100 to less than 1,000	414,746	8.4	37.0	29.3	488,521	9.5	34.8	33.2
1,000 to less than 10,000	35,425	0.7	27.2	10.7	45,496	0.9	28.7	13.9
10,000 +	1,449	<0.1	12.3	1.9	2,345	<0.1	16.5	2.1
No Farm Size Reported	18,377	0.4	-	0.3	8,696	0.2	-	0.1
Total	4,924,019	99.9	100.0	100.0	5,159,851	100.0	100.2	100.0

SOURCE: Fundação Instituto Brasileiro de Geografia e Estatística (Agricultural Census, 1970 and 1980).

[a] In the Brazilian census, farms are defined as "establishments". A farm is a unit with one or more adjacent parcels under a single administration. Two nonadjacent parcels are treated as separate farms, even if they are under a single administration. Likewise parcels are treated separately even though owned by the same person if they are rented or sharecropped to two different persons with separate administration.

[b] An unknown bias exists in these data due to the farms not reporting size.

89% of the farms with only 20% of the area, but 51% of the production. Units of 10,000 or more hectares represented less than 0.1% of the farms, 16% of the area, but only 2% of the production.

Surprisingly, almost 90% of the Brazilian farms reported no loans from any formal or informal source in the 1970 census and that proportion only fell to 80% by 1980. Even allowing for possible data limitations, credit use was much less widespread than anticipated. About one-third of the farms in the upper three size strata reported receiving loans in 1980. Only 4% of the farms in the smallest strata reported loans. Thus, a significant number of farms in the country were still untouched by formal credit programs after 15 years of a huge amount of agriculture lending.

Table 3 reports the distribution of total volume of credit received by farmers in 1970 and 1980. Government entities provided 87% of the Cr$ 347 billion in total loans reported in 1980 compared to 79% in 1970. This suggests a "crowding out" effect of informal credit sources. The two smallest farm size strata received far less credit than their share of farm numbers, while the three larger groups received far more in both years. Considering farm area, however, the first three strata received more credit than their land share. Considering value of production, the two smallest strata received less credit than warranted by their production, while the 100 to 1,000 hectare group appeared to be especially favored with credit from government entities. Thus, according to the 1970 and 1980 census, Brazilian policy makers had not succeeded in increasing the share of agricultural credit lent to small farmers.

Table 3 - Value and Distribution of Credit Received by Farm Size, Brazil, 1970 and 1980.

	Sources of Credit (1970)			Sources of Credit (1980)		
	All Sources	Government Entities	Other Sources[a]	All Sources	Government Entities	Other Sources[a]
Total Value:						
Value in cruzeiros of 1980[b]	95,182,934	75,121,831	20,061,103	347,031,189	301,506,878	45,524,310
Percent	100.0	78.9	21.1	100.0	87.1	12.9
	%					
Size Strata (Ha.):						
Less than 10	5.5	4.2	10.4	4.9	4.5	7.4
10 to less than 100	33.1	33.4	31.7	31.7	31.7	31.8
100 to less than 1,000	41.8	44.2	32.6	42.0	43.3	34.0
1,000 to less than 10,000	15.6	15.2	17.1	18.1	17.8	19.9
10,000 +	4.0	2.9	7.7	3.3	2.8	7.0
No farm size reported	0.1	0.1	0.4	0.0	0.0	<0.1
Total	100.1	100.0	99.9	100.0	100.1	100.1

a The 1970 Census reports the volume of credit from individuals and private entities, while the 1980 Census reports separately the volume of credit from cooperatives and combines credit from other sources.

b 1 thousand cruzerios (real value adjusted by the IGP Index from Fundaçao Getúlio Vargas).

SOURCE: Fundaçao Instituto Brasileiro de Geografia e Estatística (Agricultural Census, 1970 and 1980).

In more recent years, the distribution of loans made to different sizes of farm producers has been considered one of the key issues of several studies [Araujo and Meyer (1978), Kageyama and Hoffmann (1987), and Shirota (1988)]. It also has been a source of considerable debate concerning the results of the rural credit policy in Brazil. The Bank of Brazil, for instance, reports that for the 1980 - 1983 period about 80% of the total number of loans made by this bank went to mini and small farmers, according to Central Bank definitions of the size of farm. However, the value of total loans was still highly concentrated in medium and large scale farmers. In 1980, they were responsible for 20% of the contracts and 59% of the total loan value. In 1983, the distribution improved at the national level in favor of mini and small farmers, as they received 37% of the credit value, while medium and large farmers received 48%.

In the 1970-1985 period, the regional distribution of formal credit showed that approximately 85% of total loan value went to the most commercialized agricultural regions, that is, the South, Southeast, and Center-West (Table 4). These regions produce more than 80% of agricultural GDP. Regional credit distribution has undergone substantial transformation. In 1970, credit distribution was clearly concentrated in the Southeast with a 50% share. In 1980 and 1985 that credit share had fallen to 34% and 26%, respectively. The Northeast share has been relatively unchanged: 11% in 1970, 16% in 1980 and 15% in 1985. The proportions for the North

Table 4. Loans Allocated to Agricultural Producers by Region in Brazil, 1970 - 1987.

	North			Northeast			Southeast			South			Center West			Brazil		
Yr.	No. of Contracts (1000)	Average Value of Contract	Value[a]	No. of Contracts (1000)	Average Value of Contract	Value[a]	No. of Contracts (1000)	Average Value of Contract	Value[a]	No. of Contracts (1000)	Average Value of Contract	Value[a]	No. of Contracts (1000)	Average Value of Contract	Value[a]	No. of Contracts (1000)	Average Value of Contract	Val
70	8	232	1,810	133	148	19,605	551	164	90,190	427	135	57,659	70	168	11,783	1,188	152	181,
71	11	206	2,280	207	132	27,303	558	173	96,622	409	167	68,339	65	233	15,143	1,251	168	209,
72	17	248	4,219	202	157	31,807	552	201	111,080	418	215	89,818	74	309	22,909	1,264	206	259,
73	16	314	4,919	198	212	42,157	621	262	162,504	484	263	127,352	79	392	30,821	1,398	263	367,
74	15	318	4,618	212	249	52,818	621	312	193,926	516	320	164,726	87	458	39,816	1,450	314	455,
75	21	407	8,637	254	332	84,481	745	336	250,519	714	356	253,903	122	550	67,117	1,856	358	664,
76	25	462	11,732	281	329	92,383	711	342	242,846	705	361	254,858	110	720	79,095	1,832	372	680,
77	27	428	11,486	262	296	77,450	695	318	220,894	638	376	239,623	101	578	58,474	1,722	353	607,
78	34	400	13,751	291	269	78,230	733	301	220,721	722	313	225,951	115	518	59,724	1,896	316	598,
79	58	351	20,229	435	248	107,951	848	315	267,015	879	331	290,950	154	548	84,227	2,373	325	770,
80	93	241	22,363	638	192	122,479	905	277	250,985	946	278	263,145	184	423	77,688	2,766	266	736,
81	82	192	15,622	824	144	118,245	724	277	200,185	817	292	238,792	166	397	66,062	2,613	245	638,
82	72	173	12,451	616	145	89,020	811	266	215,155	913	261	238,540	193	329	63,547	2,604	238	618,
83	53	204	10,713	781	85	66,574	559	274	153,356	926	199	184,572	151	343	51,821	2,470	189	467,
84	25	181	4,564	456	86	39,063	414	213	88,321	589	197	116,254	102	364	37,067	1,585	180	285,
85	28	193	5,352	962	62	59,461	406	263	106,738	751	225	169,090	125	530	66,156	2,271	179	406,

Source: Banco Central do Brasil - DERUR.
[a] Million Cz$ of 1987

region were 1% in 1970, 3% in 1980 and 1.2% in 1985. The South and the Center-West have experienced rising credit shares. From 1970 to 1985 the share in the South increased from 32% to 41%. The share of the Center-West, which was 6.5% in 1970, almost tripled in 1985 to 16.3%.

The Center-West has traditionally been the region with the largest average value of loan contracts. In 1985 the average contract size in the Center-West was about double that of the Southeast, 2.5 times that of the North and as much as 9 times that of the Northeast. The most remarkable observation is the substantial reduction in average contract size in the Northeast. In this region, the shares of total credit value and number of contracts were both equal to 11% in 1970. In 1985 these shares were 15% and 42%, respectively. The Center-West, on the other hand, has been the region with both the highest rate of growth of total credit and the highest average value of loan contract.

With regard to number of contracts, the Northeast and South have been granted the largest shares. These shares were 42% and 33% in 1985. The Southeast absorbed only 18% in the same year. Apparently the South and the Northeast have been the least affected regions by the policy changes of the eighties. In the mid-eighties, these regions still had numbers of contracts comparable to those of the early-eighties. In the Southeast, however, the number of contracts in 1985 was more than 50% below that of 1980. A similar trend is observed in the North while the Center-West may be classified as an intermediate case.

4. Changes in Credit Policy in the 1980's

Agricultural credit policy changed substantially after 1980 [Araujo (1983a)]. External and internal debt problems, inflation rates ranging from 120 to 230% per year, and the high social cost and economic distortions prevailing in the financial markets induced policy makers to implement a set of restrictive economic measures in 1981 and 1983 that affected the whole economy. In spite of efforts to establish real (and positive) interest rates for normal credit lines, the Central Bank reached this target only in 1984 (Resolution No. 876, Dec. 1983). In the 1970-1985 period, 1984 was the exceptional year when farmers paid a small and positive real rate.

The supply of agricultural loan funds has been seriously affected by the volume and composition of bank financial liabilities. During much of the post-1965 period, commercial banks were obligated to lend to farmers at levels that approximated 30% of their demand deposits. At the beginning of the 1980's, the effects of growing inflation rates and the indexation of financial instruments led to a radical change in the composition of bank liabilities. This can be seen in the rapid decline of the share of demand deposits in the composition of total financial resources held by banks: 46% in 1970 vs. 28% in 1980 [Oliveira and Montezzano (1981)]. Thus the banks were able to meet their agricultural credit requirements by lending less to farmers.

On the demand side, farmers who had access to financial markets became reluctant to borrow in 1982, 1983, and 1985 for two reasons. The first was the frequent and unpredictable changes in monetary policy regarding interest rates and monetary correction, and the second was the prevailing conditions of risk within agriculture.

5. The Subsidy Issue

The implicit subsidy in rural credit policy has been a very controversial feature of the Brazilian experience. Throughout the 1970-1985 period nominal interest rates for rural loans were lower than inflation rates. Some argue that this credit subsidy should be considered as a form of compensation for agriculture since this sector has been penalized by other economic policies. They also provide evidence that agricultural product prices have a larger variance than those of industrial products, and in most developed countries agriculture is heavily protected and subsidized through different schemes. On the other hand, others argue that the subsidy should be directed towards production (via price policy) rather than through credit use. Furthermore, since credit is unevenly distributed among different farmers/regions, subsidies provided through credit favor only certain groups/regions. This fact implies that the distribution of the benefits of rural credit has contributed to a concentration of income and wealth [Graham et al. (1987)].

The interest rate subsidy, as measured by annual real interest rates, may be considered an indicator of the social cost associated with the credit policy. Table 5 presents recent estimates of the total amount of subsidies. First, the annual real rate of interest was calculated for each credit line considering the average loan terms[7]. Then, the total amount of subsidy was estimated in relation to the total value of rural loans made. In addition, this table shows two very comprehensive measures on the dimension of the implicit subsidy in interest rates. One is the ratio of subsidy to agricultural GDP, and the other is the ratio of subsidy to the country's GDP.

During the 1970-85 period, five subperiods can be identified. In the 1970-73 period interest rate subsidies were small. In 1974, with the increase in volume of funds, acceleration of inflation and rigidity in rural credit interest rates, there was a significant increase in the subsidy. During the 1974-1978 period, the subsidy ranged between seven and eleven percent of the sector's GDP. This was equivalent to a resource inflow into the agricultural sector which fluctuated between 0.9% to 1.5% of the country's GDP. Even higher transfers occurred in 1979 and 1980 when the subsidy values represented almost 20% of the agricultural GDP or 2.1% of the country's GDP.

Table 5. Rural Credit Subsidy and Ratio of the Subsidy to Agricultural GDP and to Total GDP, Brazil, 1970-1985

Year	Total Subsidy (in Cz$ million of 1986)	Subsidy/Agricultural GDP Ratio (%)	Subsidy/Total GDP Ratio (%)
70	722.3	0.59	0.07
71	1,029.0	0.71	0.09
72	227.1	0.14	0.02
73	484.6	0.23	0.03
74	15,783.0	6.77	0.88
75	17,256.9	7.07	0.85
76	33,451.3	11.14	1.45
77	22,300.2	6.14	0.90
78	24,423.1	8.06	0.94
79	59,170.9	19.44	2.15
80	63,885.3	19.64	2.12
81	34,506.8	12.39	1.23
82	32,945.9	13.86	1.19
83	25,945.9	8.71	0.96
84	- 548.7	-0.17	-0.02
85	1,146.1	0.33	0.04

Source: Shirota (1988).

In the years 1981 through 1983, with the decrease in volume of resources channelled to rural credit together with the rise in interest rates, the amount of subsidies decreased to levels between 9 and 14 percent of agricultural GDP, and from 1.0 to 1.2 percent of total GDP. In the 1984-85 period interest rates for rural credit were set at levels close to the inflation rate. In fact, in 1984 a small positive real interest rate was paid by borrowers and the subsidy was kept at very low levels in 1985. In the following year, with changes in interest rates under the "Cruzado Plan", and an increase in the volume of funds lent to farmers, the subsidy probably returned to very high levels of both agricultural and total GDP.

These results indicate that serious economic distortions may be caused by unstable economic policies such as those found in rural credit in Brazil. The fact that interest rate subsidies are realized only "ex-post" (at contract liquidation) must be considered. The subsidy rate can only be estimated in advance via expected price variations. The reasons why the government did not index interest rates to the variations of price levels is not well understood (Sayad (1979); Shirota (1988)). Indexation would have permitted (as it did after 1983) some control over the total interest subsidy.

6. Conclusions and Implications

Brazilian policy makers utilized a complex set of controls and incentives to increase the quantity and lower the cost of agri-

cultural loans for roughly two decades beginning in the mid 1960's. The real volume of formal credit lent to farmers steadily increased until 1980 when it began to decline. As of 1980, most farmers still did not receive this credit, however, and the amount going to small farmers was especially low. Agricultural output and the use of some modern inputs have expanded. Since value of production is a criterion for lending, it is difficult to establish a clear line of causality between credit and agricultural performance. The expansion in use of modern inputs is associated with the increase in formal credit, but there has also probably been some substitution of external for internal funds, as well as the diversion of funds to nonagricultural and other uses.

The banks' response to the distortions introduced in the financial market is understandable. Compensating balances and noninterest costs and fees have been widely used to increase the returns banks earn from agricultural loans. Banks with a clear profit orientation have been especially reluctant to increase long-term agricultural lending. Loan procedures are cumbersome and increase borrowing costs. As demand deposits fell as a share of total bank financial resources (liabilities), so did the supply of agricultural loan funds.

Two important unanswered questions exist regarding the Brazilian experience. First, what would have been the demand for and the impact of credit if agriculture would have been less discriminated against through price controls, overvalued exchange rates, and export controls? Second, would bank performance have

been better, especially on equity grounds, if there would have been more incentives for agricultural lending especially with higher interest rates? The two questions appear to be related. Subsidized interest rates are rationalized to offset the discrimination of other policies. But interest rate controls reduce bank profitability in agricultural lending. Thus, a logical tendency by banks is to reduce costs by lending to large farmers and to use nonprice methods to allocate the excess demand for credit created by low interest rates.

Commercial banks can play an important role in financing agriculture in developing countries. The Brazilian experience suggests that establishing an appropriate set of incentives is crucial in affecting bank behavior. Flexible interest rates and simplified lending procedures are essential. General lines of credit should be created to meet agricultural development objectives. The proliferation of specific credit lines and programs to resolve specific short-term agricultural problems must be avoided. The small farmer problem, however, may require a special line of credit, including loans for land purchase, and subsidized loans in the North and Northeast regions.

The Brazilian case also demonstrates the dilemma that can emerge between agricultural credit policies and macroeconomic policies, especially monetary policies when large amounts of subsidies are involved. Significant changes were made in agricultural credit policy in the 1980s because of needed adjustments in macroeconomic policies. The inflationary effects of huge amounts of

agricultural credit were no longer supportable. The performance of the Brazilian agriculture in the eighties raises the question of explaining output and productivity gains, despite the severe fall in credit use. Also beginning in the 1980's, policy makers began to look towards other policy instruments to stimulate the agricultural sector. Agricultural price policies, investments in human capital, and trade programs are expected to play significant roles compared to credit policy in the coming years. It is relevant to note, however, that there still remains a crucial issue for the Brazilian policymakers, namely to define and establish a stable and long-term strategy for a new stage of agricultural finance policy. In this new framework, credit policy could be gradually adjusted to become primarily an instrument to increase farmers' liquidity rather than being used as a short-run or even an emergency policy instrument. The two neglected issues of the role of informal finance in agricultural and the potential for savings mobilization in rural areas must be carefully studied so that more rational rural credit policy can be implemented.

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Endnotes

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1. Unlike the data found in many countries, these data report loans made rather than outstanding balance. Furthermore, loan delinquency and default have not been problems in Brazil so these data effectively report the amount of new loans channeled into agriculture with previous levels of indebtedness representing a small amount of the value of loans made.

2. Substantial amounts of marketing loans go to individuals other than farmers. Thus, column 2 underestimates the total short-term credit obtained by farmers, while column 4 overestimates total credit.

3. Little institutional credit is available for farm real estate mortgages, so investment loans are lent largely to finance machinery, livestock, and perennial crops.

4. From 1980 to 1983 a contraction was observed in the demand for both fertilizers and tractors.

5. In 1980 the supply of institutional credit for investments exhibited a substantial decline.

6. See footnote b, table 2 regarding the definition of a farm used in the census.

7. For each year the rate of subsidy implicit in interest rates, for each line of credit, was estimated using the following formula:

$$\nu_i = \{ [(1 + r_i)^{1/12}]^{ni} - 1\}$$

where:

ν_i = the subsidy rate for the ith credit line, adjusted for the loan term.

r_i = is the annual interest rate (in real terms) for the ith credit line and it is given by:

$$r_i = \frac{(j_i - l)}{(1 + l)}$$

where: j_i is the nominal interest rate for the ith credit line; and
l is the annual inflation rate.

n_i = the average loan term (in months) for the ith credit line (9 months for operating loans for "modern inputs" acquisition; 12 months for investments; and 3 months for marketing loans).

i = index for the credit line.