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THE DILEMMA OF AGRICULTURAL  
CREDIT POLICY IN BRAZIL

by

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## Abstract

Brazilian policy makers have played an active role in agricultural credit policy during the past 25 years. Many rules, regulations, policies and programs have been employed to increase the quantity and reduce the cost of agricultural credit. In some years, the amount of new loans made approached the value of agricultural output. Doubts exist about the extent to which expanded credit supplies accelerated technological change, expanded output and improved rural incomes. Large farmers absorbed a large share of the total credit. Interest rate constraints appear to have contributed to this concentration in credit distribution. The massive amount of subsidies involved in the credit program contributed to a need to reformulate credit and macroeconomic policies in the 1980s. The volume of new loans made subsequently fell sharply. In spite of more than two decades of government involvement, Brazilian farmers are no closer to having a reliable, self-sustaining supply of agricultural credit today than they did in the early 1960's when the government began its heavy intervention.

## Biographical Sketch

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## THE DILEMMA OF AGRICULTURAL CREDIT POLICY IN BRAZIL

Brazil has employed a variety of programs and policies during the past twenty-five years to expand the supply and reduce the cost of agricultural credit. The huge amount of resources and subsidies involved make the Brazilian experience particularly interesting relative to other developing countries that have also used agricultural credit as an important part of their agricultural development strategy. This paper reviews Brazilian credit policies and some of the impacts over the 1960-1985 period. It describes how these policies necessarily underwent changes in the 1980s because of the macroeconomic reforms that were undertaken. It concludes that Brazilian farmers still face a serious challenge in obtaining secure supplies of agricultural financing in spite of more than two decades of heavy government involvement in agricultural credit.

### **A Brief Review of Agricultural Credit Policies**

Brazil pursued a rapid growth strategy during most of the period following the 1964 military takeover. 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). The strategy clearly suggests a "supply-leading" approach to finance and economic development.

The stated objectives of agricultural credit were established in 1965 by the Agricultural Credit Law 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 adverse weather. 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). 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 these past two decades to influence the quantity, price and allocation of credit. At times as many as 150 special lines of credit were in effect. 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 1 or 2 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.

### 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 output! Annual loan disbursements increased during the 1960s and 1970s, but fell in the 1980's for reasons described below.

The data in Table 1 report loans made each year and agricultural production for the 1960-85 period.<sup>1</sup> 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<sup>2</sup> with terms of a few months and investment loans payable over several years.<sup>3</sup> 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 America country (Adams).

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 correlation between credit and output in the data reported in Table 1, it is also obvious that credit has grown faster than output, and output continued at high levels in some years even when loan disbursements

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

Year	Loans Made During Year <sup>a</sup>				Gross Domestic Product (GDP) from Agriculture in 1975 Cruzeiros <sup>d,e</sup>	Ratio of Operating Loans Made to Agricultural GDP (2/5)	Ratio of Total Agricultural Loans to Agricultural GDP (4/5)
	Operating Loans <sup>b</sup>		Total Agricultural Loans				
	Number <sup>c</sup>	Value in 1975 Cruzeiros <sup>d</sup>	Number <sup>c</sup>	Value in 1975 Cruzeiros <sup>d</sup>			
(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	8,302	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

<sup>a</sup> Source: Various Central Bank and Bank of Brazil reports (Brazil, Banco Central). Figures represent number and value of new loans made.

<sup>b</sup> 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.

<sup>c</sup> Thousands of loans.

<sup>d</sup> 1 million cruzeiros. Values adjusted by the index "2" of *Conjuntura Economica* (Brazil, Fundação Getúlio Vargas).

<sup>e</sup> Source: Brazil, Fundação Getúlio Vargas.

declined. In 1983, for example, agricultural output increased 25 percent while the real value of agricultural loans decreased by the same percentage.

It is frequently argued that credit accelerated the adoption of both biological and mechanical technology. Credit lines were introduced 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, before 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 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 63,00 in 1976 but then declined to 44,687 units in 1984 (Brazil, Fundação Getulio Vargas). 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, Parana, and Sao 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.

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 credit. The Central Bank reported Cr\$2.5 billion in new institutional loans for agricultural investments that year (Brazil, Banco Central). 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). Census data do not appear to support this trend, however. The 1970 census shows that 63% 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 Geografia e Estatística). 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. 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.

A frequent criticism of the credit policy has been the extent to which the distribution of benefits have contributed to a concentration of income and wealth (Graham et al.). An analysis of the 1970 and 1980 census reports the distribution of credit by farm size (Araujo and Meyer). Surprisingly, almost 90% of the Brazilian farms reported receiving no credit 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 with 10 or more hectares reported receiving loans in 1980. Only 5% of the farms with less than 10 hectares reported loans. Thus, after 15 years of huge amounts of credit a significant number of farms in the country were still untouched by formal credit programs. Furthermore, farms with less than 100 hectares received a smaller share of credit from governmental entities than they represent in either share of number of farms or share of total output. Larger farms received a proportionately larger share of this credit. The effect of interest rate controls on the credit rationing behavior of banks is believed to be an important factor in explaining why large farmers absorbed so much of the credit relative to small farmers.

Analysis of the regional distribution of formal credit supplies showed that approximately 75% went to the most commercialized agricultural regions. Farmers in the state of Sao Paulo alone produced 20% of the 1970 agricultural output and received one-fourth of the total formal credit. As a result, estimates of that state's credit to output ratio were even higher than for the rest of the nation. Contrary to the national trends, farm survey results suggested that this state was increasing the share of credit going to small farmers. In 1980 this picture changed somewhat so that farmers in Sao Paulo produced 19% of the Brazilian farm production and received 21% of total credit. The credit share in the states of Parana and Rio Grande do Sul was essentially unchanged while it increased in the states of Goias and Mato Grosso where the cultivated area was expanding rapidly.

#### **Changes in Credit Policy in the 1980's**

Agricultural credit policy changed substantially after 1980 (Araujo, 1983a; Araujo and Meyer). 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 entire agricultural sector. The real value of total farm credit declined 50 percent from 1979 to 1985 (table 1) as a consequence of monetary controls on the supply side and contraction of farmer demand for credit. From 1985 to 1987 (the period of the so-called New Republic), interest rate policy was fundamentally altered. In 1985, interest rates for agricultural loans were partially indexed by the government bond rate (OTN). In 1986 for the "Cruzado Plan," interest rates were frozen at nominal rates of less than 10 percent per year in the expectation that inflation would be close to zero. Due to the failure of the Cruzado Plan, in 1987 interest rates were totally indexed for most of the country (except the northeast) so farmers paid 6 to 12% per year in real terms.

The supply of agricultural loan funds was 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 some 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 the demand deposits in the composition of total financial resources held by banks: 46 percent in 1970, 28 percent in 1980, and 12 percent in 1987 (Oliveira and Montezzano).

The cost of the agricultural credit program contributed to Brazil's economic problems and eventually forced a change in policies. The implicit interest rate subsidy for agricultural credit increased geometrically from 1974 to 1979 due to a steady rise in the rate of inflation, and to the rigidity of nominal interest rates (Araujo, 1983b). This implicit subsidy was equivalent to Cr\$ 0.07 per unit

o farm output in 1974, and climbed to Cr\$ 0.15 in 1979. In 1982, this subsidy was estimated in Cr\$ 0.08 per unit of output. In 1985 it declined substantially due to the indexation of interest rates but rose again in 1986 under the Cruzado Plan to Cz\$ 0.20 percent of output.

### **Conclusions and Implications**

For more than two decades, Brazilian policy makers have utilized a complex set of controls and incentives to increase the quantity and lower the cost of agricultural loans. The real volume of formal credit lent to farmers steadily increased until the early 1980's when it began to decline. As of 1980, however, most farmers still did not receive loans from formal institutions and the amount going to small farmers was especially low. Agricultural output and the use of some modern inputs have expanded. But since value of production is a criterion for formal lending, it is difficult to clearly establish 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.

The banks' response to the distortions introduced into the financial market is understandable. Compensating balances, noninterest costs and fees have been widely used to increase the returns banks earn from agricultural loans. Those banks with a clear profit orientation have been especially reluctant to increase long-term agricultural lending. Therefore, loan procedures are cumbersome and increase farmer 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, it is logical for banks 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. Additional indirect evidence of the impact of these regulations is shown by the relative decline in lending by private banks and the emergence of a very large market share for the government owned Bank of Brazil.

The Brazilian case demonstrates the dilemma that emerges between agricultural credit policies and macroeconomic policies, especially monetary policies, when large amounts of subsidies are involved. Significant changes were made in Brazilian agricultural credit policy in the early 1980s because of needed adjustments in macroeconomic policies. The inflationary effects of huge amounts of agricultural credit were no longer supportable. Also beginning in the 1980s, policy makers began to look towards other policy instruments to stimulate the agricultural sector. Minimum price programs, investments in human capital, trade and commercial programs are expected to play more significant roles compared to credit policy in the coming years. It is important 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 to accelerate agricultural development.

Brazilian farmers still do not have a stable, self-sustaining source of agricultural finance in spite of two decades of government efforts. A basic flaw is now evident in the Brazilian strategy. Agricultural credit has been approached from the perspective of agricultural planning. Policies and programs have been used to meet goals other than developing a viable, long-term institutional system of agricultural finance. Creating conditions for the development of institutions to engage in rural financial intermediation has not been the primary objective. The dilemma today in Brazil is to find ways to convince policymakers to view agricultural credit as part of a process of financial intermediation rather than as part of agricultural planning. Policies and programs other than subsidized credit must be relied on to stimulate technological change, expand output and exports, and improve rural income.

## FOOTNOTES

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

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