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THE SUPPLY AND DEMAND FOR AGRICULTURAL CREDIT
IN PORTUGAL: A REVIEW OF RECENT EVIDENCE,
INSTITUTIONAL CHANGE AND POLICY ACTIONS

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It should be emphasized that the opinions and views expressed in this report are those of the authors and are not necessarily supported by the above individuals or institutions.

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I. EXECUTIVE SUMMARY AND CONCLUSIONS

Portugal has undergone many important institutional and policy changes to promote the expansion and redirection of formal credit to agriculture in recent years. The major features of this effort have been documented and analyzed in this report from both the side of supply and demand. A brief review of our findings is presented below.

A. The Supply Side of Agricultural Finance in Portugal

Our study concludes there is no shortage of agricultural credit, as conventionally defined, in Portugal. The agricultural credit/agricultural GDP ratio is among the highest in the world. However there is a skewed distribution of access with credit rationing leading to loan concentration into the Ribatejo Oeste and, to some extent, the Alentejo regions and into livestock/poultry feeding enterprises and wine cooperatives. Individual loans make up slightly more than half of the total credit in the SIFAP system. Non-individual loans make up the rest and have been increasing in share in recent years. Evidence suggests there has been an unequal and concentrated distribution of the benefits emerging from recent schemes to centralize and divert the allocation of formal credit to agriculture.

A generally negative real rate of interest setting has also prevailed in Portugal during this period for agricultural borrowers. These rates have not been severely distorted but, in the end, it is clear that borrowers, especially those with access to subsidized credit in the SIFAP network, have benefited at the expense of savers.

Much effort has gone into devising a complicated and centralized supply network for the distribution of agricultural credit in Portugal in recent years. The nationalized commercial banks, the National Development Bank (BNF), the large National Savings Bank (CGD) and the agricultural credit cooperatives (CCAM's) have all been drawn into distribution of this subsidized agricultural credit through SIFAP. Detailed and cumbersome regulations have been implemented in an attempt to direct and channel this credit through a centralized agency, IFADAP. It was expected that this approach would lead to an expansion of overall credit for agriculture, and a lengthening of the term structure thereby making a significant contribution to agricultural modernization. It is our opinion that this

directed towards the modernization of agriculture (i.e. introducing new technologies, financing long term investments).

IFADAP established directives setting loan ceilings per crop hectare or per unit of livestock at roughly the same average rate across all activities; hence, no effective incentive was given for one activity over another. At the same time the average rate of subsidy on short-term loans represented only one to two percent of the product prices, hardly sufficient to stimulate production in preferred activities. Furthermore loan limits were based on an average level of technology; thus, activities with higher yields based on more modern technology received a smaller subsidy per unit of output than that earned by enterprises using an average technology. There was no particular incentive given to take long rather than short-term loans, and, given the high transaction costs of processing long-term loan forms and documents, borrowers naturally opted for short-term loans. No sense of priority or selectivity existed in the program.

Finally, since the maximum loan limit had to be used to gain the entire subsidy, there was no incentive for self-finance of these crop and livestock activities. The net effect of promoting subsidized formal finance was very likely to reduce the amount of self finance in agriculture with little overall increase in total credit for the sector. In short the directives in force are time consuming with

high transaction costs for lender and borrower; they encourage short-term rather than long-term loans; and the subsidy system as presently designed is non-selective, insignificant in its impact on costs, and thus unable to make a significant contribute to agricultural modernization.

Other important dimensions on the supply side of credit are generally ignored in the Portuguese setting, namely, the efficiency and viability of managing agricultural credit portfolios. The most appropriate measures of the resources used to manage these portfolios (i.e. the transaction costs) are lender and borrower costs per unit of currency lent. It should not be difficult to estimate the non-interest operational costs incurred by lenders (including IFADAP) per escudo lent in agriculture. These costs could be compared with lenders' gross operating margins and the interest rates charged. The non-interest borrowing costs incurred by farmer-borrowers could be documented through case studies of selected borrowers within the SIFAP network. Given the time consuming and cumbersome regulations associated with much agricultural credit activity, these lender and borrower transaction costs could prove to be highly significant, especially for modest sized loans. This merits documentation and analysis to improve the efficiency of managing agricultural credit portfolios in Portugal.

Loan recovery data also needs to be systematically reported. As in the case of transaction costs, loan recovery is poorly documented and reported in Portugal. The limited data that exist (for the P.L. 480 projects and the CCAM's refinanced portfolio administered through IFADAP) suggest that arrears on principal and interest are uncomfortably high in some segments of the agricultural portfolio. It would be important, in evaluating the efficiency and viability of lenders, to have a more comprehensive documentation and reporting of delinquency and arrears in the SIFAP network.

The emerging delinquency in the CCAM portfolio suggests that the rapid expansion of long and short term agricultural finance through this channel in recent years was undertaken with insufficient care for proper loan evaluation and loan recovery procedures. The newly created Caixa Central, set up to on-lend outside monies to the CCAM's, needs to be sensitized to the dangers of too rapid a disbursement of funds to a poorly equipped and trained CCAM network.

The current discussion on the advisability of establishing a specialized agricultural development bank should take into account the poor performance of development banks in settings comparable to Portugal. These institutions are incomplete financial entities that offer only a limited range of financial services to their clients. Deposit and savings facilities and working capital finance are minimized while long term finance predominates. This

creates tendencies for overly centralized and costly administration, lack of portfolio diversification with growing portfolio risk and, frequently, poor loan recovery.

To the extent that some credit subsidies may be deemed necessary, it appears more promising to direct these efforts to the existing commercial bank network. These institutions (along with a "disciplined" CCAM network) are more decentralized and integrated into the rural setting with their branch networks. The banks are prepared to offer a wider range of financial services to their clients, typically engage in more effective loan management and loan recovery procedures and elicit more effective cooperation (loan repayment) from their clients. The current policy of relaxed global credit ceilings to reward banks with increased agricultural lending does not appear to be a sufficiently strong incentive to expand agricultural lending. More direct fiscal incentives to cover some of the operational costs of servicing a costly agricultural portfolio would be a more powerful instrument to reward banks for building up a staff of professionals to service agricultural loans.

B. The Demand Side of Agricultural Credit

An important result of our findings suggests that the factors shaping the demand for agricultural credit in Portugal are underemphasized in discussions evaluating the state and condition of agricultural credit in the country.

Farmers' demand for credit is a function of interest charges, non-interest transactions costs incurred in securing their loans and the prospective economic rate of return on their agricultural activities. The rate of return for many agricultural activities has fluctuated considerably in recent years. Partial price-cost indicators and empirical studies on the profitability of agricultural enterprises in the early 1980s suggest that many activities are experiencing difficulties. These results are worsened under the scenario of entry into the European Common Market.

This implies that the key financial constraint in Portuguese agriculture is not loan supply nor interest rates but loan demand. It is dangerous and counterproductive to push loans (i.e. supply) more rapidly than loan demand is able to absorb this supply profitably and to repay loan obligations on time. The fungibility of finance further implies that expanding loans more rapidly than the profitable expansion of agricultural loan demand merely increases the diversion of loan funds into non-agricultural uses (with safer rates of return) or increases the substitution of formal finance for self finance. In the end there is much less additionality and a different profile of allocation than formal loan data suggest.

Our review of demand-side issues further highlights the importance of policy-risk in Portuguese agriculture, i.e. government policies that change the structure of relative prices in the economy. Government price policies and

subsidy programs have, on important occasions, promoted expensive and inefficient import substituting agricultural enterprises that did not mature into efficient operations after a reasonable period of time. This has created debilitating conditions for financial intermediaries that were drawn into financing these activities on the basis of distorted relative prices giving false signals of long run profitability.

In the final analysis the Ministry of Agriculture should evaluate the prospective economic and social rate of return to selected farming activities. This necessarily goes beyond agronomic analysis and must include the financial costs and returns associated with the adoption of new technology. Only with this kind of information can financial intermediaries confidently finance the breakthroughs needed to modernize Portuguese agriculture.

II. INTRODUCTION

The Portuguese economy has experienced dramatic political and institutional changes in the past decade. The institutional framework governing the allocation of agricultural credit has experienced equally dramatic changes with problematic results. This paper will document and interpret the growth of agricultural credit in Portugal over the past decade. In so doing we shall comment on the major shifts in policies and institutional changes altering the pattern and form of this evolution.

The paper has two major sections. The first part focuses on the supply side of agricultural finance while the second section emphasizes the demand side. Within the supply side framework we highlight the major features of credit expansion: the term structure; regional and enterprise-type allocation; the changing interest rate setting and institutional participation in the supply of credit. At the same time we discuss the issues of fungibility and self finance and point out its relevance to the Portuguese setting. Next we document and evaluate the performance of IFADAP, (Instituto Financeiro de Apoio ao Desenvolvimento da Agricultura e Pesca), the major institutional initiative in agricultural credit policy during the 1980s. We then address the issues of financial viability and economic efficiency in the supply of agricultural credit in Portugal during this period, emphasizing lending costs and loan recovery. We conclude

this supply side section by reviewing the pros and cons of establishing a specialized mixed capital development bank for agricultural lending.

The demand side framework is frequently overlooked in analyses of credit portfolios. The demand for credit is a function of the rate of return and risk to farming activities, on the one hand, and the rate of interest and the transactions costs incurred in acquiring funding (both interest and non-interest borrowing costs) on the other hand. Thus, in evaluating the demand for credit in Portuguese agriculture, we have to investigate indicators reflecting the economic rate of return to farming through the past decade and the major factors determining transaction costs.

Finally we will review the organization and status of the PROCALFER lines of credit in the light of the discussion of the supply and demand for credit in the SIFAP credit network. Following this exercise we set forth an agenda for continuing research on rural financial markets in Portugal.

III. THE SUPPLY AND ALLOCATION OF AGRICULTURAL CREDIT IN PORTUGAL

A. Credit Output Ratios and the Issues of Supply Leading Finance.

Table 1 sets forth the principal credit to credit and credit to output ratios for Portugal over the past decade. These aggregate and sectoral measures allow one to address the issue as to whether Portuguese agriculture is receiving too much or too little credit. The most commonly held view in Portugal argues that there is a credit shortage for agricultural producers and that the agricultural sector in the 1980s deserves much more credit than it is currently receiving. The advocates usually refer to the low and declining share of agricultural credit in total credit for the economy (Column 1, Table 1) as the principal piece of evidence supporting their argument.

At the same time these proponents point to the declining share of agriculture in the Gross Domestic Product (Column 2 Table 1) and a presumed decline in gross fixed capital investment in the sector. All these indicators are misleading and inappropriate to address the question of whether Portuguese agriculture is receiving too much or too little credit. The natural course of structural transformation of an economy implies a secular, long run decline in the share of agricultural GDP. The low level of fixed capital formation in agriculture may have little to do with

TABLE 1. Credit and Credit Output Ratios for the Agricultural Sector and the Economy as a Whole in Portugal, 1969-83.

Year	<u>Agric. Credit</u>	<u>Agric. GDP</u>	<u>Total Credit</u>	<u>Agric. Credit</u>	<u>Agric + Fishing Credit</u>
	Total Credit	Total GDP	Total GDP	Agric. GDP	Agric. GDP
	(1)	(2)	(3)	(4)	(5)
	%	%	%	%	%
1969	6.5	18.3	96.0	35.0	n.a.
1870	4.9	16.9	117.0	36.0	n.a.
1971	4.1	16.1	132.0	36.0	n.a.
1972	4.0	15.3	144.0	38.0	n.a.
1973	4.3	15.6	160.0	45.0	n.a.
1974	3.8	14.9	170.0	44.0	n.a.
1975	3.5	14.9	181.0	43.0	n.a.
1976	4.1	14.1	155.0	47.0	n.a.
1977	4.2	12.8	163.0	44.0	n.a.
1978	3.2	12.7	162.0	35.0	46.0
1979	3.2	11.8	171.0	44.7	59.9
1980	3.7	10.5	157.0	57.1	74.3
1981	3.5	8.5	151.0	70.3	75.4
1982	3.8	-	-	-	66.5
1983	3.5	-	-	-	-

SOURCE: Relatorio e Contas de Gerencia, IFADAP, 1979;
Boletim Trimestral, Banco de Portugal, various issues.

the supply of formal agricultural credit. Low investment may be more a function of the low potential rate of return to selected farming enterprises due to the lack of an efficient production technology, inappropriate pricing policies penalizing agriculture, high market or agronomic risks, etc. Finally, the fact that agricultural credit represents a small share of total credit says very little about what that share should be.

A more appropriate measure is the ratio of agricultural credit issued during the year to the gross domestic product of agriculture generated during the same year. Columns 4 and 5 of Table 1 highlight this ratio which has been increasing from the early seventies (35 percent) to the mid-seventies (45 percent) to the early eighties (60 to 70 percent). This latter share is extremely high by international standards. Most lesser developed countries register ratios between 15 and 25 percent. On occasion they may reach 35 to 40 percent. Only developed countries like the United States or a country like Brazil have recorded ratios as high as Portugal in the early 1980s.

To place this ratio in context, let's assume that the return to labor and capital account for approximately one third of agricultural value added (a not unreasonable assumption). This means that the intermediate inputs used up in agricultural production would account for the other two-thirds. In short an agricultural credit to agricultural GDP ratio of 60 to 70 percent in Portugal implies that there

was enough agricultural credit issued during the late 1970s and early 1980s to cover all the intermediate input expenses that went into the generation of agricultural GDP. Since many farmers do not have formal loans, this would suggest a surplus or excess of agricultural credit for those who do, particularly if we include the existence of additional sources of informal finance and producers own-savings. This unusually rapid expansion of formal agricultural credit from the mid-1970s to the present underscores the supply leading strategy of finance followed by Portugal, i.e. emphasizing the expansion of credit supply in advance of demand as the predominant instrument to promote agricultural modernization. The degree to which this strategy succeeded is explored in the following sections.

B. Interest Rate Incentives, Self Finance and Fungibility.

An additional incentive for the rapid expansion of agricultural credit through formal financial channels can be seen in the evidence on the real rates of interest ruling in the financial market of Portugal from the late 1970s into the early 1980s. Columns 4 and 5 of Table 2 highlight the fact that inflation generated significant levels of negative real rates of interest at this time. This, of course, would generate an increased demand for formal loans.

The results of Table 2 can be summarized as follows:

(1) the difference between short and very long term nominal interest rates was only about 4 points which the authorities

TABLE: 2. Nominal and Real Rates of Interest for Maximum and Subsidized Loans Rates in IFADAP for Selected Loan Term Structures, Portugal, 1978-84

Year and Term Structure	Nominal Interest Structure ^{1/}		Rate of Inflation (CPI)	Real Rates of Interest ^{2/}	
	Max. Rate (1)	Subsidized Rate (2)		Max. Rate (4)	Subsidized Rate (5)
1. 1978			22		
a) 90 days or less	18	-		-4	-
b) 181-365 days	20	-		-2	-
c) 5 Years +	22	-		0	-
2. 1979			24		
a) 90 days or less	18	-		-6	-
b) 181-365 days	20	-		-4	-
c) 5 years +	22	-		-2	-
3. 1980			17		
a) 90 days or less	18	12		1	-5
b) 181-365 days	20	13		3	-4
c) 5 years +	22	14		5	-3
4. 1981			20		
a) 90 days or less	19-21	13-15		-1 to 1	-7 to -5
b) 181-365	20-22	13-15		0 to 2	-7 to -5
c) 5 years +	22-24	14-16		2 to 4	-6 to -4
5. 1982			22		
a) 90 days or less	23	18		1	-4
b) 181-365 days	24	18		2	-4
c) 5 years +	26	19		4	-5
6. 1983			26		
a) 90 days or less	27-30	22-24		1 to 4	-4 to -2
b) 181-365 days	28-31	23-26		2 to 5	-3 to 0
c) 5 years +	33	24-27		7	-2 to 1
7. 1984			30		
a) 90 days or less	29	23		1	-7
b) 181-365 days	30	24		0	-6
c) 5 years +	33	25		3	-5

SOURCE: Indicadores Economicos, Banco de Portugal, 1984, and IFADAP files.

NOTE: ^{1/} Nominal rates rounded to nearest whole number.

^{2/} Real rates: nominal rates minus rate of inflation

locked into place for the entire seven year period (column 1) as the overall level of nominal rates rose with inflation; (2) the IFADAP rates of subsidized interest (begun in 1980) remained fixed at 5 to 6 percentage points below the maximum rate over the period; (3) inflation fluctuated between 17 and 30 percent, generally rising from 1980 to the present; (4) in the late 1970s negative real rates of interest predominated in the regular loan market (column 4), however in the 1980s these became slightly positive; the IFADAP subsidized lines of credit created negative real rates of interest from 1980 onwards (column 5), generally reestablishing the negative real rates that had prevailed in the regular loan market in the late 1970s.

Two conclusions can be drawn from these data. If loan rates were negative, then savers were penalized in that they received negative real rates of interest from deposits while borrowers, especially those with access to IFADAP's subsidized lines of credit, were favored in receiving credit at negative real rates of interest. In so far as there are generally 10 to 15 times more savers than borrowers in any lending institution (and in so far as savers, on the average, fall into lower income groups than borrowers) this financial repression, implicitly transferring income from a large number of small savers to a much smaller subset of privileged borrowers, contributes to a regressive redistribution of income in Portuguese society.

A second conclusion is that the emergence of growing negative real rates of interest in the financial markets for agricultural credit would induce an increase in the demand for these lines of credit, especially the subsidized lines. Table 3 corroborates this fact with evidence of an initial jump in the amount of agricultural credit channeled through subsidized credit lines (column 3). Thus, the rapidly growing agricultural credit to agricultural output ratio (from Table 1) associated with a new relatively constant level of subsidized credit in a negative real rate of interest milieu (Table 2) might lead one to think there has been a substantial expansion of the total volume of credit devoted to agriculture from the mid-1970s to the present.

Such a conclusion overlooks one of the most important properties of finance, i.e. its fungibility. Credit gives a borrower a general command over resources or goods and services. Although agricultural credit allegedly goes to agriculture, there are possibilities for credit diversion to other uses (especially when the rates of return in these alternative opportunities or the marginal utility of increased consumption are far more attractive than the rate of return and risk in farming). An even more common form of fungibility is the substitution of formal financial credit (especially subsidized credit) for self-finance in farming activities. It is difficult not to conclude that the rapid rise in formal agricultural credit in Portugal (as a portion of agricultural GDP) is associated with a comparable decline

TABLE 3. Subsidized and Unsubsidized Agricultural Credit in Portugal, 1980-1983 (10³ Contos)

Years	Agricultural Credit (1)	Subsidized Agric. Credit (2)	(2)/(1) (3)
1980	65,667	1,462	2%
1981	77,337	47,794	61%
1982	99,489	46,303	47%
1983	107,113	54,265	50%

SOURCE: Boletim Trimestral, Banco de Portugal, Vol 6, No 2 1984
and IFADAP Breves Consideracoes sobre o Credito Agricola,
Gabinete de Planeamento e Integracao Europeia, Lisboa,
Octubre 1984.

in the proportion of self finance that agricultural producers have allocated to their own agricultural activities. In short, it is very likely that the total amount of credit devoted to agriculture (self-finance, informal credit, formal credit) has increased much less than the formal credit to agricultural GDP ratios implies. Conceivably it may have risen very little over the period as one form of finance has substituted for another (i.e. subsidized formal credit for self finance).

These typical features of fungibility make it difficult to document the impact of credit at the farm-level. Given the attractiveness of borrowing cheap or subsidized formal funds, it makes sense for producers to draw-back on the use of their own funds to service their liquidity or investment needs in agriculture. Thus they will reallocate their own funds into other frequently non-agricultural activities (particularly if these options can earn higher rate of returns or are less risky than agricultural activities) or into increased consumption. Thus it is very problematic to state that a rapid rise in the volume of formal agricultural credit necessarily leads to anything comparable at the farm household level. With formal finance replacing or substituting for self-finance, an increase in subsidized credit could lead to a net increase in consumption or non-agricultural investment at the farm household level with no net additionality in farm investment beyond that which would have occurred with self finance.

Table 4 illustrates this issue in presenting several performance indicators for the agricultural sector in Portugal over the past decade. Panels A and B underscore the fact that, in aggregate terms, there has been no marked improvement in the growth of agricultural GDP throughout the 1970s despite the rapid growth in formal credit. Indeed the index of food production per capita has been declining steadily over this period (panel B). However it is clear there was a differential performance between crop and livestock activities (panel C) with a rise in the output of livestock products in the late 1970s and early 1980s while crop output continued to stagnate. The rapid rise in feed grain imports from the mid-1970s to the present (panel D) further illustrates that this growth in livestock activity has been associated with non-pasture fattening enterprises.

Even this subsectoral expansion of agricultural activity, however, could be associated with both a rise in formal finance and a decline in self-finance. One would need a more detailed random survey at the farm enterprise level, documenting the multiple sources and uses of funds over time before one could draw any precise measure of the trade-off between formal and self-finance. In the meantime it is useful to document the growth in formal agricultural finance in its own right, and draw some conclusions on the patterns and profiles of credit allocation, especially during the most recent years in which IFADAP has played such a dominant

TABLE 4. Selected Indicators of Agricultural Sector
Performance in Portugal in the 1960s and 1970s.

A. Rates of Growth of GDP and Agricultural GDP.

	<u>1960-70</u>	<u>1970-77</u>	<u>1970-82</u>
1. GDP	6.3	5.3	4.5
2. Agric. GDP	1.3	-0.9	-0.8

Source: World Bank, World Development Report. Washington D.C., various years 1979-84.

B. Average Index of Food Production per Capita.

1969-71	=	100	1978-80	=	78
1975-77	=	95	1979-81	=	74
1976-78	=	82	1980-82	=	73

Source: World Bank, World Development Report, Washington D.C., various years 1979-84.

C. Rates of Growth of Livestock and Crop Output for Selected Periods 1969-81.

	<u>1969-75</u>	<u>1975-81</u>
Crop	0.3	-0.8
Livestock	-2.4	7.2

Source: Derived from Estadísticas Agrícolas. INE, based on 1976 prices with growth rates based on three year average around reference years in above Table (1969, 1975 and 1981).

D. Import of Cereal Products for Selected Periods in 1970s (1.000 metric Tons)

	<u>1971-73</u>	<u>1975-77</u>	<u>1979-81</u>
1. Wheat	148	296	719
2. Corn	695	1,204	2.361

SOURCE: From Ministry of Agriculture data reported in John H. Sanders "The Portuguese Agricultural Sector and the EEC: Recent Trends and Some Projections on the Impact of Entry", mimeo, December, 1984.

role in centralizing the allocation and supervision of subsidized credit in Portugal.

C. The Profile of Agricultural Credit Activity during the IFADAP Years.

Tables 5 through 9 document the major dimensions of formal credit allocation to the agricultural sector from the late 1970s through the early 1980s. One of the major purposes behind the creation of IFADAP was to promote agricultural modernization. This necessarily implied an expansion of on-farm investment with long term loan activity. Table 5 shows that following the initiation of major lending activity in IFADAP(1980 onwards), the long term loan portfolio did increase slightly, though hardly meeting the original high expectations built into IFADAP's objectives.

Tables 6 and 7 offer detailed insights into the regional and enterprise-type allocation of IFADAP's subsidized credit from 1981 to 1983. The Ribatejo Oeste stands out as the region receiving an overwhelming share of total subsidized credit. This region combined with the Alentejo, account for roughly two thirds of total credit during the three years (in both long and short term credit lines).

Tables 7 underscores the fact that the non-pasture fattening operations in the livestock area are the predominant users of IFADAP's total credit lines. This is consistent with the above findings on regional allocation since these fattening operations, serviced through highly subsidized feed imports (up to 1983), are largely located in the Ribatejo Oeste Region.

TABLE 5. Term Structure of Agricultural and Fishing Sector Loans in Portugal, 1978-83.

Years	Percent			Total %	Total (Millions of current Escudos)
	Less than one year	1 to 5 years	More than 5 years		
	(1)	(2)	(3)	(4)	(5)
1978	90.6	7.3	2.1	100	34,232
1979 ^{1/}	87.8	8.4	3.9	100	52,903
1980	90.4	6.1	3.5	100	75,558
1981	83.1	10.8	6.1	100	91,832
1982	84.3	11.1	4.6	100	120,482
1983	84.7	10.3	5.0	100	127,211

SOURCE: Banco do Portugal Boletim Trimestral, Vol. 2, No 1, Marco 1980 (for 1978 data) and Vol. 6 No 2 Julho 1984 (for 1979-83 data)

NOTES: ^{1/} Small differences exist for the 1979 data from the 1980 and 1984 sources cited above. The most recent source was chosen for this table.

TABLE 6. Regional Shares (%) of Subsidized Credit Disbursed by IFADAP
by Term Structure and Years, Portugal, 1981-83

Year	Term Structure and Total	REGIONS							Total
		Entre Douro and Minho	Tras Montes and A. Douro	B. Litoral	B. Interior	Ribatejo Oeste	Alentejo	Algarve	
1981	Long Term	8.3	4.0	13.1	3.9	29.1	32.8	8.8	100
	Short Term	4.7	7.9	14.5	4.1	46.0	19.7	3.2	100
	Total	5.2	7.5	14.3	4.0	43.8	21.3	3.9	100
1982	Long Term	4.2	8.4	9.8	3.5	31.9	32.5	9.7	100
	Short Term	5.2	9.9	10.7	3.5	43.7	23.9	3.0	100
	Total	5.1	9.7	10.6	3.5	42.4	24.9	3.8	100
1983	Long Term	4.4	8.1	12.3	2.9	38.4	23.4	10.4	100
	Short Term	4.8	10.9	11.5	3.4	43.1	23.4	2.9	100
	Total	4.7	10.6	11.6	3.4	42.4	23.4	3.9	100

SOURCE: IFADAP

TABLE 7. Percentage Distribution of Total Agricultural Credit Disbursed with IFADAP Interest Subsidies Disaggregated by Term Structure and Enterprise Type Activity. Portugal, 1981-83

Years	Investment Loans			Short Term Loans										Sub Total	Total	Total (000,000 Escudos)		
	Agric.	Fish- ing	Agro- Ind.	Livestock Loans							Sub. Total	Fish- ing	Proc. Fac.				Inventory Loans	
				Agr.	For- estry	Feed and Fattening Operations (No Pasture)				Poultry and Rabbits							Swine	Beef
(1)	(2)	(3)	(4)			(5)	(6)	(7)	(8)		(9)	(10)	(11)	(12)	(13)	(14)		
1981	8.4	2.9	0.8	12.2	16.0	0.8	14.9	14.5	16.3	0.6	46.5	5.5	15.9	0.6	2.4	87.8	100	46,105.0
1982	9.1	1.0	1.5	11.6	21.0	0.4	9.3	17.8	6.5	0.6	34.2	5.3	21.8	1.6	3.8	88.4	100	45,410.0
1983	11.1	1.4	0.8	13.3	23.6	0.4	7.9	17.0	3.5	0.5	29.0	4.5	17.7	6.8	4.7	86.7	100	52,022.0

SOURCE: Derived from credit lines 072, 073, 085 and 086 in IFADAP files.

Table 7 reflects the relative importance of financing wine cooperatives (which weigh heavily in the "inventory" and "processing" loan categories in columns 13,14 and 15). In short, wine cooperatives and livestock fattening cooperatives (essentially beef and poultry) have dominated the loan portfolio of IFADAP in the 1980s. Given the high agricultural credit to agricultural GDP ratio and, given the fact that a large majority of agricultural producers have no access to formal credit in Portugal, this pronounced regional and enterprise loan concentration in IFADAP's portfolio raises serious questions of equity and efficiency that merit discussion.

To what extent do cooperatives on-lend substantially to individual producers, or offer timely and efficient market outlets for their produce, or provide significant input supplies for an extensive clientele in an equally timely and efficient fashion? Only if it can be documented that cooperatives, in fact, spread the benefits of their concentrated access to subsidized loans to a much wider network of producer clients can the otherwise regressive impact of loan concentration be ameliorated. Further research and documentation of the "multiplier" effect of a concentrated loan portfolio in cooperatives is called for here.

The efficiency question is of equal importance. A cursory impression suggests that cooperatives engage in very little on-lending to individual producers. Their major role lies in acting as a marketing agent for the producers output and, to some extent, inputs. The efficiency with which they carry out these tasks needs to be documented more fully.

Gross marketing margins between farm-gate and cooperative final sales prices should be more widely reported as well as regular income and expenditure statements regarding their financial viability. Some disaggregation of their expenditures could also prove revealing and allow one to interpret the wisdom of their spending priorities.

There is much conventional wisdom in Portugal that many, if not most, cooperatives have been experiencing serious financial difficulties for some time. This would suggest they are not carrying out their tasks efficiently and agricultural producers are poorly served by many cooperative organizations. In this context a concentration of IFADAP's loan portfolio into a relatively small number of large cooperative loans (when compared to the typical numbers and amount going to individual producers) would fail both efficiency and equity criteria. Agricultural credit allocations to these entities would merely be serving an implicit welfare role, covering the current costs of unviable cooperative entities. This is a far cry from the dynamic role of agricultural modernization and increasing productivity envisioned in IFADAP's original mandate.

Table 8 highlights this issue through data estimating a reasonable approximation of individual and non-individual loans and subsidies administered through IFADAP's portfolio in the SIFAP (Sistema de Financiamento da Agricultura e Pesca) network. Individual loans make up a majority of the total portfolio; however this relative share has been declining over time, while non-individual (firm or cooperative) loans have been rising. It is not clear to what

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**TABLE 8. Estimate of Individual and Non-Individual Loans and Associated
 Subsidies in the SIFAP Credit Network Administered through IFADAP,
 Portugal, 1981-83 (in milhares de contos)**

Year	A. Loans				B. Credit Subsidies (Bonificacoes)			
	Individual (1)	% (2)	Non-Individual (3)	% (4)	Individual (5)	% (6)	Non-Individual (7)	% (8)
1981	35,632	77	10,474	23	734	70	316	30
1982	31,826	70	13,586	30	1,577	74	545	26
1983	35,703	68	16,319	32	1,804	56	1,413	44

SOURCE: IFADAP Files and reproduced Tables.

NOTES: 1/ Individual Loans consist of all short term loans under the label "Campanha" and long term investment loans labelled "Agricultura e Pecuaria". Non-individual loans were the residual which consist of Transformacao, Armazenagem and Tesouraria in the short term credit portfolio and Agro-industria and Pesca in the long term portfolio.

· extent this shift in loan finance between these categories reflects changing market conditions, an improved the rate of return to corporate or cooperative activities, or to what extent other variables (institutional, political, etc.) might explain the changing portfolio composition and growing concentration into non-individual loans. In any event a better documentation of the loan recovery performance (i.e. delinquency status) of IFADAP's portfolio devoted to cooperatives in the SIFAP network is in order. This could help determine the extent to which this portfolio is reflecting "ad-hoc" financing of current consumption for welfare purposes (i.e. keeping unviable enterprises afloat financially to maintain current employment, continued stop-gap marketing functions for producer harvests, etc.) or the extent to which these loans reflect a healthy investment portfolio promoting agricultural modernization.

The final efficiency issue surrounds the heavy financial commitment to livestock fattening operations. Substantial import subsidies were available for these operations throughout the late 1970s and the early 1980s, encouraging a rapid increase in the use of imported feed concentrates. Initially it was expected that these operations would prove to be a successful example of agricultural import substitution for these high income elasticity products with locally produced livestock products replacing the direct imports of beef, swine and poultry products. Also, in emphasizing a non-pasture fattening strategy, it saved on the use of scarce land in the Portuguese setting. Finally

' this non-pasture strategy represented a convenient means to incorporate quickly former African colonists into Portuguese agriculture.

Unfortunately the import intensive nature of the required concentrated feed inputs made the net foreign exchange savings of this import-substitution strategy very problematic. Also the policy of subsidizing substantially these imported inputs created an artificial set of relative prices encouraging inefficient production methods that could not be expected to last indefinitely except at great social cost to the rest of the economy. The planned entry of Portugal into the European Common Market and growing balance of payment deficits have now forced the dismantling of these import subsidies, thereby creating serious economic difficulties for this subsector.

IFADAP's continued financing of these enterprises has now become a convenient means to maintain current operations until the necessary readjustments are undertaken to draw upon local forage and feed stock supplies to substitute for foreign supplies. In the process the loan recovery performance of the enterprises will likely decline placing stress on the financial intermediaries comprising the SIFAP network. As in the case of cooperatives, the continued financing of these enterprises transform the instruments of financial intermediation into an unproductive safety net operation that compromises the objective of agricultural modernization. The future health of the financial intermediaries servicing the SIFAP network will be greatly

'influenced by the degree to which these currently uneconomic operations can be restructured into more viable enterprises or phased out of their portfolios altogether.

D. SIFAP (Sistema de Financiamento da Agricultura e Pesca)- The Institutional Network for Agricultural Credit in Portugal

The creation of IFADAP in the late 1970s was associated with the creation of a national system (SIFAP) to channel its subsidies on long and short term credit to agricultural producers. This system consists of the commercial banks in the nationalized banking system, the National Development Bank (BFN) the National Savings Bank (CGD), and, more recently, the Mutual Agricultural Credit Cooperatives (CCAMs). Table 9 sets forth the volume of short and long term credit channeled from 1980 through 1983.

Several important patterns emerge from these data: (1) the volume of credit increased from 1,462 to 54,266 (thousands of contos) from 1980 through 1983; the number of loan contracts (not shown in the Table) from 1,694 to 35,241 during this period; (2) in the first year (1980) long term investment loans dominated the total portfolio, but this changed abruptly the following year with a marked increase in short term funding through SIFAP institutions; (3) from 1981 onwards short term loans declined and long term finance grew as a proportion of the total portfolio, however by 1983 short term loans still represented 83 percent of the total portfolio; (4) The Caixa Geral do Depositos (CGD) with its extensive network of rural branches was the most important participant at the end of the period with the Banco do

TABLE 9. Percentage Distribution of the Volume of Agricultural Credit Disbursed through Participating Institutions (ICPs) of the SIFAP Credit Network and the Agricultural Credit Cooperatives (CCAMs). Portugal, 1980-83.

Institutions	Short Term Credit				Long Term Credit				Total			
	1980	1981	1982	1983	1980	1981	1982	1983	1980	1981	1982	1983
1. BBI	14.7	11.1	8.0	6.1	8.1	8.3	8.2	1.3	9.1	10.8	8.1	5.2
2. BESCL	26.2	12.7	10.1	9.2	5.3	5.3	4.3	4.0	8.5	12.4	9.2	8.3
3. BFB	13.8	11.9	8.2	7.1	22.3	12.7	6.0	7.8	21.0	12.0	7.9	7.7
4. BNU	8.0	10.7	8.8	7.0	9.2	8.5	6.5	4.2	9.0	10.6	8.6	6.5
5. BPSM	11.3	9.7	8.6	8.8	3.3	9.0	7.3	7.8	4.6	9.7	8.6	8.9
6. BPA	23.3	10.7	9.2	8.8	11.2	11.1	8.4	5.6	13.0	10.9	9.1	8.1
7. BTA	2.0	13.7	11.0	9.6	5.0	10.6	7.4	3.8	4.5	13.5	10.3	8.2
8. UBP	0.7	9.5	6.1	4.6	3.2	6.8	2.1	2.8	2.8	9.3	5.4	4.3
9. BFN	-	-	-	-	13.0	5.9	4.3	11.8	11.0	0.3	0.7	2.4
10. CPP	-	3.3	2.0	1.3	0.0	1.7	1.7	0.7	0.0	3.2	2.0	1.2
11. GGD	-	2.8	8.6	15.8	19.4	19.5	10.4	17.5	16.5	3.6	9.0	15.6
Total for BKs. (Z)	100.0	96.1	80.6	78.3	100.0	99.0	66.6	67.3	100.0	96.3	78.9	76.4
12. CCAM's (Z)	-	3.9	19.4	21.7	-	1.0	33.4	32.7	-	3.7	21.1	23.6
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(Milhares de Contos)	(225)	(44,674)	(35,453)	(41,086)	(1,236)	(2,466)	(7,487)	(10,823)	(1,462)	(47,794)	(46,303)	(54,266)

SOURCE: IFADAP data reproduced in Breve Considerações Sobre o Crédito Agrícola em Portugal, Gabinete de Planeamento e Integração Europeia, IFADAP, Lisboa, Outubro 1984

Fomento Nacional (BFN) also playing an important role but only in long term finance; (5) among the commercial banks five banks by 1983 had assumed roughly equal relative importance (i.e. eight percent) in the SIFAP network, the Banco Fonseca e Burnay (BFB), Banco Espirito Santo e Comercial de Lisboa (BESCL), Banco Pinto e Sotto Mayor (BPSM), Banco Portugues do Atlantico (BPA) and the Banco Totta e Azores (BTA); (6) among the commercial banks all (with the exception of BPSM) registered a sharp decline in the relative share from 1981 through 1983; the BPSM withstood this trend and more slowly and steadily built up and maintained its relative share through this period; and finally, (7) the most striking result can be seen in the dramatic growth of the Mutual Agricultural Credit Cooperatives (CCAM's) in both the short and long term portfolios of SIFAP over the period. This in part explains the drop in the CGD share in 1981 and 1982 as the CCAM network, previously incorporated as a component of the CGD field activity, created their own direct association with IFADAP's refinancing schemes.

All three forms of intermediaries play important roles in the SIFAP network in both loan and short term credit portfolios. The CGD and BFN play a relatively more specialized role in long term development financing; the other commercial banks focus on smaller average sized loans and tend to emphasize short term operations. The CCAM's reach out to the smallest farmer clientele that make up the membership in their widely disbursed network of small credit cooperatives. Their recent emergence as an important channel

for the subsidized credit lines through SIFAP raise serious questions about the health of their loan portfolios, given the weakness of their rudimentary managerial and accounting staffs. The factors that contributed to their rapid growth, the distinctly different financial arrangements they have with IFADAP (as compared to link between IFADAP and the commercial banks) and the recent unsettling evidence on their growing delinquency will be discussed at some length in a later section, following our critical review of the linchpin of the SIFAP network, IFADAP.

E. Agricultural Sector Credit Planning, Rationing and Subsidization: The Role of IFADAP.

The creation of IFADAP in 1978 represented a major institutional innovation designed to plan, regulate and supervise the flow of agricultural and fishery credit to individual borrowers and cooperatives. This section discusses IFADAP activities, with special emphasis on the subsidization of interest rates, and their impact on credit allocation and use.

1. IFADAP Objectives

IFADAP was created as an apex institution supervised and audited by the Bank of Portugal (BP). It was designed to bridge the monetary control and bank supervisory functions of the Bank of Portugal with the agricultural policy and development functions of the Ministry of Agriculture, Forestry and Food (MAFA). IFADAP's activities include 1) refinancing short, medium and long-term loans made by participating banking institutions (PBI's) in the SIFAP

network discussed earlier; 2) administering interest rate subsidies supplied by BP, 3) provision of guarantees to PBI's for loans for which loan collateral is unavailable or insufficient, and; 4) administering direct credit lines financed through PL-480 funds. IFADAP is also expected to supervise and administer special credit projects such as those funded by the World Bank. Recently, IFADAP has also become more involved in supervising the rapidly growing-lending portfolio of the CCAM's receiving credit allocations from IFADAP for on-lending.

2. IFADAP Operations

In practice, IFADAP operations have been more limited and constrained than implied by its objectives. This has occurred in part because of the constraints placed on it, sometimes by the BP and sometimes by MAFA. For reasons not entirely clear, the loan guarantee mechanism has hardly ever been utilized. Most banks have had surplus funds during the 1980s so there has been little use made of the refinancing mechanism, except with the CCAM's beginning in 1982. Thus lenders largely use IFADAP only for the subsidization of the interest rate charged to farmers, while reserving to themselves the decision of whether or not to fund a particular loan request from their own deposit base of funds. Finally, in its direct lending role, IFADAP is largely just a disbursing agent for PL-480 funds used in projects established by Government decree. These funds will soon be exhausted so this function will end unless the

Government channels other special projects to IFADAP. Thus the only significant role that has been delegated to IFADAP has been the administration of interest rate subsidies.

For the interest subsidy program, IFADAP develops a set of subsidy guidelines which are negotiated and approved in conjunction with the BP and MAFA. The original objective was to develop a program of subsidies narrowly focused on import substituting enterprises. This objective was subsequently broadened so that, in practice, a wide variety of enterprises are included today. The structure of these subsidies for short and long-term loans was reported earlier in Table 2. Loans to be considered for subsidization are identified through lines of credit. The subsidy structure and information about the approved lines are distributed to the financial intermediaries in the SIFAP network (i.e. the PBI's) for use in advising farmers. Farmers then negotiate individual loan contracts with the PBI's. At the time of negotiation, they develop some notion about the probability of their loans being approved by IFADAP for subsidy. They may take the loans and spend the funds without waiting for the subsidy decision providing the PBI has sufficient funds, or they may wait for the subsidy decision from IFADAP before taking the loan. The PBI may make the loan with the interest charge subject to the subsidy decision or may assume that the subsidy will be authorized and charge the farmer the after-subsidy loan rate. The small 'CCAM's frequently do not have sufficient loan funds so the loan must be submitted to IFADAP for both rediscounting and subsidy. In this case, the farmer does not get the loan until the rediscount

operation is completed. Delays in obtaining IFADAP approval are reported to range from one to six months or more. Therefore, some farmers reportedly ignore the entire process and simply borrow at the regular commercial rate. This explains in part why earlier (in Table 3) we discovered that roughly 50 percent of agricultural credit remained unsubsidized.

The interest subsidy program has been criticized on three points: 1) it is bureaucratic, time consuming, and raises both borrower and lender transaction costs, 2) it encourages borrowing for short-term rather than for long-term investment purposes; and, 3) the subsidy system, in its current form, cannot make a significant impact on agricultural modernization. These points will be discussed in the following sections.

3. Subsidization and Agricultural Modernization

The original purpose of the interest rate subsidy was to encourage agricultural investment and modernization. It was intended that the enterprises benefited would help reduce agricultural imports. However, the program as implemented has several limitations, many of which have been identified in a carefully prepared internal IFADAP evaluation (GPIE/IFADAP, "A Bonificacao do Credito de Curto Prazo a Agricultura e a Pecuaria", Lisbon, 1984).

The first problem concerns tying the subsidy to credit. To receive the subsidy, the farmer must borrow. As pointed out earlier in our discussion of fungibility and self finance, this encourages behavior exactly opposite to what

should be encouraged in a capital scarce economy. Farmers should be given incentives to self-finance as many of their operating costs and investments as possible. Formal credit should be used only after own-funds and loans from informal sources have been exhausted. Therefore, if subsidies are considered necessary for modernization, they should be provided directly to farmers (as is the case with many other MAFA subsidies to farmers and cooperatives) rather than forcing farmers to borrow to get the subsidy.

There are several problems in the way the subsidy program is managed which influences its impact on agricultural modernization. Since approximately 85% of the subsidized loans have been short-term during the 1981-83 period, this becomes largely a question of analyzing the process of short-term loan subsidization. The first problem is that a loan ceiling (specified in terms of per hectare or per unit of livestock) is placed on each type of short-term loan. For example, the maximum loan limits are set at Esc. 31,000 per hectare of wheat. There is a fairly direct relationship between these maximum loan limits, costs of production and value of output. By making assumptions about the average length of loan for each activity, it can be shown that the average subsidy rate for all types of short-term loans varies from only 0.3 to 2.0 percent of product price. Since most types of short-term loans are eligible for subsidization and all are subsidized at approximately the same average rate, no effective incentive is given for one activity over another. Furthermore, since

the maximum loan must be taken to get the full subsidy, there is no incentive to self-finance production costs until after the maximum loan limit is reached.

Two additional problems are evident in the subsidy scheme. The loan limits are set on the basis of an assumed average level of production technology. A farmer who produces higher yields by utilizing a higher level of technology (for example, heavier applications of fertilizers) gets a smaller subsidy per unit of output than one who fertilizes less and obtains lower yields. The subsidization rate, expressed as a proportion of the total interest rate, is fixed regardless of the length of the short-term loan. Therefore, there is no greater incentive given to a farmer who might want a longer-term loan with a somewhat higher risk.

It can be concluded that the interest subsidy program is undesirable for two reasons. First, it encourages borrowing rather than self-finance. Second, it is largely ineffective in its current form in encouraging farmers to modernize through the use of short-term credit. The program should be abandoned entirely, or completely restructured, if it is to meet its objective of modernizing agriculture.

4. Distortions in Credit Use

Although the interest subsidy appears to have been ineffective in inducing agricultural modernization, there has been a clear demand for it as evidenced by the large amount of subsidies authorized during the past few years. This demand is due not only to the direct reduction in the

interest rate the subsidy provides, but also due to the fact that a subsidized loan becomes part of the SIFAP system. Credit channeled through SIFAP must follow a set of regulations applied to agricultural credit. An important regulation is that interest charges for agricultural loans are assessed by the lender at the end of the loan period rather than discounted from the loan principal at the beginning, as is normal lending practice. Thus, by obtaining IFADAP approval, a farmer saves 10-15% on interest charges, part of which is paid by IFADAP as a direct subsidy and the remainder absorbed by the bank through a lower effective interest rate.

Seeking IFADAP loan approval requires that the farmer conduct a type of cost-benefit analysis. Although there are cases reported of prolonged negotiations between farmer, lender and IFADAP, most loans are eventually approved for subsidy and become part of the SIFAP system. Therefore, the benefits obtained can be fairly well predicted. The costs of getting IFADAP approval, however, are harder to predict and quantify. First, the transaction costs of getting a loan increase. Not only must the farmer satisfy the normal requirements of the lender to get a loan, he must also satisfy IFADAP requirements. This implies additional time and effort. Second, the farmer may face additional costs or foregone revenue if he waits for IFADAP's decision before getting the loan. Costs of inputs may rise, product prices may fall, or the optimum period for utilizing a particular input may be missed. If the farmer believes these costs are

small relative to the benefits, he will seek IFADAP loan approval. If not, he will settle for a regular commercial loan or forego the loan entirely.

Farmers have pursued a cost minimization strategy with respect to IFADAP loan approval. The transaction costs for obtaining a loan are lower and the time delay for IFADAP's approval is shorter for short-term loans compared to long-term loans. Small short-term loans require a short application form compared to a 40 page form for long-term loans. Furthermore, small loans can be approved in IFADAP regional offices without being sent to the Lisbon head office. Therefore, loan demand has been high for short-term loans even though the farmer may face additional costs and risks in rolling over short-term loans used for long-term investments. This has caused a distortion in credit used by increasing demand for short-term loans relative to long-term loans.

The final cost to be considered is the administrative cost of the subsidy system. To design and implement this system, IFADAP has grown from a small office to an organization employing a staff of almost 400 people. This is an expensive bureaucracy for a program with an apparently low social return. But an even more important cost is the loss in benefits that the country might have gained if these generally bright, hard-working agronomists, economists, and administrators would have been employed in something more productive in the public or private sector. A country with a scarcity of trained manpower can ill afford such a diversion of human resources from more productive activities.

F. Financial Viability and Economic Efficiency

In addition to the issues surrounding the logic and the consistency of organizing and implementing a subsidy system through IFADAP and SIFAP, other issues merit discussion and analysis. Important here are the issues that condition the efficiency with which the financial system can service an agricultural portfolio. Put differently, what are the costs and viability of the agricultural credit delivery system? Is it possible to design a set of incentives and an organizational format that will allow financial intermediaries to channel an expanding volume of credit to the agricultural sector and, at the same time, remain viable (i.e. collect interest earnings that cover the operational costs of servicing these loans)? This topic is generally overlooked in the Portuguese setting where concern over complicated supervisory controls to manage and direct agricultural credit predominate in policy circles. Little thought is given to what it costs to erect and maintain this infrastructure and whether the returns (social or private) justify these costs. The remainder of this section will investigate these issues in the context of commercial bank on-lending and the rapid growth of the CCAM's in the SIFAP network.

1. The Commercial Bank Setting: Incentives, Costs and Loan Recovery Issues.

As Table 9 indicated there are nine commercial banks that participate in agricultural lending in addition to the two development or semi-development banking institutions

(the BFN and the CGD) and the CCAM's.. There are some important disincentives for commercial banks to participate in agricultural lending. The low rate of return and high risk in agricultural lending (when compared to normal commercial loans) act as a disincentive. This of course grows out of the low rate of return to many farming activities (an issue discussed in greater detail in a following section on the demand for credit). The poor aggregate performance of agricultural growth documented earlier, along with the known economic difficulties experienced recently by the livestock fattening operations and wine cooperatives underscore the risks associated with agricultural lending. Since banks are necessarily committed to protecting depositor interests, they must exercise some caution in their lending practices.

An additional disincentive for agricultural lending is the high cost banks must incur to determine the creditworthiness of prospective agricultural clientele, particularly those who are first time and/or large scale borrowers moving into complex projects. A professional cadre of agronomists, agricultural economists and other specialists are frequently necessary to establish a critical minimum scale infrastructure to service a range of agricultural enterprise loans effectively. IFADAP regulations, of course, have added substantially to the documentation and reporting costs associated with agricultural loans.

Adding to the constraints are the reduced nominal interest rates for banks growing out of agricultural loans serviced through the SIFAP program. This is due to the

regulations that interest charges for agricultural loans must be assessed at the end of the loan period rather than discounted (a cabeza) from the principal at the beginning, as in normal lending practices. Thus, as mentioned earlier, the farmer saves 10 - 15% on interest charges, part of which paid by IFADAP as a direct subsidy but the remainder is absorbed by the banks through a lower effective interest rate.

The Bank of Portugal has attempted to alleviate these disincentives by relaxing credit ceilings for banks that make loans in priority areas such as agriculture. However, since agriculture is such a small part of the banks' total portfolio, and, since there is an overall limit to the total amount of credit relaxation allowed for all banks taken together, there is much less incentive from this compensatory measure than was originally anticipated.

A more powerful incentive would be a tax credit for some portion of the total operational costs incurred in agricultural lending. Given the wide network of branches that several commercial banks have in the interior, it makes sense to exploit this infrastructure for agricultural lending through more effective incentives than those currently in place. At the same time tax incentives encouraging the expansion of agricultural loan staffs could facilitate the absorption of some of IFADAPs more experienced personnel into the commercial bank network.

Two important performance criteria useful to evaluate the efficiency of financial intermediation are the non financial operational costs per escudo lent and the rate of

loan recovery. Neither of these measures are regularly reported for the commercial banks. It would be useful to do so and, in particular, compare the costs per escudo lent in agriculture to those incurred in other segments of the portfolio (taking care to prorate common costs across the diverse portfolio by some appropriate weighting criteria). The non-financial lending costs per escudo lent could then be compared to the interest rate on loans and to the gross operating margins of the bank.

It would be instructive to document the operational lending costs incurred by banks dealing with the detailed documentation and targeting criteria involved with IFADAP lines of credit. Filling out forty page loan documents and acquiring and processing all the other supporting documents can add considerably to a lender's operational costs. Documentation of the banks lending costs along with an estimate of IFADAP's own operational costs allow one an insight into an important component of the total cost to society (i.e. the social costs) of implementing IFADAP's program.

Good loan recovery is the second important indicator useful to evaluate the performance of lenders. Given the economic stress affecting many agricultural enterprises in Portugal today, it is likely this would also show up in the portfolio of agricultural lenders. It is important to learn more about the financial health of the intermediaries serving agriculture. Put differently, agricultural borrowers cannot be well serviced by unviable financial intermediaries. Finally, the differential loan recovery performance

of commercial banks offer important evidence on the health of selected agricultural clientele as well as on the health of the intermediary itself. As such this evidence is as important for agricultural planners in MAFA as it is for the officials in the Bank of Portugal.

2. Loan Recovery in the CCAM's and in PL 480 Projects.

a) The CCAM Experiment.

As pointed out earlier in the institutional profile of IFADAP sanctioned loans (Table 9), the CCAM's grew dramatically in 1982 and 1983. Their relative share of short term loans in the SIFAP system reached 22 percent while long term loans represented 33 percent by 1983. In 1984 preliminary evidence suggests the growth has subsided substantially as several CCAM's have encountered serious loan recovery problems.

The CCAM's are roughly 211 in number and have a long history in the rural setting of Portugal. Only 7 or 8 however, have reached substantial size and manage fairly extensive loan portfolios. Members buy in with shares, common to most credit cooperatives, and are then eligible for loans. Loans are only available for farmer members. CCAM's can offer deposit rates slightly below banks (since CCAM interest earnings are not taxed). Also CCAM's enjoy an advantage over banks in that their deposits are not subject to reserve requirements. This allows them to set loan rates below bank rates. However, despite these advantages, they have not been particularly aggressive in mobilizing savings in the rural financial markets of Portugal.

CCAM's clearly reach and service a much larger number of small farmers than do commercial banks. Transaction costs are less for a small farmer to get a loan through his credit cooperative than through a bank. However, most of the cooperatives have rudimentary accounting and management practices; therefore, the rapid expansion of IFADAP funding into many of these institutions created serious problems of proper loan evaluation and loan recovery procedures.

Up until recently the CCAM's loan activity had been supervised and facilitated through the Caixa Geral de Depositos (CGD). However, with the availability of direct refinancing through IFADAP, from 1981 onwards, many CCAM's shifted their loan source funding from the CGD to IFADAP. This clearly served the interest of the CCAM's and FENACAM (the National Federation of Credit Cooperatives through whom the refinanced money passed) since IFADAP was generally more liberal in their refinancing procedures than the CGD while FENACAM received a commission on all refinanced loans. IFADAP, on the other hand, discovered a new activity to channel and refinance, thereby creating another rationale for its continued role in supervising rural finance in Portugal. At the same time, IFADAP gained a commission in handling these refinanced funds. Moreover, in this case, IFADAP was drawing the entire loan amount from the Bank of Portugal for on-lending and not just the interest subsidy component (as in the case of commercial banks SIFAP loan activity).

The rapid growth of financing with external funds transformed many CCAM's into highly dependent institutions. This clearly diminished their interest in mobilizing local savings from their membership. In addition, dependency relationships based on outside funding invariably relax the discipline on loan evaluation and loan recovery procedures that locally-based resources insure. Put differently, there is no constituency internal to the CCAM that is concerned with effective loan management and recovery when the funding comes from the outside. Finally a rapid infusion of outside funding into a hitherto small loan institution frequently gets concentrated into the hands of a small number of borrowers increasing portfolio risk substantially.

Table 10, documenting the loan activity of the CCAM's with IFADAP refinancing, underscores many of the negative features of financial management discussed above. There are 171 CCAM's with almost 100,000 members that have signed agreements with IFADAP. Of these, 132 (77%) have refinancing from IFADAP as of December 1984. The total number of members with loans (8,042) represented only 9 percent of the total membership in the CCAM's with access to refinanced funding. Clearly a pattern of concentrated access to funding is evident. From this restricted group ninety two members are responsible for 488,820 contos in delinquent loans (on principal) and 238,143 contos in interest arrears (not shown in table). Finally the average loan size for all members with loans was 890 contos, while the average loan size for delinquent members was 5,318 contos. This latter is really a "lower bound" estimate since we only divided the amount

TABLE 10. Status of Mutual Agricultural Credit Cooperatives (CCAM) Refinancing from IFADAP as of December 10, 1984 (Esc. 000)

	Membership			Members with Loans			Overdue Loans	
	No of CCAM's (1)	Total (2)	Ave/CCAM (3)	Number (4)	Percent of Total (5)	Loans Outstanding (6)	No of Members (7)	Amount Overdue (8)
1. CCAM's ^{a/}	171	99,800	584	-	-	-	-	-
2. CCAM's with Refinancing	132	86,780	657	8,042	9.3	7,165,082	92	488,820
3. CCAM's with overdue loans	10	7,073	707	1,221	17.3	1,927,195	92	488,820

^{a/} CCAM's with signed "protocols" with IFADAP

SOURCE: Accounting Division IFADAP

overdue from column 8 (488,820 contos) by the number of members overdue (92). It is possible these members have even more loans financed that are not yet due thereby leading to a higher average loan size. It should be emphasized that the unsettling arrears problem could grow in size as more of the long term loan portfolio falls due in the future.

The foregoing is sufficient to establish the fact that the rapid expansion of IFADAP refinancing of CCAM's has led to a highly unequal and concentrated loan allocation, created greater dependence on outside funding, less influence for the local shareholders and savers, greater portfolio risk and higher delinquency. This state of affairs will very likely force the Bank of Portugal to move in with additional funding to prevent institutional collapse and set loan limits on the remaining loan activity to reduce future portfolio risk exposure.

The rather naive and optimistic view that the CCAMS represented an innovative new channel to finance farm investment needs to be reevaluated in the light of this experience. Among other things, the central liquidity fund (Caixa Central), set up recently to act as a vehicle for passing on outside funding to member cooperatives, needs to be studied carefully to insure that this role doesn't lead to the same results.

b) The P.L. 480 Loans.

IFADAP has also been responsible for administering the P.L. 480 trust funds in Portugal. As of the 30th of April 1984, 27 projects valued at 6,427,874 contos had

been approved for financing with these funds. Of the total 2,104,732 contos of debt had fallen due on this date. IFADAP accounts indicate that there were 1,297,502 contos of amortization and interest payments in a delinquent, overdue state on this amount. This represents a 62 percent rate of arrears or delinquency.

This performance by IFADAP in administering P.L. 480 funds, combined with their record in managing the refinancing operations for the CCAM's raise disturbing questions about the health of the portfolios under their control and responsibility. The record to date suggests they have demonstrated little success for portfolio management or loan administration responsibilities. This is an important finding to keep in mind in any discussion of the future of IFADAP.

G. The Pros and Cons of An Agricultural Development Bank.

With the current dissatisfaction over the performance of IFADAP there is discussion in some circles about transforming it into an agricultural development bank. This institution would be established with separate capital subscription from both public and private sources and specialize in medium to long term loans for agricultural enterprises. Presumably the existing stock of human capital (or a good portion of it) in IFADAP, along with its physical facilities, could be transferred to this new entity as the initial government contribution to its equity capital. The newly acquired specialists would then work intensively with large scale agricultural undertakings as field teams

preparing the projects for financing for the farmers in question. Foreign money from the World Bank and other donors would be drawn upon for on-lending with private subscriptions, both domestic and foreign, adding to the capital base.

Agricultural development banks have had a very poor track record in most countries in which they have been tried (J.D. Von Pischke, 1981; Bourne and Graham in Adams et. al, 1984). Only in several already developed European countries have they enjoyed some success; however, the special conditions and distinctly different economic environments in these developed country settings make them inappropriate models for Portugal to attempt to emulate.

The most striking feature of agricultural development banks is their limited service capability. They are incomplete financial intermediaries dependent upon outside funding for on-lending activities. They rarely develop local deposit facilities (or aggressively pursue them if they set them up in some token gesture). Local deposit and savings mobilization is down-played and cheap foreign donor money is preferred for on-lending. Finally this organizational framework emphasizes large scale medium to long term loan projects, not short term working capital finance. In the end one has an unbalanced financial entity with little or no deposit services (which are always an important service to borrowers), little or no short-term working capital loans

and a portfolio heavily skewed into risky long term development projects. With little portfolio diversification, the institution is vulnerable to a high degree of portfolio risk.

Finally, in drawing upon donor funds and emphasizing large scale projects that require a large team of project analysts, there is a natural tendency for the institutions to become very centralized in their decision-making style and very "desk-bound" in their work style. External donor funds, although associated with low interest rate concessions, invariably force these on-lending institutions to incorporate an expensive operational infrastructure to document, monitor, supervise and repeatedly report on all aspects of the "targeted" loan projects that are expected to fulfill some previously established agenda of donor priorities. These non-interest lending costs per escudo lent can reach very high percentages and contribute to the growing unviability of the lender. Field studies carried out recently in several countries have documented administrative lending costs in development banks ranging from 10 to 20 percent (per unit of currency lent), far in excess of the administrative cost margins of 3 to 4 percent generally built into donor project agreements (see Cuevas and Graham in Adams et. al 1984).

Finally the portfolios in these specialized institutions invariably encounter serious loan recovery problems compromising the viability of the institutions. This grows out of a variety of causes: (1) poor loan evaluation procedures and weak loan recovery efforts; (2) the high

probability of a medium to long term loan portfolio falling victim to changing policies and market conditions unanticipated in project appraisals; (4) no balanced portfolio available to generate offsetting gains in more financially secure loan activities; and (5) weak to non-existent sanctions to foreclose on collateral and poor cooperation from borrowers for prompt repayment of due installments.

This poor cooperation from borrowers suggests they rank repayment of due installments as a low priority since they do not expect to gain any future service from the institution. Their deposits and savings are typically held in a commercial bank. Their continuing need for short-term working capital finance is also met through other institutions. The prospect of gaining more funding from a financially weak development bank, subject to sharp fluctuations in donor funds, are not promising. In the end the quality of current and future services is sufficiently low that there are no incentives for prompt repayment (and weak sanctions for tardy payments). The poor loan recovery record of IFADAP's current management of P.L. 480 funds and its weak performance in managing the refinancing schemes for the CCAM's, illustrate some of the classic problems faced by a centralized and specialized development finance institution.

A more appropriate strategy to expand financial services to an agricultural clientele would emphasize the existing branch network of commercial banks (and possibly a more "disciplined" management of the CCAM network). The rural infrastructure of some of these banks is already in place, with sufficient branches in many important rural

regions. They are integrated into the rural economy and performing a valuable service for a numerous constituency of savers and depositors. Handling deposit accounts gives banks additional information on clients to evaluate credit worthiness. Having depositors interests in mind, banks generally incorporate more careful criteria in loan evaluation and, more importantly, follow up with more effective loan recovery efforts. Finally, borrowers are more sensitive to the rewards of prompt loan repayment to commercial banks than they are to development banks. Commercial banks offer them a wider range and sustained flow of financial services and are available to offer short-term credit reserves in emergencies to good customers in a way a development bank cannot do.

In summary, expanding both short and longer term agricultural loans within commercial banks would appear to be a more viable option than establishing a specialized institution. The issue at hand is to devise a proper set of fiscal and other incentives that will reward banks for expanding agricultural lending. Put differently, any set of subsidies the government might consider necessary to launch a specialized institution for agricultural lending would generate a more secure and sustainable long run pay-off if applied to the existing set of commercial banks.

IV. THE DEMAND FOR CREDIT IN PORTUGUESE AGRICULTURE:
MAJOR ISSUES, EMPIRICAL EVIDENCE AND POLICY
IMPLICATIONS

A. Introduction

Agricultural credit programs typically place great emphasis on the demand for credit. It is generally assumed that if the supply of farm loans can be increased and the interest rate reduced, farmers will borrow more so that agricultural investment will expand, modernization will accelerate, and production will increase. Balance of payments problems will be alleviated through an expansion in agricultural exports and a reduction in agricultural imports. Farmers' incomes will rise and so will their demand for locally produced consumer goods. In practice, it is difficult to clearly estimate demand for loans for agricultural production, and to quantitatively determine the impact caused by an expansion in loan supplies. This section discusses several aspects of these problems as they relate to the current situation in Portugal.

B. Methodological Issues

It is useful to begin this discussion with a brief review of methodological issues which complicate the analysis of the demand side of rural financial markets.¹

¹ These issues are discussed in more detail in Adams, Graham and Von Pischke.

1. Loan funds are fungible.

As mentioned earlier in our supply side analysis of the Portuguese agricultural credit system, a fungible good is one that can freely replace or be replaced by other goods of a similar nature or kind. Thus loan funds can be replaced by or can replace any other source of funds managed and controlled by the borrower. This quality makes cash loans much more desirable for a borrower than loans in kind. Lenders and policy-makers recognize that because of fungibility borrowers may divert loan funds to uses other than those stated in the loan document, or may substitute loan funds for their own funds that would have been used to finance the investment but will be spent elsewhere when a loan is obtained. Therefore, expensive and complicated rules, regulations, and inspection procedures are used in agricultural credit programs to try to minimize diversion and substitution.

2. Additionality

Policy-makers are interested in increasing agricultural investment and production to levels above those that would have prevailed without expanded loans. However, because of the fungibility of funds, it is difficult to determine what additionality actually occurred because of increased borrowing by farmers. Did farm investment

increase? Did output increase? Did the purchase of consumer durables increase? Unequivocal answers to these questions require information about what households would have done without their loans (i.e. the counterfactual situation). Since this is rarely possible to know with certainty, it is impossible to precisely determine the impact of borrowing. Because of fungibility, we should always expect that additionality is less than that implied by simply summing the stated purposes by borrowers on loan applications.

3. Selectivity

One method that is frequently employed to estimate additionality is to compare income, assets, productivity, etc. of borrowers and nonborrowers who are supposedly similar in all respects except credit use. This approach ignores the fact that the two groups are frequently different in several respects, not just in credit use. Frequently the borrowers selected by lending agencies for loans are more aggressive, more profitable in farming operations, better managers, etc. Therefore, it is inaccurate to attribute differences found between these two groups as being caused by borrowing.

4. Low Interest rates and excess demand for loans

Many countries use interest rate controls which fix interest rates at levels below market clearing rates. Frequently these fixed rates are negative in real terms

(nominal rates lower than the rate of inflation). Sub-equilibrium interest rates cause an excess demand for loans because borrowers demand more funds at low rates than lenders prefer to supply. This excess demand leads to policies such as loan quotas which attempt to force lenders to increase the quantity of loans made at the low rates. Frequently governments try to entice lenders to expand agricultural lending by offering rediscount facilities at favorable interest rates. When interest rates are fixed, lenders employ a variety of non-interest methods to ration loans. These methods raise borrower (non-interest) transaction costs and discourage some potential borrowers from pursuing loans even if real interest rates are low. The lower the rates the greater the demand for funds to finance nonfarm and consumption activities by influential borrowers who successfully get loans; the wealthier the client the greater is the incentive and potential for diversion and substitution.

C. Investment Issues in Portuguese Agriculture:
The Implicit Demand for Credit

It has been widely reported (Balassa; Estacio; World Bank, 1978 & 1984) that the rate of investment in Portuguese agriculture is low relative to the rest of the economy and relative to the rate desired in order to stimulate output and absorb rural labor. This conclusion is surprising considering the large amount of subsidies and credit provided in recent years to farmers and farmer cooperatives.

As noted earlier, the agricultural credit to agricultural output ratio is among the highest found in developing countries. The Ministry of Agriculture has complemented these credits with large direct subsidies. Furthermore, there have been huge capital inflows through emigrant remittances, with special subsidies and incentives to encourage emigrants to invest in agriculture.

1. Interpretations of Investment Performance

There are two explanations for the reported poor Portuguese investment performance. The first is that somehow the national accounts do not accurately capture the large amount of investment taking place. This would imply an underestimation of investment due to methodological problems in collecting data for the accounts. We did not investigate this issue but it is interesting to note that farm household surveys in the north uncovered a surprisingly large amount of investment, especially for items purchased to modernize dairy technologies and vineyards (Pearson, et. al). Since many of these investments were funded by emigrant remittances and informal loans, data on formal loans may be a poor proxy for agricultural investment.

A second interpretation is that, in fact, investment is low in spite of the large amount of formal loans reportedly going to agriculture. If this is true, how can it be explained? Several things could be occurring. First, one possibility is that formal loans may be substituting for informal sources or for self-finance as we have repeatedly

emphasized throughout this report. In this case, the source of investment funds is changing, but the aggregate volume is not. Second, formal loans may be heavily concentrated in relatively few farmers and cooperatives which are rapidly expanding investment and financing working capital out of loan funds rather than their own savings. A third possibility is that borrowers are balancing their investment portfolios by making both agricultural and nonagricultural investments. Through diversion and substitution, loan funds for agricultural purposes (which normally carry an interest rate lower than other loans) are being used to help finance these nonagricultural investments. Therefore, in summary, an important issue in determining investment behavior of farmers is the rate of return on farm investments. Low rates of return relative to other investment opportunities would help explain low levels of investment as farmers engage in credit diversion and credit substitution strategies.

2. Rates of Return for Agricultural Investments

Several of our interviewees suggested that low and uncertain rates of return have existed in Portuguese agriculture and are expected to remain low in the near future. Neither the farmers nor the lenders we interviewed could confidently identify enterprises and activities they feel are good investment prospects. Some farmers making investments prefer to avoid the financial risk of borrowing

to do so. These observations suggest that either high-rate-of-return investments do not exist or, if they exist, information about them is not widely available or understood. If this interpretation is verified by more comprehensive analysis, it will help explain present patterns of loan distribution and use. It will also imply that the key financial constraint in Portuguese agriculture is not loan supply nor interest rates, but loan demand.

A complex system of price supports and controls for basic commodities has been the principal element of Portugal's agricultural policy. Prices have been set for one or more purposes and complemented with other income or cost determining price measures to achieve other objectives. Some measures which could be considered efficient or equitable in themselves lose their original sense of purpose at the level of farmers or consumers (World Bank, 1978).

Analysis of the effects of these policies suggest that consumers may have benefited more than producers. In general, output pricing policies are either redundant or inconsistent. Input and factor prices benefit producers but largely those that have already adopted modern technologies, so it is difficult to conclude that policies have contributed to introducing agricultural innovations (Finan, et. al.).

The important empirical issue concerns the level of enterprise returns, variability of these returns over time, and the impact that enterprise profitability may have on the demand for loans. The next section presents some aggregate

indicators of enterprise profitability while the following section summarizes the results of detailed studies of profitability in Portuguese agriculture.

a. Partial Price-Cost Indicators

Table 11 reports nominal producer prices for major crops during the 1970-83 period. The data show a continuous upward trend caused in part by inflation. Table 12 reports deflated prices for most of the same crops up to 1981. Three impressions clearly emerge from these data. First, deflated prices for many products were either below or only slightly above 1970-72 prices during the entire period. Second, the few products with consistently higher prices (dry and broad beans, chick peas, and potatoes) are less important than several of the other products in terms of crop area or farm income. Third, deflated prices of individual crops were extremely variable over the period and the relative profitability of major competing crops showed no clear pattern.

Nominal and deflated prices for the two major processed crop products of wine and olive oil are presented in Table 13 for 1970-1980. The deflated price of wine experienced wide variability but prices in 1979 and 1980 were less than in the beginning of the decade. Deflated olive oil prices rose considerably in the middle of the decade, but dropped somewhat towards the end. Therefore, there were real price incentives for olive oil production, but little for wine.

Nominal and deflated prices for livestock products are reported in Tables 14 and 15 for the period 1973-1982. A mixed pattern emerges as was the case for crops. Deflated beef prices fluctuated around the base year price with no consistent trends. Deflated pork, broiler, and egg prices were consistently lower than at the beginning of the period. Unless there were considerable efficiency improvements in feed conversion or real reductions in feed prices, it appears that the profitability of producing livestock products has declined, with the exception of lamb and milk.

The relationship between product and input prices is a partial indicator of trends in enterprise profitability. Relationships between crop prices and prices for major inputs like seeds and fertilizers are important because they reflect changes in profitability that may occur by utilizing more modern production inputs. Table 16 reports prices paid for selected fertilizers and seeds. These input and product price data were used to produce Table 17 reporting input/crop price ratios. They show the number of kilograms of crop which must be sold to purchase a kilogram of the input. Fertilizer/crop price ratios tended to be at their high point in 1974-75. There was a fairly general decline after those peak years implying that farmers were encouraged to apply more fertilizer. That trend ended after 1981, however, as those ratios steadily increased and began to approach their earlier peak levels. Although deflated fertilizer prices for Portuguese farmers declined during the

TABLE 11. Producer Prices for Principal Crops, Portugal, 1970-83

	Wheat	Maize	Rye	Rice	Oats	Barley	Dry Beans Esc/kg	Broad Beans	Chickpeas	Sunflower	Safflower	Potatoes	Tomatoes
1970	3.26	2.34	2.65	3.71	2.25	2.53	8.05	4.56	6.63	4.96	5.12	1.25	0.57
1971	3.55	2.77	2.67	3.79	2.29	2.45	8.86	5.27	8.09	5.22	5.50	1.61	0.60
1972	3.55	2.77	2.68	3.62	2.18	2.43	9.64	5.05	11.08	6.07	5.98	2.17	0.61
1973	3.55	2.62	2.70	3.62	2.33	2.74	11.43	5.97	13.76	6.28	4.66	2.42	0.69
1974	4.26	3.88	3.24	5.03	2.81	3.45	16.41	7.65	15.48	9.03	8.28	2.98	1.44
1975	4.94	5.36	4.11	6.17	3.23	3.70	25.59	7.20	17.06	10.41	10.04	4.38	1.41
1976	4.94	5.35	4.20	6.82	3.76	3.76	34.66	8.98	23.22	10.43	10.08	6.34	1.36
1977	6.05	6.38	5.00	7.37	6.02	6.24	45.11	24.04	37.93	12.73	11.87	6.28	1.47
1978	7.59	7.23	6.54	9.98	10.22	9.16	43.11	21.32	40.95	15.92	13.98	4.43	1.74
1979	11.22	8.32	7.16	12.75	7.02	8.72	41.67	34.43	42.16	19.04	16.79	9.28	2.24
1980	12.86	9.64	9.75	15.22	8.26	8.27	41.41	26.24	48.28	21.97	18.70	8.10	2.96
1981	14.69	12.78	13.61	18.26	11.06	12.97	92.26	31.13	64.76	24.07	22.22	11.34	3.35
1982	17.30	16.25	16.20	21.90	12.00	15.00	n.a.	n.a.	n.a.	28.00	26.00	n.a.	4.20
1983	21.20	19.25	19.90	n.a.	14.50	18.40	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

NOTE: Weighted annual average producer prices (at point of first sale), 1970-81. For 1982-83 guaranteed producer prices; wheat, common class I; maize, average yellow and white; rice, "Carolino" type; barley, malt third class; tomatoes, industrial first class.
SOURCE: INE. Reproduced in World Bank, Agricultural Sector Survey, Vol. II, 1984; Table 3b, p. 37.

TABLE 12. Index of Real Producer Prices for Principal Crops. Portugal.1970-81.

	Wheat	Maize	Rye	Rice	Oats	Barley (1970-72=100)	Dry Beans	Broad Beans	Chickpeas	Sunflower	Safflower	Potatos
1970-72	100	100	100	100	100	100	100	100	100	100	100	100
1973	89	86	87	84	89	95	111	104	139	100	73	125
1974	90	107	88	98	91	101	135	112	132	121	109	130
1975	89	127	96	103	90	93	180	91	125	120	113	164
1976	76	109	84	98	90	81	210	97	146	103	98	204
1977	74	103	79	84	114	107	216	206	188	100	91	160
1978	76	95	85	93	158	128	169	149	166	102	88	92
1979	91	89	75	96	113	99	132	195	139	99	85	157
1980	92	90	90	101	91	83	116	131	140	100	84	120
1981	90	102	107	103	104	110	220	133	160	94	85	144

NOTE: Prices deflated with GDP implicit deflator (1963-100).

SOURCE: WORLD BANK, Agricultural Sector Survey, Vol II, 1984. Table 39, p. 38

TABLE 13. Producer Prices for Wine and Olive Oil, Portugal, 1970-80

	Wine		Olive Oil	
	Nominal	Real	Nominal	Real
1970	4.38	4.38	17.13	17.13
1971	5.22	4.97	16.90	16.10
1972	6.20	5.49	19.25	17.04
1973	7.23	5.88	24.57	19.98
1974	5.51	3.77	42.57	29.16
1975	6.39	3.76	49.25	28.97
1976	8.32	4.20	54.70	27.63
1977	15.12	6.05	63.50	25.40
1978	30.63	10.01	63.50	20.75
1979	15.76	4.18	91.25	24.20
1980	18.25	4.26	97.48	22.78

NOTE: Real prices calculated using GDP deflator.

SOURCE: INE. Reproduced in World Bank, Agricultural Sector Survey, Vol II, 1984, Table 40, p. 39

TABLE 14. Nominal and Real Producer Prices of Selected Livestock Products, Portugal, 1973-82.

	<u>Beef 1st class</u> (esc/kg carcass)		<u>Pork Grade 1</u> (esc/kg carcass)		<u>Broilers Lisbon</u> (esc/kg liveweight)		<u>Lamb Beja</u> (esc/kg liveweight)		<u>Milk class A</u> (esc/liter)		<u>Eggs Lisbon</u> (esc/dozen)	
	Constant		Constant		Constant		Constant		Constant		Constant	
	Current	1970	Current	1970	Current	1970	Current	1970	Current	1970	Current	1970
1973	53.60	43.58	28.23	22.95	20.62	16.76	24.66	20.05	3.44	2.80	14.43	11.73
1974	61.81	42.34	34.68	23.75	23.81	16.31	29.16	19.97	4.64	3.18	16.43	11.25
1975	70.65	41.56	38.59	22.70	28.96	17.04	33.86	19.92	6.44	3.79	18.50	10.88
1976	85.12 ^{c/}	42.99	58.91	29.75	41.23	20.82	53.10	26.82	7.54	3.81	19.82	10.01
1977	113.30	45.32	53.31	21.32	35.33	14.13	63.70	25.48	8.65	3.46	22.86	9.14
1978	130.83	42.75	55.98	18.29	43.42	14.19	67.61	22.09	12.21	3.99	28.82	9.42
1979	182.08	48.30	106.00	28.12	59.42	15.76	89.92	23.85	13.71	3.64	38.50	10.21
1980	217.50	50.82	90.84	21.22	60.83	14.21	102.58	23.97	13.71	3.20	27.92	6.52
1981	216.06	43.13	79.22	15.81	56.00 ^{f/}	11.18	148.00 ^{f/}	29.54	15.27	3.05	n.a.	
1982	269.10 ^{d/}	43.97	110.00 ^{e/}	17.97	n.a.		160.05 ^{g/}	26.15	19.15	3.13	n.a.	

a/ Weanling on pasture.

b/ Guarantee price in organized zona during main season, 3.5% fat content.

c/ Minimum guarantee price plus average variation between intervention and market price 1970-75 (15%).

SOURCE: INE, MACP, Procalfer, and mission estimates using implicit GDP deflator. Reproduced in World Bank, Agricultural Sector Survey, Vol. II, 1984. Table 41, p. 40.

d/ Minimum guarantee price plus average variation between intervention and market price 1977-81 (17%).

e/ Average of maximum and minimum intervention prices.

f/ From Procalfer Phase II Report.

g/ Minimum intervention price "extra", carcass weight using .55 as conversion coefficient plus average variation between market and intervention price 1980-81 (20%).

TABLE 15. Indices for Real Producer Prices for Selected Livestock Products, Portugal, 1973-82.

	Beef	Pork	Broilers (1973 = 100)	Lamb	Milk	Eggs
1973	100	100	100	100	100	100
1974	97	103	97	100	114	96
1975	95	99	102	99	135	93
1976	99	130	124	134	136	85
1977	104	93	84	127	124	78
1978	98	80	85	110	142	80
1979	111	123	94	119	130	87
1980	117	92	85	120	114	56
1981	99	69	67	147	109	n.a.
1982	101	78	n.a.	130	112	n.a.

SOURCE: World Bank, Agricultural Sector Survey, Vol. II
Table 41, p. 40.

TABLE 16. Prices Paid by Producers for Selected Commercial Fertilizers and Seeds, Portugal, 1970-83

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
	(Escudos per kilo of nutrients)													
Fertilizers:														
Ammonium Sulfate <u>a/</u>	8.54	7.93	7.93	7.70	10.40	11.15	8.90	11.17	12.14	15.41	16.09	17.17	31.32	45.27
Ammonium Nitrate <u>b/</u>	8.56	7.89	7.89	7.64	9.98	12.46	9.58	12.05	12.76	16.63	17.41	15.63	31.90	47.51
Urea <u>c/</u>	7.42	6.84	6.84	6.61	8.84	10.65	7.80	10.02	10.65	13.83	14.34	16.17	26.96	39.09
Superphosphate (powder) <u>d/</u>	5.27	4.95	4.95	4.94	8.04	9.93	8.45	10.50	12.09	14.50	15.55	15.83	28.33	41.11
Potassium Chlorite <u>e/</u>	2.70	2.54	2.54	2.46	3.78	5.52	4.22	5.37	5.88	7.40	7.67	8.57	14.67	21.27
Commercial Seed:														
	(Escudos per kilo)													
Wheat	3.52	3.52	3.51	3.52	3.51	5.77	6.80	9.00	15.50	15.50	20.96	23.00	26.10	30.74
Hybrid maize <u>f/</u>	12.00	13.00	14.00	14.00	16.00	22.00	25.17	31.71	43.92	37.25	53.00	65.00	n.a.	n.a.
Potatoes	5.10	4.81	4.16	4.30	4.69	5.72	8.14	12.60	13.44	15.27	n.a.	n.a.	n.a.	n.a.
Rice <u>g/</u>	5.50	5.50	5.50	6.13	6.15	9.55	10.28	10.22	14.63	21.03	28.52	29.50	35.52	n.a.

a/ 20.5Z N. e/ 60.0Z K
b/ 16.0Z N. f/ First quality.
c/ 46.0Z N. g/ Second generation.
d/ 18.0Z P.

NOTE: 1982-83 prices are maximum fixed prices to the public.

SOURCE: UNE, USDA, MACP Planning Office, and Mission estimates. Reproduced in World Bank, Agricultural Sector Survey. Vol. II, 1984. Table 54, p.53.

TABLE 17. Kilograms of Crop Required to Purchase a Kilogram of Input. Portugal, 1970-83.

Year	Input								
	Urea			Superphosphate			Seed		
	Wheat	Maize	Rye	Wheat	Maize	Rye	Wheat	Maize	
1970	2.3	3.2	2.8	1.6	2.2	2.0	1.1	5.1	
1971	1.9	2.5	2.6	1.4	1.8	1.8	1.0	4.7	
1972	1.9	2.5	2.6	1.4	1.8	1.8	1.0	5.1	
1973	1.9	2.5	2.4	1.4	1.9	1.8	1.0	5.3	
1974	2.1	2.3	2.7	1.9	2.1	2.5	0.8	4.1	
1975	2.2	2.0	2.6	2.0	1.8	2.4	1.2	4.1	
1976	1.6	1.5	1.9	1.7	1.6	2.0	1.4	4.7	
1977	1.7	1.6	2.0	1.7	1.6	2.1	1.5	5.0	
1978	1.4	1.5	1.6	1.6	1.7	1.8	2.0	6.0	
1979	1.2	1.7	1.9	1.3	1.7	2.0	1.4	4.5	
1980	1.1	1.5	1.5	1.2	1.6	1.6	1.6	5.5	
1981	1.1	1.3	1.2	1.1	1.2	1.2	1.6	5.1	
1982	1.6	1.7	1.7	1.6	1.7	1.7	1.5	n.a.	
1983	1.8	2.0	2.0	1.9	2.1	2.1	1.4	n.a.	

SOURCES: Input Price Data - Table 16
 Crop Price Data - Table 11

TABLE 18. Portuguese Minimum Guarantee Prices for Selected Crops, Portugal,
Crop Years: 1977-85

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Wheat									
Soft									
Class I (for bread)	6.00	7.50	11.00 <u>a/</u>	12.30	14.00				
Class II (forage)						17.30	23.00	34.00	40.50
Durum						16.80	22.30	33.70	39.50
Class A	6.50	8.50	14.00 <u>a/</u>	15.90	19.00	23.40	28.80	-	n.a.
Class B	6.25	8.00	13.00 <u>a/</u>	14.80	18.50	21.50	26.40	-	-
Barley									
Common	5.00	6.30	7.30	10.50	12.00	14.50	19.50	29.90	36.50
Malt									
Class I	5.50	7.00	8.00	11.30	12.60	15.30	18.80	-	-
Class II	5.40	6.90	7.90	11.20	12.50	15.10	18.60	-	-
Class III	5.30	6.80	7.80	11.00	12.30	15.00	18.40	-	-
Rye	5.00	6.30	8.00	11.80	13.50	16.20	21.50	31.60	37.30
Oats	3.90	5.40	6.50	8.60	10.00	12.00	16.50	25.56	30.40
Sorghum	-	7.40	7.40	9.90	11.50	14.40	21.70	30.60	n.a.
Rice									
Carolino	7.28	9.65	12.34	15.00	18.00	21.90	30.04	42.90	n.a.
Gigante	7.23	9.60	12.29	14.60	17.00	20.70	28.44	40.50	n.a.
Mercantil	7.07	9.44	12.13	14.00	16.50	20.00	27.54	38.90	n.a.
Corrante	5.78	7.90	10.59	12.00	14.00	17.00	23.44	33.80	n.a.
Sunflower	12.00	14.50	17.50	20.00	23.50	28.00	35.00	60.00	n.a.
Maize	6.00	7.50	8.80	11.30	13.00	16.00 <u>b/</u>	22.50 <u>b/</u>	32.00	n.a.
						16.50 <u>c/</u>	23.00 <u>c/</u>	32.50	n.a.

a/ Includes direct payment of 2.20 Esc/kg

b/ White

c/ Yellow

NOTE: In 1979, Portuguese quality specifications were changed to conform to those of the EEC.

SOURCE: MACP Planning Office. Reproduced in World Bank, Agricultural Sector Survey, Vol. II, 1984. Table 46, p.45, updated by data from MAFA Planning Office.

TABLE 19. Kilograms of Crop (at Minimum Guaranteed Prices) to Purchase a Kilogram of Input. Portugal, 1976-84.

Year	Input					
	Urea			Superphosphate		
	Wheat <u>a/</u>	Maize <u>b/</u>	Rye	Wheat <u>a/</u>	Maize <u>b/</u>	Rye
1976-77	1.3	1.3	1.6	1.4	1.4	1.7
1977-78	1.3	1.3	1.6	1.4	1.4	1.4
1978-79	1.0	1.2	1.3	1.1	1.4	1.5
1979-80	1.1	1.2	1.2	1.2	1.3	1.2
1980-81	1.0	1.1	1.1	1.1	1.2	1.2
1981-82	0.9	1.0	1.0	0.9	1.0	1.0
1982-83	1.2	1.2	1.2	1.2	1.3	1.3
1983-84	1.2	1.2	1.2	1.2	1.3	1.3

a/ Soft wheat 1976-77 to 1980-81, class I wheat thereafter.

b/ White maize

SOURCES: Input price data - Table 16
Minimum Guaranteed Prices - Table 18

TABLE 20. Prices Paid by Farmers for Selected Compound Feeds. Portugal, 1970-84. ^{a/}

	<u>Dairy Cows</u> (16% protein)	<u>Young Steers</u> (13% protein)	<u>Pigs</u> 30-60/70 kg (15% protein)	<u>Broilers</u> (18% protein)
	-----Esc/kg-----			
1970	2.53	3.05	3.12	3.66
1971	2.56	3.05	3.20	3.81
1972	2.59	3.05	3.23	3.90
1973	2.85	3.10	3.75	4.45
1974	4.30	4.50	5.30	6.30
1975	4.30	4.50	5.30	6.30
1976	5.20	4.50	5.30	6.30
1977	7.70	5.20	6.50	7.10
1978	9.00	7.70	8.70	10.50
1979	9.00	8.90	10.10	12.10
1980	9.00	8.90	10.10	12.10
1981	12.20	12.10	14.00	16.80
1982	14.30	14.30	16.20	18.80
1983	27.50	27.00	30.05	33.53
1984 ^{b/}	36.00	34.70	39.80	44.00

^{a/} Compounds Feeds: dairy cows (B-321), steers (B-332), pigs (S-815), Broilers (A-115). In 1981, the pricing regime for compound feeds was changed from maximum fixed prices to declared prices; figures for 1981-82 represent prices of "competitive" firms.

^{b/} Only one firm as of 5/23/84.

SOURCE: USDA, INE and MACP Planning Office. Reproduced in World Bank, Agricultural Sector Survey, Vol. II, 1984. Table 51, p. 50, updated by data from MAFA Planning Office.

TABLE 21. Kilograms of Feed that Can Be Purchased with
a Kilogram of Product. Portugal, 1973-82.

Year	Livestock Product			
	Beef	Pork	Broilers	Milk
1973	17.3	7.5	4.6	1.2
1974	13.7	6.5	3.8	1.1
1975	15.7	7.3	4.6	1.5
1976	18.9	11.1	6.5	1.4
1977	21.8	8.2	5.0	1.1
1978	17.0	6.4	4.1	1.4
1979	20.5	10.5	4.9	1.5
1980	24.4	9.0	5.0	1.5
1981	17.9	5.7	3.3	1.2
1982	18.8	6.8	n.a.	1.3

SOURCE: Compound Feed Prices. Table 20

Livestock Product Prices. Table 14

1970s, this decline has been more than offset by the decline in deflated product prices in the early 1980s. Seed prices appeared to be about as expensive at the end of the period as they were in the beginning.

Analysis was also conducted on fertilizer/crop ratios using minimum guaranteed producer prices to see if government price policies have tended to encourage fertilizer use as reflected by this ratio. The data are reported in Tables 18 and 19. These price ratios are somewhat less variable and more favorable to fertilizer use than those reported above, but still show the tendency for fertilizer in 1983-84 to be almost as expensive as it was in 1976-77.

A similar analysis was conducted with livestock product prices. Table 20 reports prices paid for compound feeds and Table 21 reflects the feed price/livestock product price ratios through a ratio showing the kilograms of feed that can be purchased with a kilogram of livestock product sold. These ratios are important for specialized livestock and poultry producers without land who rely on purchased feed for part or all of their feed rations. These price ratios improved for producers of beef, pork and broilers during the early part of the period and reached their highest levels sometime between 1976-1980. In 1981 and 1982, they were considerably below 1980 levels for all three products. The feed/milk price ratio was also the best in 1979-80, but fell thereafter. The improvements in profitability that these ratios suggest for the late 1970s had all but disappeared by 1980 so that farmers were no better off at the end of the

period than at the beginning. With the removal of subsidies for concentrated feed imports in 1983, the profitability of livestock operations declined even further.

Portuguese policy-makers believe that maize production has great potential and will eventually substitute for imports. The livestock sector has expanded more quickly than the crop sector in recent years. Corn imports rose from 32 thousand tons in 1970 to 2.5 million tons by 1981 to supply concentrated feed requirements. Government policy has aimed at reducing the cost of livestock rations while stimulating maize production. The key price relationships between maize, compound feeds and livestock products are reported in Table 22. As noted in Table 12, deflated maize prices were above 1970-72 levels in 1974-77, but fell below these levels during 1978-80, and were about the same in 1981 as in 1970-72. Maize prices have been relatively high compared to compound feed prices, however, so that in 1975-77 and 1980-82 it was cheaper for some farmers to sell maize and buy feed (Table 22). This situation changed drastically in 1983 when policy changes sharply increased the cost of compound feeds.

The livestock products/maize price ratio helps explain the choice that farmers face regarding their option of selling maize versus feeding it to their own livestock or poultry. As the ratio goes up, it becomes relatively more profitable to feed more maize to increase output. The variability in this ratio and the purchased feed ratio (Table 20) suggest it would have been difficult for a farmer

TABLE: 22. Price Relationship between Maize, Compound Feed and Livestock Products, Portugal, 1973-83

Year	Compound Feed for Livestock Product/Maize Price Ratio				Livestock Products/ Maize Price Ratios			
	Steer	Pigs	Broiler	Dairy Cows	Beef	Pork	Broilers	Milk
1973	1.2	1.4	1.7	1.1	20.5	10.8	7.9	1.3
1974	1.2	1.4	1.6	1.1	15.9	8.9	6.1	1.2
1975	0.8	1.0	1.2	0.8	15.9	7.2	5.4	1.2
1976	0.8	1.0	1.2	1.0	15.9	11.0	7.7	1.4
1977	0.8	1.0	1.1	1.2	17.8	8.4	5.5	1.4
1978	1.1	1.2	1.4	1.2	18.1	7.7	6.0	1.7
1979	1.1	1.2	1.4	1.1	21.9	12.7	7.1	1.6
1980	0.9	1.1	1.3	0.9	22.6	9.4	6.3	1.4
1981	0.9	1.1	1.3	1.0	16.9	6.2	4.4	1.2
1982	0.9	1.0	1.2	0.9	16.6	6.8	n.a.	1.2
1983	1.4	1.6	1.7	1.4	n.a.	n.a.	n.a.	n.a.

SOURCE: Maize prices - Table 11
 Compound feed prices - Table 20
 Livestock product prices - Table 14

to develop intensive corn production for feeding his own livestock and poultry. For example, in the period 1974-77 farmers experienced favorable price trends for buying feed for beef production and selling any corn they produced. In 1978-79, it would have been preferable to feed corn rather than sell it, but the situation reversed itself again in the early 1980s. A roughly similar pattern emerged for pork. Broiler production showed a marked contrast, however, as it was generally favorable to feed corn rather than buy feed. Dairy cattle feed and milk prices seemed to follow patterns similar to maize and milk prices. It also appeared that feed, corn and milk price relations have been slightly less variable over time than those for other livestock products.

It is alleged that this combination of crop and livestock price policies has had an unexpected effect.

"For example, beef production and consumption subsidies had the effect of altering livestock production technology from low-cost pasture to high-cost imported feedgrains sold at subsidized prices to the feed industry. As a result of incentives, young male and female calves were fattened to heavy weights at an early age, with a resulting depletion of the breeding herd. Moreover, subsidies to wheat producers made it profitable to produce it on marginal land that would be best used as pasture. The unintended side-effects of wheat, maize and meat subsidies have consequently been to divert land and financial resources from potentially more profitable means of meat production with pasture to uneconomical wheat and feedgrains" (World Bank, 1978, p.6).

The impact of these policies may have become clear to policy-makers in recent years and may have been the reason for some of the recent price changes. However, if enterprises like beef-fattening or broiler-raising required the previous price relationships to generate profits, the price

changes of the past few years may be causing severe financial stress for the entrepreneurs affected. Financial stress would logically increase their demand for loans. But, if unfavorable price relationships continue, increased indebtedness will only temporarily disguise the long-term economic unviability of these enterprises. This in turn could contribute substantially to the unviability of the financial intermediaries servicing these loans as their portfolios collapse into delinquencies and default.

b. Empirical Studies of Profitability

A useful set of PROCALFER studies provides additional insights into the issue of enterprise profitability. They also make a major contribution to the analysis of possible changes in profitability which may arise because of Portugal's entry into the EEC. This issue is of great concern for any farmer considering a loan for a major long-term investment.

Estimates of private and social profits for 15 production systems are reported in Table 23. These estimates were calculated by Finan et. al., based on representative budgets and 1981 prices. The systems were selected to represent the major alternatives within the grain/livestock sector. The systems for traditional corn, traditional milk/butter, advanced milk/butter and traditional cheese were drawn from the northwestern districts of Entre Douro e Minho and Beira Litoral. The systems for modern corn,

TABLE 23. Private and Social Profitability Results for Selected Systems in the Grain/Livestock Sector. Portugal, 1981.

Grain/Livestock Systems	Private Profit -----Esc/Kg-----	Social Profit	Private Profitability 2/ %	Domestic Resource Cost
Grain/Oilseeds				
Traditional Corn	0.0	0.3	0.1	0.99
Ribatejo Corn	4.6	-0.4	32.1	1.06
Wheat (A & B Soils)	6.2	1.3	36.4	0.82
Wheat (C 7 D Soils)	2.6	-2.3	15.1	1.48
Ribatejo Sunflower	7.2	-0.3	30.8	1.02
Alentejo Sunflower	0.3	-6.0	1.3	1.56
Dairy Products				
Cheese	-1.4	-54.3	-0.3	1.18
Traditional Milk/Butter	-0.2	-7.2	-0.7	1.28
Advanced Milk/Butter	6.5	-1.5	38.6	1.15
Meat Products				
Beef	-1.6	-38.3	-0.6	1.30
Hogs (JNPP)	-7.4	-42.8	-3.6	-19.03
Hogs (Private)	-4.1	-38.5	-6.4	-13.12
Broilers (Large)	-8.6	4.6	-10.6	0.89
Broilers (Medium)	-13.0	2.2	-16.1	0.92
Lamb	201.2	10.3	38.9	0.95

2/ Private Profitability is defined in per unit terms as:

$$\frac{\text{Private Profit}}{\text{Private Receipts}} \times 100$$

SOURCE: Finan, Timothy J., Scott R. Pearson, Roger W. Fox and Eric A. Monke, "Comparative Advantage in Portuguese Agriculture", Paper presented at the Conference on Portugal on the Brink of Europe, Oeiras, June 28-29, 1983.

irrigated sunflower, feedlot beef, private and JNPP slaughterhouse for hogs, and large and medium poultry operations were drawn from the Ribatejo. The systems for both types of wheat, dryland sunflower, and lambs were drawn from the Alentejo.

The estimates of private profits shown in Table 23 suggest that eight systems either broke even or showed profits in 1981, while seven realized losses. The northwest had only one system with significant private profits -advanced milk/butter. The Ribatejo modern corn and irrigated sunflower systems showed profits but all the livestock and broiler systems showed losses. All the Alentejo crop systems and the lamb system showed private profits.

Social profits indicate whether or not the system is competitive at world prices and, therefore, is an efficient user of scarce resources. With the exception of broilers and traditional corn, social profits were either less positive than private profits, or were negative when private profits were positive, or were more negative when private profits were also negative. Thus, private profitability was increased in 12 out of the 15 systems by government subsidies.

One limitation of this type of study is that one base year must be selected for analysis. Prices and subsidies in that particular year strongly influence the results. A review of the input/output price relationships reported in Tables 17,19,21 and 22 gives an indication of how the

results might have been different in other years. It appears that the 1981 fertilizer/crop price relationships were the best of any year in the reported series. Seed prices were relatively expensive. Feed prices for beef, pork and broilers were relatively high, while for milk production they were about average. Therefore, the 1981 estimates may slightly overestimate returns for cereals and underestimate them for some categories of livestock.

An important conclusion of Finan et al. is that Portuguese policy favors a number of systems that have already adopted modern technology because they have access to large amounts of subsidized credit, subsidized inputs, and state marketing institutions. The implication of this analysis is that farmers generate profits with these systems because of subsidies. This makes them extremely vulnerable to policy changes affecting the level and eligibility requirements for the subsidies. Farmers that borrow for these systems are, therefore, subject to three sources of risk: business risk associated with regular production and marketing problems, financial risk associated with incurring an obligation to pay back a loan, and policy risk associated with changes in subsidy programs that affect their rate of return.

An example of policy risk was experienced by farmers in mid-1983. The government introduced measures to reduce the budget deficit which included removing a large part of the subsidies previously available to agriculture. Subsequently, producer prices were increased greater than the

rate of inflation. Josling and Langworthy analyzed the impact of these changes on profitability and concluded that in general cropping and dairy systems improved profits, while meat production systems became even more precarious. The authors also updated earlier projections about the impact of EEC entry because the 1983 price changes put some Portuguese commodity prices still well above EEC levels. They predicted that the cereal and dairy sectors, which were some of the most profitable noted above, will likely suffer the greatest adjustments both because they benefited from the recent price increases which placed their prices above EEC prices and because they produce commodities in chronic surplus in the EEC.

An indication of the problem of financial risk can be found in an analysis of farm models included in the World Bank loans to Portugal. The analysis considered the debt repayment capacity of farm enterprises under alternative income scenarios. The analysis concluded that risk averse farmers might not borrow because under certain assumed conditions net income in bad years would be very negative for borrowers but still positive for nonborrowers (World Bank, 1984, Volume IV, pp. 47-53).

In conclusion, financial intermediaries in the SIFAP network are directly affected by both the rate of return to farming enterprises and changes in subsidies (and price policies in general) that affect these rates of return. The viability of institutions servicing rural clients in rural financial markets will be seriously compromised by

government policies constraining rural clients ability to repay loans or maintain deposits. In the final analysis government price and subsidy programs promoted many expensive and inefficient import substituting agricultural enterprises that did not mature into efficient operations after a reasonable period of time. This has created debilitating conditions for financial intermediaries that were either pressured or drawn into financing these activities on the basis of misleading and distorted relative prices giving false signals of long run profits.

V. THE PROCALFER LINES OF CREDIT: THE SUPPLY AND DEMAND ISSUES REVISITED IN MICROCOSM.

A. The Status of PROCALFER Credit Activities

Our current review does not pretend to engage in an exhaustive review of PROCALFER credit. Given the limited time available in our visit and the broader mandate to encompass the global dimension of agricultural credit in Portugal, it was not possible to investigate in detail PROCALFER credit activities. However, the material gathered does allow us to engage in at least a cursory examination of PROCALFER's experience from the supply and demand framework developed in the body of the report.

In the face of questionable profitability and technological trends, special projects such as PROCALFER which focus on resolving key bottlenecks and constraints is appropriate. The production, distribution and application of lime in lime deficient soils in Portugal makes agronomic sense. This strategy is directed towards replacing imported feed with expanded output of local forage crops grown on soils whose productivity has been improved through lime and fertilizer applications.

Tables 24 and 25 present information on the current status of PROCALFER credit activities and documents the volume of credit disbursed through PROCALFER's four lines of credit to date. These lines were designed to provide interest rates subsidies and easy repayment schedules. Line A was utilized to finance the expansion of production

facilities producing lime. Four loan applications have been handled successfully through this line with increased production currently in place. For all practical purposes loan activity through this line has been completed and there are no plans for further activity in this area.

Line B is designed to finance the construction of storage facilities of lime and related inventory for selected cooperatives. Farmers can also draw upon this credit line for on-farm investments in storage facilities. The credit terms and conditions are set forth in Table 24. The amount disbursed documented in Table 25. For the most part these loans have gone to cooperatives, and, in terms of volume disbursed, it is the largest loan activity in the PROCALFER program (see Table 24 line B). The demand for these loans are currently declining because many cooperatives have already borrowed sufficiently to construct the storage capacity needs of the program.

It is not absolutely clear that the interest rate subsidies were necessary in this line of credit, especially when the Ministry of Agriculture (MAFA) provided direct subsidies to help in the construction of storage facilities for these same cooperatives. It is also not clear that a careful economic analysis was undertaken at the cooperative level to justify the scale of the new investments, given the technical requirements and the cooperatives' ability to

TABLE 24. Status of the Four Lines of PROCALFER Credit with Associated Purposes and Credit Terms: 1982 to Present.

Line/Purpose	Intended Borrowers	Loan Purpose	Credit Conditions	Status
A. Lime Production (Mfg.)	Private firms and cooperatives in lime production	Purchase equipment, Construction	13.75% annual interest rate, maximum 10 year term, 2 year grace period, semi-annual loan repayments	Completed. Current Sources of lime expected to be sufficient
B. Construction of storage facilities	Cooperatives and farmers	Cooperatives-build multipurpose storage facilities. Farmers-build agricultural installations	Limit of Esc. 10.000 per square meter of construction 12% annual interest rate, maximum 10 year loan, 2 year grace period	Demand is declining because many cooperatives have already borrowed to build these facilities
C. Working Capital for unions of Cooperatives	Cooperative unions for on-lending to member cooperatives	Purchase lime and fertilizer	9.5% annual interest rate, maximum of two year term, grace period of one year	Little demand for this line of credit
D. Farm investments	Farmers	Improve pastures purchase machinery and livestock	For A, B and C soils: 12% annual interest rate, 4 year maximum loan term, one year grace. For D and E soils: some except 3 year repayment	Relatively little demand at outset somewhat more farmer demand currently

SOURCE: PROCALFER files and documents.

TABLE 25. PROCALFER Lines of Credit Disbursed from 1982 through 1984, Portugal
(in contos)

Credit Lines	Applications		Approved		Rejected		In Process		Contracts Signed		Disbursed	Principal Repaid
	No	Amount	No	Amount	No	Amount	No	Amount	No	Amount		
A. Mfg. Loans	4	239,753	4	192,920	-	-	-	-	2	106,920	87,850	-
B. Warehousing Invest. Loans <u>a/</u>	55	803,341	40 ^{b/}	496,403	2	16,700	12	83,843	26	385,056	328,328	-
C. Line Purchases	13	80,109	6 ^{c/}	62,031	-	-	4	14,532	3	42,683	42,022	35,320
D. Farm Invest. Loans	91 ^{d/}	495,026	48	337,095 ^{e/}	3	3,265	30	89,989	41	318,195	248,734	1,172
Total	163	1,618,229	98	1,088,449	5	19,965	46	188,364	72	852,854	706,934	36,492

SOURCE: Gabinete Credito Directo, PROCALFER data.

a/ Including, UCANORTE loan of 167,750 contos

b/ Including one cancellation

c/ including two cancellation

d/ Including two application withdrawals (desistencias) and four applications returned to the Coordinating Group for review and revisions.

e/ Includes two withdrawals and one cancellation

repay in light of prospective future earnings. There does appear to be considerable excess capacity in some of the newly constructed facilities in the North visited by the authors.

Credit line C was designed to provide working capital for cooperatives for on-lending to members to purchase lime. As Table 25 illustrates there has been very little demand for this line of credit. Various explanations have been offered as to why this credit line has not been utilized more. These range from unnecessarily long delays to fulfill IFADAP requirements, to the lack of interest in getting involved in complicated loan processing activities for such small amounts of numerous individual farmer purchases at the cooperative. It is felt that farmers can and do absorb the cost of these lime purchases out of their own cash flow and non-subsidized short term cooperative credit. In short, the lack of demand for line C credit is unimportant. Of more importance is whether lime is being sold from the warehouses. Documentation of sales alone would appear sufficient to prove the existence of a continuing demand for lime use by farmers (regardless of the means of financing).

The fourth and final line of credit activity, line D, is directed towards farmers. The purpose is to promote improved pastures, purchase of machinery, livestock, etc. These long term loans are set up with different terms and conditions depending upon the soil types involved in the activity (see Table 24, line D). Table 25 indicates that

only 41 loans have been signed within this credit line and roughly 249,000 contos have been disbursed. This is much less than one would have anticipated for a presumed large scale farmer adoption of PROCALFER's technical package. This issue forms the basis for our major concluding remarks on PROCALFER credit in the next section.

B. The Demand Side Issue in PROCALFER Farm Level Credit Activity.

Line D of PROCALFER's credit activity in many ways allows one to summarize the supply and demand for credit issues in Portugal. It is the strategic credit line whose activity would indicate whether the technological package devised by PROCALFER is sufficiently attractive to elicit a growing demand by farmers to adopt this lime-fertilizer package. The slow movement of credit activity within this line raise some pertinent questions.

To what extent is the PROCALFER package properly tested with results widely disseminated for prospective clients? Are there high transaction costs for prospective borrowers to draw upon this line of credit? Many complaints have surfaced concerning the complicated and time consuming loan application procedures in IFADAP and the delays common to servicing these loans. And, finally, to what extent are informal credit, self finance, emigrant remittances or unsubsidized loans conceivably being drawn upon (rather than line D) to service farmer demand to implement these technological packages? Although non-subsidized credit sources may

have higher nominal interest rates, they may have lower total borrowing costs in that the non-interest transaction costs may be much lower than those incurred through subsidized lines of credit.

These questions need to be addressed and answered before one can properly evaluate why line D credit in PROCALFER's program is not drawn upon more extensively. The two most pressing issues are: (1) the "supply-side" documentation of the true farm level non-interest transactions costs incurred by borrowers resorting to the subsidized line of credit and; (2) the demand-side question, i.e. whether the "economic" rate of return to the adoption of PROCALFER's technological package is sufficiently promising to justify a growing demand for its adoption.

Although the agronomic components of lime and fertilizer applications for forages may have been worked out successfully, PROCALFER faces the additional challenge of determining if the economic and financial rate of return works out satisfactorily at the farm level. Given all the recent absolute and relative price changes for products and factors of production in Portuguese agriculture documented in the previous section of this report, it would not be surprising that there may be important questions of risk and returns that could affect the economic attractiveness of the PROCALFER package. It is our impression that this has not been adequately recognized and evaluated in the PROCALFER program. However, the prospects for overcoming this obstacle

appear promising in that PROCALFER has a very able policy analysis team they can draw upon to engage in the necessary fieldwork to determine the economic rate of return of the new package and practices in the program. We strongly recommend they do so.

VI. AGENDA FOR RESEARCH: SUGGESTIONS AND COMMENTS

Our documentation and analysis of the supply and demand for agricultural credit in Portugal raised as many questions as it attempted to answer. Below, we list some of the areas we feel need more documentation and research to understand the nature and functioning of rural financial markets in Portugal. In our judgement on-going research in these areas could prove beneficial to practitioners and policy-makers alike and, in the process, clarify or alter some of the necessarily more speculative comments we have introduced throughout this work.

1) Research on the Supply Side of Agricultural Finance in Portugal (i.e. the efficiency, costs and viability of managing agricultural credit portfolios).

a) It would be helpful to undertake an analysis of the transaction costs (i.e. non-financial, operational costs) per escudo lent incurred by lenders servicing an agricultural portfolio. Distinction could be made concerning the differential costs for long vs. short term loans and regular vs. subsidized loans. Results could then be compared to the interest rates charged on loans and the gross operating margins of the lenders to determine if the spreads authorized for agricultural loans are sufficient to cover these costs. If not, cost economies could be introduced through reducing the targeting, documentation and reporting requirements or wider operating margins or fiscal incentives allowed to protect the viability of lending institutions.

b) More information is needed on loan recovery performance of the agricultural portfolio in Portugal. Distinctions could be made on the aging of the arrears in loans repayments (those overdue only 30 days or 60 days vs. loans overdue beyond 90 or 180 days) so as to discount relatively unimportant short term arrears. Distinctions should also be made for enterprise-type to determine the extent to which arrears are relatively more serious for selected enterprises. This information is useful for MAFA officials since it contributes to a more informed understanding of the current rates of return on farming. At the same time it is equally useful to Bank of Portugal officials concerning the viability of lenders servicing an agricultural clientele, and the differential operating performance of lenders serving agricultural clientele. In estimating the arrears rate it is essential this be calculated in the basis of the amount repaid over the amount due and not over the amount of credit outstanding (a good part of which is not yet due).

c) In addition to the lending costs discussed above, it would be revealing to undertake a series of case studies of selected farm borrowers to determine total borrowing costs incurred by borrowers negotiating and securing loans. Of importance here is not only the interest rate but, more importantly, the non-interest transaction costs absorbed by borrowers. Are those significant for borrowers of small or

modest sized loans and do they weigh heavily in subsidized credit negotiations that require repeated visits, documentation and loan process time, as we suspect?

Greater documentation here can offer insights into ways to reduce these transactions costs for small farmers and small loan clientele. Questionnaires successfully used to document farm-level borrowing costs in many different country settings are available at the Ohio State University and could be drawn upon freely to carry out this work.

d) Given the increased share of total SIFAP loans going to non-individual clientele (i.e. cooperatives), it is important to document this loan activity more carefully to determine if these loans are promoting agricultural modernization or merely representing a holding action for un-economic enterprises that have little hope for recovery. A careful study of a selected sample of cooperative borrowers could prove instructive in answering these questions. In particular one would want to document loan recovery records for cooperatives to determine if this represent a dangerous portfolio exposure for lenders.

Secondly, one would want to document the economic and financial performance of the cooperatives to determine if they are offering any meaningful services to their agricultural clientele. Such a study would investigate:

- 1) any informal on-lending of credit to members
- ii) the changing margin between farmgate prices paid for products and final price of sales by the cooperative (i.e. the marketing function).
- iii) an examination of the cooperative income and expenditure statement to determine financial performance.
- iv) A detailed examination of the expenditures of the cooperative to determine if their profile of expenditures reflect sensible spending priorities vis-a-vis member or farmers interest.

e) Document and evaluate the costs of channeling international donor funds (World Bank, AID, etc.) through the lending channels of Portugal. Frequently the screening of potential borrowers, the documentation of targeted clientele and the processing and repeated reporting requirements associated with donor funds create high lending costs as these non-financial transactions costs are absorbed within the lending institutions. It is important to document the operational costs per escudo lent in these operations to determine if the administrative margins included in the loan agreements are sufficient to cover these costs or whether the heavy burocratic intervention compromises efficient and viable lending practices in participating institutions.

2. Possible PROCALFER Research Areas

a) Have priority needs for limestone processing facilities and cooperative storage facilities been essentially met?

b) Should line D of PROCALFER credit be terminated and farmers encouraged to get operating and investment credit from regular formal lenders?

c) Have the technological alternatives been adequately tested under farm level conditions so that farm level "profitability" is assured for the alternatives recommended

d) Are there ways to use more effectively the economic policy component of PROCALFER to analyze technological alternatives and profitability at the farm level?

3. Research on Rate of Return Issues (i.e. the Demand for Credit Dimension).

a) Are the current economic and financial rates of returns at the farm level for alternative enterprises and technologies as low and as variable as implied by the data and studies cited in this report?

b) Are future prospects for farm level returns as uncertain and unattractive as past results suggest?

c) Have government pricing policies contributed more to reducing risk and improving farm level incentives for modernization than our analysis suggests?

d) Have current interest rate and other agricultural subsidies been more useful and necessary for investment and modernization than our analysis suggests?

e) Are farm investment levels as low as the aggregate data suggest or are there serious elements of bias and underestimation of investment activities in Portuguese agriculture?

f) Recent price changes and policy changes on subsidies have had a differential impact on the range of agricultural activities in Portuguese agriculture. These changes have altered the rates of returns for many agricultural activities with serious implications for the demand for credit that merit analysis such as:

i) the degree to which these policy changes have reduced profitability in selected activities (such as livestock fattening enterprises) which in turn have driven the operators into the market for subsidized credit as a convenient life line for survival but not a mechanism for successful adjustment;

ii) the degree to which these policy changes have sharply increased the prices and returns in some activities (e.g. milk and dairy enterprises) to levels that can't be sustained in the EEC? If so, to what extent has this led to an unhealthy expansion of subsidized credit to satisfy this distorted demand based on misleading signals of long run profitability?

4. An Institutional Framework for On-Going Research on Rural Financial Markets and Institutions in Portugal.

The agenda for research outlined above suggests the importance of establishing an institutional framework within which these studies could be carried out in Portugal. We feel it would be in the interest of Portuguese policy makers and practitioners to design an institutional initiative that goes beyond a "one-shot" approach. On the contrary, we feel

the environment for rural financial market research should be encouraged to expand and mature on a continuing basis beyond the topics suggested above as specialists elaborate and explore new problem areas in the future.

Three important constituencies need to be drawn into this effort: (1) the Bank of Portugal; (2) the lending institutions; (3) a competent set of professional Portuguese researchers. Conceivably a small select committee could be set up to work out the working relationships; arrange for the institutional support needed to carry out this work; guarantee cooperation among the lending institutions for access to data and joint work with the researchers; and, review the results in a series of workshop settings that would presumably be the precursor to helpful policy changes and institutional reforms to improve the functioning of rural financial markets and institutions in Portugal. International donor funding could help launch this effort in allowing for international professional input according to Portuguese wishes. However, in the final analysis there has to be a commitment of domestic resources by Portuguese institutions, officials and researchers for this continuing effort to succeed.

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