

Nº 131

The Brazilian Agricultural Policy Experience:
Rationale and Future Directions

by

Antonio Salazar P. Brandão
1988

July 1988

The Brazilian Agricultural Policy Experience:

**

Rationale and Future Directions

by

*

Antonio Salazar P. Brandao

* The Author is Professor of Economics at Escola de Pos-Graduacao em Economia of Fundacao Getulio Vargas, Associate Professor of Economics at Universidade Estadual do Rio de Janeiro and Professor of Economics at Universidade Santa Ursula, Rio de Janeiro.

** Paper presented at the AAEA workshop "Sharpening Our Understanding of Food and Agricultural Policies in Industrialized Countries", Knoxville, Tennessee July 30/July 31, 1988. The author would like to thank Marshall A. Martin for comments made to an earlier draft and to James Mulholand for the revision of the English. None of them is responsible for the remaining errors.

1. Introduction

As in many other countries, Brazil's agricultural policy is conditioned by Macroeconomic events. More than in other countries, however, this dependence is magnified because of the institutional set up and the political economy of agricultural policies. In the last 15 to 20 years expansion of the monetary base was one important source of resources. For example, credit subsidies were not included in the fiscal budget. To guarantee that the subsidies were available on time and in sufficient amounts required political negotiations within the government, especially between the Ministry of Agriculture and the Ministry of Finance.

An overview of the evolution of macroeconomic variables will put in perspective the development of Brazilian agriculture and the constraints faced by agricultural policy makers. In the period 1968/1973, well known as the 'Brazilian Miracle', the rate of growth of GDP was well above 7 percent, the average growth rate for the post-war period. In the second half of the decade of the seventies, however, the rate of growth was lower (as shown in Table 1), and it was still lower in the first half of the 1980s. Despite the rapid growth experienced in 1986, in 1987 the economy slowed and the prospects are that in 1988 growth will be very small, if positive at all.

High rates of inflation have existed in Brazil for many years. In the second half of the 1970s the average annual rate of inflation was in the order of 55 percent and it has been

increasing ever since then. The basic cause of inflation is the large government deficit. Political difficulties in changing the policy regime and reduce permanently the public deficit have been enormous; the country went through a number of unsuccessful stabilization attempts which frustrated the general public and reduced the credibility of the government.

The rate of growth of Agricultural GDP (GDPA) accompanied the general tendencies of the economy. Average growth in the period 1975-1980 was above the historical level, of 4 to 5 percent per year. Last year was exceptionally good for agriculture and 1988 was very good also.

Since 1968 Brazil has been following a policy of mini-devaluations of its currency according to PPP. This rule has not been strictly applied over the years, however. For example, in 1980 the domestic rate of inflation was 110 percent and the devaluation of the cruzado vis-a-vis the dollar was only 61.7 percent. The domestic currency was devalued by 30 percent in December 1979 and again in February 1983. The data in Table 1 indicate that from 1975/80 to 1980/85 there was a devaluation of the real exchange rate, but in recent years it has been appreciating slightly. Estimates of an equilibrium exchange rate by Brandao and Carvalho (forthcoming) indicate that the currency was overvalued by approximately 14 percent in 75/80 and 80/83.

Columns six and seven of Table 1 show the share of agricultural income as a percent of national income and the share of agricultural exports as a percent of agricultural income. The former is roughly constant around 10 percent in the decade of the

1980s. The latter increased initially to 30 percent, but decreased substantially in 1986. Exports of agricultural products are still important, even though they have declined as a proportion of the total value of exports. In 1976-80 this share was around 40 percent, but declined to 30 percent in 1980-85, declined again to 26 percent in 1986 and to 24 percent in 1987. Brazil is a regular importer of wheat and has recently imported food crops, mainly rice and corn.

The last column of Table 1 shows average real prices received by farmers. There was a sharp decline from 1975-80 to 1980-85 and an increase in 1986. During the 1980s, prices decreased from 1980 to 1982, increased in 1983 and 1984, and decreased slightly in 1985.

The rest of this paper will present an analysis of the agricultural policies adopted in Brazil during the last decade focusing especially on price policies. In Section 2 some history and background is given; Section 3 contains a brief overview of the evolution of selected crops; Section 4 contains the description of the policies and evaluation of some of its impacts and Section 5 offers some concluding remarks emphasizing future directions and issues for trade liberalization.

The focus of the paper will be on non-perennial crops. Coffee, cocoa, sugar cane and oranges, all important export crops, will not be directly dealt with. Moreover, structural/institutional issues related to technology and land tenure will not be considered either, because of space limitations. These aspects are overwhelmingly important and, in large part will determine the profile of Brazilian agriculture in

the future. However, it is important to note that Brazil is investing a large amount of resources in agricultural research, specially in the last 15 years. Results are beginning to appear now and, as we shall see below, yield increases are now a significant source of growth of production of some crops (for example, soybeans and wheat).

2. History and Background of Food and Agricultural Policies.

As many other Latin American countries, Brazil was severely affected by the crisis of the 1930s. The disruption of international trade impinged large losses on coffee exporters, the leading export of the country at that time. In response, the government took measures to protect income in the sector. This policy induced an industrialization burst in the State of Sao Paulo. World War II led to a second industrialization burst, again because of the reduction in trade flows.

At about this time, Prebisch (1950, 1959) was publishing his influential papers about the alleged tendency of the terms of trade to decline against primary commodities. These ideas were seeded in fertile soil (Schuh and Brandao, forthcoming), and Brazil, as well as many other Latin American countries, adopted them following an import-substitution industrialization effort. This development strategy defined the strategy for agricultural development. Industry was the leading sector -- the engine of growth -- and was favored by both price and investment policies.

Agriculture, the export sector, had to generate foreign exchange to finance purchases of the imported goods necessary for industrial development. Commercial policy was accordingly designed: export taxes were imposed on agricultural commodities (mainly coffee) and exchange rate policy was conducted so as to give the appropriate incentives to industry. Brazil had a large share of the world coffee market and decided to impose export taxes trying to maximize government revenue.¹ However, the overvaluation of the currency was an implicit tax on agriculture which had severe negative consequences for the development of the sector.

Agriculture also was responsible for the supply of cheap food and raw materials to the urban centers. This led the government to pursue a strict policy of price controls to prevent increases in the cost of living for the urban populations. Quantitative controls of exports and imports of food crops were also utilized for that purpose. These instruments are still utilized.

Surprisingly, the growth rate of agricultural production has been quite satisfactory. This was made possible, to a great extent, by the large volume of investment in infrastructure -- especially roads -- made during the 1950s and early 1960s. These investments were not intended to foster agricultural growth; the primary objective was a reduction in

1. The literature on this subject is large. See, for example, Martin (1976), Veiga (1974), Lopes (1977) and Alves and Pastore (1978). For a summary, see Schuh and Brandao (1988).

transportation costs to facilitate market integration for industry. The general reduction in marketing costs permitted the expansion of planted area in the direction of the very fertile soils in the south of the country. This was the most important source of growth of agriculture over that period. Major food supply crises in the urban centers were avoided.

Briefly, in the first decade and a half after World War II the government was extracting the agricultural surplus by means of cheap food and raw materials policies. However, significant incentives were given by means of the large investments in roads and infrastructure. Very limited positive measures to foster growth of agriculture were taken: investment in research was low (except in the state of Sao Paulo. See Schuh, (1975).) as well as investment in education and health.

Positive price policies as well as other incentives to agricultural production were limited to situations of scarcity of food in the urban centers (Smith, 1969 and Nicholls 1975). Thus, minimum prices and credit (to be discussed in Section 3) were made more effective at such times. Up until the end of the 1960s there was no explicit agricultural policy in Brazil, in the sense of a set of policy instruments utilized consistently over time to facilitate growth of production and income.

General economic policy has had a major influence on agriculture over the years. In the 1950s this was almost by definition since agriculture was the largest sector, responsible, for example, for more than 80 percent of all exports of Brazil. In the 1960s, following the political turmoil of the early years,

the economy had to be stabilized and macroeconomic considerations were predominant. After the stabilization was completed, around 1968, the growth strategy was oriented towards expansion of exports of manufactured goods and this continues today. Nonetheless, the adoption, in 1968, of a policy of minidevaluations of the currency benefited agricultural exports and, together with the commodity 'boom' of the early 1970s was key element to a relatively more open agriculture sector.

3. Selected Crops: Area and Yield

Table 2 shows area harvested for selected crops (about 90 percent of harvested area). Total area grew from 1960-65 until 1975-80 at rapid rates, but in the first half of the current decade the expansion has been more moderate. A large expansion did occur in 1986. The crop mix has changed in this period. There was spectacular growth in the soybean area in the 1970s and a remarkable expansion in the sugar cane area beginning in the second half of the 1970s. The harvested coffee area is now 60 percent of what it was in 1960-65. The area with rice, edible beans, corn and wheat has increased moderately while manioc has stayed roughly constant around 2 million hectares since 1965-70.

Table 3 shows the evolution of average yields. For edible beans and manioc, two staples in Brazil, yields and production have declined; for rice, another important component of the diet, yields declined until 1975-80 but have by now recuperated their 1960-65 levels. Soybeans, cocoa, coffee and sugar cane have experienced substantial yield increases. This is

TABLE 2

AVERAGE AREA (1,000 ha) WITH SELECTED CROPS

Period	Cotton	Rice	Cocoa	Coffee	Sugar Cane	Edible Beans	Manioc	Corn	Soybeans	Wheat	Total	Rate of Growth
1964-65	3,491	3,685	475	4,154	1,484	2,874	1,547	7,625	310	867	26,512	—
1965-74	4,693	4,512	454	2,853	1,684	3,595	1,916	9,898	747	1,498	34,684	13.46
1974-75	4,121	4,991	455	2,216	1,917	3,872	2,046	10,247	3,696	2,196	35,637	18.64
1975-84	3,754	5,879	442	2,654	2,311	4,372	2,698	11,277	7,354	3,231	42,794	19.91
1984-85	3,227	5,597	564	2,366	3,243	4,162	1,996	11,727	8,857	2,341	44,036	2.94
86	3,164	5,591	657	2,461	3,946	5,485	2,054	12,464	9,186	3,898	48,894	11.03
87	1,973	5,997	654	n.a.	4,314	5,216	1,939	13,499	9,132	3,440	46,164	-4.59

Source: IBGE

Notes: Data for 1987 obtained from IBGE estimates as of Feb. 1988.

Total area in 1937 excludes Coffee. The rate of growth is estimated with Coffee excluded in both years.

TABLE 3

AVERAGE YIELDS (kg/ha) OF SELECTED CROPS

Period	Cotton	Rice	Cocoa	Coffee	Sugar Cane	Edible Beans	Manioc	Corn	Soybeans	Wheat
1964-65	528	1,641	319	885	43,245	659	13,692	1,296	1,061	689
1965-74	483	1,546	398	892	45,554	657	14,414	1,361	1,128	896
1974-75	486	1,485	446	984	46,562	574	13,144	1,471	1,494	976
1975-84	428	1,451	642	1,022	52,742	487	12,027	1,531	1,554	784
1984-85	615	1,593	644	1,238	64,255	564	11,539	1,782	1,724	1,091
86	732	1,828	744	—	64,439	445	12,466	1,649	1,452	1,446
87	847	1,738	518	—	62,687	387	12,068	1,984	1,841	1,712

Source: IBGE

Note: Data for 1987 from IBGE estimates as of Feb. 1988.

mainly a consequence of technical change, but in the case of sugar cane the area expansion into the good soils of the state of Sao Paulo is also a result of Brazil's alcohol policy to substitute for imported petroleum. Technology is also relevant to explain the corn yield increases. There was a large increase in wheat yields in the first half of the 1980s and also in 1986 and 1987. Despite the high variability that characterizes wheat yields in Brazil for seven years yields over 1000 kg/ha have been observed and the trend seems to be in the upward direction.

The remarkable expansion of soybeans and sugar cane production is, perhaps, one of the most important aspects of the transformation of Brazilian agriculture in the last decade and a half. In the case of soybeans, the initial driving forces were the change in Brazil's exchange rate policy in the late 1960s together with the international 'commodity boom' in the early 1970s and the response of researchers that were able to adapt existing varieties to local conditions. Continued research effort and high profitability kept both area and yield increasing for more than a decade. More detailed analysis of the soybean expansion in Brazil can be found in Williams and Thompson (1982) and Santana (1984).

The expansion of sugar cane after 1975 is essentially a response to Brazil's gasohol program, which was created in November of 1975 with the objective of substituting for imported petroleum. To make the program financially viable for the private sector, large subsidies were given for the production of gasohol from sugar cane. The government was willing to finance 100 percent of new sugar cane planting with annual

nominal interest rates varying from 13 to 15 percent and an amortization period up to 12 years. For the implementation of new distilleries, the industrial side of the program, loans covered from 80 to 90 percent of the value of the project, annual interest rates were between 15 and 17 percent and amortization over 3 to 12 years. The increased production was concentrated in the state of Sao Paulo and has displaced food crops in that area.

4. Current Agricultural Policies

One characteristic of Brazil's agricultural policy since the mid 1960s has been the concern with direct incentives to agricultural production. Earlier the focus was on marketing infrastructure (Smith, 1969). Nonetheless, concerns with cheap food and raw materials for the urban centers have always existed and, with the rise in inflation, this concern came to the forefront of agricultural policy.

4.1 The Minimum Price Policy

The minimum price policy (MPF) consists of setting minimum guaranteed prices (MP) for major commodities. The government stands ready to purchase any quantity at that price. Besides acquisitions, called AGF, it also provides marketing credit (EGF), usually at concessionary interest rates. The MPF was, at first, conceived as a price insurance, since the MP truncates the price distribution at the lower end and guarantees minimum income for producers. With risk averse farmers, this

shifts the supply curve to the right (Carvalho, 1978 and Araujo, 1985). The coverage of the policy is wide, including most of the commodities listed above, but some important crops are not included. Among those not included are wheat, coffee, sugar cane, and cocoa.

The objective of the EGF is to provide credit to the private sector to facilitate the formation of buffer stocks. Access to these loans is given preferentially to qualified (according to usual banking rules) farmers. In the case of some commodities, for example cotton and sisal, intermediaries have obtained a large portion of the loans. Interest rates are determined according to the general rule for credit policy and have been negative in real terms since 1966. During the marketing of the crop, changes in the rules (due dates and/or amortization schemes) take place to accommodate unexpected factors. There are two types of EGFs: with and without a selling clause. Without a selling clause, at the end of the loan contract, the farmer is free to sell to the government or not. The option is closed to those farmers choosing the EGF with a selling clause.

The MPP has gone through distinct phases. In the beginning, in the early 1960s, it was not very effective because MP prices were set after the planting decisions had taken place. Since the 1970s, prices have been determined approximately two months before planting. However, due to the fact that MP were utilized to determine the amount of credit a farmer was entitled to, the levels of MP were not considered to be adequate. This situation changed in 1979 when the government formally separated the level of the minimum prices and credit with the creation of

the variable cost parameter (VBC).

In 1981/1982 the foreign debt problem became more serious and the public deficit became a matter of general concern. This led to a reduction of cheap official credit to agriculture. During the 1980s, the MPP has assumed a predominant role in agricultural price policy and, in practice, is transformed into a price support program. Table 4 displays real values of the AGFs and EGFs. The latter have always been larger than the former reflecting the initial conception of the policy and the political problems of determination of the MP mentioned above. In the year of 1985 the real value of the AGF was greater than the value of the EGF. Incidentally, in that year the government purchased 50 percent of the of cotton production and 12 percent of soybean production (it had never used AGF for soybeans before). The remarkable thing to be noted is that AGFs have increased more than 10 times in real terms since 1970. Another indication of the change in the nature of the MPP is that in the 1980s MP were much closer to real prices received by farmers than in the previous decade (Rezende, 1988).

1. The MPs are determined by the following process: first the Ministry of Agriculture, through one of its agencies (Companhia de Financiamento da Producao, CFP) suggests a level to the Ministry of Finance. Then, after political negotiations between the two Ministries (and, at times, other interested groups) the MPs are determined. The traditional conflicts between the Ministries of Finance and Agriculture diminished after 1979 because of the creation of the VBC, which became the parameter to determine the volume of credit to agriculture.

Table 4

Average Loans and Acquisitions
of the Government under the MPP
Cz\$ 1,000.00 of March 1986.

Period	EGF	AGF
1970-75	\$6,306,247	\$736,095
1975-80	\$17,942,858	\$2,366,470
1980-85	\$19,319,491	\$7,499,788
1986	\$23,369,213	\$15,360,995
1987 *	\$15,238,895	\$9,613,233

Source: CFP, Informe Estadístico,
March/April 1988.

* Preliminary

4.2 Rural Credit

Together with the MPP, rural credit at negative real interest rates has been a fundamental instrument of agricultural policy. This was, in fact, the most important 'positive' policy of the government throughout the 1970s until 1981/1982. There are three types of credit: current expenses, marketing (which includes the EGF) and investment. In addition there are special credit programs for the North and Northeast regions. Table 5 displays the values of the nominal and real interest rates on agricultural loans. Real interest rates decreased between 1973 and 1980 and increased after that. Sharp upturns occurred in 1984 and again in 1985. In 1986, with the 'Cruzado Plan', a new decline in the real rate of interest is observed, but this has changed in 1987 and in 1988. Table 5 also shows the large share of the subsidy in agricultural income. There is a negative relation between that ratio and the real rate of interest; that is, after 1980 both the real rate of interest

has increased and the volume of credit per unit of value added in agriculture has declined. This was also the case for the total volume of credit.

This policy has been criticized because of the incentives for the substitution of own resources for agricultural loans and because credit funds could be (in fact were, although figures are not available) diverted to the financial sector. The argument implies that the marginal increase in the resources

Table 5

Rural Credit in Brazil

Year	Interest Rate on Rural Credit		Share of Credit Subsidy on Ag.GDP %
	Nominal	Real	
1966	11.0	-20.00	n.a.
1967	11.0	-10.72	n.a.
1968	13.7	-9.30	n.a.
1969	13.6	-5.61	1.55
1970	14.6	-3.91	1.27
1971	15.0	-3.74	1.26
1972	13.8	-1.66	0.67
1973	14.1	-1.25	0.69
1974	14.2	-15.12	9.51
1975	14.3	-11.64	10.13
1976	14.4	-21.78	18.88
1977	15.6	-16.71	11.58
1978	15.9	-17.70	12.79
1979	16.9	-34.03	29.20
1980	31.0	-37.69	29.10
1981	42.5	-26.99	17.08
1982	42.4	-28.70	18.04
1983	138.1	-23.44	10.88
1984	207.2	-5.13	1.41
1985	227.3	-2.33	0.84
1986	26.1	-23.60	13.75

Source: Central Bank and FIBGE

Note: The Nominal Interest Rate on Rural Credit is an average of Nominal Rates for various types of loans.

applied to agricultural production is smaller than the value of

government resources allocated to that activity through subsidized credit (Sayad, 1977). The subsidy is effectively captured by the borrowers in the rural credit system, who are, basically, land-owners. It follows that the subsidy is directly capitalized on land prices. This hypothesis was tested by Brandao and Rezende (1988) and the empirical results are consistent with it. Another common criticism is the negative income distribution impact. Since the policy is implemented by commercial banks those who qualify are the ones with better collaterals. This is even more important if one recalls that the real interest rates are negative and that if the banks were free to choose, they would not participate. During the 1980s the income distribution in Brazil has not worsened; however, it has in agriculture. In part this can be attributed to credit policy and to fiscal incentives (Denslow and Tyler, 1983 and Hoffman 1988).

Even though there has been no direct estimation of the elasticity of agricultural output with respect to credit and/or credit subsidy, recent events are consistent with a low elasticity. There was no reduction of crop area in 1984 and 1985 when the real rate of interest increased by more than 15 percentage points. In 1984 real prices received by farmers (average of crops and livestock) increased 3 percent and in 1985 they declined 1.8 percent.

4.3 Other Policies

The government has also utilized other incentive schemes as well: fiscal incentives for investments and, at times,

explicit fertilizer subsidies are two important examples. These incentives for fertilizers were direct price subsidies in 1975 and 1976 and later were given in the form of a zero nominal interest rate on loans to finance fertilizer use. Since 1981 no explicit subsidies, in addition to credit for current expenses, have been offered. Domestic fertilizer prices are higher than international prices, due to the Brazilian government's protection of the domestic industry. The main instrument of protection is contingency imports: domestic producers are allowed to import, with zero tariffs, a proportion of what is bought domestically. Santana, *op. cit.*, describes the policy in more detail and provides data on contingency ratios and prices.

Fiscal incentives are large: agriculture's share of national income is around 10 percent and income tax collected from the sector has been around 1 percent of total income tax revenues. Evaluation of the effect of these incentives on output do not exist, but is quite clear that they have had negative impacts on income distribution in agriculture.

Two other explicit taxes directly affect agriculture. A value added tax (ICM) and a land tax (ITR). The former includes most agricultural commodities and is an important source of revenue for the various states. The latter is a very complex tax that does not generate any significant revenue. Details of the operation of these two taxes will not be considered here.

While it may appear that Brazil has a set of policies to promote agricultural production and growth, in

practice the situation is different. As mentioned earlier, the government has many goals, not all of them necessarily consistent. To avoid consumer price increases, to generate foreign exchange, to protect industry and to maintain producer's income are some important examples. In addition, specific interests of producers and consumers groups, retailers and industry play a role, sometimes a decisive one, in the making of the policy. Policy instruments (taxes, quotas, export taxes and so on) can be easily changed during the year. Changes indeed take place, specially during the marketing period, to meet particular demands. To give one single illustration of how this works in practice, consider the following sequence of events in soybean policy in 1977 (crop year 1976/1977). In January, CACEX (the agency in charge of international trade) permitted each firm to export 20 percent of its exports during the same period in the crop year 1975/1976. One month later, without adopting any guidelines for the commercialization of the entire crop, CACEX decided to allow exports according to applications received and according to 'market tendencies'. Since prices were increasing, pressures from the domestic crushing industry were strong and an export tax of 7 percent was imposed on soybeans, soy meal and soy oil exports. Resources collected from this tax were utilized to subsidize the oil and meal industries. At the same time the government established a ceiling for the consumer prices of soy oil and of soy meal. It also reduced a tax rebate on exports of soy oil. In April, the value added tax on exports of soybeans and of soy meal was raised. In May, the tax on exports was raised from 7 to 12 percent with the purpose of raising more resources

to subsidize the industry. By mid May, CACEX liberated completely exports of soybeans and meal. International prices begin to decline by the end of the month and most of the production to be exported was still inside the country. By June, the export tax was reduced back to 7 percent; in July it was reduced again to 4 percent and it was eliminated by mid August. The value added tax on exports, raised in April to 7.5 percent, was reduced to its previous value of 5 percent. The government postponed 50 percent of the payments of the credit on current expenses and of the EGF¹ because of the financial difficulties of producers.

Trade policy for agricultural goods is administered according to the same basic parameters: consumer prices, producer income, industrial protection and foreign exchange. Interventions are made according to the specific situations. The principal direct instruments are traditional ones: export taxes, import tariffs and quantitative restrictions on exports. Exchange rate policy has a major influence, but it is of a general nature and the government does not use it to deal with specific agricultural issues. Very often imports are made with the purpose of avoiding price increases domestically. Incidentally, in 1986 this kind of policy was responsible for the depletion of Brazil's foreign reserves which were around US\$ 8 billion at the beginning of the year.

1. For a more detailed description, see Silva (1983). The above is based on his report and the inferences made with respect to the motivations of the government are also his. He has participated in that process. A summary for other years and other crops can also be found in CFP (1983) and in Brandao and Carvalho (1988).

4.4 Relative Price Distortions and Their Impact on Production.

Given the policy environment described in the preceding sections, a relevant question is: what is the net effect of all the government interventions? In addition to direct interventions in agriculture, the government intervenes in other sectors and there are spill-over effects. In order to provide at least a partial answer, Brandao and Carvalho (1988) estimated distortions in relative domestic prices vis-a-vis relative international prices of rice, wheat, cotton, soybeans and corn. The procedure considered the calculation of the following price ratios ¹: $P = P_a/P_{na}$, $P' = P'_a/P_{na}$ and $P'' = P''_a/P_{na}''$, where P_a is the current price of one of the five agricultural commodities above, P'_a is the border price (calculated at a relevant market) for the agricultural crop and P''_a is the border price as above, but calculated utilizing an equilibrium exchange rate estimated in the study. P_{na} is a price index of non-agricultural goods and P_{na}'' is that price index corrected for import tariffs, export subsidies and exchange rate distortions. The following measures of protection were determined:

- a) $(P - P')/P'$. It measures the direct distortions; i.e. those that are a consequence of policies that directly affect agricultural prices, like price ceilings, quantitative restrictions to exports, and so on;

1. The methodology utilized was developed by Kruegger, Schiff and Valdes (1985) as part of a larger project to study the Political Economy of Agricultural Pricing Policies financed by the World Bank. Details of the calculations and procedures utilized in the Brazil study can be found in Brandao and Carvalho, op.cit..

b) $(P - P'')/P''$. It measures total distortions; i.e. the direct effect plus the indirect ones which result from general policies, like exchange rate, export subsidies and tariffs on imports of industrial goods and so on.

Averages of the two measures, for selected subperiods of the period considered in that study, are shown in Table 6. The indirect effects have had a pervasive effect; in some cases they are strong enough to change the sign of the direct effect. The two commodities most severely discriminated by policies were cotton and soybeans, two exportables. For cotton, the discrimination decreases over time and since 1975 it has been protected by the direct measures, but the indirect one reversed the sign and it was taxed over the whole period. For soybeans the level of taxation has been uniformly high. Corn has been protected by direct policy over the entire period; only after 1975 did indirect effects reverse the direct ones (which have also decreased), and a small tax appears. For rice, high levels of direct and total protection existed until the mid 1970s. After that, a tax appears due to the indirect effects. In the case of wheat, a commodity with an explicit production subsidy, the level of direct protection is high, but the indirect effects reversed this after 1970.

Table 6

Relative Price Distortions
%

Period	Cotton		Soybeans		Corn		Rice (1)		Wheat	
	Direct	Total	Direct	Total	Direct	Total	Direct	Total	Direct	Total
66-70	-16.21	-28.27	n.a.	n.a.	42.01	21.52	55.48	32.18	46.43	25.28
70-75	-8.17	-25.94	-14.58	-31.11	45.75	17.76	67.88	35.35	15.59	-6.52
75-80	1.75	-19.03	-25.70	-41.22	23.56	-1.30	3.23	-18.55	20.07	-4.39
80-83	6.75	-11.06	-20.21	-32.88	13.83	-5.30	-2.53	-19.07	-4.06	-20.22

Source: Brandao and Carvalho (1988)

(1) First period data only for 1969 and 1970.

Estimates of relative effective protection were made with the help of the following expression:

$$[(VAa/VAna)/(VAa''/VAna'')] - 1$$

where VAa is the observed value added in agriculture and VAna is the observed value added in the non-agricultural sector. VAa'' and VAna'' are the corresponding concepts corrected for total
1
interventions. Table 7 displays the results.

Table 7

Relative Distortion on Value Added
Total Effect
%

Period	Cotton	Soybeans	Corn	Rice	Wheat
70-75	-22.85	-30.17	28.12	54.65	-1.21
75-80	-13.13	-40.97	7.29	-13.94	3.20
80-83	-9.14	-35.72	-2.73	-19.70	-22.05

Source: Brandao and Carvalho (1988)

Qualitatively the same picture emerges. Cotton and soybeans are heavily taxed commodities, corn is protected, rice is protected at the beginning of the period and taxed later and wheat has almost no protection/disprotection at the beginning but was taxed in the period 80/83.

Taking the estimated distortions in relative value

1. Due to lack of data, only fertilizer was included in the estimation of value added in agriculture.

added, it is possible to determine the changes in production that would have occurred in the absence of these interventions. Taking elasticity values estimated by others and considering a Nerlovian type of supply model (for details see Brandao and Carvalho, op. cit.), the short run (one period) impacts displayed in Table 8 were obtained. Not surprisingly, soybeans was the crop with the largest output loss, but there have been losses for most of the crops. Exceptions are corn, which has benefited from positive protection rates, and rice in 1971-75.

Another result to be mentioned are net transfers into and out of agriculture. They were calculated with credit included and with the exclusion of credit. One simply adds the

Table 8

Production Impacts of Pricing Policies
Percentual Differences (1)

Period	Corn	Cotton	Soybeans	Rice	Wheat
71-75	4.52	-3.81	-18.46	19.35	-5.05
75-80	1.10	-2.27	-23.86	-3.53	-6.49
80-83	-1.17	-3.11	-27.43	-5.17	-13.23

Source: Brandao and Carvalho (1988)

(1) Percentual differences are calculated as follows:

$$[(\text{observed production} / \text{"free trade" production}) - 1] \times 100$$

implicit taxes/subsidies on the five commodities plus fertilizer multiplied by their current production levels (i.e., production response is disregarded). The third column of Table 9 displays the results as a percentage of GDPA. For the five commodities price policy alone extracted more than 8 percent of value added in the period 1975-1983. These five crops comprise approximately

Table 9

 Total Transfers Into (+) and Out (-)
 of Agriculture as Percentage of GDPA

	Includes Credit	Excludes Credit
66-70	6.70	3.69
70-75	4.38	-0.95
75-80	5.46	-8.83
80-83	5.64	-8.16

 Source: Brandao and Carvalho (1988)

65 percent of the area harvested, which indicates the relevance of the above conclusion. It is obvious that important crops were not included in the estimation and generalization of the results have to be made with caution, but there is no reason to believe that for other commodities the results would change much.

Other policies, however, transfer resources into agriculture. In the case of the five commodities only credit subsidy is considered, assuming that the opportunity cost of capital is 12 percent per year. The results are in the second column of Table 9.

In summary, Brazil taxed some agricultural commodities heavily, specially exportables like soybeans and cotton. The discrimination against food crops was not so severe (they were even protected in some cases), but existed and has increased recently. However, because price policy imposes a tax (overall considering the five crops) on all producers, the government attempts to compensate them by means of the credit subsidy. But credit is concentrated in the hands of large

producers, in some commodities and in the most developed regions. Hence, this compensation is unevenly distributed: while all producers are taxed, not all of them receive the subsidy.

4.5 Food Subsidies and Nutrition Programs

The industrialization strategy adopted by Brazil led to rapid urbanization. Rural-urban migration was intense during the 1960s, 1970s and still continues in the 1980s. The rate of labor absorption in the urban centers has not kept pace with the process of urbanization and population growth and a large proportion of the population is unemployed or underemployed. Moreover, the process of political opening in the second half of the 1970s (very slow in the beginning) facilitated social demands from low income groups and labor unions. Partly in response to these demands, food subsidies/nutrition programs were emphasized. The Brazilian Food and Nutrition Institute (INAN) began to operate effectively in 1974 with the "main attributions of assisting the government in formulating the national food and nutrition policy and functioning as a central department of incentive, support and coordination of the activities in this area" (Campino, 1987 p.35). In 1976 the government formulated the National Program for Food and Nutrition (PRONAM), and INAN was its executive agency (Campino, op. cit, p.36). PRONAM was created with overambitious objectives, which, besides food distribution, included actions to improve production and marketing of basic food crops and the purchase of food from small producers in poorer regions to promote a better distribution of income

(Peliano, p.7). Some of the programs currently in existence are: Supplementary Food Program (PSA), Program of Supply of Basic Food in Low Income Areas (PROAB), School Food Program (PNAE), Complementary Food Program (PCA), National Milk Program (PLN) and the Workers Food Program (PAT). Of these programs, only PROAB and PAT gave subsidies; the others rely on free distribution of food to target groups, including babies, pregnant women, nursing mothers and school children. Such programs are viewed as emergency efforts and complementary to health and educational policies. The subsidy programs operate on a different basis. PAT consists of subsidizing 80 percent of the cost of meals (snacks and lunch) to workers. The subsidy is divided between firms and the government through fiscal incentives. Under PAT each company may deduct from its income tax up to a limit of 5 percent of taxable profit expenses. In 1983, according to Campino (op. cit, p. 41), the costs of the program were divided as follows: 20 percent for workers, 32 percent for the companies and 48 percent for the government. PROAB beneficiaries are selected on the basis of geographical location. It operates in the peripheries of the urban centers in the Northeast and consists of the government selling cheap food items to qualified retailers. Consumers pay prices 20 to 30 percent of the market prices. The determination of consumer prices is made by adding a margin of 10 to 20 percent to the price paid by the retailer.

Table 10 shows the total amount of resources devoted to the above programs, and their respective shares in GDP and in GDPA. The volume of resources increases slightly from 75-

80 to 80-85. In 1986 the resources are almost 4 times their average value in the preceding period.

Table 10

Average Yearly
Government Expenditures in Food and Nutrition

Period	Total Exp. (1)	Tot.Exp./GDP %	Tot.Exp./GDPA %
1975-80	2,074.10	0.07	0.57
1980-85	2,397.47	0.10	1.02
86	8,545.50	0.24	2.37

Source: Campino, op.cit, pp. 51-52. Column 4 is column 3 divided by GDPA/GDP from Table 1.

(1) Values in Millions of Cruzados of 1986.

As a proportion of total government expenditures, not shown in the Table, one observes an increment from 0.4 percent to 1.02 percent in 1979; a relative stability between 0.9 and 1 percent in 1980/1982 and increments to 1.11, 1.12 and 1.78 percent in 1983, 1984 and 1985 respectively. These data indicate that the commitment of the government to its food and nutrition programs has not changed during the period of economic difficulties in the Brazilian economy in the 1980s.

There are no studies to estimate the impact of these programs on agricultural production and prices. They are certainly small in the aggregate, especially if one considers that a part of the resources remain with the bureaucracy that administers them (not to mention the possibility of corruption).

Evaluations made by Campino, op. cit and others (cited by Campino) indicate that the impact on the food and nutritional status of the populations has been meager. Campino (op. cit, p. 133) argues that the spread of resources over many programs did not permit the realization of possible economies of

scale; for example, in some cases administration tasks are duplicated across different programs. Furthermore, he also points out that these programs are not integrated with agricultural policy or any other economic policies. The government views the problem of food and nutrition as belonging to the realm of health and education. In addition the PRONAM objectives are contradictory with each other. It may not be feasible, given the resource constraint, to contribute for the reduction of nutritional deficiencies and, at the same time, buy food from small farmers located in poorer regions which are high cost producers.

4.5.1 The Wheat Consumption Subsidy

Wheat products are an important component of the Brazilian consumption basket. According to ENDEF data, a comprehensive family budget survey conducted during 1974/1975, the share of expenditures with wheat were 5 to 6 percent of total expenditures for low-income families, 2 to 3 percent for medium income families and around 1 percent for high income families. In 1972, an explicit consumption subsidy was introduced to avoid the inflationary impact of the increase in the external price of wheat and to protect real income of low income groups.

Wheat marketing is completely controlled by the government. Banco do Brasil (a state bank which is the financial agent of the government) acquires all the national production of wheat, is responsible for all imports and sells to millers. Wheat is sold to millers below international prices (as mentioned,

there is also a production subsidy). In terms of expenditures, the consumption part of the wheat subsidy is far larger than all food and nutrition programs above: estimations made by Peliano (op.cit, p.11) indicate for the period 1980-85, an annual value of US\$ 1,070 million. Converting at the average real exchange rate for this period (Table 1) indicates that on the wheat subsidy Brazil spent more than 6 times what was spent by the federal government on all other food and nutrition programs. This figure drops to 1.7 times in 1986, when the wheat subsidy expenditures were, according to Peliano, US\$ 1,099 million dollar.

A cost benefit analysis of the wheat policy was made by Calegar and Schuh (1988). Their analysis is at two levels: aggregated and disagggregated. In the latter, the authors look at the differential impacts of the policy for distinct income levels in the metropolitan area of Belo Horizonte (capital city of the state of Minas Gerais), and rural areas in the states of Minas Gerais and Espirito Santo.

The model utilized for the aggregated analysis was a partial equilibrium framework with constant elasticity supply and demand curves. The main results obtained with respect to the consumer subsidy were that, over the period 1966-1982, consumers captured approximately 85 percent of the total value of the subsidy (as estimated by the authors based on comparison of border and domestic prices of wheat), the social cost amounted to 15 percent of the value of the estimated subsidy and that on the average each additional dollar of wheat imports would cost \$1.39

if the calculations were made with the official exchange rate and \$1.41 if made with a shadow exchange rate. The estimated additional expenditures with imports were above two billion dollars, which corresponds to approximately 4 percent of the total value of wheat imports over the period. It is important to note that in their results, especially the calculations of protection rates, exchange rate distortions also had a pervasive effect. The average level of protection to consumers is greatly increased by the overvaluation of the currency.

The disaggregated analysis is based on ENDEF data and the methodology is essentially the same for the aggregated analysis (i.e., utilizing the basic framework of applied welfare economics). The wheat products considered were bread, macaroni and wheat flour. Some of the results obtained are summarized below:

i) the estimated per capita subsidy increases with the increase in the expenditure level;

ii) the consumer welfare gain as a proportion of the per capita subsidy is 97 percent for the lowest expenditure class. It decreases for the intermediary classes and is above 99 percent for the four highest expenditure classes;

iii) the consumer welfare gain per cruzado of per capita expenditure is negatively related to expenditure class. That ratio is 2.04 for the lowest expenditure class and drops to 0.20 for the highest expenditure class;

For purpose of comparison, the authors have estimated the effects of giving the same subsidy to rice, a crop

with a lower price elasticity of demand. The results indicated that the lower income classes would benefit more: the change in consumer welfare would be higher for the lower income classes and the social cost would be lower. For both wheat and rice the increase in calorie consumption due to the subsidy was very small (less than 1.5 percent).

Calegar and Schuh's analysis was developed within a partial equilibrium framework. Braverman, Hammer and Brandao (1987) attempted to look at some of the impacts of the removal of the wheat subsidy in a model that incorporates some cross-price effects. The multi-market approach considered the following aggregates: wheat, soybeans and soybean products, export crops and an aggregate of other crops (inappropriately called minimum price crops). The analysis was carried out in three regions: the Center-South, the Northeast and the Interior Frontier of Brazil. Nominal income is not exogenous and is determined as profits from production activities plus labor income. The change in real income was calculated as the change in nominal income minus the change in the cost of living.

Data for the simulations refer to 1982. Consumption parameters were obtained from ENDEF and demand and supply elasticities (direct and cross) were obtained from other studies. To simulate a reduction in the consumption subsidy on wheat, a 10 percent increase in the price of wheat at the consumer level was considered. The analysis indicated a small reduction in the production of wheat (0.12 percent), mainly induced by demand changes with respect to minimum price crops. As the consumer price of wheat increases, the demand for minimum price crops

increases (their price increases by 2.97 percent) and their area expands (in the center-south, where wheat is produced, it competes for area with minimum price crops). Poor urban consumers is the group most affected by the change, bearing a reduction of 1.2 percent in real income. This is a consequence of two combined effects: the increase in the price of wheat and the induced increase in the price of minimum price crops. (Change in real income is simply the change in the cost of living associated with the price change. Considering that the share of wheat for the urban poor is 6 percent, the change in the cost of living would have been only 0.57 percent had the multi market effects been disregarded) The effect on the real income of high income groups is a reduction of 0.3 percent. The effects on the rural population are smaller than those on urban consumers because they benefit from the expansion of the production of substitute crops. Nonetheless, low income groups are more affected than high income groups.

Both studies indicate the main issues with respect to the wheat subsidy and the problems associated with its reduction or elimination. It is clear that low income groups did benefit from it. However, as Calegar and Schuh (op. cit.) point out, the spill-over effects are large and higher income groups also received sizable benefits. Another spill-over effect mentioned by Calegar and Schuh, op. cit., is that about one third of the subsidy goes to millers. The elimination of a subsidy like this becomes a difficult political task. Because of the economic problems experienced in the 1980s, the government has been making

efforts to do that. In June of 1987 the subsidy was formally reduced to zero. However, since commercialization is totally controlled, the consumer price is not adjusted in pace with inflation and therefore in the first quarter of 1988 the government had to announce again the extinction of the consumption subsidy to wheat.

5. Final Remarks

If one can summarize agricultural policy in Brazil in a word, perhaps the best one is instability. The government reacts to almost everything. The reaction is based on many objectives and is a result of pressures that come from outside and from inside the government. Some of the results of this process were indicated above; others were not. Lopes (1988), for example, argues that private intermediaries have reduced their participation in agricultural markets as a consequence of this 'institutional risk' (p. 375) and that it has also hampered the development of future markets.

The pattern of government intervention observed has not only distorted the allocation of resources in a perverse way, but has also delayed institutional developments. Government officials refer to speculators as public enemies, and one has the impression that a large percentage of the population agrees. Thus, at the same time that specific economic objectives were targeted, the government was perpetuating itself in the process because of the destruction of fundamental marketing institutions. To raise them from the ashes and rebuild them is feasible, since fixed costs in Brazil are not so large, but this requires a

fundamental change of attitude from politicians and policy makers. The new Constitution which is being voted now, however, does not seem to be going in that direction.

Notwithstanding, producers and some segments in the executive branch of the government appear to be in favor of a change in the direction of less government intervention in agricultural policy. The liberalization wave over the world will certainly affect Brazil. If not directly, at least indirectly. It is already making itself present through conditions imposed on new loans from international agencies. In 1983, a group of economists at CFP made a proposal for the liberalization of agricultural markets. One basic idea of the proposal is that freer trade in agricultural products is a goal, but a variable levy system is to be implemented to avoid internalization of the instability of world markets. Only the 'long run' tendencies in world prices would be allowed to be reflected domestically. A price band would be set around the long run price (initially defined as a 36 month moving average and later changed to a 60 month moving average). For an exportable, every time the world price goes above the upper limit an export tax would be imposed; an export subsidy would be imposed in the opposite situation. Since the operation of the system would require consistent behavior of the government in its domestic policies, price bands for non tradables have to be established. This could be based on costs of production (Dias and Barros, 1983; a more detailed and updated version of the proposal was later presented by Lopes, 1986).

This proposal is certainly an improvement over the existing situation. However, it is far from a complete liberalization of trade in agricultural products. The variable levy system can be (and will be) used, in the practice of the policy, to attain other objectives than risk management. To prevent this and other similar undesirable detours, it is fundamental that the Brazilian Congress dictates the general guidelines for agricultural policy, by means of specific agricultural legislation which will eliminate the infinite flexibility that government officials have today to change taxes, to impose export restrictions, to decide on tariff levels and to dispose of government stocks.

Future prospects for an effective and sustainable liberalization of agricultural trade are unclear. Much will depend on the direction of the balance of political power. Producers are becoming organized politically and liberalization is in their best interest. However, the agro-industry sector is an important and powerful partner in this game and their interests may not be the same. Given the estimates of price distortions presented earlier, it is clear that the soy oil and meal industry, as well as textiles would be hurt by a more liberal trade policy.

References

- Alves, Eliseu R.A. "A Agroindustria e os Agricultores", Ministerio da Irrigacao, CODEVASF, Brasilia, March 1988.
- Alves, Eliseu R.A. and Pastore, A.C. "Import Substitution and Implicit Taxation of Agriculture in Brazil", American Journal of Agricultural Economics, vol. 60, No. 5, Dec. 1978.
- Araujo, Uilson Mello "A Resposta da Oferta Agricola aos Precos Minimios", Unpublished M.S. Thesis, Escola de Pos Graduacao em Economia, Fundacao Getulio Vargas, 1985.
- Brandao, Antonio Salazar P. and Carvalho, J.L. "A Comparative Study of the Political Economy of Agricultural Pricing Policies: The Case of Brazil", World Bank, 1988.
- Brandao, Antonio Salazar P. and Carvalho, J.L. "Uma Estimativa da Taxa de Cambio de Equilibrio de Livre Comercio para o Brasil: 1960-1987", Revista Brasileira de Economia, forthcoming.
- Brandao, Antonio Salazar P. and Rezende, Gervasio Castro de "The Behavior of Land Prices and Land Rents in Brazil", Invited Paper to the Argentina Meetings of the International Agricultural Economics Association, Buenos Aires, 1988.
- Braverman, Avishay; Hammer, J. S. and Brandao, A. S. P. "Analise Economica das Politicas Agricolas no Brasil: Os Casos do Trigo e da Soja", Revista Brasileira de Economia, vol.41, No.1, Jan/Mar 1987.
- Calegar, Geraldo M. "Brazilian Wheat Policy and Its Income Distribution and Trade Effects: A Case Study", Ph.D Thesis, University of Minnesota, December 1984.
- Calegar, Geraldo M. and Schuh, G.Edward The Brazilian Wheat Policy: Its Costs, Benefits, and Effects on Food Consumption, Research Report 66, International Food Policy Research Institute, April 1988.
- Campino, Antonio Carlos Coelho "Nutrition Interventions in Brazil: The Possible Impact of Food Price Subsidies", Progress Report, Kellogg International Fellowship, 1987.

- Carvalho, J.L. "A Fixacao de Precos Minimos e a Oferta de Produtos Agricolas", in Lopes, M. de R. (ed.) A Politica de Precos Minimos: Estudos Tecnicos 1949/1979., Colecao Analise e Pesquisa, vol. 11, CFP, Brasilia 1978.
- CFP, Analise das Distorcoes dos Precos Domesticos em Relacao aos Precos de Fronteira: Uma Analise Preliminar. Colecao Analise e Pesquisa, vol. 30, Brasilia, 1983.
- Denslow, David Jr. and Tyler, W.G. "Perspectivas Sobre Pobreza e Desigualdade de Renda no Brasil", Pesquisa e Planejamento Economico, vol. 13. No.3, Dec. 1983.
- Dias, Guilherme L.S. and Barros, J.R.M. "Fundamentos Para uma Nova Politica Agricola", Colecao Analise e Pesquisa, No. 26, CFP, 1983.
- Hoffman, Rodolfo "Distribuicao de Renda na Agricultura", in Brandao, Antonio Salazar P. (ed.) Os Principais Problemas da Agricultura Brasileira: Analise e Sugestoes, Serie PNFE, IPEA/INFES, Rio de Janeiro 1988.
- Kruegger, A., Schiff, M. and Valdes, A. "Project Manual: Political Economy of Agricultural Pricing Policies", World Bank, 1985.
- Lopes, Mauro de R. "Comercializacao Interna e Externa da Producao Agricola: Principais Problemas e Sugestoes" in Brandao, Antonio Salazar P. (1988)
- Lopes, Mauro de R. "Uma Proposta de Uma Lei Agricola para o Brasil", Carta Mensal da SUPEC, Ano II, No. 4, CFP, Brasilia, April 1987.
- Lopes, Mauro de R. "A Intervencao do Governo nos Mercados Agricolas no Brasil. O Sistema de Interferencia no Mecanismo de Precos", Colecao Analise e Pesquisa, vol. 33, Brasilia, 1986.
- Lopes, Mauro de R. "The Mobilization of Resources from Agriculture: A Policy Analysis for Brazil". Ph.D Dissertation, Purdue University, 1977.
- Martin, M. A. "Modernization of Brazilian Agriculture: An Analysis of Unbalanced Development", Ph.D Dissertation, Purdue University, May 1976.
- Mendonca de Barros, J.R. and Douglas H. Graham "A Agricultura Brasileira e o Problema da Producao de Alimentos", Pesquisa e Planejamento Economico, vol. 8, No. 3, December 1982.

- Nicholls, W. "A Economia Agricola Brasileira: Desempenho e Politica Recente", in Contador, C.R. (ed) Tecnologia e Desenvolvimento Agricola, IPEA/INPES, Rio de Janeiro, 1985.
- Peliano, Ana Maria T. M. "Os Programas Alimentares e Nutricionais no Contexto da Recessao Economica: 1980-1984", mimeo, UNICEF, forthcoming.
- Prebisch, Raul The Economic Development of Latin America and Its Principal Problems United Nations, Department of Economic Affairs, Lake Success, New York, 1950.
- Prebisch, Raul "Commercial Policy in the Underdeveloped Countries", The American Economic Review, Vol. XLIX, No.2, May 1959.
- Rezende, Gervasio Castro de "Inflacao, Precos Minimos e Comercializacao Agricola: A Experiencia dos Anos 80", in Brandao, Antonio Salazar P., ed. (1988).
- Santana, Carlos A. M. "The Impact of Economic Policies on the Soybean Sector of Brazil: An Effective Protection Analysis". Ph.D Dissertation, University of Minnesota, December 1984.
- Sayad, Joao "Planejamento, Credito e Distribuicao de Renda", Estudos Economicos, vol. 7, No.1, 1977.
- Schuh, G. Edward "A Modernizacao da Agricultura Brasileira: Uma Interpretacao", in Contador, C.R. (ed.) Tecnologia e Desenvolvimento Agricola, Rio de Janeiro, IPEA/INPES, 1975.
- Schuh, G.E. and Brandao, Antonio Salazar P. "A Survey of Agricultural Development Literature in Latin America", forthcoming.
- Silva, Francisco Xavier da "Soja", in CFP (1983).
- Smith, Gordon "Brazilian Agricultural Policy: 1950-67", in Ellis, H.S. (ed.) Essays on the Economy of Brazil, Berkeley, University of California Press, 1969.
- Veiga, Alberto "The Impact of Trade Policy on Brazilian Agriculture: 1947-1967". Ph.D Dissertation, Purdue University, December 1974.
- Williams, G.W. and Thompson, Robert L. "The Brazilian Soybean Industry: Economic Structure and Policy Interventions". Department of Agricultural Economics, Purdue University (mimeo), April 1982.

ENSAIOS ECONÔMICOS DA EPGE

(a partir de nº 50)

50. JOGOS DE INFORMAÇÃO INCOMPLETA: UMA INTRODUÇÃO - Sérgio Ribeiro da Costa Werlang - 1984 (esgotado)
51. A TEORIA MONETÁRIA MODERNA E O EQUILÍBRIO GERAL WALRASIANO COM UM NÚMERO INFINITO DE BENS - A. Araujo - 1984 (esgotado)
52. A INDETERMINAÇÃO DE MORGENSTERN - Antonio Maria da Silveira - 1984 (esgotado)
53. O PROBLEMA DE CREDIBILIDADE EM POLÍTICA ECONÔMICA - Rubens Penha Cysne - 1984 (esgotado)
54. UMA ANÁLISE ESTATÍSTICA DAS CAUSAS DA EMISSÃO DO CHEQUE SEM FUNDOS: FORMULAÇÃO DE UM PROJETO PILOTO - Fernando de Holanda Barbosa, Clovis de Faro e Aloísio Pessoa de Araujo - 1984
55. POLÍTICA MACROECONÔMICA NO BRASIL: 1964-66 - Rubens Penha Cysne - 1985 - (esgotado)
56. EVOLUÇÃO DOS PLANOS BÁSICOS DE FINANCIAMENTO PARA AQUISIÇÃO DE CASA PRÓPRIA DO BANCO NACIONAL DE HABITAÇÃO: 1964-1984 - Clovis de Faro - 1985 (esgotado)
57. MOEDA INDEXADA - Rubens P. Cysne - 1985 (esgotado)
58. INFLAÇÃO E SALÁRIO REAL: A EXPERIÊNCIA BRASILEIRA - Raul José Ekerman - 1985 (esgotado)
59. O ENFOQUE MONETÁRIO DO BALANÇO DE PAGAMENTOS: UM RETROSPECTO - Valdir Ramalho de Melo - 1985 (esgotado)
60. MOEDA E PREÇOS RELATIVOS: EVIDÊNCIA EMPÍRICA - Antonio Salazar P. Brandão - 1985 (esgotado)
61. INTERPRETAÇÃO ECONÔMICA, INFLAÇÃO E INDEXAÇÃO - Antonio Maria da Silveira - 1985 (esgotado)
62. MACROECONOMIA - CAPÍTULO I - O SISTEMA MONETÁRIO - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)
63. MACROECONOMIA - CAPÍTULO II - O BALANÇO DE PAGAMENTOS - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)
64. MACROECONOMIA - CAPÍTULO III - AS CONTAS NACIONAIS - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)
65. A DEMANDA POR DIVIDENDOS: UMA JUSTIFICATIVA TEÓRICA - TOMMY CHIN-CHIU TAN e Sérgio Ribeiro da Costa Werlang - 1985 (esgotado)
66. BREVE RETROSPECTO DA ECONOMIA BRASILEIRA ENTRE 1979 e 1984 - Rubens Penha Cysne - 1985
67. CONTRATOS SALARIAIS JUSTAPOSTOS E POLÍTICA ANTI-INFLACIONÁRIA - Mario Henrique Simonsen - 1985

68. INFLAÇÃO E POLÍTICAS DE RENDAS - Fernando de Holanda Barbosa e Clovis de Faro - 1985 (esgotado)
69. BRAZIL INTERNATIONAL TRADE AND ECONOMIC GROWTH - Mario Henrique Simonsen - 1986
70. CAPITALIZAÇÃO CONTÍNUA: APLICAÇÕES - Clovis de Faro - 1986 (esgotado)
71. A RATIONAL EXPECTATIONS PARADOX - Mario Henrique Simonsen - 1986 (esgotado)
72. A BUSINESS CYCLE STUDY FOR THE U.S. FROM 1889 TO 1982 - Carlos Ivan Simonsen Leal - 1986
73. DINÂMICA MACROECONÔMICA - EXERCÍCIOS RESOLVIDOS E PROPOSTOS - Rubens Penha Cysne - 1986 (esgotado)
74. COMMON KNOWLEDGE AND GAME THEORY - Sérgio Ribeiro da Costa Werlang - 1986
75. HYPERSTABILITY OF NASH EQUILIBRIA - Carlos Ivan Simonsen Leal - 1986
76. THE BROWN-VON NEUMANN DIFFERENTIAL EQUATION FOR BIMATRIX GAMES - Carlos Ivan Simonsen Leal - 1986 (esgotado)
77. EXISTENCE OF A SOLUTION TO THE PRINCIPAL'S PROBLEM - Carlos Ivan Simonsen Leal - 1986
78. FILOSOFIA E POLÍTICA ECONÔMICA I: Variações sobre o Fenômeno, a Ciência e seus Cientistas - Antonio Maria da Silveira - 1986
79. O PREÇO DA TERRA NO BRASIL: VERIFICAÇÃO DE ALGUMAS HIPÓTESES - Antonio Salazar Pessoa Brandão - 1986
80. MÉTODOS MATEMÁTICOS DE ESTATÍSTICA E ECONOMETRIA: Capítulos 1 e 2 - Carlos Ivan Simonsen Leal - 1986 - (esgotado)
81. BRAZILIAN INDEXING AND INERTIAL INFLATION: EVIDENCE FROM TIME-VARYING ESTIMATES OF AN INFLATION TRANSFER FUNCTION - Fernando de Holanda Barbosa e Paul D. McNelis - 1986
82. CONSÓRCIO VERSUS CRÉDITO DIRETO EM UM REGIME DE MOEDA ESTÁVEL - Clovis de Faro - 1986
83. NOTAS DE AULAS DE TEORIA ECONÔMICA AVANÇADA I - Carlos Ivan Simonsen Leal - 1986
84. FILOSOFIA E POLÍTICA ECONÔMICA II - Inflação e Indexação - Antonio Maria da Silveira - 1986 - (esgotado)
85. SIGNALLING AND ARBITRAGE - Vicente Madrigal e Tommy C. Tan - 1986
86. ASSESSORIA ECONÔMICA PARA A ESTRATÉGIA DE GOVERNOS ESTADUAIS: ELABORAÇÕES SOBRE UMA ESTRUTURA ABERTA - Antonio Maria da Silveira - 1986 - (esgotado)
87. THE CONSISTENCY OF WELFARE JUDGEMENTS WITH A REPRESENTATIVE CONSUMER - James Dow e Sérgio Ribeiro da Costa Werlang

88. INDEXAÇÃO E ATIVIDADE AGRÍCOLAS: CONSTRUÇÃO E JUSTIFICATIVA PARA A ADOÇÃO DE UM ÍNDICE ESPECÍFICO - Antonio Salazar P. Brandão e Clóvis de Faro - 1986
89. MACROECONOMIA COM RACIONAMENTO UM MODELO SIMPLIFICADO PARA ECONOMIA ABERTA - Rubens Penha Cysne, Carlos Ivan Simonsen Leal e Sérgio Ribeiro da Costa Werlang - 1986
90. RATIONAL EXPECTATIONS, INCOME POLICIES AND GAME THEORY - Mario Henrique Simonsen - 1986 - ESGOTADO
91. NOTAS SOBRE MODELOS DE GERAÇÕES SUPERPOSTAS 1: OS FUNDAMENTOS ECONÔMICOS - Antonio Salazar P. Brandão - 1986 - ESGOTADO
92. TÓPICOS DE CONVEXIDADE E APLICAÇÕES À TEORIA ECONÔMICA - Renato Fragelli Cardoso - 1986
93. A TEORIA DO PREÇO DA TERRA: UMA RESENHA - Sérgio Ribeiro da Costa Werlang - 1987
94. INFLAÇÃO, INDEXAÇÃO E ORÇAMENTO DO GOVERNO - Fernando de Holanda Barbosa - 1987
95. UMA RESENHA DAS TEORIAS DE INFLAÇÃO - Maria Silvia Bastos Marques - 1987
96. SOLUÇÕES ANALÍTICAS PARA A TAXA INTERNA DE RETORNO - Clovis de Faro - 1987
97. NEGOTIATION STRATEGIES IN INTERNATIONAL ORGANISATIONS: A GAME - THEORETIC VIEWPOINT - Sérgio Ribeiro da Costa Werlang - 1987
98. O INSUCESSO DO PLANO CRUZADO: A EVIDÊNCIA EMPÍRICA DA INFLAÇÃO 100% INERCIAL PARA O BRASIL - Fernando de Holanda Barbosa e Pedro L. Valls Pereira - 1987

99. UM TEMA REVISITADO: A RESPOSTA DA PRODUÇÃO AGRÍCOLA AOS PREÇOS NO BRASIL
- Fernando de Holanda Barbosa e Fernando da Silva Santiago - 1987
100. JUROS, PREÇOS E DÍVIDA PÚBLICA VOLUME I: ASPECTOS TEÓRICOS -
- Marco Antonio C. Martins e Clóvis de Faro - 1987
101. JUROS, PREÇOS E DÍVIDA PÚBLICA VOLUME II: A ECONOMIA BRASILEIRA (1971/1985)
- Antonio Salazar P. Brandão, Clóvis de Faro e Marco Antonio C. Martins - 1987
102. MACROECONOMIA KALECKIANA - Rubens Penha Cysne - 1987
103. O PRÊMIO DO DÓLAR NO MERCADO PARALELO, O SUBFATURAMENTO DE EXPORTAÇÕES E O
SUPERFATURAMENTO DE IMPORTAÇÕES - Fernando de Holanda Barbosa - Rubens Penha
Cysne e Marcos Costa Holanda - 1987
104. BRAZILIAN EXPERIENCE WITH EXTERNAL DEBT AND PROSPECTS FOR GROWTH -
Fernando de Holanda Barbosa and Manuel Sanchez de La Cal - 1987
105. KEYNES NA SEDIÇÃO DA ESCOLHA PÚBLICA
- Antonio Maria da Silveira - 1987
106. O TEOREMA DE FROBENIUS-PERRON - Carlos Ivan Simonsen Leal - 1987
107. POPULAÇÃO BRASILEIRA - Jessé Montello - 1987
108. MACROECONOMIA - CAPÍTULO VI: "DEMANDA POR MOEDA E A CURVA LM" - Mario Henrique
Simonsen e Rubens Penha Cysne - 1987
109. MACROECONOMIA - CAPÍTULO VII: "DEMANDA AGREGADA E A CURVA IS" - Mario Henrique
Simonsen e Rubens Penha Cysne - 1987
110. MACROECONOMIA - MODELOS DE EQUILÍBRIO AGREGATIVO A CURTO PRAZO
Mario Henrique Simonsen e Rubens Penha Cysne - 1987

111. THE BAYESIAN FOUNDATIONS OF SOLUTION CONCEPTS OF GAMES - Sérgio Ribeiro da Costa Werlang e Tommy Chin-Chiu Tan - 1987
112. PREÇOS LÍQUIDOS (PREÇOS DE VALOR ADICIONADO) E SEUS DETERMINANTES; DE PRODUTOS SELECIONADOS, NO PERÍODO 1980/1º SEMESTRE/1986 - Raul Ekerman - 1987
113. EMPRÉSTIMOS BANCÁRIOS E SALDO-MÉDIO: O CASO DE PRESTAÇÕES - Clovis de Faro - 1988
114. A DINÂMICA DA INFLAÇÃO - Mario Henrique Simonsen - 1988
115. UNCERTAINTY AVERSION AND THE OPTIMAL CHOICE OF PORTFOLIO - James Dow e Sérgio Ribeiro da Costa Werlang - 1988
116. O CICLO ECONÔMICO - Mario Henrique Simonsen - 1988
117. FOREIGN CAPITAL AND ECONOMIC GROWTH - THE BRAZILIAN CASE STUDY
Mario Henrique Simonsen - 1988
118. COMMON KNOWLEDGE - Sérgio Ribeiro da Costa Werlang - 1988
119. OS FUNDAMENTOS DA ANÁLISE MACROECONÔMICA - Prof. Mario Henrique Simonsen e Prof. Rubens Penha Cysne - 1988
120. CAPÍTULO XII - EXPECTATIVAS RACIONAIS - Mario Henrique Simonsen - 1988
121. A OFERTA AGREGADA E O MERCADO DE TRABALHO - Prof. Mario Henrique Simonsen e Prof. Rubens Penha Cysne - 1988
122. INÉRCIA INFLACIONÁRIA E INFLAÇÃO INERCIAL - Mario Henrique Simonsen - 1988
123. MODELOS DO HOMEM: ECONOMIA E ADMINISTRAÇÃO - Antonio Maria da Silveira - 1988
124. UNDERINVOICING OF EXPORTS, OVERINVOICING OF IMPORTS, AND THE DOLLAR PREMIUM ON THE BLACK MARKET - Prof. Fernando de Holanda Barbosa, Prof. Rubens Penha Cysne e Marcos Costa Holanda - 1988
125. O REINO MÁGICO DO CHOQUE HETERODOXO - Fernando de Holanda Barbosa, Antonio Salazar Pessoa Brandão e Clovis de Faro - 1988
126. PLANO CRUZADO: CONCEPÇÃO E O ERRO DE POLÍTICA FISCAL - Rubens Penha Cysne - 1988

127. TAXA DE JUROS FLUTUANTE VERSUS CORREÇÃO MONETÁRIA DAS PRESTAÇÕES: UMA COMPARAÇÃO NO CASO DO SAC E INFLAÇÃO CONSTANTE - Clovis de Faro - 1988
128. CAPÍTULO II - MONETARY CORRECTION AND REAL INTEREST ACCOUNTING
Rubens Penha Cysne - 1988
129. CAPÍTULO III - INCOME AND DEMAND POLICIES IN BRAZIL - Rubens Penha Cysne - 1988
130. CAPÍTULO IV - BRAZILIAN ECONOMY IN THE EIGHTIES AND THE DEBT CRISIS
Rubens Penha Cysne - 1988
- 131- THE BRAZILIAN AGRICULTURAL POLICY EXPERIENCE: RATIONALE AND FUTURE DIRECTIONS
Antonio Salazar Pessoa Brandão - 1988

000051750

