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An Evaluation of Crop and Fertilizer Price Policies in Indonesia:

A Policy Model Exercise

Policy Paper

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Table of Contents

Introduction 1

Conceptual Framework 1

Structure of the Model 6

Projection Assumptions 15

Analysis of Policy Alternatives 19

Conclusion 39

Appendix Tables

Projection Assumption 40
Baseline projection Results 44
Impacts of Policy Alternative 1 51
Impacts of Policy Alternative 2 58

Executive Summary

In recent years the Indonesian government has substantially changed fertilizer prices, rice prices, and the exchange rate of the Indonesian currency relative to U.S. dollars. Additional changes in price policy may be undertaken to bring domestic prices more into alignment with world market prices. Such changes in product price, input price, and exchange rates have significant impacts on production and consumption of food commodities and on important aggregates such as farm income, purchasing power of consumers, and government expenditures.

A policy model designed to operate on a microcomputer was developed to evaluate these impacts. The model utilizes basic supply and demand behavioral parameters estimated in other studies and is designed so that these parameters and projection assumptions can be readily altered by the analyst.

Assuming domestic food crop prices increase with general inflation, a baseline projection was made including supply and use of rice, corn, cassava, sweet potatoes, soybeans, wheat, sugar and peanuts. The two policy alternatives evaluated to demonstrate the operation of the model were a 60 percent reduction in the fertilizer price subsidy and the same subsidy reduction combined with a five percent annual increase in real rice prices. Allowing rice prices to rise, offsets the negative farm income effect of the cut in fertilizer price subsidies but also alters the production, consumption, and trade levels for rice and other food crops.

Introduction

During 1986, the Indonesian government increased the fertilizer price by 25 percent and the rice support price by less than 9 percent. In the same year, the Indonesian currency was devalued by more than 40 percent. These dramatic changes in product price, input price, and exchange rate policies are likely to have significant impacts on production and consumption of commodities and on macroeconomic aggregates such as income and government expenditures. Continuing efforts by the Indonesian government to reduce commodity and input price subsidies and to avoid gross distortions in the valuation of the currency are responsible for these policies.

Each of these price changes has distributional effects. It is important to evaluate the impacts of these policy changes over a broad range of performance measures for agriculture and the general economy. The purpose of this study is to develop a microcomputer based model which can be readily applied to evaluate a range of price policy change impacts. The model covers the important food commodities and includes key performance measures for agriculture and the general economy.

Conceptual Framework

The model has three basic components, illustrated in Figure 1. The first component includes the external assumptions which define the policies, the technology, the state of the economy, and the behavioral parameters for supply and demand. The second component of the model represents the food commodity sector. It includes commodity supply, consumption, and trade. This component of the model indicates how prices influence the distribution of production and consumption across commodities and between the urban and rural populations.

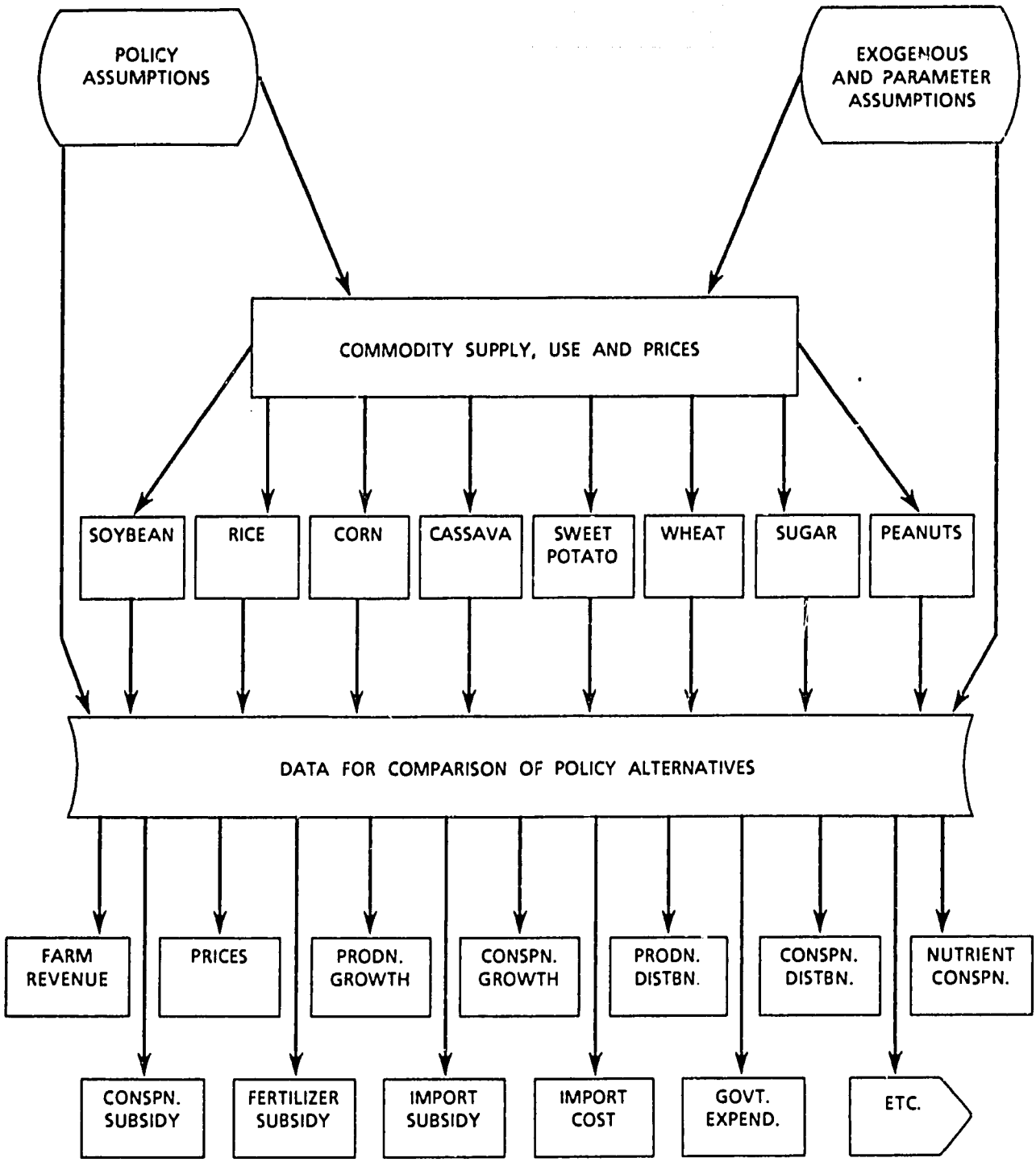

Figure 1. General Components of the Food Policy Model.

The third component of the model develops estimates of various performance measures. These performance measures are derived from the previous two components of the model and include the growth and distribution of production and consumption, farm revenue, and government expenditures.

The structure of the commodity modules in the second component is illustrated in Figure 2. It is assumed that prices are either determined by the government or by the international market. The area harvested is influenced by economic factors or by government programs to promote expansion or irrigation. Yield is influenced by commodity and fertilizer prices, technology improvements over time, or government programs for irrigation and extension. Domestic consumption is influenced by prices, income, and population. In many cases, government policies determine or strongly influence commodity prices. Stock levels for some commodities are strongly influenced by government policies. For other commodities there is little information about stock levels, so reasonable assumptions are made about changes in stocks over time. Seed use and waste are set based on historic proportional relationships.

Important linkages between policies and performance measures are summarized in Figure 3. The major policies to be evaluated are identified in the circles; commodity prices, fertilizer price, exchange rate, and stock policies. Commodity price policy directly influences production and consumption. Through the production side, commodity prices also influence farm and rural incomes. Thus, a change in crop prices influences rural consumption in two ways. A higher price reduces consumption through the direct price effect yet increases consumption through the income effect. Of these two effects the one that dominates in net consumption depends on the magnitudes of the income impact and the relative values of the price and

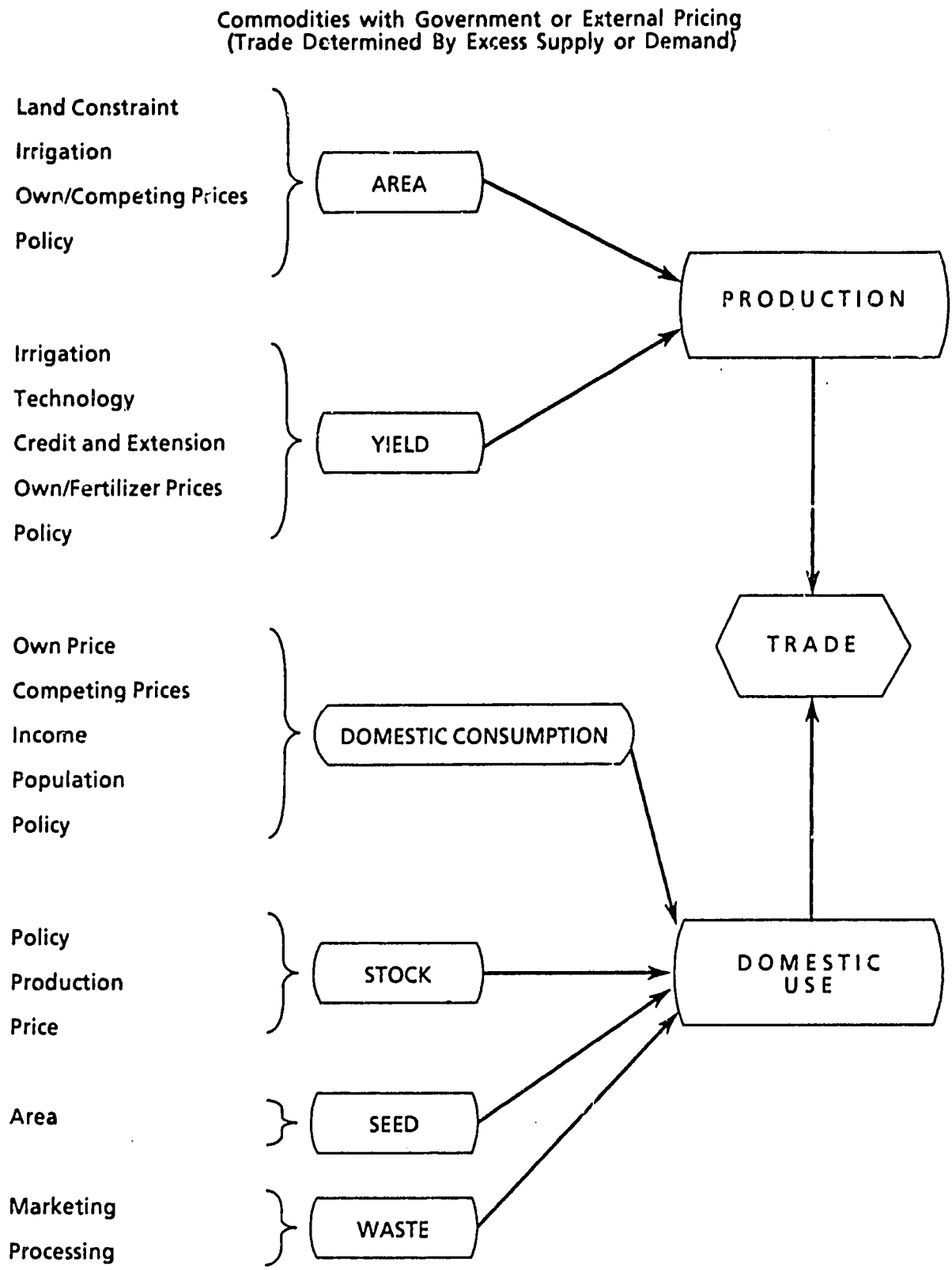

Figure 2. Components of Commodity Supply and Use.

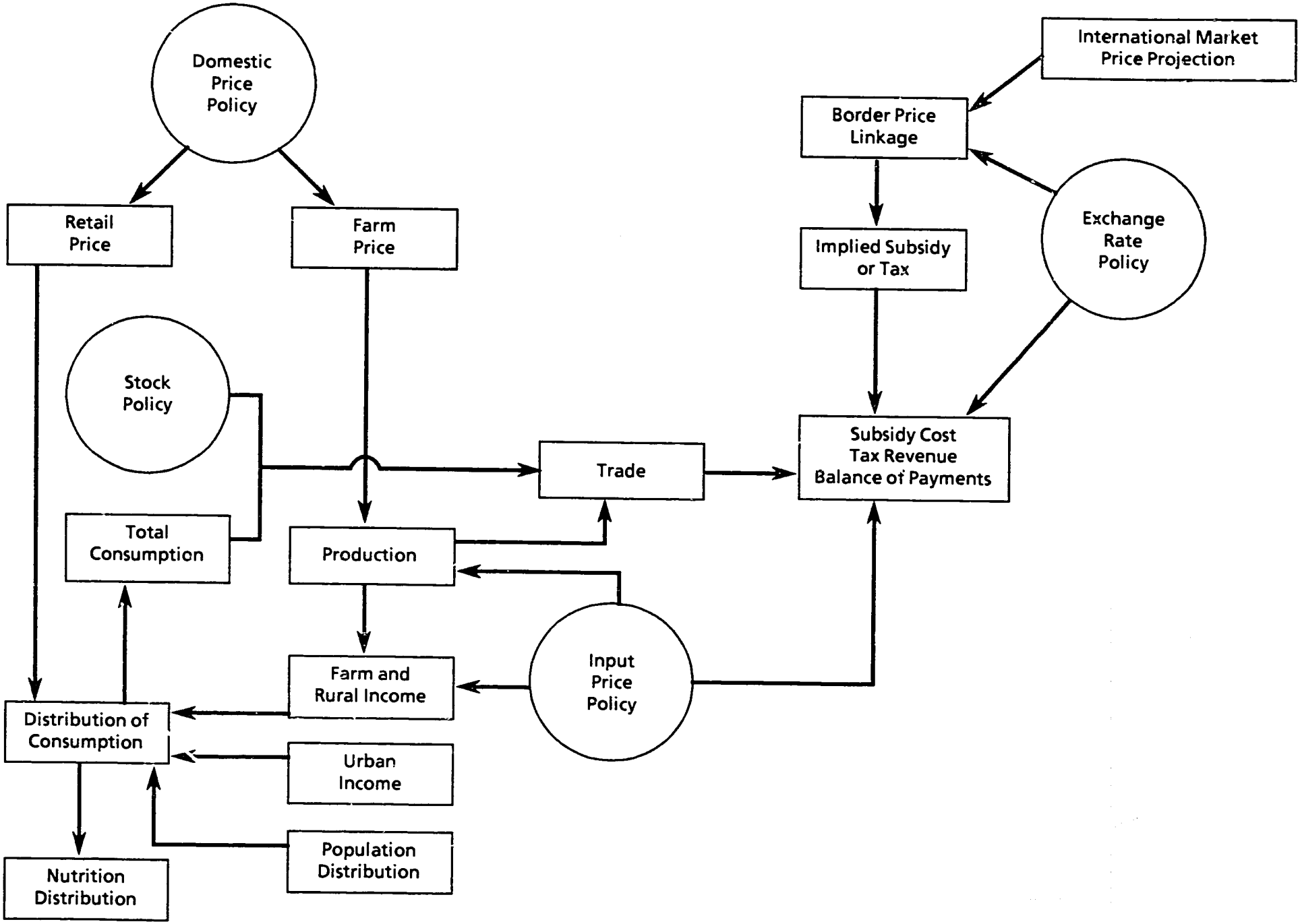

Figure 3. Linkages Between Policies and Performance Measures.

income elasticities. Cross price elasticities are also included. Thus, a change in one price can influence the consumption and production levels for several commodities. Domestic price policy also has an effect on the government expenditure aggregates through the implied subsidies or taxes on traded commodities.

Fertilizer price changes have an impact on production through the yield relationship. Production levels in turn have an effect on farm and rural income. The fertilizer price also has a direct effect on farm and rural income, because the variable costs of production are affected. Through the associated income effect for producers, the fertilizer price policy also influences the level and distribution of consumption. At the aggregate level, fertilizer prices influence government expenditures, since fertilizer is heavily subsidized.

Crop prices, fertilizer price, and stocks policies affect government expenditures through the trade balance. Exchange rates influence the government expenditures and balance of payment aggregates by imposing implied subsidies or taxes of traded commodities.

Hence, changes in only one policy will have impacts on many of the macro- and microeconomic performance measures for Indonesia. This summary has highlighted a number of the primary linkages and interactions that can be reflected in the planning model. When results of policy impacts are presented, the broad scope of these impacts will be evaluated.

Structure of the Model

Commodity Supply and Demand

The core of this planning model is the commodity sector. The structure of the commodity supply and demand requires a set of own and cross price elasticities. The production and consumption relationships in the commodity

sector of the planning model are all based on constant elasticity functions, but the computer program permits the elasticities to be changed across time. Supply elasticities included are for area and yield. Base values for these elasticities are given in Table 1. Some of these elasticities are obtained from the International Food Policy Research Institute (IFPRI) study (pp. 6.27-6.31). However, most of the IFPRI elasticities were adjusted downward, because they were significantly higher than estimated for other countries and from other studies. Since irrigated area is important in determining the rice yield, an elasticity of rice yield for irrigated area was included in the model.

Table 2 reports demand elasticities, taken largely from the IFPRI study. The elasticities of the commodities not included in the IFPRI study are set in this model using studies in other countries as guidelines. The structure of an example crop component in the modeling system is presented in Equations (1) to (12) of Exhibit 1. On the supply side, the normal area, yield, and irrigation growth assumptions are shift variables independent of prices. These are subject to government influence reflecting greater investments in area expansion, technology research, and irrigation. The "constant price projection" is then adjusted for changes in relative price as specified in Equations (2) and (4).

Consumption is specified for rural and urban populations on a per capita basis. Per capita consumption changes from one year to the next with changes in relative prices and income. Income growth in the rural sector is influenced by changes in net returns over variable cost to producers. Thus, the income variable for rural consumption can be influenced by changes in both crop and fertilizer prices. Total consumption is determined by multiplying rural and urban population levels by corresponding per capita consumption

Table 1. Base area and yield elasticities used in the planning model for Indonesia

	Rice Price	Corn Price	Cassava Price	Soybean Price	Sw. Pot. Price	Peanut Price	Sugar Price	Fertilizer Price	Irrigated Area
Commodities				Area Elasticities					
Rice	0.10	-0.05							
Corn	-0.22	0.28							
Cassava	-0.32		0.17						
Soybean	-0.34			0.16					
Sw. Pot.			0.09						
Peanut				-0.30					
Sugar							0.03		
				Yield Elasticities					
Rice	0.11							-0.15	1.55
Corn		0.05						-0.09	
Cassava			0.02					-0.01	
Soybean				0.04				-0.06	
Sw. Pot.					0.06				
Peanut						0.06			
Sugar							0.20	-0.22	

Source: Some of these elasticities are obtained from the report "Assessment of Food Demand/Supply Prospects and Related Strategies for Indonesia," International Food Policy Research Institute, Washington, D.C., Oct. 17, 1986.

Table 2. Demand elasticities used in the planning model for Indonesia

	Rice Price	Wheat Price	Corn Price	Cassava Price	Soybean Price	Sugar Price	Sw. Pot. Price	Peanut Price	Income
Commodities									
Rural									
Rice	-0.25	0.02	0.08	0.06	0.02	0.02			0.30
Wheat	0.20	-0.40	0.05	0.02	0.02	0.02			0.50
Corn	0.15	0.02	-0.40	0.10	0.02	0.02			-0.45
Cassava	0.12	0.02	0.15	-0.45	0.05	0.02	0.56		-0.10
Sw. Pot.	0.10		0.10	0.10			-0.40		0.45
Soybean	0.10	0.02	0.05	0.05	-0.50	0.02		0.20	0.60
Peanut					0.20			-0.30	0.40
Sugar	0.02	0.02	0.02	0.02	0.02	-0.30			0.60
Urban									
Rice	-0.20	0.05	0.04	0.02	0.02	0.02			0.20
Wheat	0.20	-0.30	0.05	0.02	0.02	0.02			0.40
Corn	0.10	0.02	-0.30	0.05	0.03	0.02			-0.30
Cassava	0.10	0.03	0.10	-0.30	0.05	0.02	0.08		-0.15
Sw. Pot.				0.20			-0.30		0.25
Soybean	0.10	0.05	0.05	0.05	-0.40	0.02		0.10	0.50
Peanut					0.20			-0.30	0.40
Sugar	0.02	0.02	0.02	0.02	0.02	-0.25			0.50

Source: Except for sweet potatoes and peanuts, used medium income class in "Assessment of Food Demand/Supply Prospects and Related Strategies for Indonesia," International Food Policy Research Institute, Washington, D.C., Oct. 17, 1986.

Exhibit 1—Example of Food Crops Component*

(1) Constant price area projection

$$QAC_t = QAC_{t-1} (1 + AR_t)$$

(2) Area Harvested

$$QA_t = QAC_t (FPR_t/FPR_{t-1})^{n1} (FPC_t/FPC_{t-1})^{n2}$$

(3) Constant price yield projection

$$YLDC_t = YLDC_{t-1} (1 + YR_t)$$

(4) Average yield

$$YLD_t = YLDC_t \left(\frac{IR_t}{IR_{t-1}}\right)^{n3} (FPR_t/FPR_{t-1})^{n4} (PF_t/PF_{t-1})^{n5}$$

(5) Production

$$QP_t = QA_t \times YLD_t \times MR_t$$

(6) Beginning stock

$$QBST_t = QEST_{t-1}$$

(7) Domestic Supply

$$QSD_t = QP_t + QBST_t$$

(8) Domestic Consumption per capita

$$QDC_{it} = QDC_{it-1} (PR_t/PR_{t-1})^{e1} (PC_t/PC_{t-1})^{e2} (I_{it}/I_{it-1})^{e3}$$

where i = 1,2 for rural and urban.

(9) Food consumption

$$QD_t = \sum_{i=1}^{2} POP_{it} \times QDC_{it}$$

(10) Seed, feed and waste

$$QSFW_t = SWR_t \times QP_t$$

(11) Ending stock

$$QEST_t = DR_t \times QD_t$$

(12) Net imports

$$QIMP_t = QD_t + QSFW_t + QEST_t - QSD_t$$

Variable Definitions

QA_t : area harvested at time t;

AR_t : rate of growth of harvested area at constant relative prices;

QAC_t : area harvested at constant price projection;

FPR_t : farm gate real price of denoted crop at time t;

FPC_t : farm gate real price of competing crop at time t;

n1 : area response elasticity of denoted crop;

n2 : area response elasticity of competing crop;

YLD_t : average yield at time t;

YR_t : rate of growth of yield at constant relative prices and constant irrigated area;

$YLDC_t$: yield at constant price projection;

PF_t : real price of fertilizer at farmer level at time t;

IR_t : irrigated area at time t;

n3 : yield elasticity with respect to irrigation;

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*There are a few differences among crops in the way Equations (10) and (11) are specified.

n4 : yield elasticity with respect to denoted crop prices;

n5 : yield elasticity with respect to fertilizer prices;

QP_t : production at time t;

MR_t : conversion factor from gross to net production at time t;

$QBST_t$: beginning stock at time t;

$QEST_t$: ending stock at time t;

QSD_t : domestic supply at time t;

QDC_t : consumption per capita at time t;

e1 : own price elasticity of demand;

e2 : cross price elasticity;

e3 : income elasticity of demand;

PR_t : own real retail price;

PC_t : real retail price of competing commodity;

I_t : per capita real income at time t;

QD_t : total food consumption at time t;

POP_t : population at time t;

$QSFW_t$: seed, feed and waste at time t;

SWR_t : certain percentage of seed, feed and waste from net production at time t;

DR_t : certain percentage of ending stock from domestic consumption at time t;

$QIMP_t$: imports less exports at time t.

levels. Where appropriate, the stocks and other components of use are computed based on historic shares of production or consumption. Net imports are calculated as the residual-demand minus supply.

Government Costs

Government costs computed are not complete; but include the subsidies for fertilizer, rice, and wheat which have been and may continue to be important. The fertilizer use is computed from the previous year's use level, a constant price growth rate, and the relative price of rice to fertilizer. The relationships used for the projections are in algebraic form:

$$QFC_t = QFC_{t-1} (1 + FR_t) \qquad \text{Constant price projection}$$

$$QF_t = QFC_t \left(\frac{PF_t/PR_t}{PF_{t-1}/PR_{t-1}}\right)^e \qquad \text{Price dependent projection}$$

where

e = fertilizer use elasticity with respect to relative prices

FR = constant price growth rate

PF = fertilizer price

PR = paddy rice

QF = fertilizer use

The fertilizer subsidy rate is the difference between the international costs in Rupiah and the domestic price. The total fertilizer subsidy is simply the fertilizer subsidy rate times fertilizer use. The subsidy is assumed to apply even to domestically produced fertilizer, since that has an opportunity cost approximately equal to imported fertilizer. The rice import subsidy cost (tariff revenue) is the

difference between the domestic price and the price of imported rice times the quantity of imports (exports). The wheat import subsidy cost (tariff revenue) is computed in a similar manner. If domestic prices are above border prices, values will be negative indicating a revenue gain.

Farm Revenue

The farm revenue computations are used to estimate rural income. Changes in price policies for fertilizer or crops influence rural income through farm revenues and costs. For example, if the price of fertilizer is increased, thereby reducing the net return to farmers, the rate of growth in rural income will be reduced. This income effect will slow the rate of growth in per capita consumption in rural areas. Similarly, if the price of rice or other commodities is raised and net farm returns increase, per capita consumption in the rural areas grows more rapidly.

Gross revenues are approximated by farm price times production levels. Variable costs are approximated by area harvested times the cost per hectare. Net return is the difference between gross revenues and variable costs. Net returns are adjusted downward if wages increased or if the domestic price of fertilizer rises above 100 Rupiah per kilogram. This is because the cost of production estimates used were made in 1985 when the fertilizer price was at 100 Rupiah per kilogram. Thus, a rise in fertilizer price above this level will increase the variable cost of production and reduce net returns. In addition, farm wages are assumed to follow changes in rice prices. Thus, the wage component of variable costs will increase or decrease at the same rate as the rice price.

Projection Assumptions

In addition to elasticity assumptions, there are a number of other projection assumptions required for the model. The first set of assumptions are the constant price, area and yield growth rates. Beginning with the 1987 crop year, the area growth rates are assumed to be between zero percent per year and 9 percent per year depending on the commodity (Appendix table A.1). Yield growth rates are assumed to be between -3 percent and 2 percent per year, again, depending on the commodity. In some cases, these growth rates change from year to year. A constant price growth rate for fertilizer use is assumed at 5 percent a year from 1987 onwards.

Several conversion factors used are constant for the projection period. These conversion factors are seed, feed and waste rates for different commodities and crush conversion rates for oilseeds (see Appendix Table A.2). Market margin rates are based on historic relationships between farm and retail prices. These are held constant over the projection period based on the ratio of retail to farm prices in 1985. Variable costs of production for 1985 are taken from IFPRI draft report. The assumed rate of growth in real variable cost is 1 percent per year over the projection period.

Several macroeconomic assumptions are also required. The exchange rate is assumed to stay at 1600 Rupiahs per U.S. dollar from 1986 to the end of the projection period. The inflation rate is assumed to stabilize at 5 percent per year beginning in 1986. Population growth is assumed to be 2.17 percent per year over the projection period, and urban income growth rate is 10 percent. There is an underlying assumed rate of growth in rural income of 5 percent per year, based on technical change. This is adjusted on an annual basis, depending upon the rate of growth and farm returns over variable costs. The adjustment is based on the 50 percent weighting between the underlying

growth rate and the percent change in the net returns to the variable costs (Appendix Table A.3).

The policy assumptions include assumptions for stocks policies and price support policies (Appendix Table A.4). The rice and wheat stocks are assumed to be equal to 10 percent of consumption over the projection period. World price levels for corn, wheat, and soybeans are based on projections made by the Food and Agricultural Policy Research Institute (FAPRI) at Iowa State University. Peanuts and cassava prices are set at assumed levels, and rice and fertilizer prices are based on projections by the World Bank (Half-Yearly Revision of Commodity Price Forecasts, Sept. 1987).

The real price growth assumptions for the commodities and for fertilizer are the basic policy assumptions that drive the model. These are set equal to zero in the baseline projections. For policy options scenarios these were changed as subsequently stipulated. The support prices for rice, corn, soybeans, sugar and fertilizer are specified in nominal terms and increased at the rate of inflation, if the real price growth assumptions are equal to zero. If the real price growth assumptions are increased above zero, support prices in nominal terms are adjusted accordingly.

The 1985 starting values for the population and consumption distributions are given in Table 3. The population distribution is computed by dividing rural and urban populations by the total population. The rural population share is 80 percent and urban population share is 20 percent. The consumption distribution for each commodity is computed as rural consumption divided by the total consumption and urban consumption divided by the total consumption. Total rural (urban) consumption is computed as rural (urban) per capita consumption times rural (urban) population.

Per capita rural and urban consumption levels are not available data. They are derived from the national per capita consumption, weekly per capita

Table 3. Initial Conditions Assumed in 1985 for Distribution of Population and Consumption

	Share of Population (%)	Share of Consumption (%)
Rice		
Rural	80	81
Urban	20	19
Wheat		
Rural	80	71
Urban	20	29
Corn		
Rural	80	96
Urban	20	4
Cassava		
Rural	80	92
Urban	20	8
Sw. Potato		
Rural	80	89
Urban	20	11
Soybean		
Rural	80	66
Urban	20	34
Peanut		
Rural	80	90
Urban	20	10

consumption, food expenditure participation, and rural and urban population as follows:

(1) $$PC = \frac{(UPC * UP) + (RPC * RP)}{(UP + RP)}$$

(2) $$UPC = \alpha\ RPC$$

(3) $$TP = UP + RP$$

(4) $$PC = \frac{(\alpha RPC * UP) + (RPC * RP)}{TP}$$, by substituting (2) and (3) into (1)

(5) $$RPC = (PC * TP)/(\alpha * UP + RP)$$, by solving (4) for RPC

where

PC = National per capita consumption

UPC = Urban per capita consumption

RPC = Rural per capita consumption

UP = Urban population

RP = Rural population

$$\alpha = \frac{\text{Urban per capita weekly consumption * urban food participation.}}{\text{Rural per capita weekly consumption * rural food participation.}}$$

The data for national per capita consumption were obtained from IFPRI study (pp. 3.7-3.10). The weekly per capita consumption and food expenditure participation estimates are from the report "Evaluating Food Policy in Indonesia Using Full Demand systems," Center for Agricultural and Rural Development, September 1987 (pp. 49 & 57). Only the starting values of UPC and RPC in 1985 are computed. In subsequent periods, the behavioral equation determine the values for UPC and RPC.

The baseline projections for the commodities are presented in Appendix Tables A.5 through A.8. We do not attach a great deal

significance to the absolute levels of these projections. We are primarily interested in the impact of alternative policies as they affect changes from these baseline levels. In Appendix Tables A.9 and A.10, the baseline projections for calorie distribution government costs and net import costs are presented. In the Appendix Table A.11, the projections on net returns and variable cost are presented. Recall that these are used to adjust the rural income growth rate. The levels of these baseline projections are discussed with the policy options reviewed in the next section.

Analysis of Policy Alternatives

Two policy options are evaluated to illustrate the use of the planning model. A number of other alternatives are possible, but these two options will indicate how the model can be used to assess the impact of price changes on the supply and use of commodities, calorie distribution, and other performance variables. The first policy alternative (ALT 1) is to reduce the fertilizer price subsidy by 60 percent by 1993 (Figure 4). The second policy alternative (ALT 2) is to introduce the same reduction in the fertilizer price subsidy but to also increase rice prices at a more rapid rate to compensate producers for the higher input prices (Figure 5).

The comparison of levels of key variables under the base, ALT 1, and ALT 2 are presented in Figures 4 through 32. The detailed impacts of policy alternative 1 are presented in Appendix Tables A.12 to A.18, and those of policy alternative 2 in Appendix Tables A.19 through A.25. A brief comparison of the estimated impacts of alternative scenarios is presented below to illustrate the importance of the behavioral characteristics and parameters of the model.

FIGURE 4. FERTILIZER PRICE ASSUMPTIONS

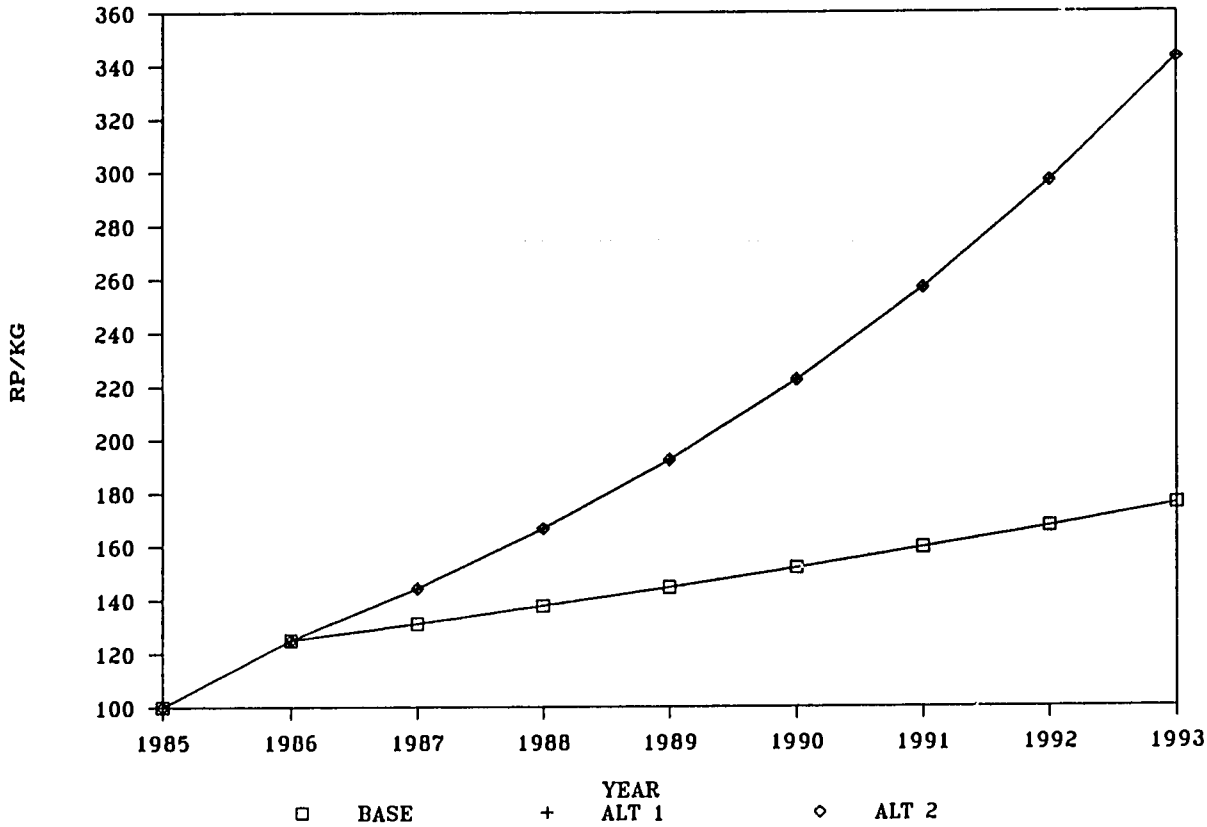
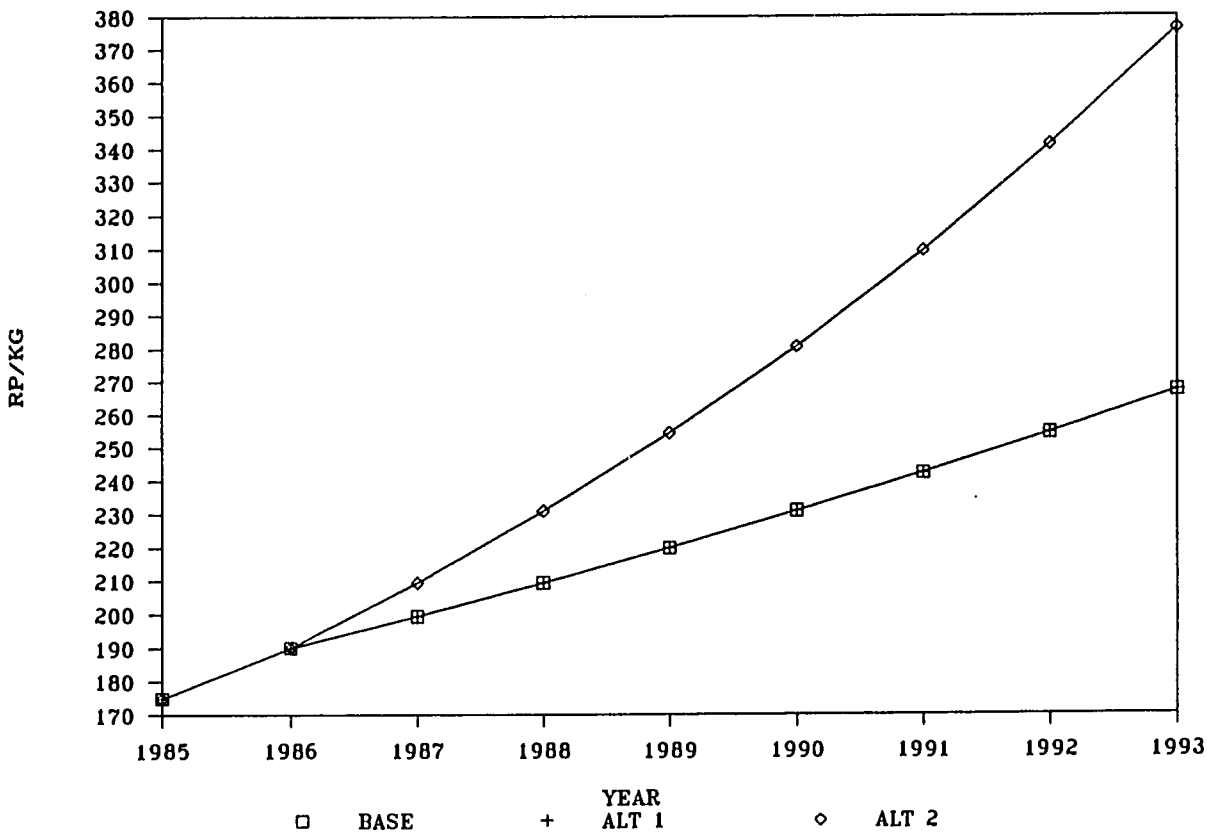


FIGURE 5. RICE PRICE ASSUMPTIONS



Comparison of Commodity Impacts

The higher fertilizer prices have the effect of reducing yields and production of major commodities. There is also an effect on demand, since the lower production of various commodities results in lower net returns over variable costs. This reduces the growth rate of rural income and, consequently, reduces the consumption of commodities that have positive income (consumer expenditure) elasticities. For those commodities which have negative income elasticities, the consumption increases as a result of this decline in income.

In the second policy alternative, where the real price of rice as well as the fertilizer price increase, the higher rice prices have effects on rice yields as well as on the area planted to rice and commodities which compete with rice for land. On the consumption side the higher rice price has the effect of raising rural income through the increase in net returns over variable costs. Thus, there is both a price effect and an income effect for rural rice consumption, a price effect for urban rice consumption, and an income effect for rural consumption of other commodities.

The growth in rice yield over time is dramatically reduced by the higher fertilizer prices in ALT 1, but the higher rice prices in ALT 2 partially offset this effect (Figure 6). Rice area planted is unaffected by the higher fertilizer prices, but it increases as a consequence of higher rice prices relative to other commodities (Figure 7). Because of the yield effect under ALT 1, over the period 1989-93 paddy production is reduced by an average of 3.2 million tons per year (Figure 8). This is equivalent to about 2.1 million tons of rice. With the offsetting effects of the higher rice prices in ALT 2, paddy production is reduced only slightly.

FIGURE 6. RICE YIELD

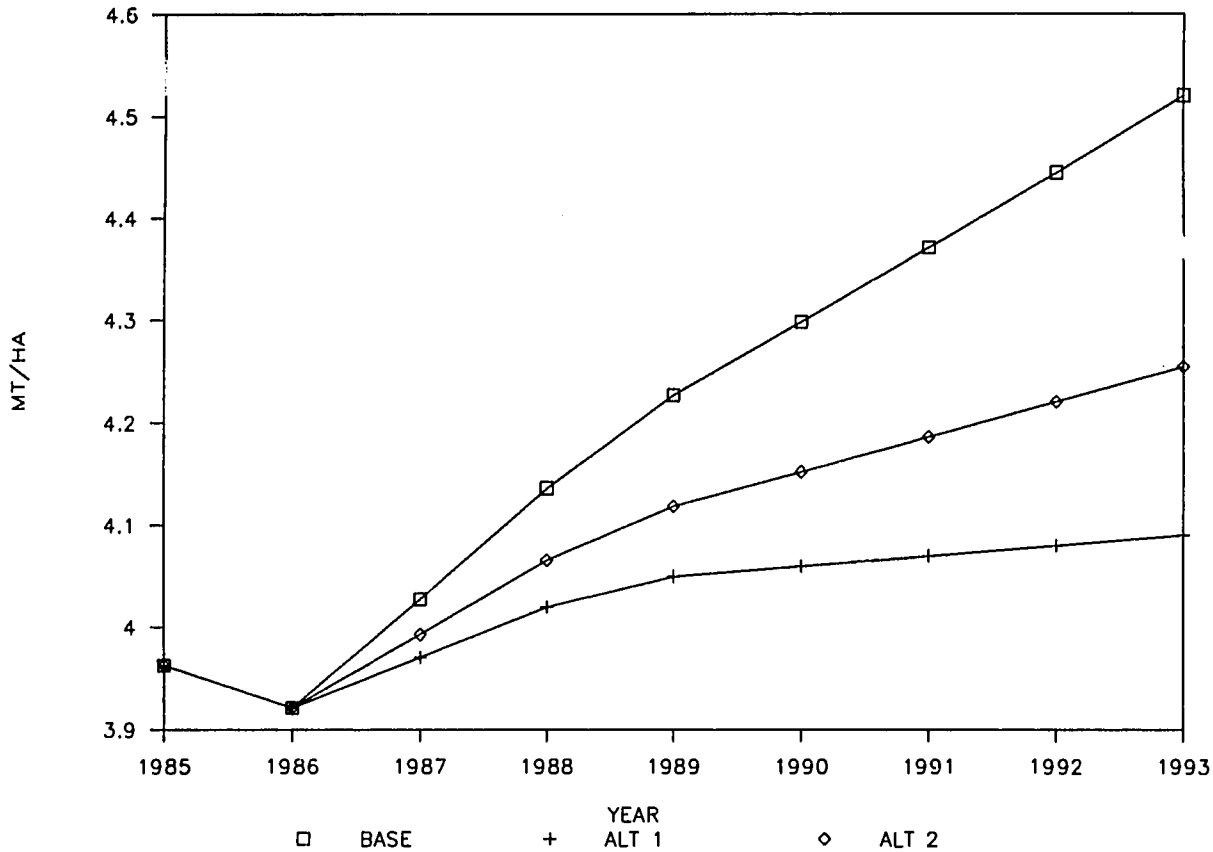


FIGURE 7. RICE AREA

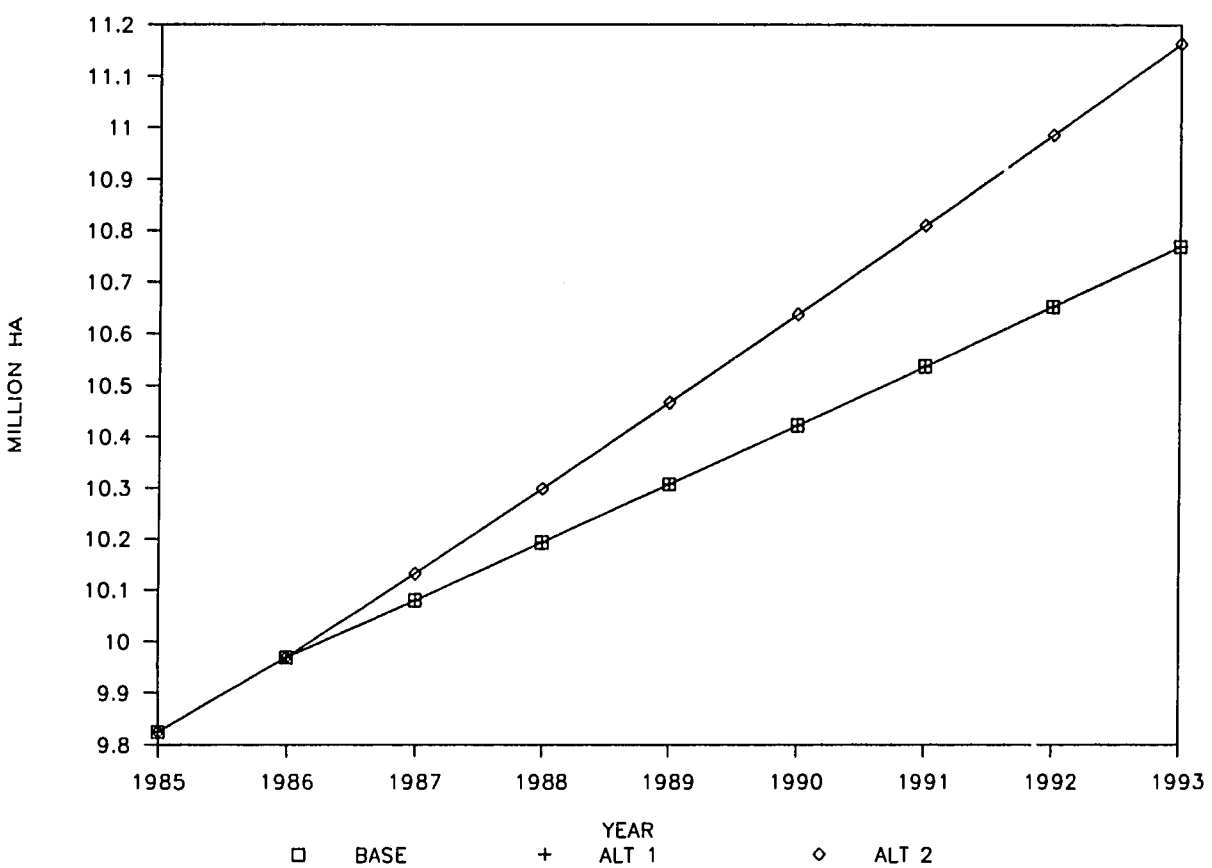


FIGURE 8. PADDY PRODUCTION

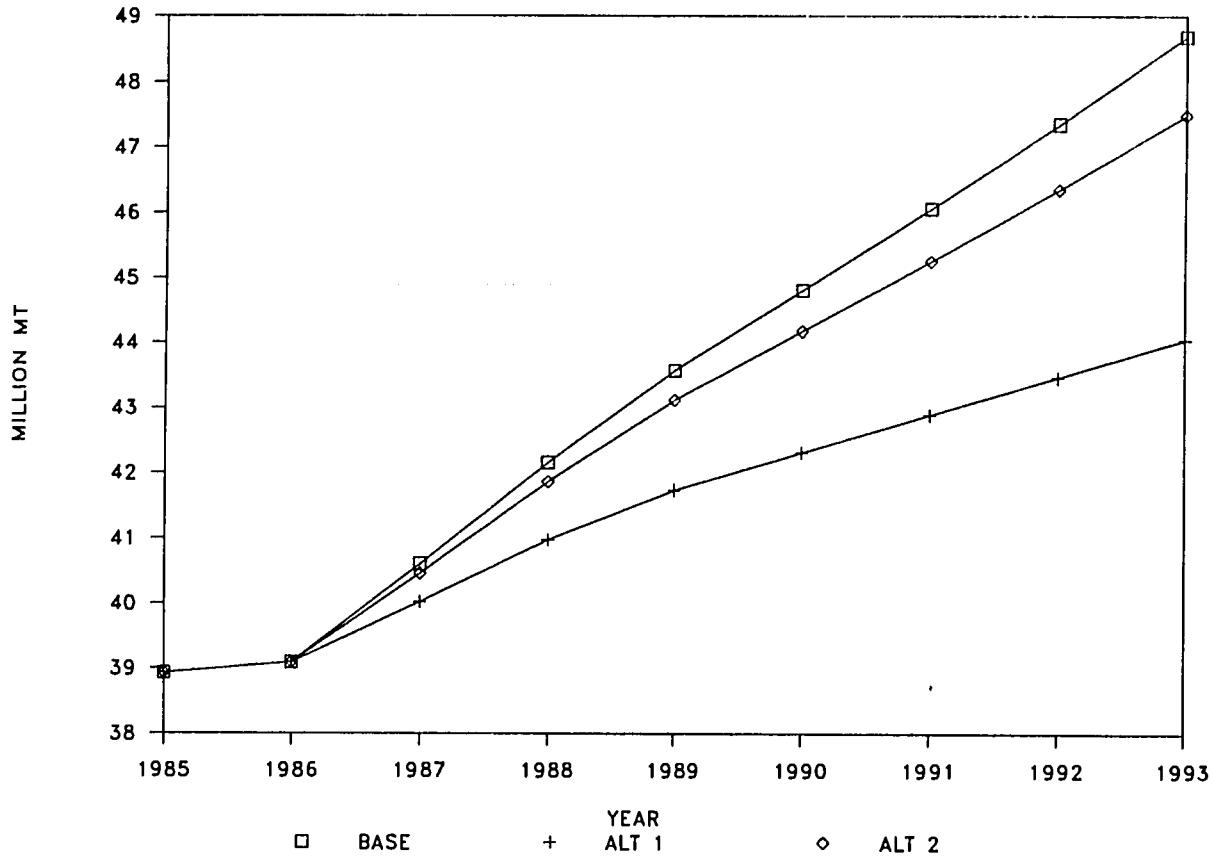
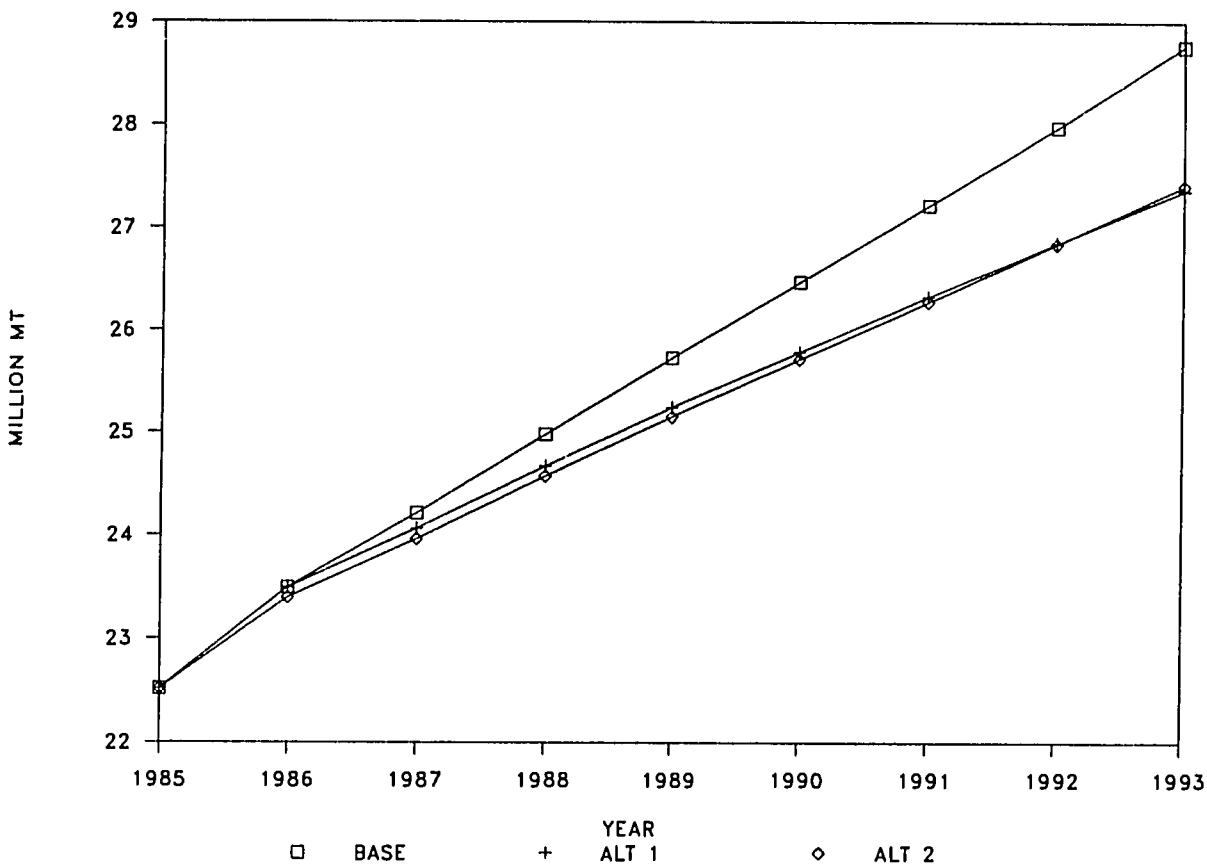


FIGURE 9. RICE CONSUMPTION



Rice consumption declines under ALT 1 by an average of over 900,000 tons because of the reduced rural income. Under ALT 2, the higher rural income is offset by the higher rice prices for both urban and rural consumers. The net effect is a decline in rice consumption approximately equal to that in ALT 1 (Figure 9). Because production declines far more than consumption under ALT 1, the rice sector moves from being a slight net exporter to a relatively large net importer over the projection period (Figure 10). Under ALT 2, the decline in consumption is greater than a decline in production, so rice exports increase over the period of analysis.

The impacts on corn yields are similar to that of rice, but the production effects are different (Figures 11 to 13). Corn area declines substantially under ALT 2, because of the effects of higher rice prices. So corn production in ALT 2 is even lower than that under ALT 1. Since the income elasticity of demand for corn is negative for rural consumers, consumption increases as a result of the lower rural income in ALT 1 (Figure 14). Corn imports are higher under ALT 1 because of the higher consumption and in ALT 2 because of the production decline (Figure 15).

Cassava yields are not very sensitive to changes in fertilizer prices, but the area planted declines as the relative price of rice increases under ALT 2 (Figures 16 and 17). Therefore, cassava production is substantially lower only under ALT 2 (Figure 18). There are slight increases in cassava consumption under ALT 1 and ALT 2 (Figure 19), but the impacts on cassava exports are dominated by the lower production under ALT 2 (Figure 20). The results suggest that the higher relative price of rice would attract sufficient land out of cassava production and result in a net import requirement for cassava. It is unlikely that Indonesia would actually

FIGURE 10. RICE IMPORTS

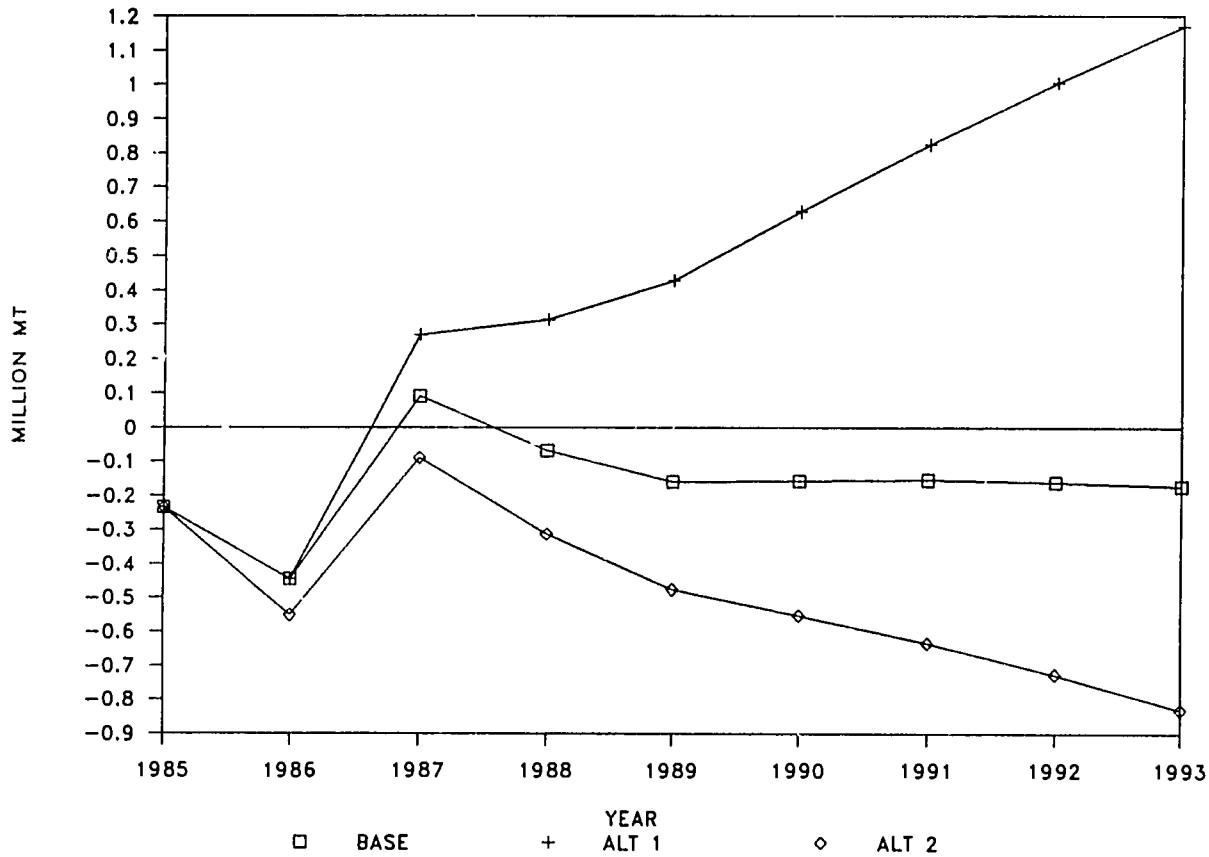


FIGURE 11. CORN YIELD

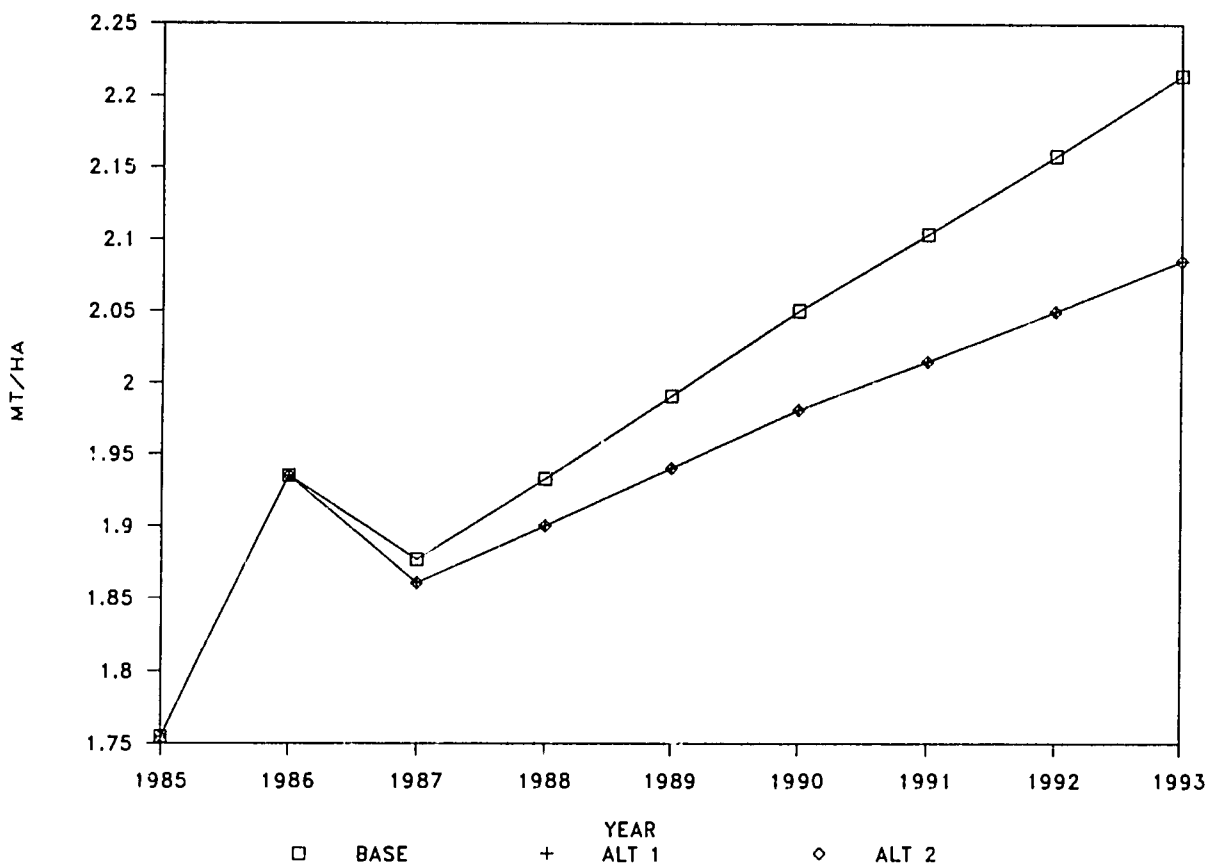


FIGURE 12. CORN AREA

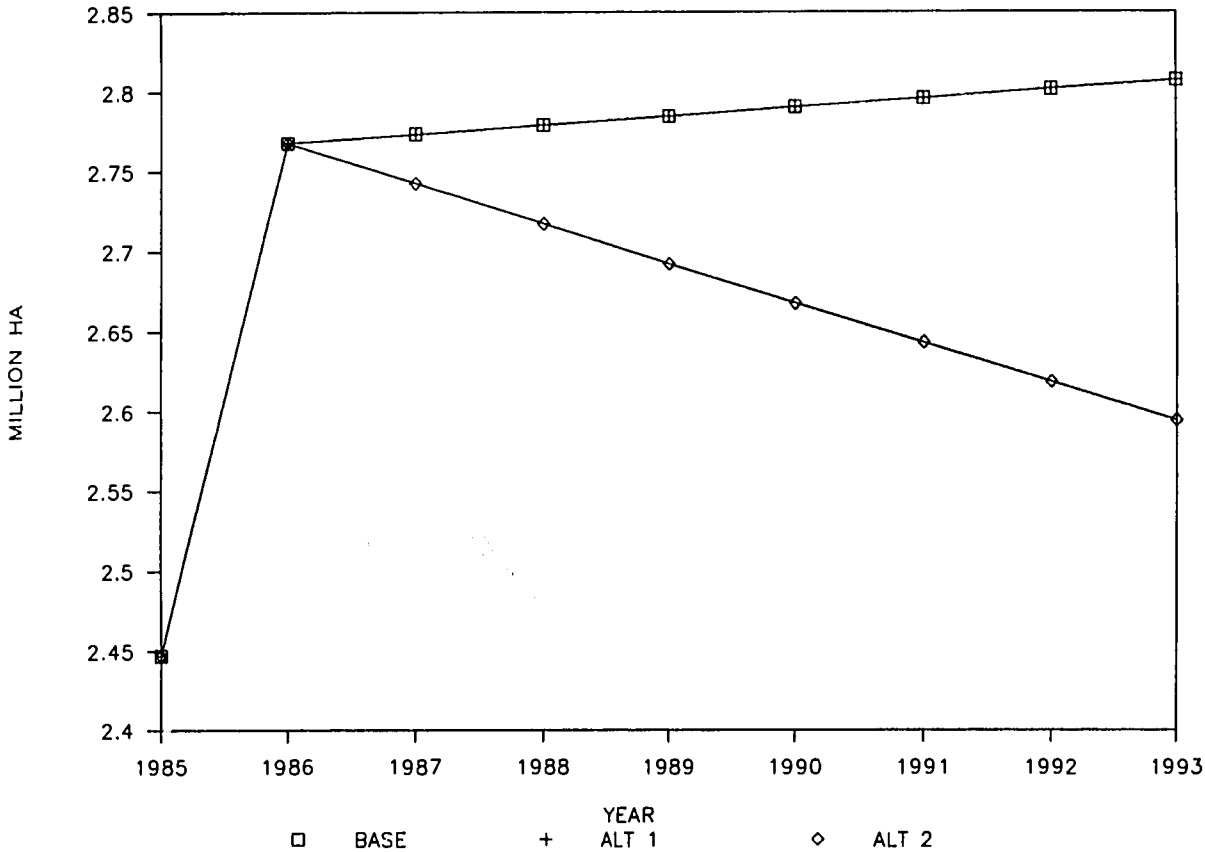


FIGURE 13. CORN PRODUCTION

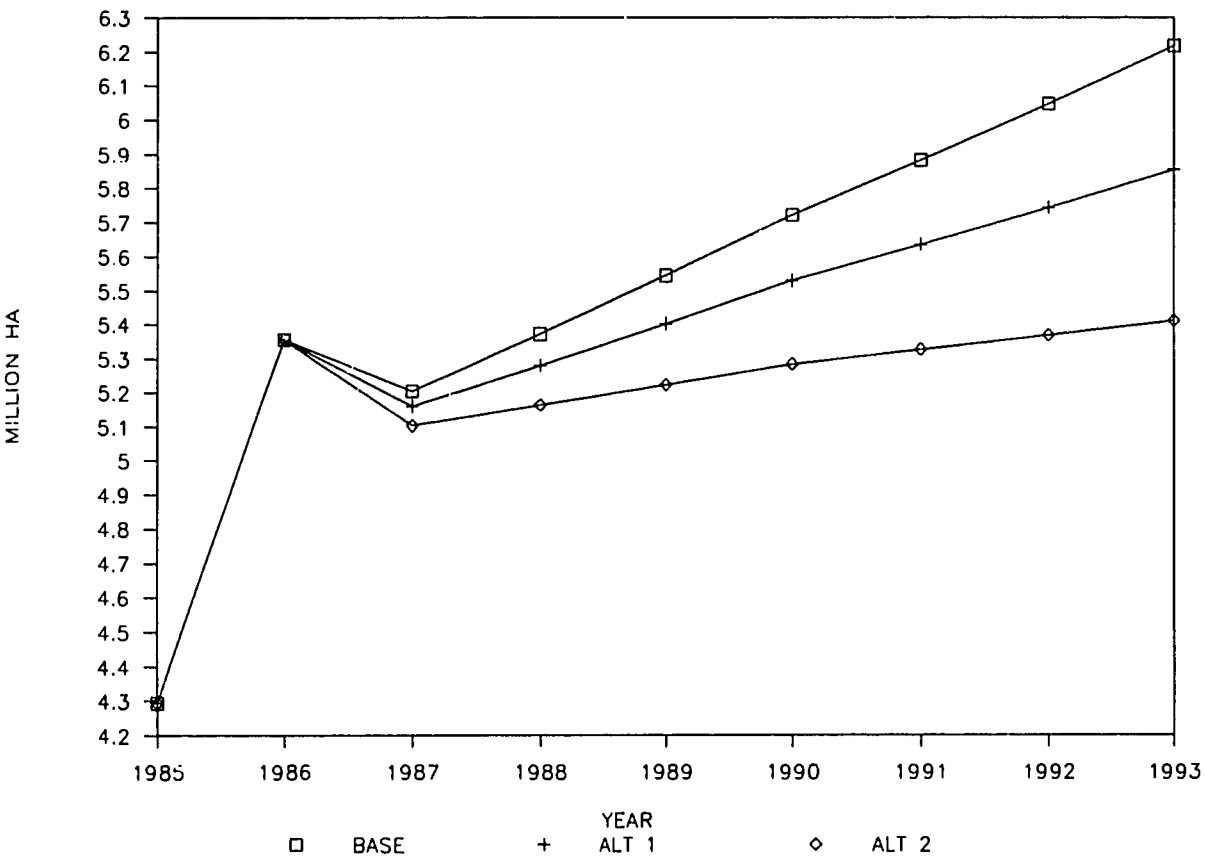


FIGURE 14. CORN CONSUMPTION

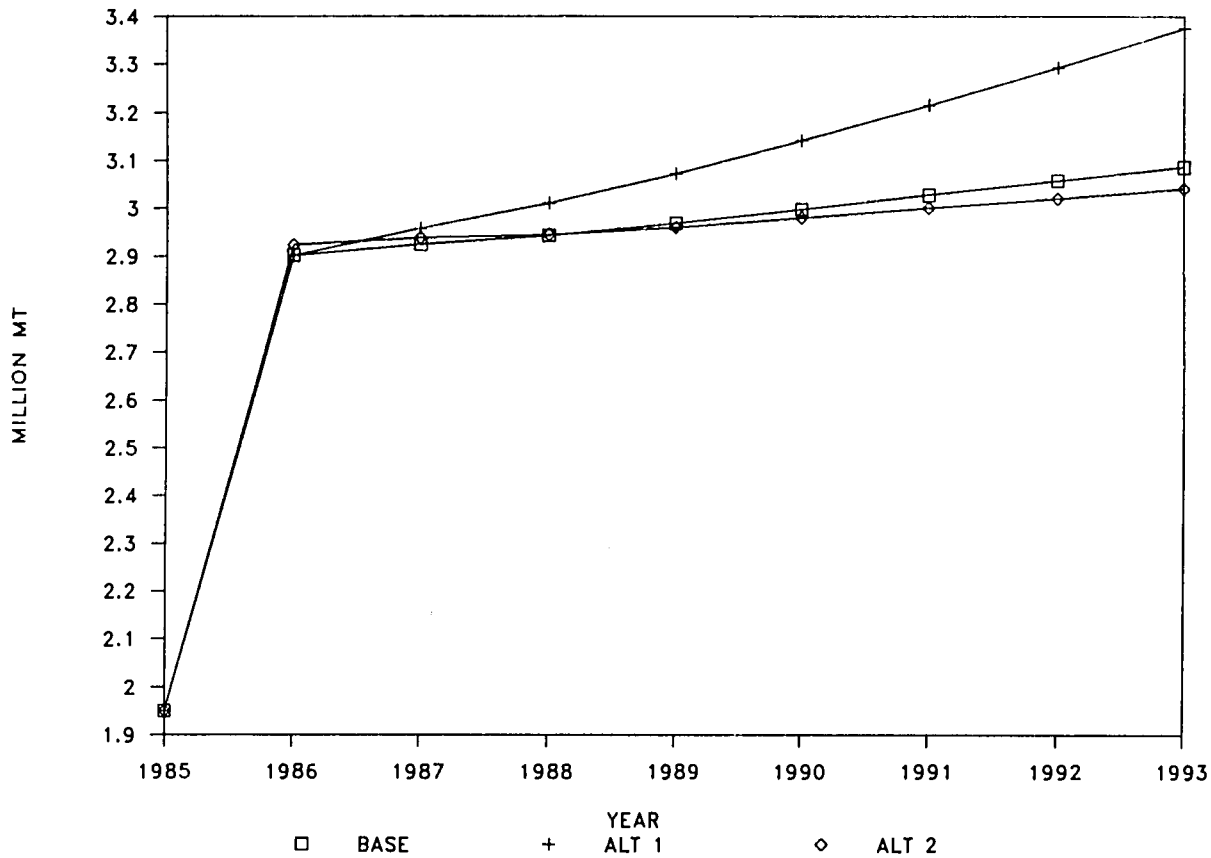


FIGURE 15. CORN IMPORTS

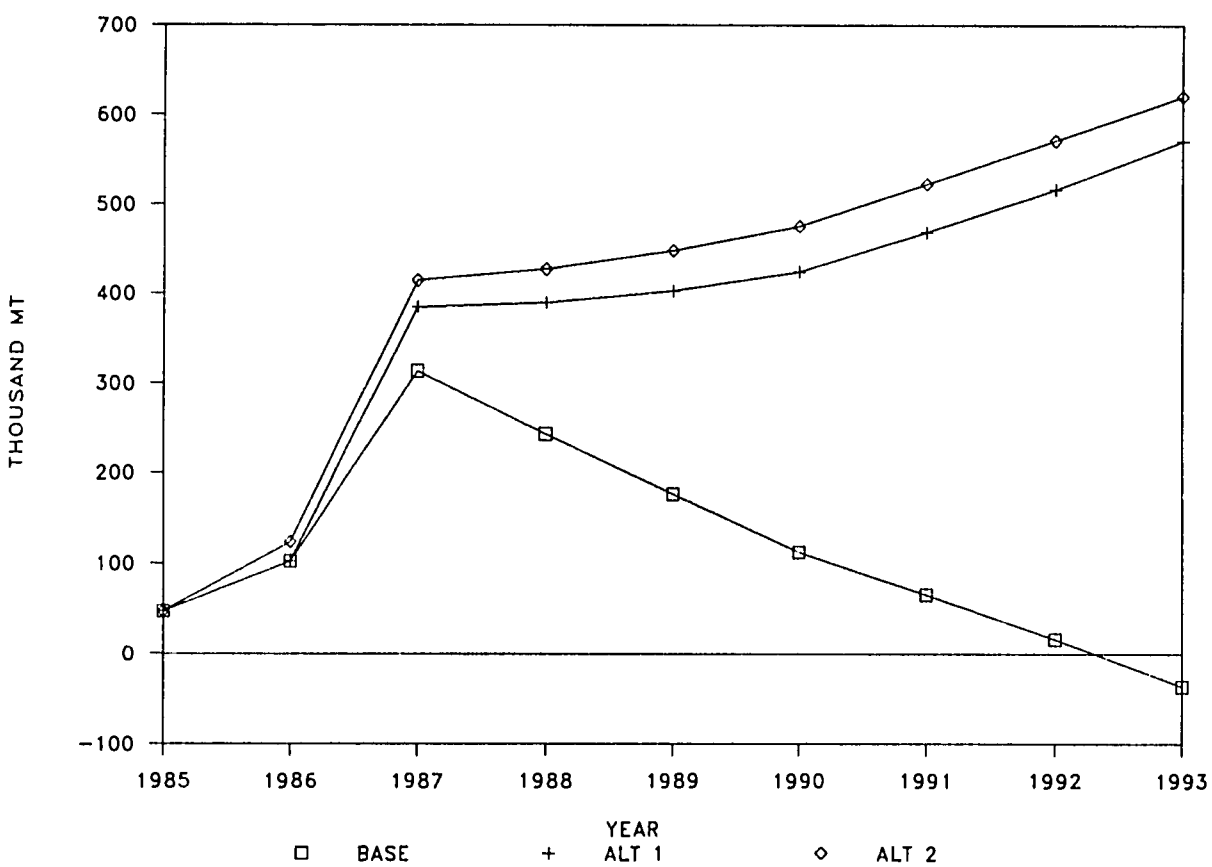


FIGURE 16. CASSAVA YIELD

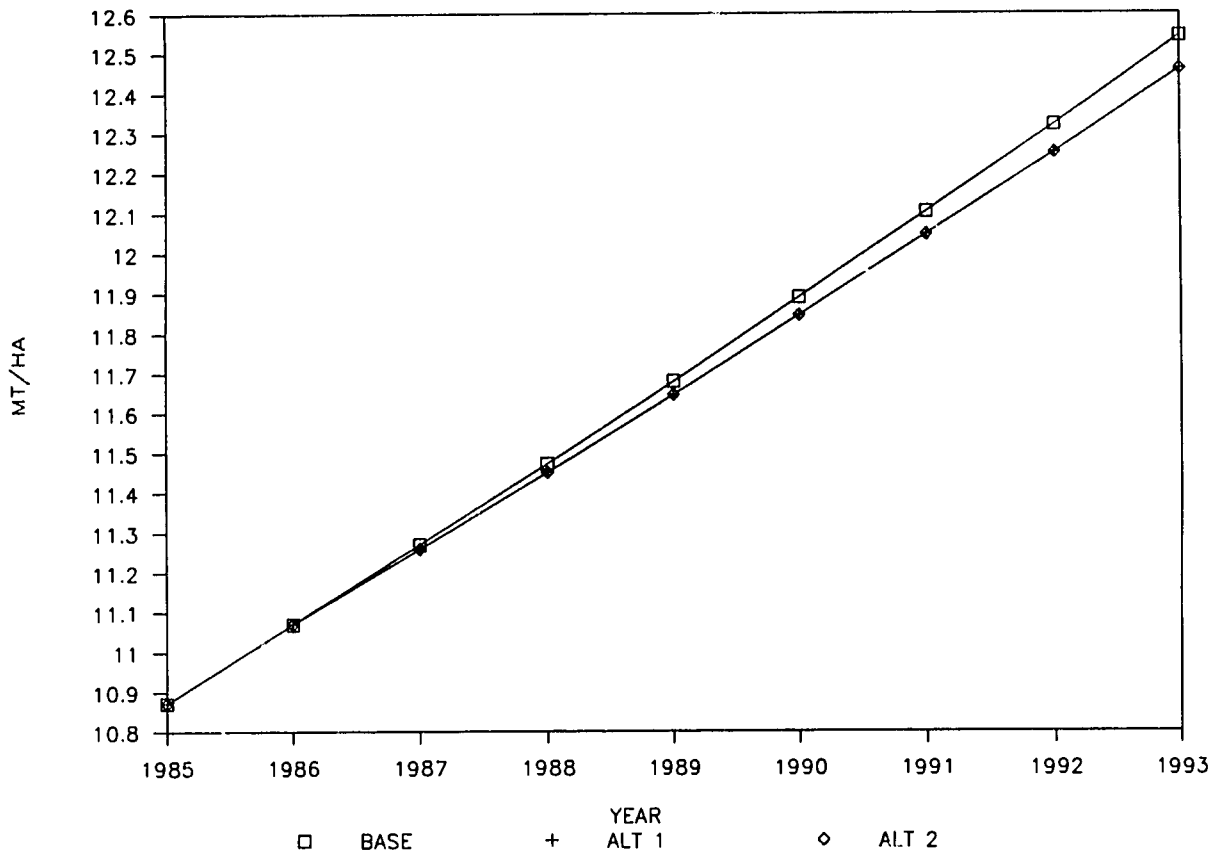


FIGURE 17. CASSAVA AREA

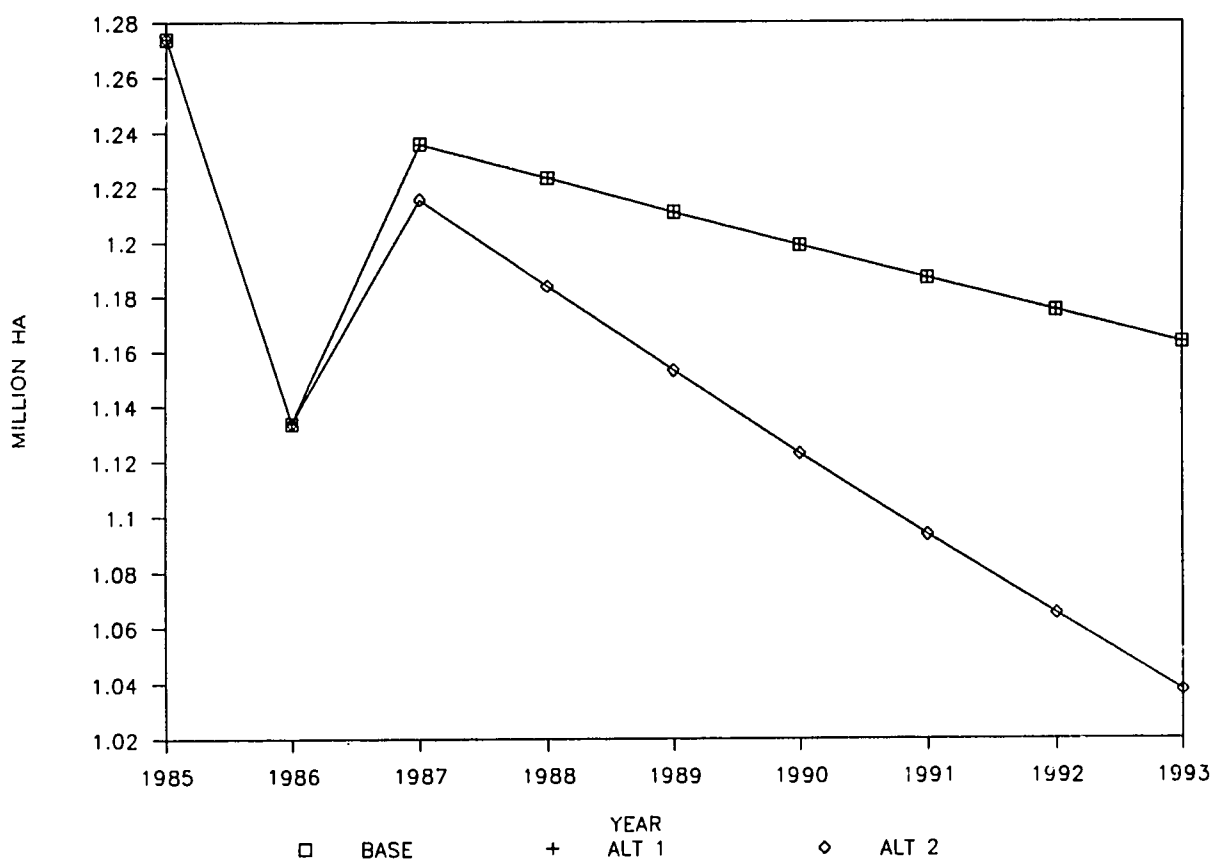


FIGURE 18. CASSAVA PRODUCTION

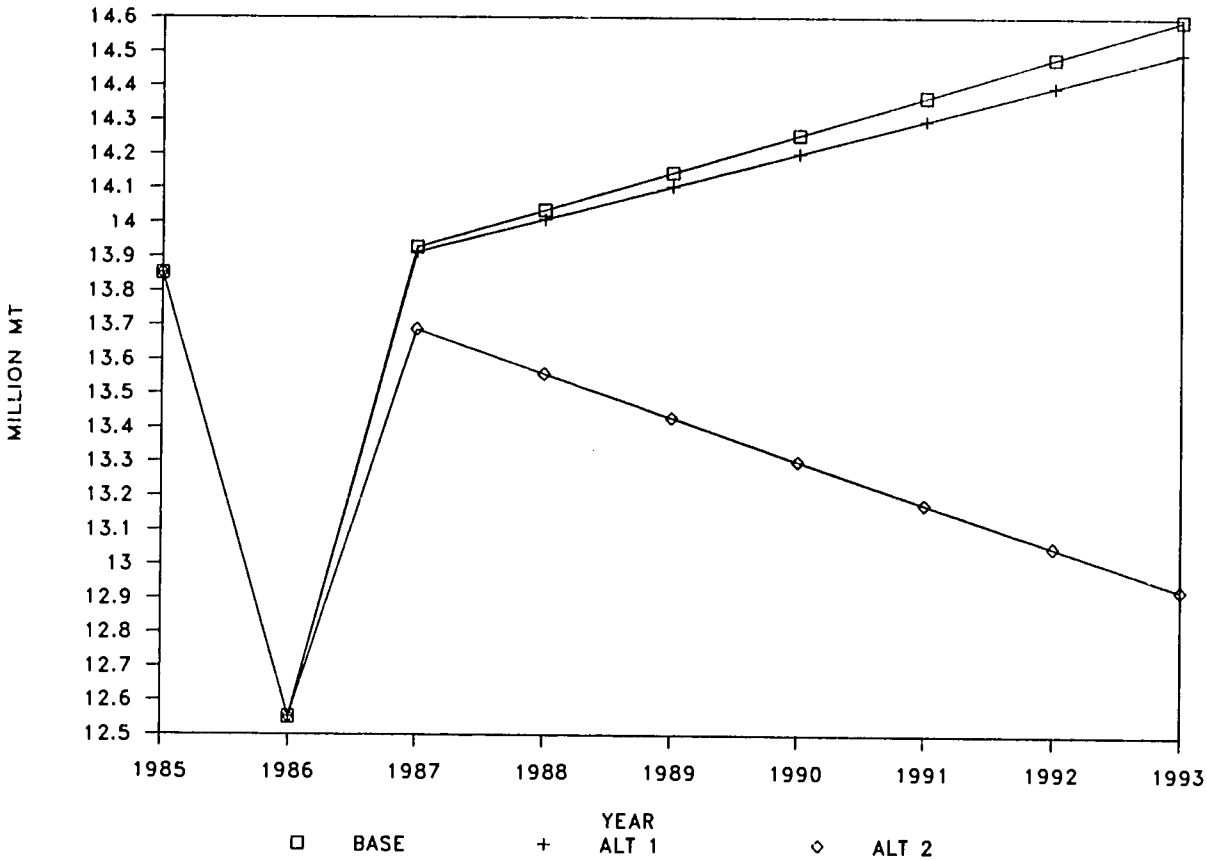


FIGURE 19. CASSAVA CONSUMPTION

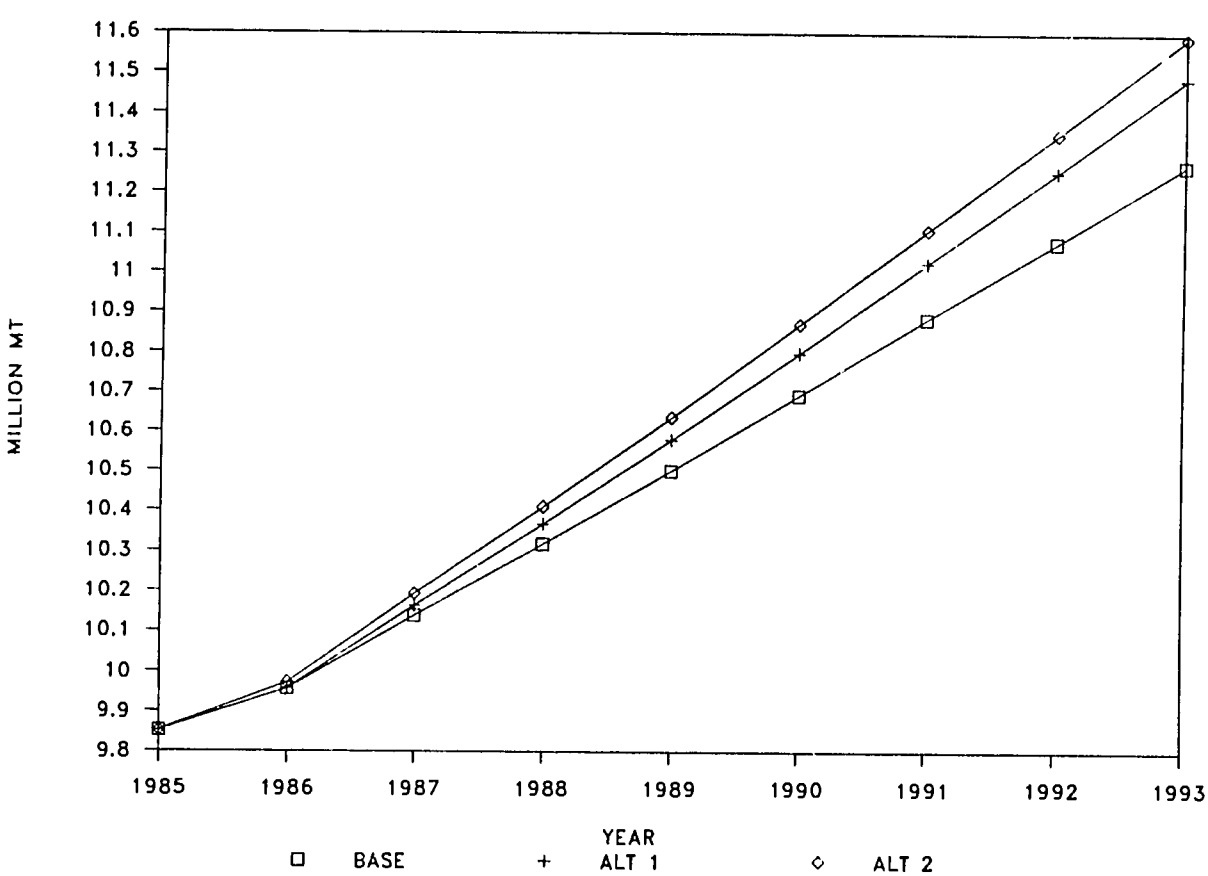


FIGURE 20. CASSAVA EXPORTS

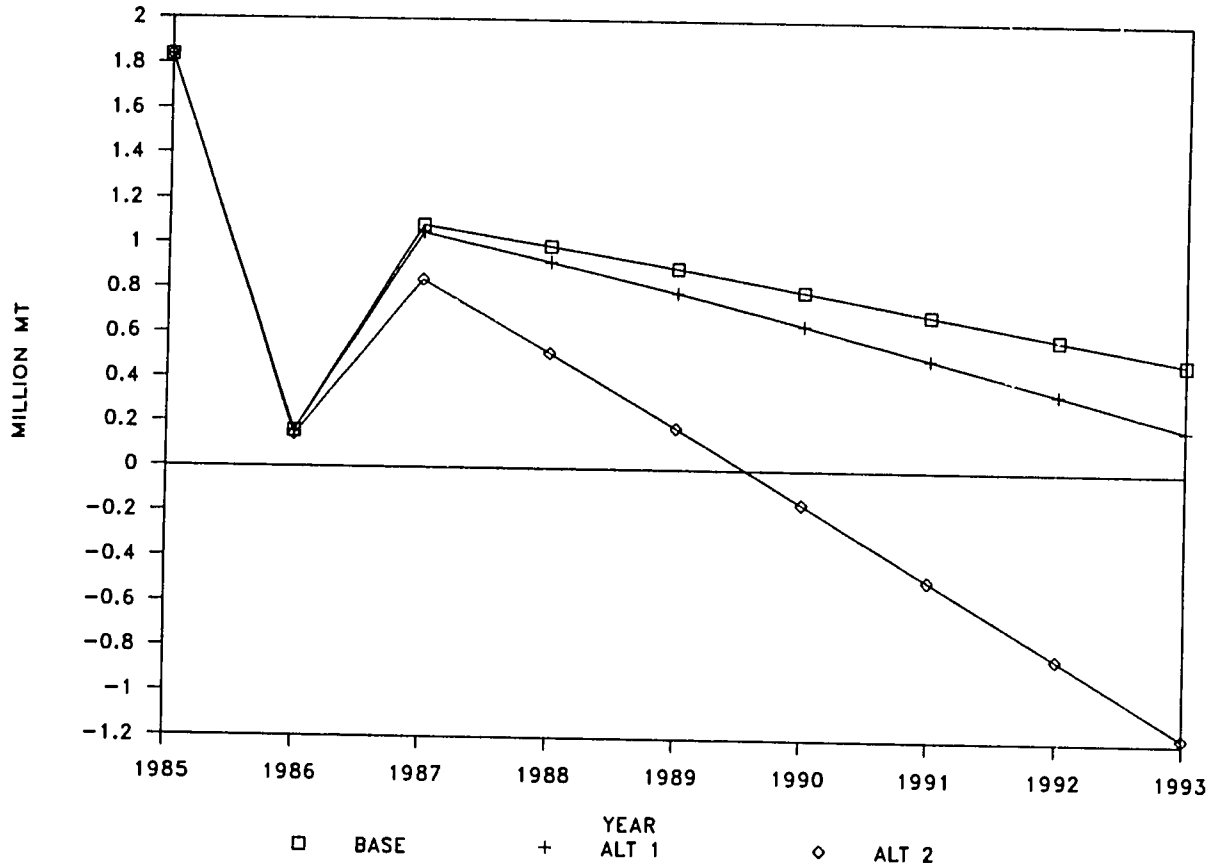
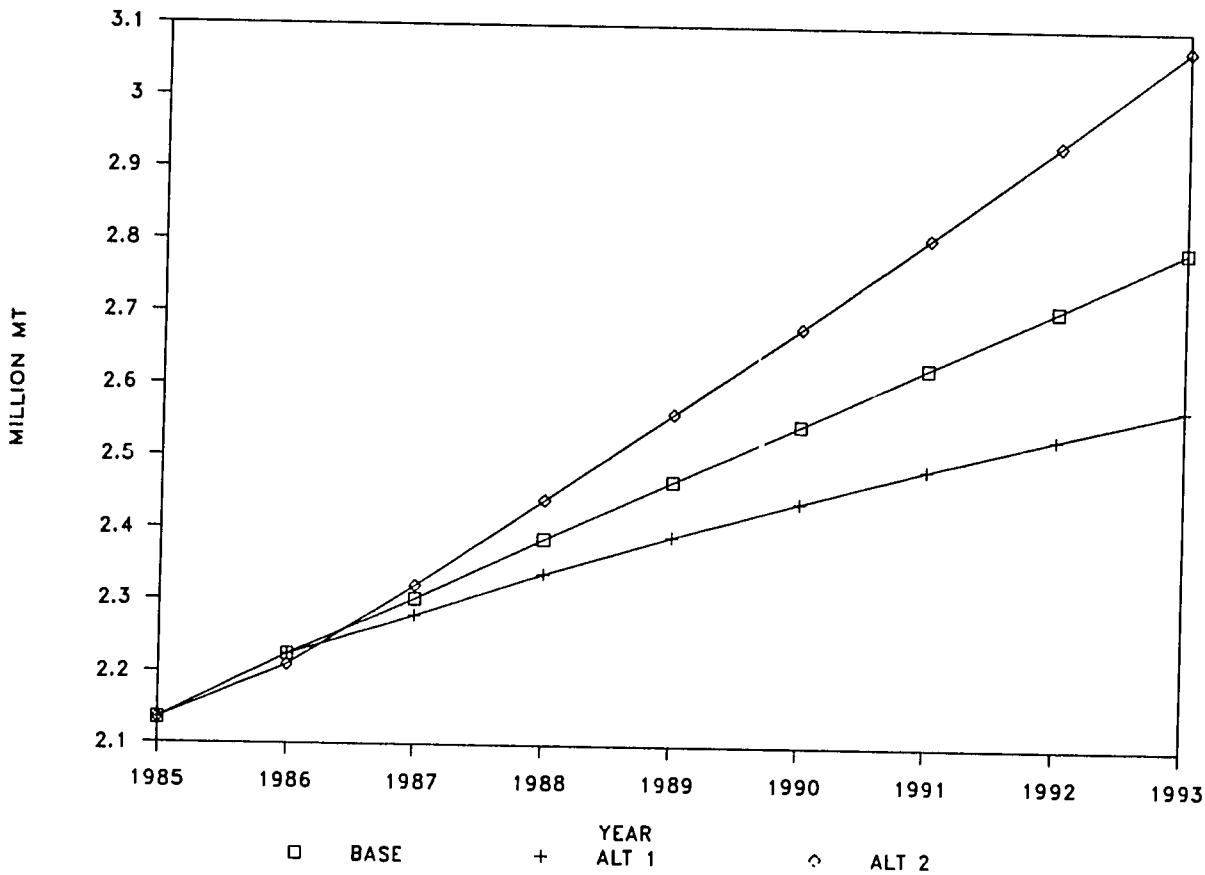


FIGURE 21. SWEET POTATO CONSUMPTION



import cassava, but the consequence of the shift in production would more likely be to raise the price of cassava until a better balance is achieved with the higher rice prices.

Sweet potato production is not influenced by higher fertilizer prices or by changes in the relative price of rice to sweet potatoes. Consumption, however, is influenced by the change in the level of rural income, and since sweet potatoes is not something that would be traded in international markets, these consumption changes would also be expected to alter the relative price of sweet potatoes in the domestic markets (Figure 21).

Although soybean yields are not affected by fertilizer prices, the area is reduced when rice prices increase, so production is also reduced (Figures 22 and 23). Soybean consumption is also influenced by changes in rural income, and urban consumption of soybeans is positively influenced by the rise in rice prices under ALT 2. As a consequence, soybean imports increase substantially as a result of lower production and higher consumption under ALT 2 (Figure 25). Peanut and sugar consumption are influenced by the income effects similar to what occurred for soybeans and sweet potatoes (Figures 26-28). Sugar yields are substantially reduced by the higher fertilizer prices, so imports have to increase in order to offset the growing disparity between consumption and domestic production.

Aggregate Impacts

A flat trajectory for calories per capita under ALT 1 is primarily due to the lower rural income under that scenario. The intake of other nutrients by rural consumers is also reduced under ALT 1 (Appendix Table 16). The higher income levels that result from the higher rice prices in

FIGURE 22. SOYBEAN AREA

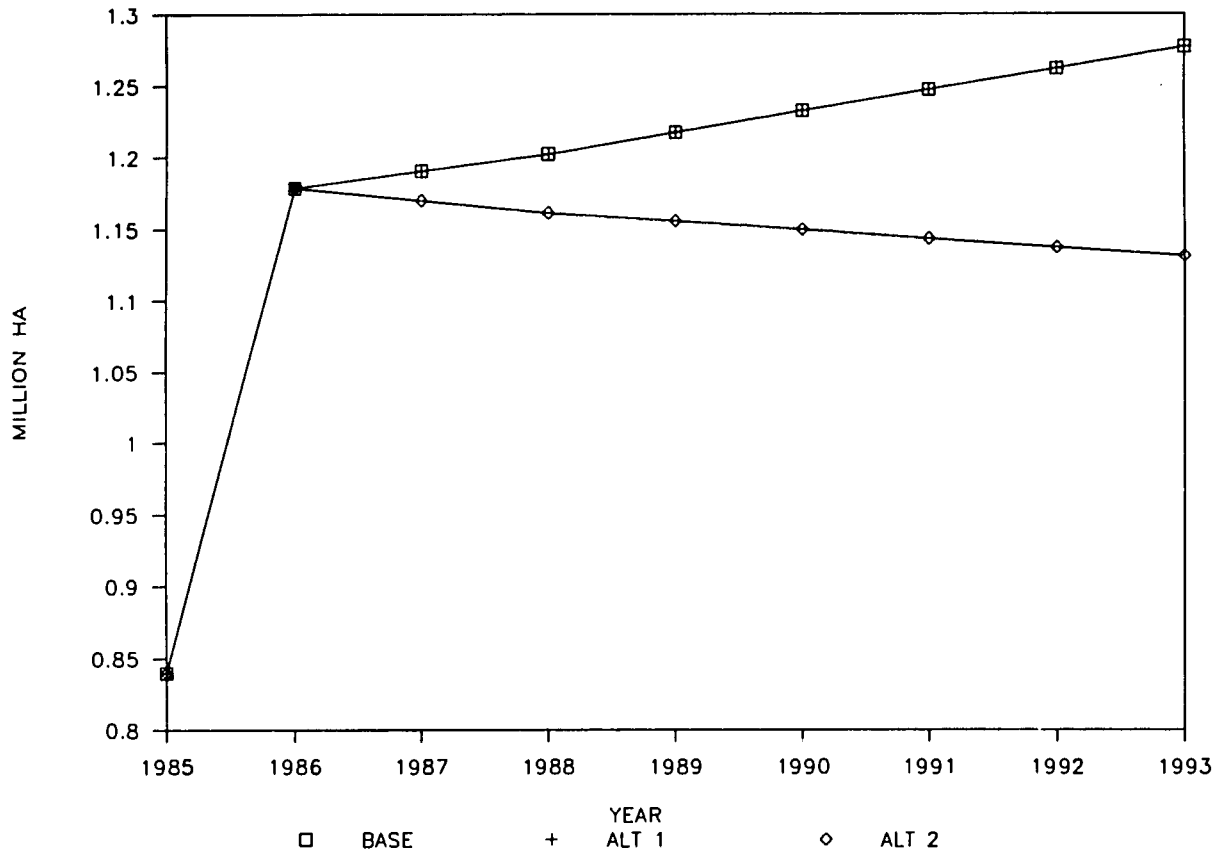


FIGURE 23. SOYBEAN PRODUCTION

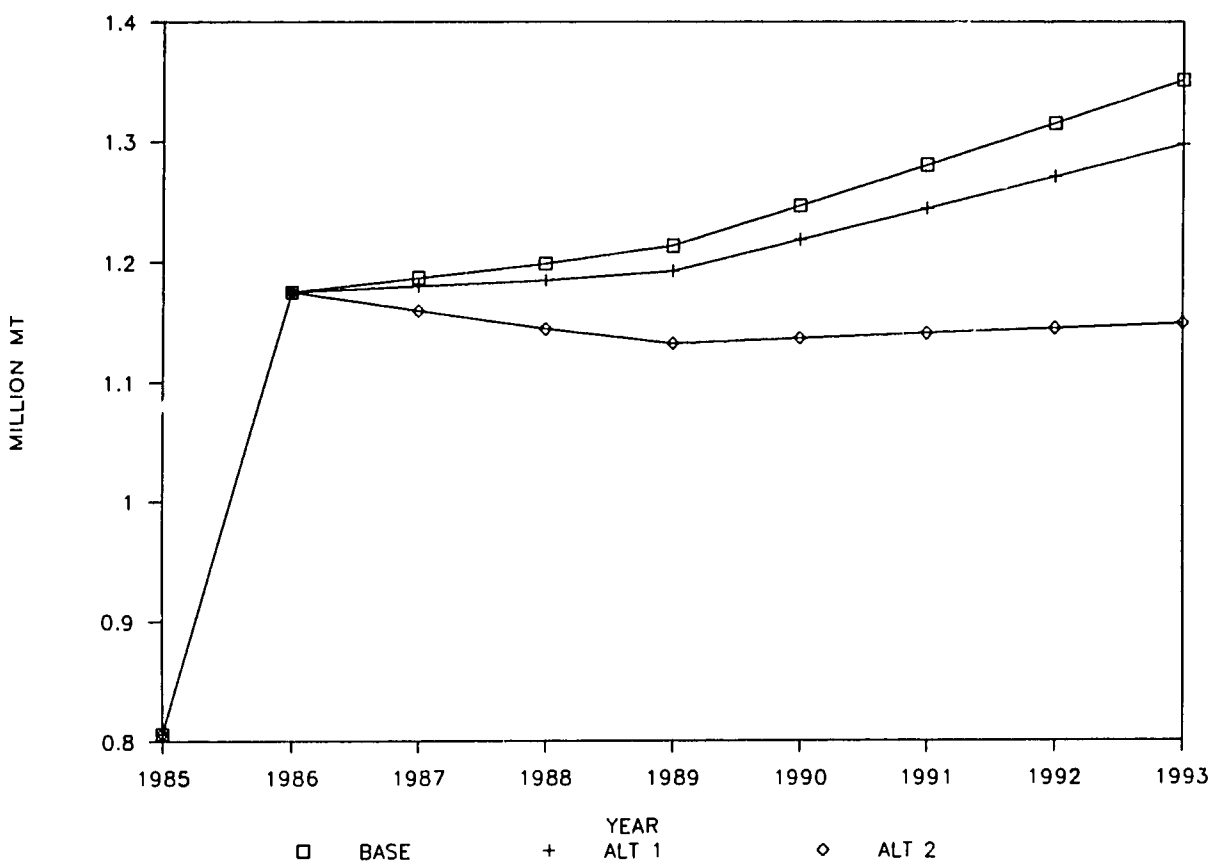


FIGURE 24. SOYBEAN CONSUMPTION

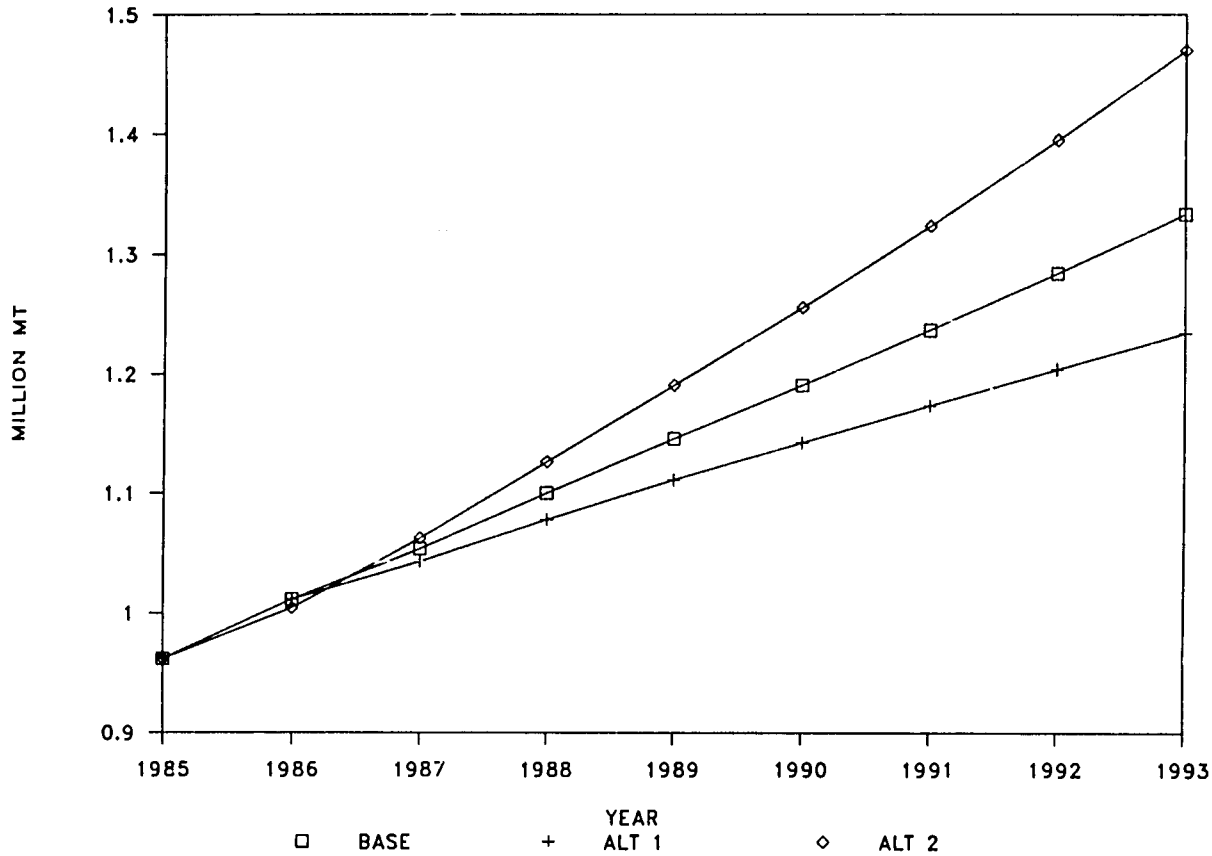


FIGURE 25. SOYBEAN IMPORTS

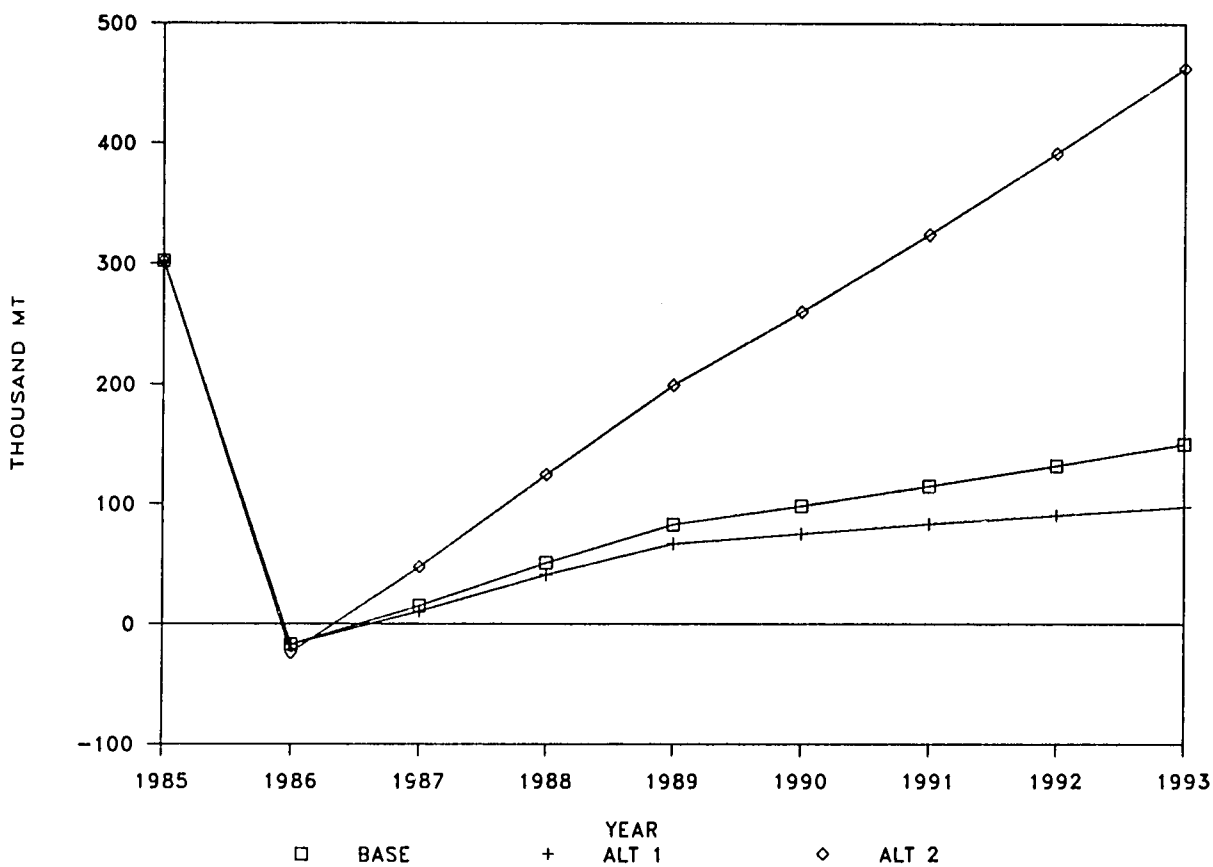


FIGURE 26. PEANUT CONSUMPTION

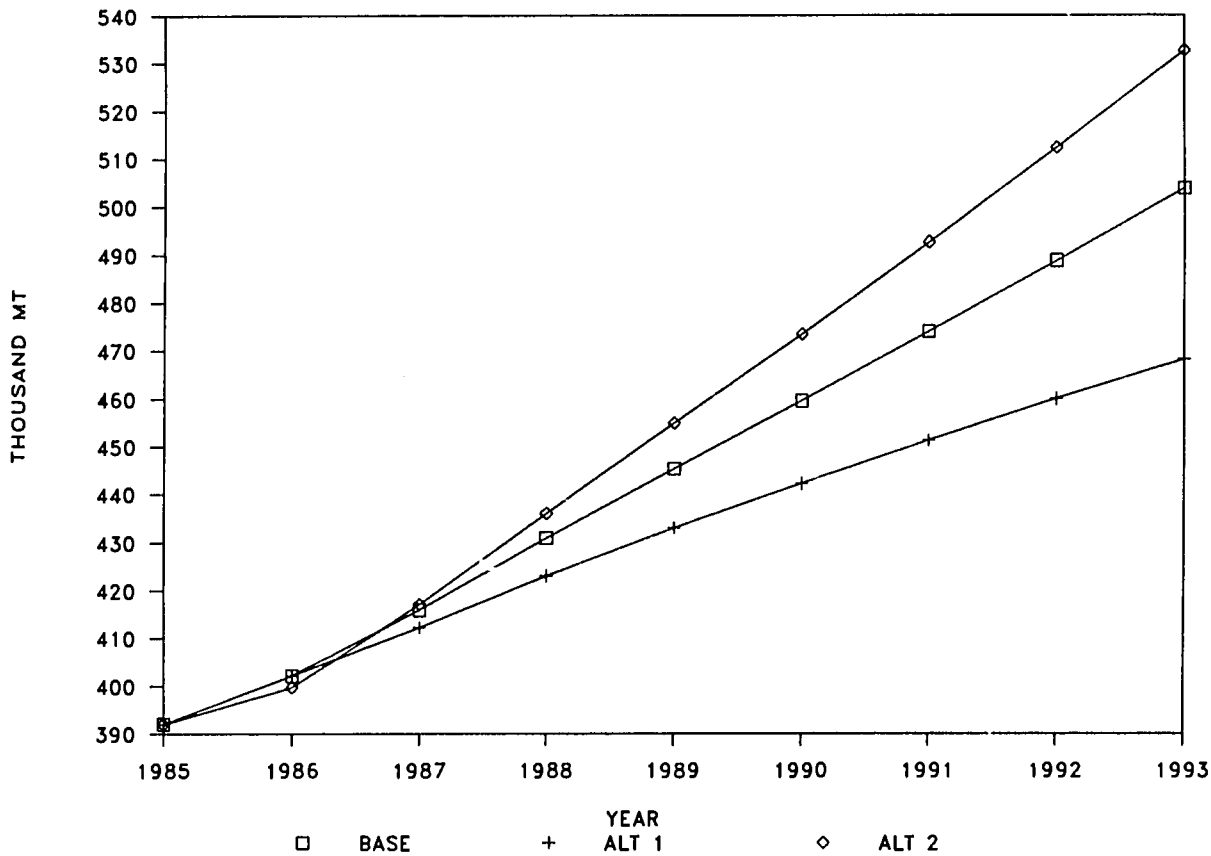


FIGURE 27. SUGAR PRODUCTION

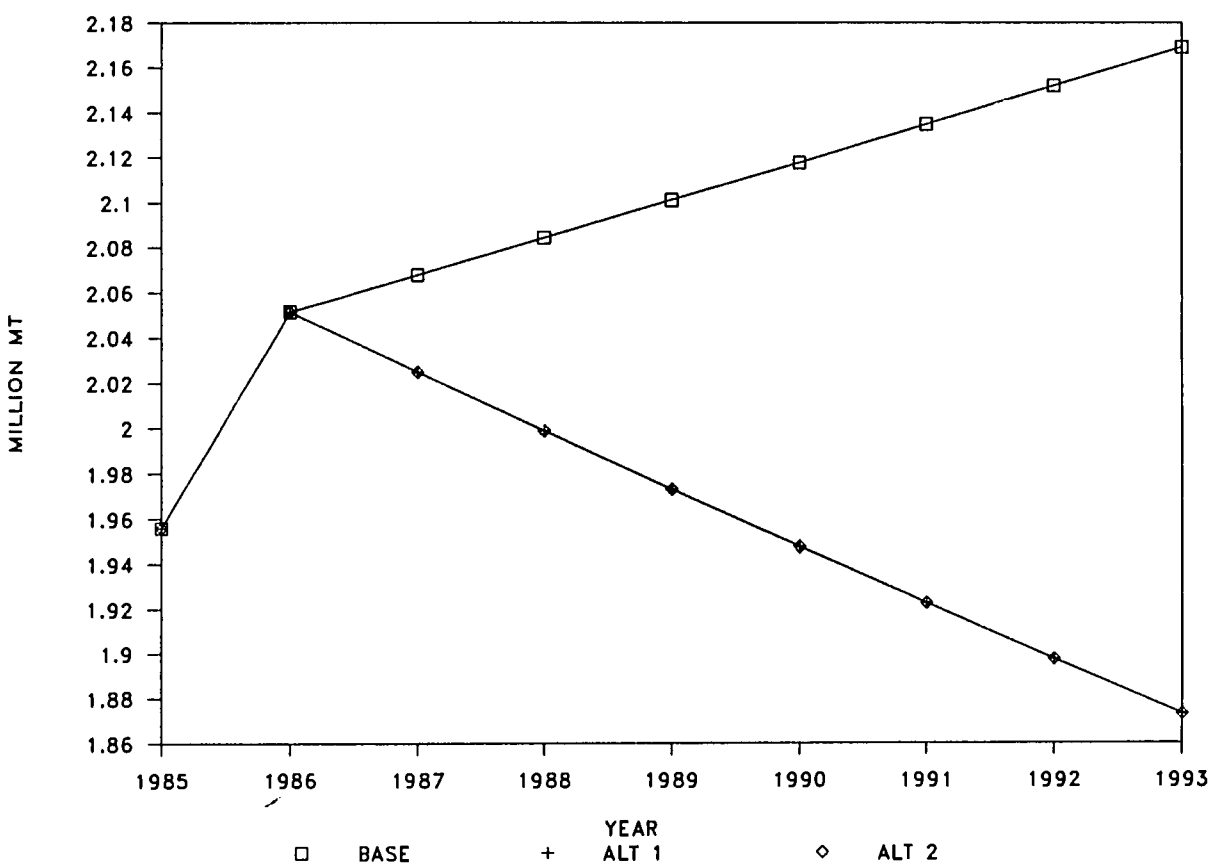


FIGURE 28. SUGAR CONSUMPTION

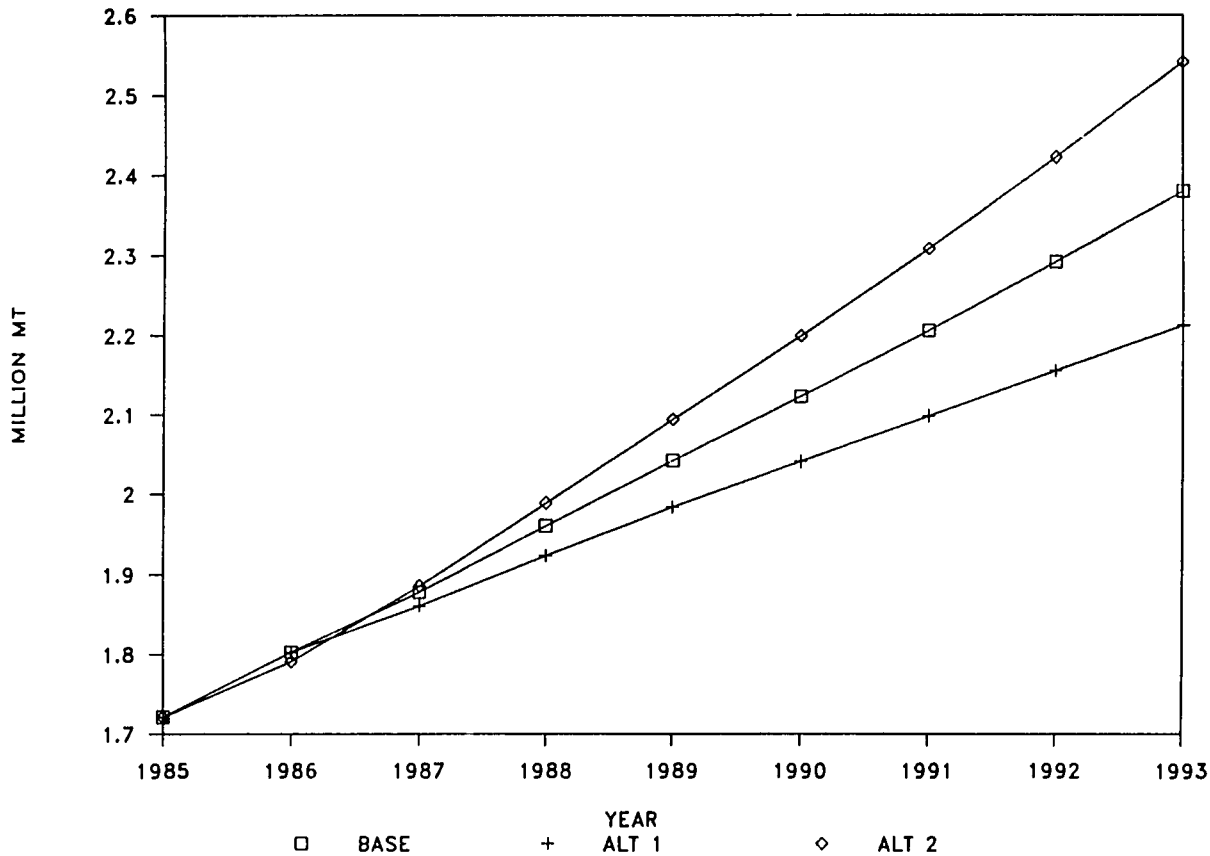


FIGURE 29. CALORIES PER CAPITA

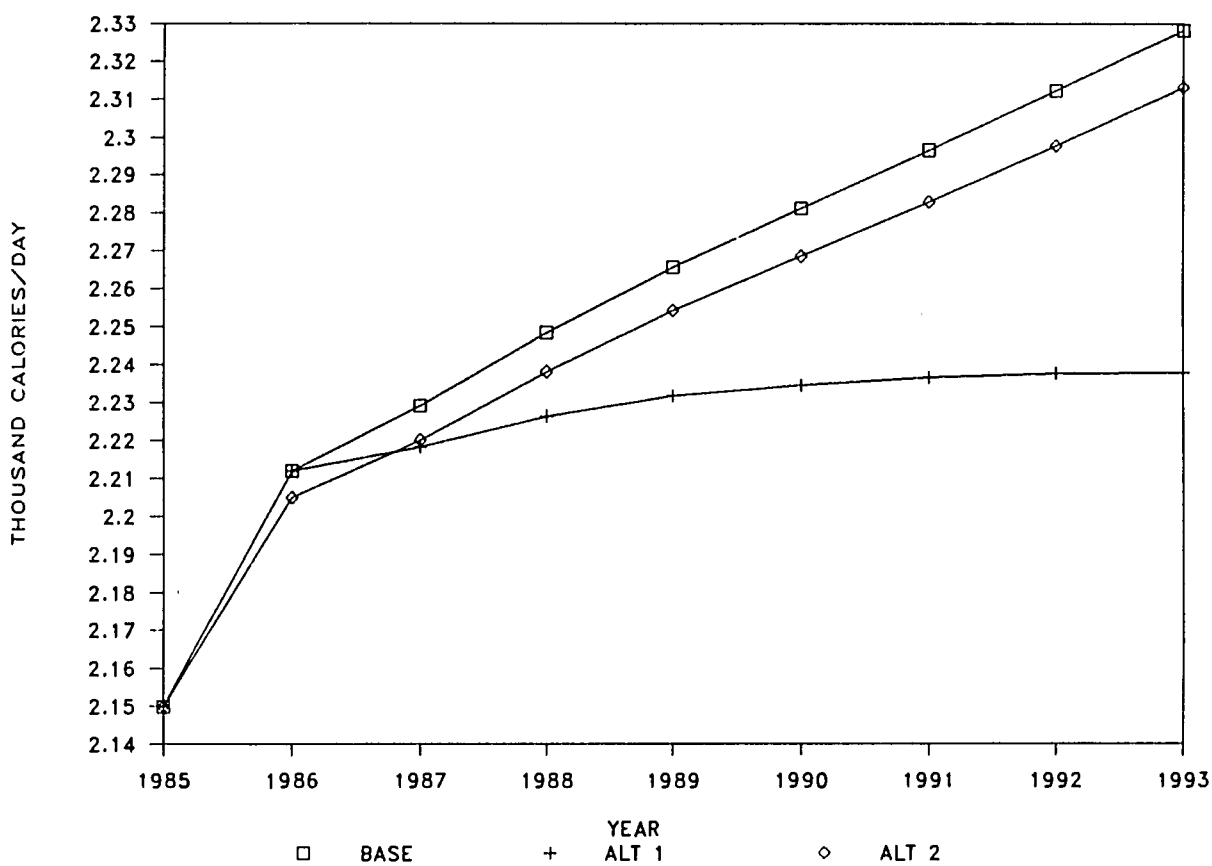


FIGURE 30. FERTILIZER SUBSIDY COST

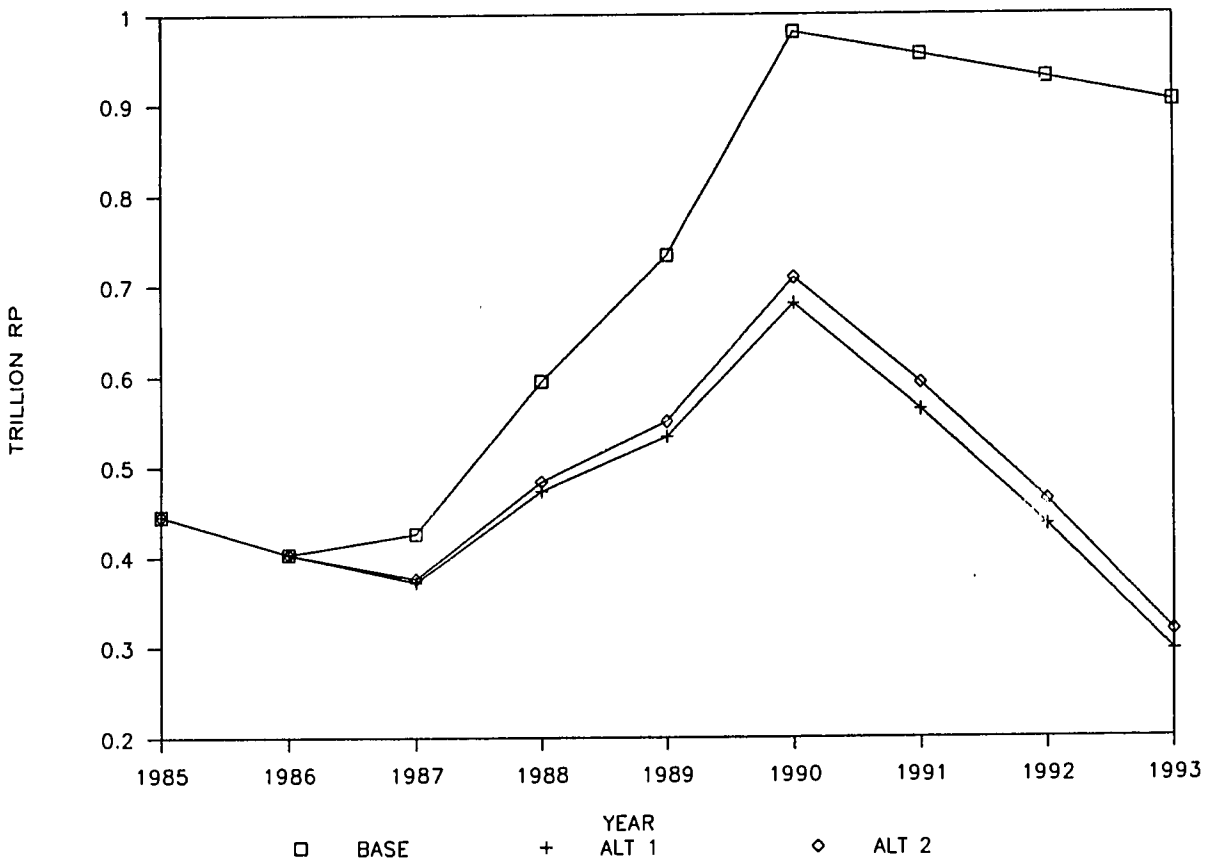
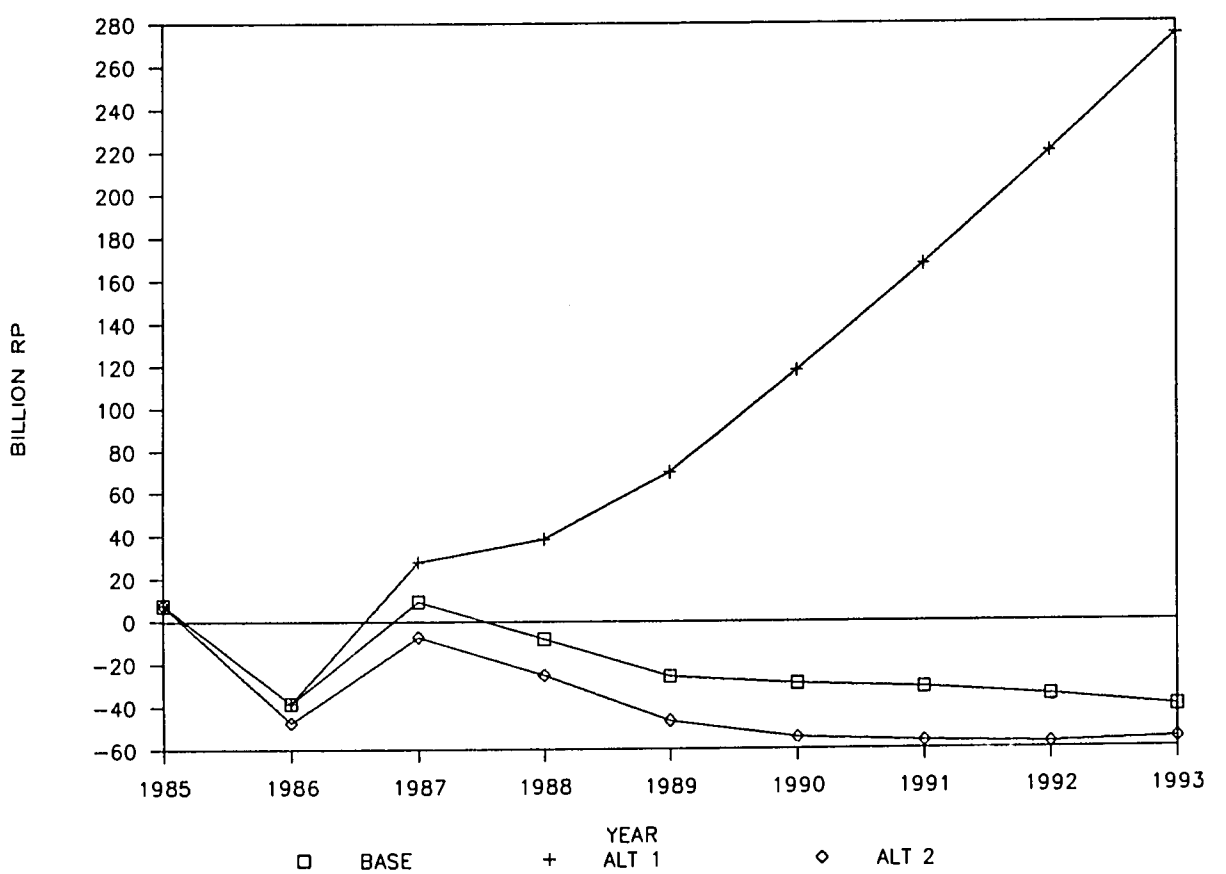


FIGURE 31. RICE IMPORT SUBSIDY



ALT 2 reverse this pattern for rural consumers. However, the higher rice prices reduce the calorie intake of urban consumers. This is reflected in a slight decline in average calories per capita for the population (Figure 29).

The consequence of the reduction in fertilizer subsidies is to reduce the government subsidy cost to 318 billion Rupiah by the end of the projection period in 1993. Under the baseline projection, these costs increase significantly up to nearly 1 trillion Rupiah in 1990 and then decline slightly (Figure 30). These cost estimates are very sensitive to the world fertilizer price projections, which the World Bank has increasing rapidly in the late 1980s.

The rice import subsidy is negligible under the baseline, because the net trade in rice is close to zero (Figures 10 and 31). Under ALT 1, as rice imports increase the import subsidy costs also rise to about 275 billion Rupiah by 1993. Under ALT 2, Indonesia becomes a larger net exporter, which results in export rax revenues of 55 billion Rupiah by 1993.

The net import costs for six commodities increase under ALT 1 primarily because of the higher rice imports (Figure 32). Under ALT 2 there is a smaller increase in import costs, which comes from increases in imports of commodities other than rice. A large part of this increase in cost is because of cassava imports. As indicated earlier, it is unlikely that cassava would be imported. Instead, cassava prices would increase. Thus, this increase in net import costs under ALT 2 is probably overstated.

The net returns over variable cost for the major crop commodities decline gradually in the baseline from 7 percent to about 4 percent per

FIGURE 32. NET IMPORT COST

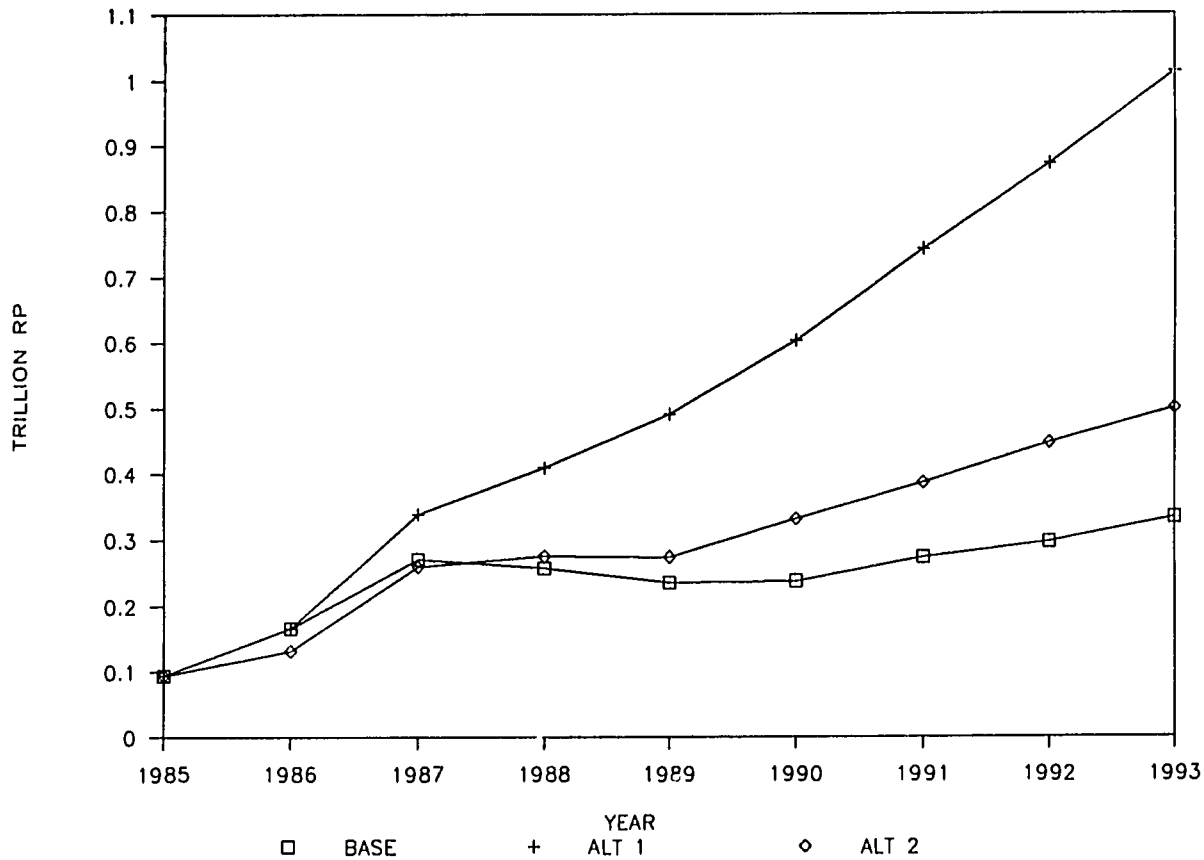
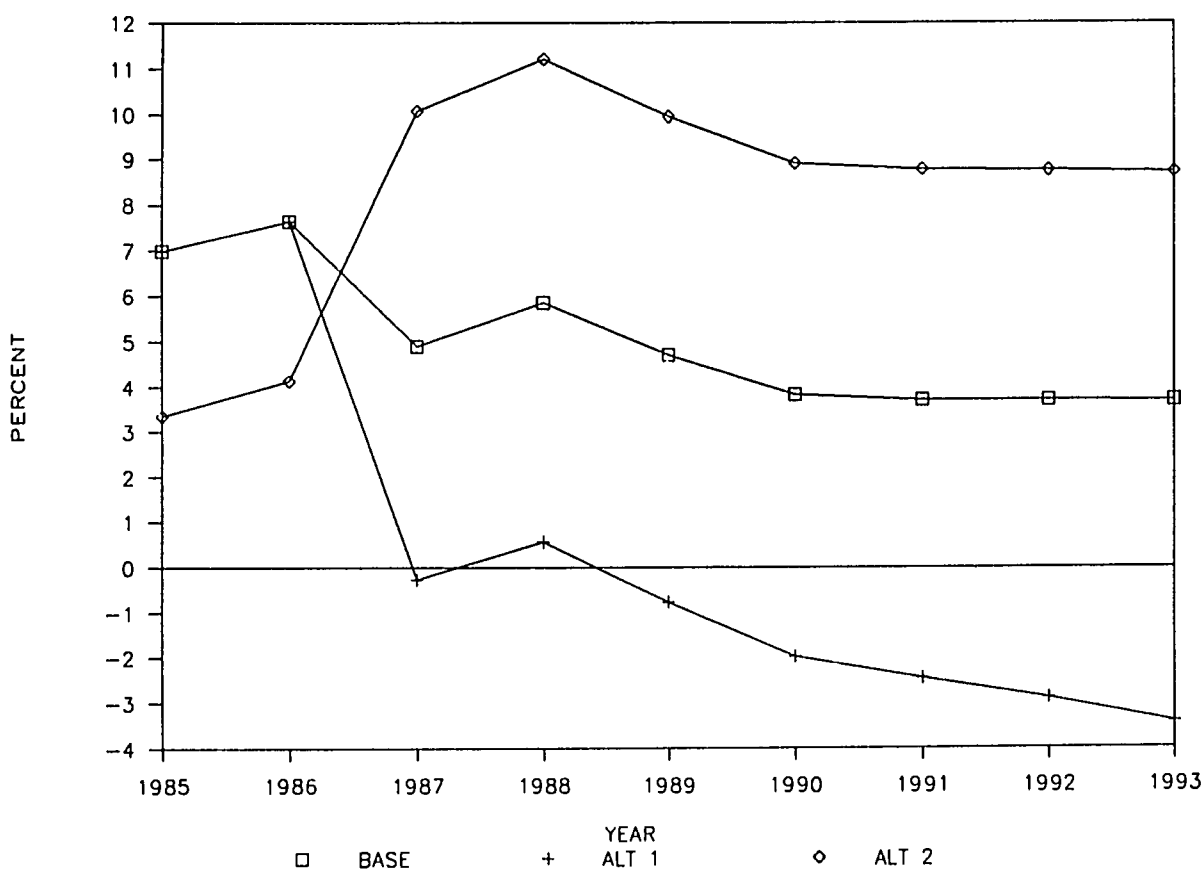


FIGURE 33. NET RETURN GROWTH RATE



annum (Figure 33). The higher fertilizer prices under ALT 1 have the effect of reducing this measure of net returns to zero and then gradually bringing it below zero in the later years. The net effect of raising fertilizer prices and rice prices together under ALT 2 is to increase net returns over variable costs above that in the baseline. This would suggest that the rate of rise in the rice price is more than sufficient to compensate producers for the higher fertilizer prices.

Conclusions

It is clear that the choice of combinations of policy determined price changes has dramatic effects on production, consumption, trade, government revenues, and net returns to farmers. The particular policy options that were evaluated are not intended to suggest optimum price changes. However, these and other evaluations with the policy planning model can serve to illustrate the importance of carefully selecting price policies to achieve desired outcomes for production, consumption, government revenue, and distributional impacts.

A major benefit of policy models and policy exercises of the type reviewed in this report is to point to key areas of uncertainty regarding policy outcomes. These areas may relate to supply and demand parameters, projections of exogenous variables for the modeling exercises, or even the model structure. The policy planning model is, after all, just a means of summarizing in a form that permits easy evaluation of a large body of data and other information on the economy. By experimenting with the key parameters or assumptions of the model, priorities can be identified for research to improve the understanding of the economic structure.

39a

Appendix Tables

Projection Assumptions	A.1 - A.4
Baseline Projection Results	A.5 - A.11
Impacts of Policy Alternative 1	A.12 - A.18
Impacts of Policy Alternative 2	A.19 - A.25

Table A.1. Area and yield growth rates assumptions at constant prices for crops grown in Indonesia, 1987-1993[a]

Items/Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
AREA AND YIELD GROWTH RATES AT CONSTANT PRICE										
Rice Area (%)	0.60	0.60	1.12	1.12	1.12	1.12	1.12	1.10	1.10	1.10
Corn Area (%)	1.00	1.00	14.00	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Cassava Area (%)	1.00	1.00	-10.00	9.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Sweet Potato Area (%)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Soybean Area (%)	4.00	4.00	42.00	1.00	1.00	1.24	1.24	1.20	1.20	1.20
Peanut Area (%)	2.00	2.00	12.00	0.00	1.80	1.80	1.80	1.80	1.80	1.80
Sugar Area (%)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Rice Irrigated Area (%)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Rice Yield (%)	1.00	0.70	0.50	2.00	2.00	1.50	1.00	1.00	1.00	1.00
Corn Yield (%)	2.50	2.50	12.00	-3.00	3.00	3.00	3.00	2.60	2.60	2.60
Cassava Yield (%)	2.00	2.00	2.00	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Sweet Potato Yield (%)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Soybean Yield (%)	3.00	3.00	5.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Peanut Yield (%)	2.00	2.00	4.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Sugar Yield (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer Use (%)	19.25	8.81	7.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
AREA AND YIELD LEVELS AT CONSTANT PRICE										
Rice Area (1000 ha)	9764.00	9832.00	9942.12	10053.47	10166.07	10279.93	10395.06	10509.41	10625.01	10741.89
Corn Area (1000 ha)	3086.00	2580.00	2941.20	2947.08	2952.98	2958.88	2964.80	2970.73	2976.67	2982.62
Cassava Area (1000 ha)	1350.00	1333.00	1199.70	1307.67	1294.60	1281.65	1268.83	1256.15	1243.58	1231.15
Sweet Potato Area (1000 ha)	280.00	286.00	288.86	291.75	294.67	297.61	300.59	303.59	306.63	309.70
Soybean Area (1000 ha)	859.00	885.00	1256.70	1269.27	1281.96	1297.86	1313.95	1329.72	1345.67	1361.82
Peanut Area (1000 ha)	523.00	491.00	549.92	549.92	559.82	569.90	580.15	590.60	601.23	612.05
Rice Irrigated Area	6992.00	7500.00	7593.75	7688.67	7784.78	7882.09	7980.62	8080.37	8181.38	8283.65
Sugar cane Area (1000 ha)	381.00	386.00	389.09	392.20	395.34	398.50	401.69	404.90	408.14	411.41
Rice Yield (mt ha)	3.91	3.97	3.99	4.07	4.15	4.21	4.26	4.30	4.34	4.38
Corn Yield (mt ha)	1.71	1.77	1.98	1.92	1.98	2.04	2.10	2.16	2.21	2.27
Cassava Yield (mt ha)	10.49	10.76	10.98	11.17	11.37	11.58	11.79	12.00	12.22	12.44
Sweet Potato Yield (mt ha)	8.04	8.11	8.27	8.44	8.61	8.78	8.95	9.13	9.32	9.50
Soybean Yield (mt ha)	0.90	0.91	0.96	0.96	0.96	0.96	0.97	0.98	1.00	1.01
Peanut Yield (mt ha)	1.43	1.54	1.60	1.63	1.67	1.70	1.73	1.77	1.80	1.84
Sugar cane Yield (mt ha)	55.49	54.79	54.79	54.79	54.79	54.79	54.79	54.79	54.79	54.79
Urea Use (1000 mt)	2114.40	3760.00	4023.20	4224.36	4435.58	4657.36	4890.22	5134.74	5391.47	5661.05

[a]1984-1986 values are actual growth rates. Similarly, 1984-1986 values in the rest of the tables are also actual values.

Table A.2. Assumptions on conversion factors, market margin rates, and production costs for crops grown in Indonesia, 1987-1993

Items/Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
CONVERSION FACTORS										
Rice Seed and Feed Rate	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Rice Waste Rate	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Rice Milling Rate	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Cassava Ind.,Feed,Waste Rate	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
S. Pot. Ind.,Feed,Waste Rate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Soybean Seed,Waste Rate	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Peanut Shell Conversion Rate	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Peanut Feed,Seed,Waste Rate	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Peanut Crush Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sugar Conversion Rate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Sugar Waste Rate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MARKET MARGIN RATES										
Rice Retail/Farm Margin Rate	2.47	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
Wht Retail/Mills Margin Rate	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Corn Retail/Farm Margin Rate	1.68	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91
Cas. Retail/Farm Margin Rate	2.29	2.11	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12
Sw Pot Retail/Farm Marg Rate	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
S.Bean Retail/Farm Marg Rate	1.57	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Peanut Retail/Farm Marg Rate	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
Sugar Whole/Mill Margin	1.33	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
PRODUCTION COST ASSUMPTIONS										
Cost Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
S. Pot Prod Cost (1000Rp/ha)	250.00	252.50	255.03	257.58	260.15	262.75	265.38	268.03	270.71	273.42
Rice Prod Cost (1000Rp/ha)	450.00	454.50	459.05	463.64	468.27	472.95	477.68	482.46	487.29	492.16
Corn Prod Cost (1000Rp/ha)	170.00	171.70	173.42	175.15	176.90	178.67	180.46	182.26	184.09	185.93
Cassava Pdn Cost (1000Rp/ha)	250.00	252.50	255.03	257.58	260.15	262.75	265.38	268.03	270.71	273.42
Soybean Pdn Cost (1000Rp/ha)	200.00	202.00	204.02	206.06	208.12	210.20	212.30	214.43	216.57	218.74
Peanut Pdn Cost (1000Rp/ha)	300.00	303.00	306.03	309.09	312.18	315.30	318.46	321.64	324.86	328.11

Table A.3. Assumptions on important macro variables in Indonesia, 1987-1993

Items/Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MACRO ASSUMPTIONS										
Rural Population (mil)	128.99	131.78	133.99	136.89	139.82	142.77	145.75	148.77	151.80	154.87
Urban Population (mil)	32.25	32.95	33.50	34.23	34.96	35.70	36.44	37.20	37.96	38.72
Exchange Rate (Rps/$)	1075.00	1126.00	1600.00	1600.00	1600.00	1600.00	1600.00	1600.00	1600.00	1600.00
GROWTH RATES										
Inflation (%)	8.80	4.30	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Rural Pop. Growth Rate (%)	2.20	2.17	1.68	2.16	2.14	2.11	2.09	2.07	2.04	2.02
Urban Pop. Growth Rate (%)	2.20	2.17	1.68	2.16	2.14	2.11	2.09	2.07	2.04	2.02
Rural Income Growth Rate (%)	2.47	-3.20	4.32	2.95	3.43	2.86	2.41	2.35	2.35	2.35
Urban Income Growth Rate (%)	2.47	-3.20	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Nat. Income Growth Rate (%)	2.47	-3.20	4.46	3.36	3.74	3.29	2.93	2.88	2.88	2.88

Table A.4. Assumptions on crops stock policies, support prices and real price growth rates in Indonesia, and world market prices, 1987-1993

Items/Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
STOCK POLICY										
Rice Stock/Cons. Ratio (%)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Wheat Stock/Cons. Ratio (%)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
WORLD PRICE PROJECTIONS										
Rice Thai Price ($/MT)	252.00	215.90	210.50	220.00	231.00	254.00	268.00	277.00	286.00	295.00
Corn #2 FOB Gulf ($/MT)	146.00	117.00	105.00	72.00	76.73	80.16	83.60	83.60	81.02	80.59
Wheat #2 FOB Gulf ($/MT)	165.00	156.00	132.00	113.24	115.00	112.80	115.44	118.08	121.61	126.01
Soybeans FOB Gulf ($/MT)	300.00	224.00	203.00	190.79	196.84	199.87	215.39	210.47	207.06	209.33
Peanuts ($/MT)	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00
Cassava ($/MT)	99.30	81.80	69.37	63.00	62.61	63.00	81.71	76.94	82.91	78.53
Urea CIF Price ($/MT)	171.00	136.30	107.00	115.60	150.00	180.00	230.00	232.00	234.00	236.00
SUPPORT PRICE POLICY										
Rice (KUD, Rp/Kg)	165.00	175.00	190.00	199.50	209.48	219.95	230.95	242.49	254.62	267.35
Corn (Rp/Kg)	105.00	110.00	110.00	115.50	121.28	127.34	133.71	140.39	147.41	154.78
Soybean (Rp/Kg)	280.00	300.00	300.00	315.00	330.75	347.29	364.65	382.88	402.03	422.13
Mill-Sugar Price (Rp/Kg)	423.50	425.00	446.25	468.56	491.99	516.59	542.42	569.54	598.02	627.92
Fertilizer (Rp/Kg)	90.00	100.00	125.00	131.25	137.81	144.70	151.94	159.54	167.51	175.89
Real Fertilizer Price (Rp/Kg)	95.90	100.00	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
REAL PRICE GROWTH ASSUMPTIONS										
Rice Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheat Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Corn Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cassava Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sweet Potato Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Soybean Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peanut Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sugar Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer Price (%)				0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.5. Baseline solution of rice and wheat supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
COMMODITY SUPPLY AND USE											
RICE											
Area Harvested (1000 ha)	9824.00	9968.95	10080.60	10193.50	10307.67	10423.12	10537.77	10653.69	10770.88	9954.61	10538.63
Average Yield (mt/ha)	3.96	3.92	4.03	4.14	4.23	4.30	4.37	4.45	4.52	3.99	4.37
Paddy Production (1000 mt)	38931.00	39093.83	40598.76	42161.61	43570.00	44803.64	46063.09	47357.95	48689.21	39729.24	46096.78
Rice Production (1000 mt)	26473.00	26345.33	27359.50	28412.71	29361.83	30193.17	31041.92	31914.52	32811.66	26667.11	31064.62
Beginning Stocks (1000 mt)	2988.00	2988.00	2349.20	2421.42	2498.21	2573.20	2647.10	2722.24	2798.68	2477.72	2647.89
Domestic Supply (1000 mt)	29461.00	29333.33	29708.70	30834.13	31860.04	32766.38	33689.02	34636.76	35610.33	29144.83	33712.51
Net Imports (1000 mt)	-233.00	-444.78	91.64	-67.26	-158.48	-155.75	-153.70	-159.73	-171.51	-55.68	-159.84
Total Supply (1000 mt)	29228.00	28888.56	29800.34	30766.87	31701.55	32610.63	33535.32	34477.03	35438.82	29089.15	33552.67
Food Consumption (1000 mt)	22521.00	23491.96	24214.20	24982.12	25732.03	26471.03	27222.41	27986.76	28766.77	23272.66	27235.80
Seed and Feed (1000 mt)	807.00	676.32	702.36	729.40	753.76	775.10	796.89	819.29	842.32	740.62	797.47
Waste (1000 mt)	2912.00	2371.08	2462.36	2557.14	2642.56	2717.39	2793.77	2872.31	2953.05	2626.92	2795.82
Ending Stocks (1000 mt)	2988.00	2349.20	2421.42	2498.21	2573.20	2647.10	2722.24	2798.68	2876.68	2648.97	2723.58
Retail Rice Price (Rp/kg)	358.70	371.48	371.48	371.48	371.48	371.48	371.48	371.48	371.48	371.16	371.48
Farm Paddy Price (Rp/kg)	155.00	160.54	160.54	160.54	160.54	160.54	160.54	160.54	160.54	158.32	160.54
Real Retail Price (1985=100)	100.00	103.56	103.56	103.56	103.56	103.56	103.56	103.56	103.56	103.47	103.56
Consumption per Capita (kg)	139.73	140.25	141.51	142.94	144.19	145.29	146.38	147.48	148.59	140.80	146.39
Rural	142.00	142.57	143.81	145.27	146.51	147.56	148.59	149.63	150.68	143.10	148.59
Urban	130.64	131.00	132.29	133.59	134.90	136.22	137.55	138.90	140.27	131.60	137.57
WHEAT											
Beginning Stocks (1000 mt)	269.00	230.00	240.00	182.33	189.54	196.60	203.57	210.70	218.02	250.47	203.69
Net Imports (1000 mt)	1317.00	1600.00	1765.61	1902.64	1973.05	2042.63	2114.15	2187.56	2263.10	1604.25	2116.10
Total Supply (1000 mt)	1586.00	1830.00	2005.61	2084.97	2162.59	2239.23	2317.72	2398.26	2481.13	1854.72	2319.79
Food Consumption (1000 mt)	1684.00	1756.44	1823.28	1895.43	1966.00	2035.66	2107.02	2180.24	2255.57	1755.23	2108.90
Non-Food Consmptn. (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Stocks (1000 mt)	230.00	240.00	182.33	189.54	196.60	203.57	210.70	218.02	225.56	222.17	210.89
Wheat Flour Price (Rp/kg)	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00
Wheat Price to Mills (Rp/kg)	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
Real Flour Price (1985=100)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Consumption per Capita (kg)	10.20	10.49	10.66	10.84	11.02	11.17	11.33	11.49	11.65	10.44	11.33
Rural	9.04	9.30	9.44	9.60	9.73	9.85	9.97	10.08	10.20	9.25	9.97
Urban	14.83	15.23	15.53	15.83	16.15	16.46	16.79	17.12	17.46	15.19	16.80

Table A.6. Baseline solution of corn and cassava supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CORN											
Area Harvested (1000 ha)	2447.00	2768.13	2773.66	2779.21	2784.77	2790.34	2795.92	2801.51	2807.11	2768.40	2795.93
Average Yield (mt/ha)	1.75	1.93	1.88	1.93	1.99	2.05	2.10	2.16	2.21	1.84	2.10
Corn Production (1000 mt)	4294.00	5355.71	5205.43	5372.32	5544.55	5722.31	5882.83	6047.86	6217.51	5097.09	5883.01
Net Imports (1000 mt)	47.00	102.09	313.29	243.22	176.64	112.36	65.36	15.75	-36.22	120.92	66.78
Total Supply (1000 mt)	4341.00	5457.80	5518.72	5615.54	5721.19	5834.67	5948.19	6063.61	6181.29	5218.01	5949.79
Food Consumption (1000 mt)	1950.00	2901.87	2925.91	2943.58	2967.66	2997.07	3026.88	3056.13	3085.10	2713.07	3026.57
Feed Consumption (1000 mt)	1670.00	1870.40	1926.51	1984.31	2043.84	2105.15	2168.31	2233.36	2300.36	1788.44	2170.20
Seed,Waste,Ind.Use (1000 mt)	721.00	685.53	666.30	687.66	709.70	732.46	753.00	774.13	795.84	725.30	753.03
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.80	0.00
Retail Corn Price (Rp/kg)	248.00	248.04	248.04	248.04	248.04	248.04	248.04	248.04	248.04	242.16	248.04
Farm Corn Price (Rp/kg)	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Real Retail Price (1985=100)	100.00	100.02	100.02	100.02	100.02	100.02	100.02	100.02	100.02	97.64	100.02
Consumption per Capita (kg)	12.55	17.32	17.10	16.84	16.63	16.45	16.28	16.11	15.94	16.32	16.28
Rural	15.00	21.03	20.75	20.44	20.18	19.97	19.76	19.55	19.35	19.71	19.76
Urban	2.55	2.52	2.49	2.45	2.41	2.38	2.34	2.31	2.28	2.73	2.34
CASSAVA											
Area Harvested (1000 ha)	1274.00	1133.80	1235.84	1223.48	1211.25	1199.13	1187.14	1175.27	1163.52	1238.22	1187.26
Average Yield (mt/ha)	10.87	11.07	11.27	11.47	11.68	11.89	12.10	12.32	12.54	10.83	12.11
Cassava Production (1000 mt)	13851.00	12551.33	13927.21	14036.12	14145.88	14256.50	14367.99	14480.35	14593.58	13383.73	14368.86
Total Supply (1000 mt)	13851.00	12551.33	13927.21	14036.12	14145.88	14256.50	14367.99	14480.35	14593.58	13383.73	14368.86
Food Consumption (1000 mt)	9852.00	9956.72	10138.98	10318.11	10502.73	10692.91	10884.95	11077.23	11270.74	9865.76	10885.71
Ind.,Feed, Waste (1000 mt)	2162.00	2436.21	2703.27	2724.41	2745.72	2767.19	2788.83	2810.64	2832.61	2404.18	2789.00
Net Exports (1000 mt)	1836.00	158.40	1084.96	993.60	897.44	796.41	694.21	592.48	490.22	1113.59	694.15
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Cassava Price (Rp/kg)	84.60	84.60	84.60	84.60	84.60	84.60	84.60	84.60	84.60	85.96	84.60
Farm Cassava Price (Rp/kg)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Real Retail Price (1985=100)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	101.61	100.00
Consumption per Capita (kg)	59.46	59.44	59.25	59.04	58.85	58.69	58.53	58.37	58.22	58.77	58.53
Rural	68.82	68.82	68.62	68.39	68.20	68.04	67.88	67.72	67.56	68.04	67.88
Urban	22.02	21.94	21.78	21.62	21.46	21.31	21.15	21.00	20.84	21.67	21.15

Table A.7. Baseline solution of sweet potato and soybean supply and utilization 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
SWEET POTATO											
Area Harvested (1000 ha)	286.00	288.86	291.75	294.67	297.61	300.59	303.59	306.63	309.70	288.25	303.62
Average Yield (mt/ha)	8.11	8.27	8.44	8.60	8.78	8.95	9.13	9.31	9.50	8.29	9.13
S. Pot. Production (1000 mt)	2319.00	2389.03	2461.18	2535.51	2612.08	2690.97	2772.23	2855.96	2942.21	2391.15	2774.69
Food Consumption (1000 mt)	2135.00	2224.66	2302.41	2386.88	2468.21	2547.33	2627.90	2710.20	2794.50	2224.39	2629.63
Ind., Feed, Waste (1000 mt)	232.00	238.90	246.12	253.55	261.21	269.10	277.22	285.60	294.22	239.11	277.47
Surplus(+) or Deficit(-)	-48.00	-74.53	-87.35	-104.92	-117.34	-125.46	-132.89	-139.84	-146.52	-72.36	-132.41
Retail S. Pot. Price (Rp/kg)	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	104.71	105.20
Farm S. Pot. Price (Rp/kg)	82.51	82.51	82.51	82.51	82.51	82.51	82.51	82.51	82.51	82.13	82.51
Real Retail Price (1985=100)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.53	100.00
Consumption per Capita (kg)	13.00	13.28	13.46	13.66	13.83	13.98	14.13	14.28	14.43	13.26	14.13
Rural	14.51	14.84	15.04	15.27	15.46	15.63	15.79	15.96	16.12	14.81	15.79
Urban	6.96	7.05	7.14	7.22	7.31	7.40	7.49	7.59	7.68	7.06	7.49
SOYBEAN											
Area Harvested (1000 ha)	840.00	1178.65	1190.44	1202.34	1217.25	1232.35	1247.14	1262.10	1277.25	1043.89	1247.22
Average Yield (mt/ha)	0.96	1.00	1.00	1.00	1.00	1.01	1.03	1.04	1.06	0.97	1.03
Soybean Production (1000 mt)	806.00	1175.14	1186.89	1198.76	1213.62	1247.10	1281.00	1315.81	1351.58	1016.96	1281.82
Net Imports (1000 mt)	302.00	-17.08	15.19	50.94	83.27	98.93	115.52	132.74	150.73	150.41	116.24
Total Supply (1000 mt)	1108.00	1158.06	1202.07	1249.69	1296.89	1346.03	1396.51	1448.55	1502.30	1167.37	1398.06
Food Consumption (1000 mt)	962.00	1011.53	1054.08	1100.22	1145.56	1190.53	1236.78	1284.48	1333.78	1022.57	1238.23
Seed, Waste (1000 mt)	147.00	146.53	147.99	149.47	151.33	155.50	159.73	164.07	168.53	145.00	159.83
Ending-Beg. Stocks (1000 mt)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Retail Soybean Price (Rp/Kg)	622.30	622.50	622.50	622.50	622.50	622.50	622.50	622.50	622.50	615.54	622.50
Farm Soybean Price (Rp/kg)	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
Real Retail Price(1985=100)	100.00	100.03	100.03	100.03	100.03	100.03	100.03	100.03	100.03	98.91	100.03
Consumption per Capita (kg)	5.87	6.04	6.16	6.29	6.42	6.53	6.65	6.77	6.89	6.10	6.65
Rural	4.81	4.95	5.04	5.14	5.23	5.30	5.38	5.45	5.53	4.99	5.38
Urban	10.10	10.39	10.64	10.91	11.18	11.45	11.74	12.03	12.32	10.52	11.74

Table A.8. Baseline solution of peanuts and sugar supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
PEANUTS											
Area Harvested (1000 ha)	497.00	556.64	556.64	566.66	576.86	587.24	597.81	608.57	619.53	541.39	598.00
Average Yield (mt/ha)	1.65	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.97	1.70	1.90
Production in Shell(1000 mt)	880.00	955.19	974.30	1011.67	1050.48	1090.78	1132.62	1176.07	1221.18	942.63	1134.22
Peanut Production (1000 mt)	499.00	573.12	584.58	607.00	630.29	654.47	679.57	705.64	732.71	557.54	680.53
Net Imports (1000 mt)	16.00	-27.67	-22.44	-24.33	-27.33	-31.33	-35.75	-40.58	-45.81	-7.49	-36.16
Total Supply (1000 mt)	515.00	545.44	562.13	582.68	602.96	623.14	643.82	665.06	686.90	550.05	644.38
Food Consumption (1000 mt)	392.00	402.16	415.99	430.93	445.39	459.52	473.93	488.65	503.72	411.22	474.24
Feed, Seed, Waste (1000 mt)	123.00	143.28	146.14	151.75	157.57	163.62	169.89	176.41	183.18	138.83	170.13
Crush (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Peanut Price (Rp/mt)	1103.60	1103.60	1103.60	1103.60	1103.60	1103.60	1103.60	1103.60	1103.60	1083.88	1103.60
Farm Peanut Price (Rp/mt)	654.10	654.10	654.10	654.10	654.10	654.10	654.10	654.10	654.10	642.41	654.10
Real Retail Price (1985=100)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	98.21	100.00
Consumption per Capita (kg)	2.40	2.40	2.43	2.47	2.50	2.52	2.55	2.58	2.60	2.46	2.55
Rural	2.65	2.70	2.73	2.76	2.80	2.82	2.85	2.87	2.90	2.81	2.85
Urban	1.20	1.22	1.25	1.27	1.30	1.32	1.35	1.38	1.40	1.28	1.35
SUGAR											
Area Harvested (1000 ha)	386.00	389.09	392.20	395.34	398.50	401.69	404.90	408.14	411.41	388.73	404.93
Average Yield (mt/ha)	54.79	52.73	52.73	52.73	52.73	52.73	52.73	52.73	52.73	53.69	52.73
Cane Production (1000 mt)	21149.00	20515.96	20680.09	20845.53	21012.29	21180.39	21349.83	21520.63	21692.80	20866.31	21351.19
Sugar Production (1000 mt)	1956.00	2051.60	2068.01	2084.55	2101.23	2118.04	2134.98	2152.06	2169.28	2041.03	2135.12
Net Imports (1000 mt)	0.00	-44.55	16.87	84.45	150.71	216.38	284.32	354.76	427.99	11.35	286.83
Total Supply (1000 mt)	21149.00	20471.41	20696.96	20929.97	21163.00	21396.77	21634.15	21875.39	22120.78	17058.47	21638.02
Food Consumption (1000 mt)	1721.00	1801.88	1878.08	1960.54	2041.82	2122.62	2205.81	2291.62	2380.34	1840.70	2208.44
Waste (1000 mt)	235.00	205.16	206.80	208.46	210.12	211.80	213.50	215.21	216.93	220.08	213.51
Ending-Beg. Stocks(1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.40	0.00
Wholesale Sugar Price (Rp/kg)	600.60	599.68	599.68	599.68	599.68	599.68	599.68	599.68	599.68	593.00	599.68
Mill-Sugar Price (Rp/kg)	425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00	424.70	425.00
Real Wholesale Price (1985=0)	100.00	99.85	99.85	99.85	99.85	99.85	99.85	99.85	99.85	98.73	99.85
Consumption per Capita (Kg)	10.48	10.76	10.98	11.22	11.44	11.65	11.86	12.08	12.30	10.98	11.86
Rural	8.19	8.41	8.56	8.73	8.88	9.01	9.13	9.26	9.39	8.57	9.13
Urban	19.65	20.16	20.65	21.16	21.69	22.22	22.77	23.33	23.91	20.63	22.79

Table A.9. Baseline solution of per capita calorie and nutrient intakes, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CALORIE DISTRIBUTION											
Calories Per Capita(Cal/day)	2149.84	2212.09	2229.12	2248.45	2265.67	2281.20	2296.71	2312.41	2328.32	2208.02	2296.86
Rice (%)	65.00	63.40	63.48	63.57	63.64	63.69	63.74	63.78	63.82	63.78	63.73
Wheat (%)	3.27	3.27	3.30	3.33	3.35	3.38	3.40	3.43	3.45	3.26	3.40
Corn (%)	5.55	7.44	7.29	7.12	6.97	6.85	6.73	6.62	6.50	7.01	6.73
Cassava (%)	7.47	7.26	7.18	7.09	7.01	6.95	6.88	6.82	6.75	7.19	6.88
Sweet Potato (%)	1.57	1.56	1.57	1.58	1.59	1.59	1.60	1.61	1.61	1.56	1.60
Soybean (%)	3.00	3.00	3.04	3.08	3.12	3.15	3.19	3.22	3.25	3.04	3.19
Peanut (%)	1.66	1.62	1.62	1.63	1.64	1.65	1.65	1.66	1.67	1.66	1.65
Sugar (%)	3.90	3.89	3.94	3.99	4.04	4.09	4.13	4.18	4.22	3.98	4.13
Rural (Cal/day)	2006.36	2075.87	2089.27	2105.08	2118.51	2130.01	2141.40	2152.90	2164.53	2108.13	2141.47
Urban (Cal/day)	1796.76	1810.40	1831.93	1853.81	1876.04	1898.65	1921.62	1944.97	1968.71	1850.16	1922.00
Protein Per Capita(gm/day)	42.01	43.54	43.90	44.30	44.66	44.99	45.32	45.65	45.99	43.45	45.32
Rural (gm/day)	42.38	44.23	44.54	44.90	45.20	45.46	45.72	45.99	46.25	44.07	45.73
Urban (gm/day)	40.33	40.78	41.34	41.92	42.50	43.09	43.70	44.32	44.95	41.08	43.71
Iron Per Capita (mgm/day)	8.97	9.35	9.39	9.43	9.47	9.51	9.55	9.59	9.63	9.27	9.55
Rural (mgm/day)	9.43	9.88	9.91	9.95	9.97	10.00	10.03	10.05	10.08	9.78	10.03
Urban (mgm/day)	7.11	7.19	7.28	7.37	7.46	7.55	7.65	7.75	7.85	7.23	7.65
Vitamin A (iu/day)	2935.51	3062.18	3096.00	3135.30	3169.30	3199.02	3228.54	3258.40	3288.60	3043.45	3228.77
Rural (iu/day)	3284.92	3439.34	3476.99	3521.42	3559.17	3591.51	3623.52	3655.89	3688.63	3414.59	3623.74
Urban (iu/day)	1535.28	1553.77	1572.28	1591.05	1610.06	1629.34	1648.87	1668.67	1688.73	1558.53	1649.13
Thiamin (mgm/day)	0.91	0.97	0.98	0.98	0.99	1.00	1.00	1.01	1.02	0.96	1.00
Rural (mgm/day)	0.93	1.00	1.00	1.01	1.01	1.02	1.02	1.03	1.03	0.99	1.02
Urban (mgm/day)	0.85	0.86	0.88	0.89	0.90	0.91	0.93	0.94	0.96	0.87	0.93

Table A.10. Baseline solution of government program costs and net import costs, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
GOVERNMENT COSTS											
Urea Use (1000 mt)	3760.00	3626.06	3590.85	3555.98	3521.45	3487.25	3453.39	3419.85	3386.65	3329.46	3453.72
Fert. Subsidy Rate (Rp/kg)	118.47	111.20	118.71	167.19	208.30	281.06	276.66	271.89	266.71	134.88	260.92
Fertilizer Subsidy (Bil Rp)	445.46	403.22	426.27	594.52	733.51	980.13	955.43	929.82	903.26	441.06	900.43
Rice Import Subsidy (Bil Rp)	7.55	-38.26	9.42	-8.21	-25.77	-29.16	-31.21	-34.97	-40.26	-9.46	-32.27
Wheat Imp. Subsidy (Bil Rp)	-28.56	27.52	-22.63	-19.03	-26.68	-18.99	-10.72	1.26	17.24	-17.00	-7.58
NET IMPORT COST (BIL RP)											
Rice	-56.64	-149.80	32.26	-24.86	-64.41	-66.79	-68.12	-73.09	-80.95	-19.49	-70.67
Wheat	231.34	337.92	319.90	350.09	356.10	377.28	399.42	425.65	456.28	298.79	402.95
Corn	6.19	17.15	36.09	29.86	22.66	15.03	8.74	2.04	-4.67	14.69	8.76
Cassava	-169.11	-17.58	-109.36	-99.53	-90.46	-104.12	-85.46	-78.60	-61.60	-111.03	-84.05
Soybean	76.17	-5.55	4.64	16.04	26.63	34.09	38.90	43.98	50.48	44.13	38.82
Peanut	6.31	-15.50	-12.57	-13.62	-15.30	-17.54	-20.02	-22.73	-25.65	-5.50	-20.25
Total (Bil Rp)	94.26	166.65	270.95	257.97	235.21	237.96	273.46	297.25	333.89	221.58	275.55
Total (Mil $)	83.71	104.15	169.34	161.23	147.00	148.72	170.92	185.78	208.68	162.87	172.22

Table A.11. Baseline solution of farm revenues and costs, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
FARM REVENUE											
Rice Gross Revenue (Bil Rp)	6034.31	6275.96	6517.55	6768.44	6994.54	7192.58	7394.77	7602.64	7816.36	6292.94	7400.18
Variable Cost	4465.01	4576.20	4673.72	4773.33	4875.06	4978.96	5084.06	5191.39	5300.98	4571.19	5086.09
Net Return	1569.30	1699.76	1843.83	1995.11	2119.48	2213.63	2310.71	2411.25	2515.38	1721.75	2314.09
Corn Gross Revenue (Bil Rp)	558.22	696.24	676.71	698.40	720.79	743.90	764.77	786.22	808.28	662.62	764.79
Variable Cost	420.15	480.04	485.81	491.65	497.56	503.54	509.59	515.72	521.92	480.05	509.67
Net Return	138.07	216.20	190.90	206.75	223.23	240.36	255.18	270.50	286.36	182.58	255.13
Cassava Gross Rev. (Bil Rp)	554.04	502.05	557.09	561.44	565.84	570.26	574.72	579.21	583.74	535.35	574.75
Variable Cost	321.69	289.15	318.32	318.29	318.26	318.23	318.19	318.16	318.13	315.69	318.19
Net Return	232.35	212.91	238.77	243.16	247.58	252.03	256.53	261.05	265.61	219.66	256.56
S. Pot. Gross Rev. (Bil Rp)	191.34	197.12	203.07	209.20	215.52	222.03	228.74	235.64	242.76	196.43	228.94
Variable Cost	72.22	73.67	75.15	76.66	78.20	79.77	81.37	83.01	84.68	73.54	81.41
Net Return	119.13	123.45	127.92	132.55	137.32	142.26	147.36	152.64	158.08	122.89	147.53
Soybean Gross Rev. (Bil Rp)	302.25	440.68	445.08	449.53	455.11	467.66	480.37	493.43	506.84	381.36	480.68
Variable Cost	169.68	240.47	245.30	250.23	255.87	261.63	267.42	273.33	279.38	213.46	267.53
Net Return	132.57	200.21	199.78	199.30	199.24	206.03	212.95	220.09	227.46	167.90	213.16
Peanut Gross Rev. (Bil Rp)	575.61	624.79	637.29	661.74	687.12	713.48	740.85	769.27	798.78	606.15	741.90
Variable Cost	150.59	170.35	172.05	176.90	181.89	187.01	192.28	197.70	203.27	165.78	192.43
Net Return	425.02	454.45	465.24	484.84	505.23	526.47	548.57	571.57	595.50	440.37	549.47
Fert. Cost Adst. (Bil Rp)	0.00	90.65	112.21	134.46	157.42	181.12	205.60	230.88	257.00	63.24	206.41
Total Net Return (Bil Rp)	2616.44	2816.32	2954.22	3127.24	3274.67	3399.66	3525.69	3656.23	3791.40	2791.92	3529.53
Growth Rate (%)	7.00	7.64	4.90	5.86	4.71	3.82	3.71	3.70	3.70	6.35	3.93

Table A.12. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on rice and wheat supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
COMMODITY SUPPLY AND USE											
RICE											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-0.06	-0.12	-0.18	-0.24	-0.30	-0.37	-0.43	-0.03	-0.30
Paddy Production (1000 mt)	0.00	0.00	-576.29	-1188.46	-1829.19	-2490.26	-3177.78	-3892.97	-4636.73	-352.95	-3205.39
Rice Production (1000 mt)	0.00	0.00	-388.36	-800.90	-1232.69	-1678.19	-2141.51	-2623.47	-3124.69	-237.85	-2160.11
Beginning Stocks (1000 mt)	0.00	0.00	0.00	-14.95	-31.06	-48.59	-67.96	-89.39	-113.15	-2.99	-70.03
Domestic Supply (1000 mt)	0.00	0.00	-388.36	-815.85	-1263.75	-1726.78	-2209.47	-2712.86	-3237.84	-240.84	-2230.14
Net Imports (1000 mt)	0.00	0.00	179.00	381.54	586.64	785.09	978.48	1164.71	1340.35	112.11	971.05
Total Supply (1000 mt)	0.00	0.00	-209.37	-434.32	-677.12	-941.69	-1230.98	-1548.15	-1897.49	-128.74	-1259.09
Food Consumption (1000 mt)	0.00	0.00	-149.49	-310.61	-485.94	-679.61	-893.89	-1131.53	-1396.41	-92.02	-917.48
Seed and Feed (1000 mt)	0.00	0.00	-9.97	-20.56	-31.65	-43.08	-54.98	-67.35	-80.22	-6.11	-55.45
Waste (1000 mt)	0.00	0.00	-34.95	-72.08	-110.94	-151.04	-192.74	-236.11	-281.22	-21.41	-194.41
Ending Stocks (1000 mt)	0.00	0.00	-14.95	-31.06	-48.59	-67.96	-89.39	-113.15	-139.64	-9.20	-91.75
Retail Rice Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Paddy Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	-0.87	-1.78	-2.72	-3.73	-4.81	-5.96	-7.21	-0.53	-4.89
Rural	0.00	0.00	-1.09	-2.22	-3.40	-4.66	-6.01	-7.45	-9.02	-0.66	-6.11
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHEAT											
Beginning Stocks (1000 mt)	0.00	0.00	0.00	-1.63	-3.40	-5.34	-7.48	-9.86	-12.49	-0.33	-7.71
Net Imports (1000 mt)	0.00	0.00	-17.94	-35.80	-55.32	-76.95	-100.93	-127.58	-157.32	-10.75	-103.62
Total Supply (1000 mt)	0.00	0.00	-17.94	-37.43	-58.73	-82.29	-108.42	-137.44	-169.81	-11.07	-111.34
Food Consumption (1000 mt)	0.00	0.00	-16.31	-34.03	-53.39	-74.81	-98.56	-124.94	-154.37	-10.07	-101.22
Non-Food Consmptn. (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Stocks (1000 mt)	0.00	0.00	-1.63	-3.40	-5.34	-7.48	-9.86	-12.49	-15.44	-1.01	-10.12
Wheat Flour Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheat Price to Mills (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Flour Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	-0.10	-0.19	-0.30	-0.41	-0.53	-0.66	-0.80	-0.06	-0.54
Rural	0.00	0.00	-0.12	-0.24	-0.37	-0.51	-0.66	-0.82	-1.00	-0.07	-0.67
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.13. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on corn and cassava supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CORN											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-0.02	-0.03	-0.05	-0.07	-0.09	-0.11	-0.13	-0.01	-0.09
Corn Production (1000 mt)	0.00	0.00	-44.46	-91.38	-140.86	-193.01	-246.98	-303.39	-362.35	-27.17	-249.32
Net Imports (1000 mt)	0.00	0.00	71.44	146.52	226.24	311.92	403.13	501.04	606.61	43.59	409.79
Total Supply (1000 mt)	0.00	0.00	26.98	55.14	85.38	118.90	156.15	197.64	244.26	16.42	160.47
Food Consumption (1000 mt)	0.00	0.00	32.67	66.83	103.41	143.61	187.77	236.48	290.64	19.90	192.38
Feed Consumption (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seed,Waste,Ind.Use (1000 mt)	0.00	0.00	-5.69	-11.70	-18.03	-24.71	-31.61	-38.83	-46.38	-3.48	-31.91
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Corn Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Corn Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	0.19	0.38	0.58	0.79	1.01	1.25	1.50	0.11	1.02
Rural	0.00	0.00	0.24	0.48	0.72	0.99	1.26	1.56	1.88	0.14	1.28
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CASSAVA											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-0.01	-0.02	-0.03	-0.05	-0.06	-0.07	-0.08	-0.01	-0.06
Cassava Production (1000 mt)	0.00	0.00	-13.27	-26.73	-40.39	-54.25	-68.31	-82.57	-97.04	-8.00	-68.51
Total Supply (1000 mt)	0.00	0.00	-13.27	-26.73	-40.39	-54.25	-68.31	-82.57	-97.04	-8.00	-68.51
Food Consumption (1000 mt)	0.00	0.00	23.90	49.25	76.59	106.71	139.90	176.60	217.45	14.63	143.45
Ind.,Feed, Waste (1000 mt)	0.00	0.00	-2.58	-5.19	-7.84	-10.53	-13.26	-16.03	-18.84	-1.55	-13.30
Net Exports (1000 mt)	0.00	0.00	-34.59	-70.79	-109.14	-150.43	-194.95	-243.15	-295.66	-21.08	-198.66
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Cassava Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Cassava Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	0.14	0.28	0.43	0.59	0.75	0.93	1.12	0.08	0.76
Rural	0.00	0.00	0.17	0.35	0.54	0.73	0.94	1.16	1.40	0.11	0.96
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.14. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on sweet potatoes and soybean supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
SWEET POTATO											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S. Pot. Production (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Consumption (1000 mt)	0.00	0.00	-23.40	-48.77	-76.47	-107.10	-141.04	-178.73	-220.76	-14.43	-144.82
Ind., Feed, Waste (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surplus(+) or Deficit(-)	0.00	0.00	23.40	48.77	76.47	107.10	141.04	178.73	220.76	14.43	144.82
Retail S. Pot. Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm S. Pot. Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	-0.14	-0.28	-0.43	-0.59	-0.76	-0.94	-1.14	-0.08	-0.77
Rural	0.00	0.00	-0.17	-0.35	-0.54	-0.73	-0.95	-1.18	-1.43	-0.10	-0.96
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOYBEAN											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04	-0.00	-0.03
Soybean Production (1000 mt)	0.00	0.00	-6.77	-13.63	-20.64	-28.20	-36.11	-44.38	-53.04	-4.08	-36.47
Net Imports (1000 mt)	0.00	0.00	-4.51	-9.89	-16.22	-23.40	-31.80	-41.59	-53.03	-2.88	-33.21
Total Supply (1000 mt)	0.00	0.00	-11.28	-23.52	-36.86	-51.61	-67.91	-85.98	-106.06	-6.96	-69.68
Food Consumption (1000 mt)	0.00	0.00	-10.44	-21.82	-34.29	-48.09	-63.41	-80.44	-99.45	-6.45	-65.14
Seed, Waste (1000 mt)	0.00	0.00	-0.84	-1.70	-2.57	-3.52	-4.50	-5.53	-6.61	-0.51	-4.55
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Soybean Price (Rp/Kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Soybean Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price(1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	-0.06	-0.12	-0.19	-0.26	-0.34	-0.42	-0.51	-0.04	-0.35
Rural	0.00	0.00	-0.08	-0.16	-0.24	-0.33	-0.43	-0.53	-0.64	-0.05	-0.43
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.15. Impacts of reducing fertilizer price by 60 percent by 1993 on peanuts and sugar supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
PEANUTS											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Production in Shell(1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peanut Production (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Imports (1000 mt)	0.00	0.00	-3.77	-7.86	-12.31	-17.24	-22.69	-28.74	-35.49	-2.33	-23.30
Total Supply (1000 mt)	0.00	0.00	-3.77	-7.86	-12.31	-17.24	-22.69	-28.74	-35.49	-2.33	-23.30
Food Consumption (1000 mt)	0.00	0.00	-3.77	-7.86	-12.31	-17.24	-22.69	-28.74	-35.49	-2.33	-23.30
Feed, Seed, Waste (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crush (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Peanut Price (Rp/mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Peanut Price (Rp/mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.00	-0.02	-0.04	-0.07	-0.09	-0.12	-0.15	-0.18	-0.01	-0.12
Rural	0.00	0.00	-0.03	-0.06	-0.09	-0.12	-0.15	-0.19	-0.23	-0.02	-0.16
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUGAR											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-1.09	-2.17	-3.21	-4.24	-5.25	-6.23	-7.20	-0.65	-5.23
Cane Production (1000 mt)	0.00	0.00	-429.11	-856.11	-1281.06	-1704.00	-2125.00	-2544.11	-2961.37	-257.04	-2123.11
Sugar Production (1000 mt)	0.00	0.00	-42.91	-85.61	-128.11	-170.40	-212.50	-254.41	-296.14	-25.70	-212.31
Net Imports (1000 mt)	0.00	0.00	20.90	40.00	57.08	71.71	83.58	92.38	97.62	12.18	80.48
Total Supply (1000 mt)	0.00	0.00	-408.21	-816.11	-1223.98	-1632.30	-2041.42	-2451.72	-2863.71	-244.86	-2042.63
Food Consumption (1000 mt)	0.00	0.00	-17.72	-37.05	-58.22	-81.65	-107.67	-136.59	-168.86	-10.95	-110.60
Waste (1000 mt)	0.00	0.00	-4.29	-8.56	-12.81	-17.04	-21.25	-25.44	-29.61	-2.57	-21.23
Ending-Beg. Stocks(1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale Sugar Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mill-Sugar Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Wholesale Price (1985=0)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (Kg)	0.00	0.00	-0.10	-0.21	-0.33	-0.45	-0.58	-0.72	-0.87	-0.06	-0.59
Rural	0.00	0.00	-0.13	-0.26	-0.41	-0.56	-0.72	-0.90	-1.09	-0.08	-0.74
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.16. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on per capita calorie and nutrient intakes, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CALORIE DISTRIBUTION											
Calories Per Capita(Cal/day)	0.00	0.00	-10.78	-22.03	-33.87	-46.50	-60.04	-74.60	-90.35	-6.56	-61.07
Rice (%)	0.00	0.00	-0.09	-0.17	-0.25	-0.34	-0.44	-0.54	-0.65	-0.05	-0.44
Wheat (%)	0.00	0.00	-0.01	-0.03	-0.04	-0.06	-0.07	-0.09	-0.11	-0.01	-0.07
Corn (%)	0.00	0.00	0.12	0.23	0.35	0.48	0.61	0.75	0.90	0.07	0.62
Cassava (%)	0.00	0.00	0.05	0.10	0.16	0.22	0.28	0.34	0.41	0.03	0.28
Sweet Potato (%)	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.01	-0.05
Soybean (%)	0.00	0.00	-0.02	-0.03	-0.05	-0.06	-0.08	-0.10	-0.12	-0.01	-0.08
Peanut (%)	0.00	0.00	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.05	-0.00	-0.04
Sugar (%)	0.00	0.00	-0.02	-0.04	-0.06	-0.08	-0.10	-0.12	-0.14	-0.01	-0.10
Rural (Cal/day)	0.00	0.00	-11.73	-23.98	-36.87	-50.62	-65.34	-81.19	-98.33	-7.14	-66.47
Urban (Cal/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Protein Per Capita(gm/day)	0.00	0.00	-0.21	-0.44	-0.67	-0.92	-1.19	-1.48	-1.79	-0.13	-1.21
Rural (gm/day)	0.00	0.00	-0.27	-0.54	-0.84	-1.15	-1.49	-1.85	-2.24	-0.16	-1.51
Urban (gm/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron Per Capita (mgm/day)	0.00	0.00	-0.02	-0.04	-0.06	-0.09	-0.11	-0.14	-0.17	-0.01	-0.11
Rural (mgm/day)	0.00	0.00	-0.02	-0.05	-0.08	-0.11	-0.14	-0.18	-0.21	-0.01	-0.14
Urban (mgm/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vitamin A (iu/day)	0.00	0.00	-26.36	-53.90	-82.87	-113.79	-146.91	-182.56	-221.14	-16.05	-149.45
Rural (iu/day)	0.00	0.00	-32.96	-67.38	-103.59	-142.24	-183.65	-228.21	-276.43	-20.07	-186.82
Urban (iu/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thiamin (mgm/day)	0.00	0.00	-0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.00	-0.02
Rural (mgm/day)	0.00	0.00	-0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.04	-0.00	-0.02
Urban (mgm/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.17. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on government program costs and net import costs,

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
GOVERNMENT COSTS											
Urea Use (1000 mt)	0.00	0.00	-67.80	-133.02	-195.73	-256.01	-313.94	-369.60	-423.04	-40.16	-311.67
Fert. Subsidy Rate (Rp/kg)	0.00	0.00	-13.13	-28.94	-47.90	-70.51	-97.40	-129.25	-166.87	-8.41	-102.38
Fertilizer Subsidy (Bil Rp)	0.00	0.00	-54.29	-121.30	-200.06	-299.80	-392.63	-494.72	-607.36	-35.12	-398.92
Rice Import Subsidy (Bil Rp)	0.00	0.00	18.39	46.59	95.38	146.99	198.70	254.96	314.64	13.00	202.13
Wheat Imp. Subsidy (Bil Rp)	0.00	0.00	0.23	0.36	0.75	0.72	0.51	-0.07	-1.20	0.12	0.14
NET IMPORT COST (BIL RP)											
Rice	0.00	0.00	63.01	141.02	238.41	336.65	433.66	532.97	632.64	40.80	434.87
Wheat	0.00	0.00	-3.25	-6.59	-9.98	-14.21	-19.07	-24.82	-31.72	-1.97	-19.96
Corn	0.00	0.00	8.23	17.99	29.02	41.72	53.92	64.95	78.22	5.24	53.57
Cassava	0.00	0.00	3.49	7.09	11.00	19.67	24.00	32.26	37.15	2.12	24.81
Soybean	0.00	0.00	-1.38	-3.11	-5.19	-8.07	-10.71	-13.78	-17.76	-0.90	-11.10
Peanut	0.00	0.00	-2.11	-4.40	-6.90	-9.65	-12.71	-16.10	-19.88	-1.30	-13.05
Total (Bil Rp)	0.00	0.00	67.98	151.99	256.36	366.10	469.10	575.48	678.66	43.99	469.14
Total (Mil $)	0.00	0.00	42.49	95.00	160.23	228.82	293.19	359.67	424.16	27.50	293.21

Table A.18. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 on farm revenues and costs, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
FARM REVENUE											
Rice Gross Revenue (Bil Rp)	0.00	0.00	-92.52	-190.79	-293.65	-399.78	-510.15	-624.96	-744.36	-56.66	-514.58
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	-92.52	-190.79	-293.65	-399.78	-510.15	-624.96	-744.36	-56.66	-514.58
Corn Gross Revenue (Bil Rp)	0.00	0.00	-5.78	-11.88	-18.31	-25.09	-32.11	-39.44	-47.10	-3.53	-32.41
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	-5.78	-11.88	-18.31	-25.09	-32.11	-39.44	-47.10	-3.53	-32.41
Cassava Gross Rev. (Bil Rp)	0.00	0.00	-0.53	-1.07	-1.62	-2.17	-2.73	-3.30	-3.88	-0.32	-2.74
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	-0.53	-1.07	-1.62	-2.17	-2.73	-3.30	-3.88	-0.32	-2.74
S. Pot. Gross Rev. (Bil Rp)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Soybean Gross Rev. (Bil Rp)	0.00	0.00	-2.54	-5.11	-7.74	-10.58	-13.54	-16.64	-19.89	-1.53	-13.68
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	-2.54	-5.11	-7.74	-10.58	-13.54	-16.64	-19.89	-1.53	-13.68
Peanut Gross Rev. (Bil Rp)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fert. Cost Adst. (Bil Rp)	0.00	0.00	44.12	94.03	150.54	214.55	287.08	369.28	462.43	27.63	296.78
Total Net Return (Bil Rp)	0.00	0.00	-145.49	-302.88	-471.86	-652.17	-845.61	-1053.63	-1277.66	-89.67	-860.19
Growth Rate (%)	0.00	0.00	-5.17	-5.30	-5.48	-5.79	-6.16	-6.59	-7.11	-2.62	-6.23

Table A.19. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on rice and wheat supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
COMMODITY SUPPLY AND USE											
RICE											
Area Harvested (1000 ha)	0.00	0.00	51.71	104.85	159.45	215.53	273.08	332.15	392.78	31.31	274.60
Average Yield (mt/ha)	0.00	0.00	-0.03	-0.07	-0.11	-0.15	-0.19	-0.23	-0.27	-0.02	-0.19
Paddy Production (1000 mt)	0.00	0.00	-143.92	-298.39	-461.71	-631.93	-810.67	-998.39	-1195.41	-88.46	-819.62
Rice Production (1000 mt)	0.00	0.00	-96.99	-201.08	-311.15	-425.85	-546.31	-672.81	-805.59	-59.61	-552.34
Beginning Stocks (1000 mt)	0.00	0.00	-9.70	-25.03	-40.82	-57.63	-75.61	-94.45	-114.25	-6.95	-76.55
Domestic Supply (1000 mt)	0.00	0.00	-106.69	-226.12	-351.97	-483.48	-621.92	-767.27	-919.84	-66.56	-628.89
Net Imports (1000 mt)	0.00	-106.75	-179.90	-246.15	-317.93	-397.45	-480.26	-567.28	-658.91	-106.56	-484.37
Total Supply (1000 mt)	0.00	-106.75	-286.59	-472.27	-669.90	-880.93	-1102.18	-1334.55	-1578.74	-173.12	-1113.26
Food Consumption (1000 mt)	0.00	-97.04	-250.34	-408.19	-576.28	-756.06	-944.54	-1142.47	-1350.51	-151.11	-953.97
Seed and Feed (1000 mt)	0.00	0.00	-2.49	-5.16	-7.99	-10.93	-14.02	-17.27	-20.68	-1.53	-14.18
Waste (1000 mt)	0.00	0.00	-8.73	-18.10	-28.00	-38.33	-49.17	-60.55	-72.50	-5.37	-49.71
Ending Stocks (1000 mt)	0.00	-9.70	-25.03	-40.82	-57.63	-75.61	-94.45	-114.25	-135.05	-15.11	-95.40
Retail Rice Price (Rp/kg)	0.00	0.00	19.50	40.03	61.63	84.37	108.30	133.49	160.00	11.91	109.56
Farm Paddy Price (Rp/kg)	0.00	0.00	8.43	17.30	26.64	36.46	46.80	57.69	69.15	5.15	47.35
Real Retail Price (1985=100)	0.00	0.00	5.44	11.16	17.18	23.52	30.19	37.22	44.61	3.32	30.54
Consumption per Capita (kg)	0.00	-0.58	-1.46	-2.34	-3.23	-4.15	-5.08	-6.02	-6.98	-0.88	-5.09
Rural	0.00	-0.72	-1.49	-2.24	-3.02	-3.82	-4.63	-5.46	-6.30	-0.89	-4.64
Urban	0.00	0.00	-1.35	-2.71	-4.08	-5.46	-6.86	-8.27	-9.70	-0.81	-6.87
WHEAT											
Beginning Stocks (1000 mt)	0.00	0.00	0.00	2.39	6.23	10.39	14.85	19.69	24.91	0.48	15.21
Net Imports (1000 mt)	0.00	0.00	26.30	66.11	108.04	152.97	201.70	254.31	310.98	18.48	205.60
Total Supply (1000 mt)	0.00	0.00	26.30	68.50	114.26	163.36	216.55	273.99	335.89	18.96	220.81
Food Consumption (1000 mt)	0.00	-10.53	23.91	62.27	103.88	148.51	196.87	249.08	305.35	15.13	200.74
Non-Food Consmptn. (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Stocks (1000 mt)	0.00	0.00	2.39	6.23	10.39	14.85	19.69	24.91	30.54	1.72	20.07
Wheat Flour Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheat Price to Mills (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Flour Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	-0.06	0.14	0.36	0.58	0.82	1.06	1.31	1.58	0.09	1.07
Rural	0.00	-0.08	0.13	0.36	0.60	0.85	1.10	1.37	1.65	0.08	1.11
Urban	0.00	0.00	0.16	0.33	0.50	0.69	0.88	1.08	1.30	0.10	0.89

Table A.20. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on corn and cassava supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CORN											
Area Harvested (1000 ha)	0.00	0.00	-31.05	-61.87	-92.47	-122.86	-153.02	-182.97	-212.71	-18.58	-152.81
Average Yield (mt/ha)	0.00	0.00	-0.02	-0.03	-0.05	-0.07	-0.09	-0.11	-0.13	-0.01	-0.09
Corn Production (1000 mt)	0.00	0.00	-102.23	-208.95	-320.30	-436.46	-555.43	-678.57	-806.02	-62.24	-559.36
Net Imports (1000 mt)	0.00	21.61	101.34	183.97	271.06	362.97	457.21	555.10	656.82	61.38	460.63
Total Supply (1000 mt)	0.00	21.61	-0.89	-24.97	-49.25	-73.49	-98.22	-123.47	-149.20	-0.85	-98.73
Food Consumption (1000 mt)	0.00	21.61	12.19	1.77	-8.25	-17.63	-27.12	-36.61	-46.03	7.11	-27.13
Feed Consumption (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seed,Waste,Ind.Use (1000 mt)	0.00	0.00	-13.09	-26.75	-41.00	-55.87	-71.10	-86.86	-103.17	-7.97	-71.60
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Corn Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Corn Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.13	0.07	0.01	-0.05	-0.10	-0.15	-0.19	-0.24	0.04	-0.14
Rural	0.00	0.16	0.09	0.01	-0.07	-0.13	-0.20	-0.26	-0.32	0.05	-0.20
Urban	0.00	0.00	0.01	0.03	0.04	0.05	0.06	0.07	0.08	0.01	0.06
CASSAVA											
Area Harvested (1000 ha)	0.00	0.00	-20.07	-39.42	-58.06	-76.02	-93.32	-109.97	-126.00	-11.90	-92.67
Average Yield (mt/ha)	0.00	0.00	-0.01	-0.02	-0.03	-0.05	-0.06	-0.07	-0.08	-0.01	-0.06
Cassava Production (1000 mt)	0.00	0.00	-239.24	-478.07	-716.53	-954.62	-1192.37	-1429.79	-1666.90	-143.46	-1192.04
Total Supply (1000 mt)	0.00	0.00	-239.24	-478.07	-716.53	-954.62	-1192.37	-1429.79	-1666.90	-143.46	-1192.04
Food Consumption (1000 mt)	0.00	15.67	54.24	93.63	134.95	178.52	223.77	270.79	319.67	32.71	225.54
Ind.,Feed, Waste (1000 mt)	0.00	0.00	-46.44	-92.79	-139.08	-185.29	-231.44	-277.52	-323.55	-27.85	-231.38
Net Exports (1000 mt)	0.00	-15.67	-247.04	-478.91	-712.40	-947.85	-1184.70	-1423.06	-1663.03	-148.32	-1186.21
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Cassava Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Cassava Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	0.09	0.32	0.54	0.76	0.98	1.20	1.43	1.65	0.19	1.20
Rural	0.00	0.12	0.37	0.61	0.86	1.11	1.37	1.62	1.87	0.22	1.37
Urban	0.00	0.00	0.11	0.22	0.33	0.44	0.55	0.65	0.76	0.07	0.55

Table A.21. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on sweet potatoes and soybean supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
SWEET POTATO											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S. Pot. Production (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Consumption (1000 mt)	0.00	-15.13	17.91	54.63	94.00	135.67	180.45	228.37	279.55	11.48	183.61
Ind., Feed, Waste (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surplus(+) or Deficit(-)	0.00	15.13	-17.91	-54.63	-94.00	-135.67	-180.45	-228.37	-279.55	-11.48	-183.61
Retail S. Pot. Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm S. Pot. Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	-0.09	0.10	0.31	0.53	0.74	0.97	1.20	1.44	0.07	0.98
Rural	0.00	-0.11	0.13	0.39	0.66	0.93	1.21	1.50	1.81	0.08	1.22
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOYBEAN											
Area Harvested (1000 ha)	0.00	0.00	-20.53	-41.12	-61.90	-82.84	-103.90	-125.10	-146.45	-12.33	-104.04
Average Yield (mt/ha)	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04	-0.00	-0.03
Soybean Production (1000 mt)	0.00	0.00	-27.12	-54.16	-81.31	-110.14	-139.82	-170.41	-201.92	-16.26	-140.72
Net Imports (1000 mt)	0.00	-6.72	32.43	73.43	116.01	161.37	209.19	259.57	312.62	19.83	211.75
Total Supply (1000 mt)	0.00	-6.72	5.31	19.27	34.70	51.23	69.37	89.17	110.70	3.57	71.03
Food Consumption (1000 mt)	0.00	-6.72	8.69	26.03	44.84	64.96	86.80	110.41	135.88	5.60	88.58
Seed, Waste (1000 mt)	0.00	0.00	-3.38	-6.75	-10.14	-13.73	-17.43	-21.25	-25.18	-2.03	-17.55
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Soybean Price (Rp/Kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Soybean Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price(1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	-0.04	0.05	0.15	0.25	0.36	0.47	0.58	0.70	0.03	0.47
Rural	0.00	-0.05	0.05	0.16	0.27	0.39	0.51	0.63	0.76	0.03	0.51
Urban	0.00	0.00	0.05	0.11	0.17	0.24	0.30	0.37	0.45	0.03	0.31

Table A.22. Impact of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on peanuts and sugar supply and utilization, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
PEANUTS											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Production in Shell(1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peanut Production (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Imports (1000 mt)	0.00	-2.44	1.18	5.20	9.46	13.90	18.64	23.66	28.98	0.79	18.93
Total Supply (1000 mt)	0.00	-2.44	1.18	5.20	9.46	13.90	18.64	23.66	28.98	0.79	18.93
Food Consumption (1000 mt)	0.00	-2.44	1.18	5.20	9.46	13.90	18.64	23.66	28.98	0.79	18.93
Feed, Seed, Waste (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crush (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending-Beg. Stocks (1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail Peanut Price (Rp/mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm Peanut Price (Rp/mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Retail Price (1985=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (kg)	0.00	-0.01	0.01	0.03	0.05	0.08	0.10	0.12	0.15	0.00	0.10
Rural	0.00	-0.02	0.01	0.04	0.07	0.10	0.13	0.16	0.19	0.01	0.13
Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUGAR											
Area Harvested (1000 ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Yield (mt/ha)	0.00	0.00	-1.09	-2.17	-3.21	-4.24	-5.25	-6.23	-7.20	-0.65	-5.23
Cane Production (1000 mt)	0.00	0.00	-429.11	-856.11	-1281.06	-1704.00	-2125.00	-2544.11	-2961.37	-257.04	-2123.11
Sugar Production (1000 mt)	0.00	0.00	-42.91	-85.61	-128.11	-170.40	-212.50	-254.41	-296.14	-25.70	-212.31
Net Imports (1000 mt)	0.00	-11.42	46.10	105.84	167.05	229.46	293.65	359.67	427.58	28.10	295.48
Total Supply (1000 mt)	0.00	-11.42	-383.01	-750.27	-1114.01	-1474.55	-1831.35	-2184.44	-2533.80	-228.94	-1827.63
Food Consumption (1000 mt)	0.00	-11.42	7.48	28.79	51.76	76.10	102.40	130.70	161.05	4.97	104.40
Waste (1000 mt)	0.00	0.00	-4.29	-8.56	-12.81	-17.04	-21.25	-25.44	-29.61	-2.57	-21.23
Ending-Beg. Stocks(1000 mt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Whole sale Sugar Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mill-Sugar Price (Rp/kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Whole sale Price (1985=0)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumption per Capita (Kg)	0.00	-0.07	0.04	0.16	0.29	0.42	0.55	0.69	0.83	0.03	0.56
Rural	0.00	-0.09	0.05	0.20	0.35	0.50	0.66	0.83	1.00	0.03	0.67
Urban	0.00	0.00	0.02	0.04	0.07	0.09	0.12	0.14	0.17	0.01	0.12

Table A.23. Impact of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on per capita calorie and nutrient intakes, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
CALORIE DISTRIBUTION											
Calories Per Capita(Cal/day)	0.00	-7.11	-8.96	-10.27	-11.48	-12.72	-13.72	-14.52	-15.13	-5.27	-13.51
Rice (%)	0.00	-0.06	-0.40	-0.75	-1.11	-1.47	-1.84	-2.22	-2.60	-0.24	-1.85
Wheat (%)	0.00	-0.01	0.06	0.13	0.20	0.27	0.34	0.42	0.49	0.03	0.34
Corn (%)	0.00	0.08	0.06	0.04	0.02	-0.00	-0.02	-0.04	-0.06	0.04	-0.02
Cassava (%)	0.00	0.03	0.07	0.10	0.13	0.16	0.18	0.21	0.24	0.04	0.18
Sweet Potato (%)	0.00	-0.01	0.02	0.04	0.07	0.09	0.12	0.15	0.17	0.01	0.12
Soybean (%)	0.00	-0.01	0.04	0.09	0.14	0.19	0.24	0.30	0.36	0.02	0.25
Peanut (%)	0.00	-0.00	0.01	0.03	0.04	0.06	0.08	0.09	0.11	0.01	0.08
Sugar (%)	0.00	-0.01	0.03	0.08	0.12	0.17	0.22	0.27	0.32	0.02	0.22
Rural (Cal/day)	0.00	-7.74	-10.77	-13.33	-15.88	-18.54	-21.03	-23.41	-25.68	-6.37	-20.91
Urban (Cal/day)	0.00	0.00	-11.17	-22.38	-33.63	-44.90	-56.20	-67.52	-78.86	-6.71	-56.22
Protein Per Capita(gm/day)	0.00	-0.14	-0.15	-0.15	-0.14	-0.13	-0.11	-0.09	-0.06	-0.09	-0.11
Rural (gm/day)	0.00	-0.18	-0.15	-0.11	-0.06	-0.01	0.04	0.11	0.18	-0.09	0.05
Urban (gm/day)	0.00	0.00	-0.15	-0.30	-0.45	-0.59	-0.73	-0.87	-1.01	-0.09	-0.73
Iron Per Capita (mgm/day)	0.00	-0.01	0.01	0.03	0.05	0.08	0.10	0.13	0.16	0.00	0.10
Rural (mgm/day)	0.00	-0.02	0.01	0.04	0.07	0.10	0.13	0.17	0.20	0.01	0.14
Urban (mgm/day)	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03	-0.00	-0.02
Vitamin A (iu/day)	0.00	-17.38	23.22	66.53	111.23	156.82	204.07	252.94	303.42	14.47	205.69
Rural (iu/day)	0.00	-21.72	28.94	82.99	138.78	195.68	254.65	315.65	378.66	18.04	256.68
Urban (iu/day)	0.00	0.00	0.34	0.69	1.04	1.40	1.77	2.14	2.51	0.21	1.77
Thiamin (mgm/day)	0.00	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.01	0.01	-0.00	0.00
Rural (mgm/day)	0.00	-0.00	-0.00	0.00	0.00	0.00	0.01	0.01	0.01	-0.00	0.01
Urban (mgm/day)	0.00	0.00	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.01

Table A.24. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 and increasing rice real price by 5 percent per year on government program costs and net import costs, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
GOVERNMENT COSTS											
Urea Use (1000 mt)	0.00	0.00	-31.56	-62.24	-92.04	-121.00	-149.12	-176.44	-202.95	-18.76	-148.31
Fert. Subsidy Rate (Rp/kg)	0.00	0.00	-13.13	-28.94	-47.90	-70.51	-97.40	-129.25	-166.87	-8.41	-102.38
Fertilizer Subsidy (Bil Rp)	0.00	0.00	-50.46	-111.52	-183.43	-271.38	-363.09	-467.17	-585.39	-32.40	-374.09
Rice Import Subsidy (Bil Rp)	0.00	-9.18	-16.68	-16.88	-20.86	-25.40	-25.43	-22.28	-15.16	-8.55	-21.83
Wheat Imp. Subsidy (Bil Rp)	0.00	0.00	-0.34	-0.66	-1.46	-1.42	-1.02	0.15	2.37	-0.20	-0.28
NET IMPORT COST (BIL RP)											
Rice	0.00	-35.95	-63.32	-90.98	-129.21	-170.42	-212.85	-259.59	-311.01	-38.05	-216.62
Wheat	0.00	0.00	4.76	12.16	19.50	28.25	38.11	49.48	62.70	3.39	39.61
Corn	0.00	3.63	11.67	22.59	34.76	48.55	61.16	71.96	84.69	7.58	60.22
Cassava	0.00	1.74	24.90	47.98	71.81	123.92	145.84	188.78	208.96	14.92	147.86
Soybean	0.00	-2.18	9.90	23.13	37.10	55.61	70.44	86.00	104.71	6.17	70.77
Peanut	0.00	-1.37	0.66	2.91	5.30	7.78	10.44	13.25	16.23	0.44	10.60
Total (Bil Rp)	0.00	-34.14	-11.42	17.79	39.26	93.70	113.13	149.88	166.28	-5.55	112.45
Total (Mil $)	0.00	-21.34	-7.14	11.12	24.54	58.56	70.71	93.67	103.92	-3.47	70.28

Table A.25. Impacts of reducing fertilizer price subsidy by 60 percent by 1993 and increasing real rice price by 5 percent per year on farm revenues and costs, 1987-1993

Items/Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	Avg 1984-88	Avg 1989-93
FARM REVENUE											
Rice Gross Revenue (Bil Rp)	0.00	0.00	317.85	676.28	1074.07	1509.12	1987.85	2514.17	3092.10	198.83	2035.46
Variable Cost	89.30	184.88	311.51	446.62	590.66	744.10	907.27	1080.79	1265.21	206.46	917.60
Net Return	-89.30	-184.88	6.34	229.66	483.41	765.02	1080.58	1433.38	1826.89	-7.64	1117.86
Corn Gross Revenue (Bil Rp)	0.00	0.00	-13.29	-27.16	-41.64	-56.74	-72.21	-88.21	-104.78	-8.09	-72.72
Variable Cost	0.00	0.00	-5.44	-10.95	-16.52	-22.17	-27.89	-33.68	-39.55	-3.28	-27.96
Net Return	0.00	0.00	-7.85	-16.22	-25.12	-34.57	-44.32	-54.53	-65.23	-4.81	-44.75
Cassava Gross Rev. (Bil Rp)	0.00	0.00	-9.57	-19.12	-28.66	-38.18	-47.69	-57.19	-66.68	-5.74	-47.68
Variable Cost	0.00	0.00	-5.17	-10.25	-15.26	-20.17	-25.01	-29.77	-34.45	-3.08	-24.93
Net Return	0.00	0.00	-4.40	-8.87	-13.41	-18.01	-22.68	-27.42	-32.23	-2.65	-22.75
S. Pot. Gross Rev. (Bil Rp)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Soybean Gross Rev. (Bil Rp)	0.00	0.00	-10.17	-20.31	-30.49	-41.30	-52.43	-63.90	-75.72	-6.10	-52.77
Variable Cost	0.00	0.00	-4.23	-8.56	-13.01	-17.59	-22.28	-27.09	-32.03	-2.56	-22.40
Net Return	0.00	0.00	-5.94	-11.75	-17.48	-23.72	-30.15	-36.81	-43.69	-3.54	-30.37
Peanut Gross Rev. (Bil Rp)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Return	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fert. Cost Adst. (Bil Rp)	0.00	0.00	45.73	98.76	160.14	231.09	312.95	407.29	515.85	28.90	325.46
Total Net Return (Bil Rp)	-89.30	-184.88	-57.58	94.06	267.26	457.64	670.48	907.33	1169.89	-47.54	694.52
Growth Rate (%)	-3.65	-3.51	5.18	5.35	5.24	5.09	5.08	5.05	5.02	0.84	5.10