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/GOVERNMENT PARTICIPATION IN PRICING
FARM PRODUCTS/

by

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INTRODUCTION

Farm commodity prices are economically and politically important because they strongly influence the level of farm incomes, and the welfare of consumers. The incomes of almost half of the world's population are determined mainly by the prices received for agricultural products.¹

Thus, prices play a very important role in the organization of the economic system in a free enterprise economy. They regulate production, consumption, exchange, and distribution of goods and services. They are indicators of the channels into which the various productive resources should be allocated. Prices guide producers in calculating costs and in measuring incomes from their enterprises. To the consumers they are a guide in the matter of spending their incomes over a variety of alternative goods available in the market. They help in adjusting the aggregate demand of the economy to the available supply and, therefore, help in balancing supply with consumer demand.²

Fluctuations in prices are an inherent problem in the marketing of agricultural commodities. It is generally accepted that the agricultural product prices tend to fluctuate more than the prices of many non-farm goods and services.

Farm product prices vary greatly with respect to changes in supply because the demand for these products is highly inelastic. In other words, small changes in availability of farm products will cause large changes in prices.³ Relatively inelastic demand for these products arises because food and fiber are the basic needs of life and have very few substitutes in the short run. Likewise, the alternatives available for food production resources, such as land, labor, limited storage facilities, etc., make supply relatively inelastic in the short run.⁴

Tomek and Robinson¹ have stated that changes in the movements of demand and supply curves cause price instability because of such factors as: changes in demand occurring in response to alterations in people's tastes and preferences, fluctuations in the consumer income distribution, population growth and its distribution by geographic areas, and changes in price and availability of other products. Sharp changes in supply can arise in the short run due to unusually favorable or unfavorable weather and the presence or absence of diseases or insect infestation, and political and social instability. In the long run, however, changes in supply are attributable to such factors as improvement in technology or accumulation of agricultural capital which results in higher yields.

There are several other factors that may induce price instability. For some commodities such as coffee, sugar, etc., a world view is essential to understand why prices change.¹ In the objective of this report, emphasis is given to the price-making forces in the domestic market.

Price fluctuations can lead to cycles in production with an excess of resources used in some commodities during certain periods, and can lead to under-utilization of marketing facilities during others. Hence, it is necessary for the health and smooth workings of an economic system that price movements should be kept within reasonable limits. An abrupt change in prices creates distortions in the economy and results in injustice to certain classes and benefits to others. Besides this distribution effect, too frequent changes in prices disturb calculations of producers and create a general sense of instability and insecurity in the economic system.

While there is some disagreement concerning the level of government involvement in agriculture, there is a consensus among policy makers that, given

the special nature of this sector of the economy, some degree of government intervention is necessary. Governments around the world have adopted a series of programs in order to encourage the production of adequate supplies of food and fiber so as to maintain reasonable prices for consumers, while at the same time assuring farmers a fair return on their labor and financial investment.

The purpose of this report is to deal with price instability, to observe why and how governments should intervene in pricing agricultural products (with emphasis on storable commodities), and to identify the alternative forms of such government intervention. Included are: 1) the role of prices and the importance of controlling price fluctuations (these events were discussed earlier in the introduction); 2) the main objectives for government intervention in pricing agricultural commodities; 3) some important principles of price policy; and 4) the principal methods used in reducing price instability. On this subject the discussion focuses on storage programs in developing countries and other alternative methods in the United States. Included in the two approaches is a brief discussion about the economic benefits of such programs.

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OBJECTIVES OF GOVERNMENT INTERVENTION

It has been argued that a competitive system without some intervention cannot protect the interest of small producers due to their weak position compared to large scale traders. Even in the United States, a number of government regulations have been introduced to take care of the interests of farmers. The situation in many developing countries is far different. Illiteracy, poverty, small output, capital shortage, limited storage facilities, and lack of credit are the general facts which force the farmers to act under the dictation of large producers. The Government is, therefore, called upon to safeguard the interests of the growers to assure them fair prices for their products, thereby assuring food security to the nation as a whole and keeping reasonable prices for the individual consumers.

Governments generally intervene in pricing farm products to achieve one or a combination of the following objectives:

Stabilization of Prices

Stable costs of living are indispensable for steady economic development, and for social and political stability. It is of great concern to almost all nations and especially to developing countries, where inflation is a common problem.¹

Increasing Self-Sufficiency in Food

Under this purpose, the government intervenes in order to maintain or increase the productive capacity, in turn assuring consumers an adequate supply of food and fiber at reasonable prices.¹

Savings in Foreign Exchange

Foreign exchange in most developing countries is one of the main obstacles to investment. It is, therefore, the objective of the governments to stimulate production of exportable goods/products through price incentives.²

Earning Revenues for the Government

To undertake the construction of different development projects and to attend to social welfare programs, some importing countries collect revenues by taxation or charging levys on imported agricultural products.²

Improvement in the Incomes of Farmers

In developed countries, farm incomes are raised by direct subsidies, export protection, and other measures like deficiency payments. In developing countries most of these kinds of measures are not used.³ This is because in the early stages of industrialization there is some transfer of resources from agriculture in order to finance other sectors.

Most countries are following price policies to stimulate production of food grains. The main objective of Japan with rice has been to achieve self-sufficiency and to improve the farmer's income. Indonesia and Pakistan have placed emphasis on saving of imports. In Burma, India and the Philippines, the protection of producers against violent seasonal and year-to-year price fluctuations of both consumer and producer prices has been the main goal.³ Self-sufficiency is the declared aim of Tanzania.⁴

In Honduras, and in general in all Central American countries, a fundamental aim of farm-price policy has been to encourage the production of adequate supplies of agricultural products, while at the same time keeping reasonable prices for consumers and assuring fair returns to the producers.

In the United States a principal objective of government participation in price policy has been to stabilize the domestic supply of agricultural products, and to support farm prices and producer incomes.⁵ Boehm, Knutson and Penn⁶ give five major reasons why the United States government becomes involved in the agriculture price-policy issue. The reasons are of specific character, but, they could be summarized in the two objectives described at the beginning of this paragraph.

Tomek and Robinson⁷ add that government participation provides producers with better guides for planning. That is because current or past prices do not always provide reliable guides for the future. Such prices may be too low or abnormally high as a result of eventual shifts in demand or supply. This may lead producers to make the wrong decisions. With more stable prices, Johnson⁸ says that more capital would be invested, leading to greater output and efficiency. This is so because price uncertainty leads to capital rationing.

In general, price policies have been introduced in most developed and developing countries, with the form and degree of participation depending on the specific nature of each economy.

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SOME CONSIDERATIONS REGARDING PRICE POLICY

In conjunction with other policies which increase the productivity of resources, price policy may have an important beneficial role to play in the modern process of the agricultural sector. In order to make and implement an appropriate price policy, some important considerations or principles should be regarded by government policy makers.

Specific Goals

Johnson¹ states that a basic element is the determination of specific purposes of the policy. The motivation for price policy is the desire for a change from a current, unsatisfactory situation to a position that may constitute an improvement. Thus, the goals of a policy are simply the description of the more desirable state of things. Price policy as a part of agricultural policy should be oriented toward those objectives that can be better obtained by price policy than by other types of actions. It may well be that the causes of the discrepancy between present conditions and the ideal conditions in the particular case are such that price policy will be insufficient to result in an improvement. There should also be consistency among the goals of price policy. In some cases, inconsistency of objectives is because one of them is inappropriate. For instance, if prices are set higher as a means for redistributing income in favor of agriculture, it may lead to an inconsistency in the objective of obtaining more efficient utilization of agricultural resources. On this subject Mellor² adds that the greatest danger of conflict between price policy objective, such as a price stabilization program, and other objectives, lies in the fact that it is likely to change the terms of trade, rather than simply to serve as a stabilization device.

Issues to be Avoided

In designing a price policy, Shepherd³ argues that policy makers should avoid considering some issues. First, prices should not be used as checks for evaluating administrative actions. This is because the acceptance of prices as a criterion for evaluation may lead to making it more obligatory that administrative agencies take different measures in reaching price goals. Second, price relationships should not be tied to the past because changing conditions of production and consumption tend to make price relationships inappropriate. Technology changes affect various commodities in different ways and in different degrees. Taste and preference changes are in some cases favorable to a commodity and in other cases drastically adverse. New products come into consumption, or existing products may find new uses. Third, prices should not be used as goals to be achieved. In the case of prices fluctuating from extremely high to low levels, it is understandable that a search should be made to reach a fair price which producers may reasonably use as a forecast for making their decisions. In using prices as the cause, and in adopting them as a goal, farmers and policy makers may mistake the symptoms for the basic causes. Therefore, little or nothing will be done to find a reasonable permanent solution.

On this issue, Schultz⁴ adds:

...Prices have a function and that function is to direct and regulate economic processes...The tendency to place prices in the position of ends is the most serious stumbling block to any progress toward a more rational economic policy, not only in agriculture but in other fields as well.

Substitution and Aggregate Effects

The consideration of substitution and aggregate effects is of relevance according to Mellor. In the case of substitution effect, if two products do not have the same degree of certainty regarding prices, the one with the highest

uncertainty will tend to be diminished more than the second product, with a consequent relative production emphasis on the lower risk crop. Hence, relative changes in uncertainty for different products will probably result in relative changes in production. Therefore, when it is desired to increase production of a commodity for which there is considerable price uncertainty, then a price-guarantee program for that product will tend to increase its production relative to other commodities. The effect of price-guarantee programs on the substitution of agricultural crops tends to be more responsive in traditional agriculture than in high-income developed agriculture. Technology, capital inputs, and managerial skills are likely to be somewhat less specific and consequently more flexible in traditional agriculture. Thus, they cause more response in traditional agriculture. This kind of policy tends to encourage activities with higher certainty, and tends to pull resources into those activities for which uncertainty has been reduced.

On this issue, in a study prepared by Salinas⁵, it was concluded that Honduran producers had not responded to the corn-guarantee price set up by the Honduran Institute for Agricultural Marketing (IHMA) which is the governmental agency in charge of price stabilization in Honduras. However, it was added that the non effect from IHMA could have been due to the short period of its operations (1978-83).

In the aggregate, the effects are different from those of individual crops. In a developed country the flexibility of labor resources and the importance of purchased variable inputs are such that a reduction in uncertainty may be more responsive in developed countries than in developing ones. However, it should be taken into account that farmers with better guides for planning may achieve production closer to their present objectives; therefore, it is possible that in the aggregate, production may be relatively reduced to some degree.

Social and Political Aspects

Analysis and development of a price policy also requires that attention be given to social and political aspects as well, especially to those related to economic activity--resource allocation and income distribution. This consideration involves the issue of whether or not this is acceptable within the framework of the values and morals generally held in the society, and whether or not the policy can be effectively administered within a democratic form of government.⁶

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STORAGE PROGRAMS

A storage policy can have numerous goals depending upon the interest of which particular groups in society are considered important by the government. This report will emphasize the use of storage or reserve programs for stabilization purposes. First, however, it is important to mention some general concepts of storage.

The basic grains--wheat, rice, beans, corn, barley, and grain sorghum--are considered the commodities appropriate for storage.¹ There exists numerous perspectives about the type of grain reserve. David and Eaton² classified grain reserves as working stocks, buffer stocks, food aid, and emergency food reserves. Working stocks are marketing services in which grain is for gradual use over the remainder of the growing cycle. Its social function is considered as inter-year stabilization. Buffer stocks are reserves stored to support seasonal price stabilization. Food aid reserves are products collected at any time, even during periods of low production, to supply domestic or foreign consumers who are in need. Emergency food reserves are held to supply the needs of people in situations such as wars or natural disasters.

The Food and Agricultural Organization (FAO)³ groups grain reserves into two general categories, national reserves and stabilization stocks. This classification will be the focus of the following discussion.

National Reserves³

Government participation in storage programs generally is aimed at stabilization objectives (mainly in developing economies). However, there are some countries that maintain stocks especially to face emergency situations. In practice

the need for periodical rotation of such stocks, to maintain quality and government obligations to purchase from farmers at harvest time under price stabilization programs, generally means that national reserves and price stabilization stocks are closely interrelated. Governments may determine specific quantities as national reserves without necessarily keeping them physically separate. It is considered that national reserves give substantial strength to stabilization programs when imports are not feasible or their time of arrival is difficult to insure.

National reserves in general are considered strategic food reserves to alleviate the problems of sudden crop failures or other unexpected situations. Thus, additional stocks should be held to face the effects of an abnormal shortage which can result from 1) a severe crop failure due to drought, floods, pests, etc. 2) an unexpected increase in demand as a result of accelerated economic development, and 3) political disturbances which may affect production and trade conditions.

The main problems in the implementation of such a program are the financing of the acquisition and maintenance of the reserve stocks, and the provision of the required storage facilities. The financing for carrying these stocks must be met from direct government allocation, because the operating margins of the stabilization agency are generally insufficient to be able to face these new costs.

Stabilization Reserves

Fluctuations in prices can be reduced by a storage or reserve program, that is, by storing part of the produced crops in periods of low prices and releasing stocks in periods of high prices.

Johnson⁴ states that a storage program implies that, when the present crop is above average, the market price should be lower than when the crop is below average. The difference between the two prices should be approximately equal to the net marginal cost of storage. The target or minimum price policy to provide the appropriate amount of storage involves two prices. The lower price is the purchase price which would be required if stocks were to be increased. The higher price is the selling price at which stocks would be decreased.

The size of the reserve needed to obtain price stability depends on the fluctuations of demand and production as well as the elasticity of supply and demand curves, according to Tomek and Robinson.⁵ Therefore, substantial stocks will be needed to keep prices within the desired range, if production and demand are highly unstable. Hence, the range over which prices are set up will depend on decisions made with respect to purchase and selling prices. The narrower the price band, the larger are the amounts needed to hold prices within the desired range. If prices are to be kept within a range that is insufficient to finance the storage costs, subsidies will be necessary to compensate the stabilization agency.

Johnson⁴ specifies that the margin in the price of grains would not always be the same and that the relationship between prices and the estimated equilibrium price at which the expected crop would be consumed, would not be the same at all times. Further, he states that:

When existing stocks are large, the buying price would be lowered relative to the expected equilibrium price. If existing stocks are small the buying and selling prices would be close together with the buying price very near to the equilibrium price. In this way the change in the marginal cost of storage which depends on the size of stocks would be reflected in market prices, and the appropriate adjustments made in future consumption. This procedure would not result in complete price certainty, since the market price could fluctuate within a narrow range. However, given an economical storage program the range would probably not exceed 10 percent of the market price at any time.

Cochrane and Danin⁶ add that reducing variation more than that provided by a 10 percent margin will require very large stocks.

Keynes⁷ advocates buffer stocks for control of price fluctuations. His view is that stability of prices does not mean fixed prices, but prices which follow reasonably closely to the trend of demand and supply schedules.

Cochrane⁸ reports that the objective of a price stabilization policy through a reserve program cannot be the holding of grain prices to a fixed support level. He believes that a reasonable price level is one that fluctuates within a range in the domestic market acceptable to consumers and producers.

An important issue in storage programs is the size and cost of stocks. The size of a reserve depends on how much insurance is desired against risk, according to Trezise.⁹ The size of stabilization stocks is a function of four variables, asserts Nand and Houck:¹⁰ 1) frequency and size of fluctuations in production, 2) the limit set by the financial resources, 3) the ability to produce and store food grain, and 4) the extent of open market price fluctuations are to be permitted before stocks schemes are activated. The stabilization agency should consider the trend of consumption based on population growth and rising incomes as a consequence of economic growth.

Stock size and storage costs tend to vary considerably from year to year; therefore, financing arrangements should be made in flexible terms. In general, the costs of holding stocks will depend on the kind of product, the quantities of stocks, and the length of time that they are held. The major costs incurred are handling, quality maintenance, and the investment costs of warehouses and the grain stored. There appears to exist agreement that storage will not be financially profitable if stocks are large enough to accomplish its objectives.⁶ An FAO investigation concluded that the average carrying costs in government warehouses

could be between 10 to 15 percent per year of the value of the grain, i. e., a stock of 100,000 tons of grain valued at \$6 million would cost \$600,000 to \$1 million per year in storage charges.¹¹

It may be concluded that there are advantages and disadvantages in increasing the size of a grain reserve. The larger the stocks, the more difficult it is to manage and storage costs are also greater. The positive side is, that with a large stock, price fluctuations can be reduced greatly. On the other hand, the smaller the stock, the easier it is to manage, but the degree of price variability is greater, given fluctuations in production.

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STABILIZATION RESERVES IN DEVELOPING COUNTRIES

Government awareness of the need to improve the marketing of main food crops and reduce the seasonal and annual price fluctuations is steadily growing in developing countries.

However, the implementation of effective marketing improvements and price stabilization for basic grains imposes heavy demands on the resources of countries at an early stage of development. Mellor¹ indicates that the problems include lack of market information on existing channels and movements, lack of skilled and reliable personnel, and lack of adequate capital. Consequently, he points out that:

...there is danger that a price stabilization policy may serve more to get at the symptoms of disease and thereby direct attention from the real causal forces.

The typical marketing improvements and price stabilization programs introduced in developing countries have included establishment of a specialized autonomous public agency, equipped to purchase, sell, and hold stocks under its responsibility. The general procedure consists of maintaining seasonal stocks which have been purchased at a pre-announced price, thereby supporting the market during harvest time and after, when producers tend to sell their crops. Releases are made from these stocks at the pre-established selling prices during the shortage season, thereby tempering the seasonal increase in prices.

It has been considered that successful implementation of a stabilization stock program within existing trade structures depends greatly upon the organizational strength of the government and its executive administrative

agency, and the availability of qualified personnel, facilities and funds. Two basic factors need to be considered to make such projects viable. First, the import-export situation of the country for the products must be studied. That is, in order to achieve the desired influence on the domestic market, effective control over imports and exports of the products concerned is required. In certain cases an import-export monopoly is granted to these agencies. In some countries the agencies may only act in this respect as advisors to the government on the allocation of import-export quotas or other appropriate measures. Second, there should be a clear government recognition that the stabilizing agency must set its buying and selling prices according to practical economical criteria and may still need some additional support to cover its assumption of "public" responsibilities toward the interests of producers and consumers.²

It could appear that a stabilizing agency with access to modern technology and sources of capital should be nearly self-supporting. However, this is not so. Robison and Tomek³ state that even when the public service costs are held within a reasonable range, agencies attempting such a role require some outside financial support.

On this matter, FAO⁴ has pointed out that, in order to help stabilizing agencies to balance their budget, governments should give them an opportunity to earn an extra margin on some complementary products which are bought mainly by higher income consumers, and this is what some South American countries do. The case of Colombia is cited where this nation obtains wheat on concessional terms from the United States and sells it on the domestic market at a profit. Gains from such operations are then used to cover deficits from holding producers and consumers prices of internal commodities to specific levels. In addition to that

argument, it is also stated that, even with such assistance, a stabilizing agency can only expect to balance its budget. Thereby, it cannot be required to pay a price above that which it can charge to consumers under normal operating costs. Similarly, it cannot be expected to sell to consumers at less than the producers prices plus the correspondent costs, unless it is subsidized.

Thus, unless a government is prepared to give substantial subsidies, there is no possibility of supporting prices to farmers and keeping low prices for consumers beyond economic levels.

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4. Food and Agriculture Organization, op cit.

STABILIZATION RESERVES: THE HONDURAS CASE

The Honduran Government has operated a price stabilization program for basic grains since 1957. The executive agency is the Honduran Institute for Agricultural Marketing (IHMA), which was created in 1978. IHMA was created to carry out the social functions of assuring reasonable prices to consumers, and providing incentives to producers of basic grains in order to achieve a degree of self-sufficiency for the country.

Setting minimum prices has been one of the main issues under the program. Each year before the planting season, a set of purchase and selling prices is established and announced for the forthcoming production.

IHMA has been operating with fixed buying and selling prices since its creation. It has been observed that its prices do not keep a close and proportional relationship with the actual market prices on determined periods.¹ As a result, IHMA has been unable to purchase grain in some occasions, due to the fact that it has exhausted either its storage capacity or its operating capital. The above situation is one of the consequences of setting purchase prices too high, as mentioned by Mellor. He argues that when the buying prices are set too low, stocks tend to become smaller and the agency will eventually be inefficient for lack of power over supply. On the other hand, if the minimum prices are set too high, then stocks will be continuously increased with a substantial direct cost to the agency and a further direct cost affecting the economic development of the nation through the change in the terms of trade from the non-agricultural sector to the agricultural sector.

As it is in most countries using these types of stabilization programs, IHMA's price levels have been heavily influenced by social and political

considerations, according to Hanrahan.² On this matter we find theory supporting this opinion. Mellor mentions that political pressures usually lead to setting prices too high. This can be done by consciously setting the support higher than the market would provide, or simply by pressing toward the upper limits due to imperfect ability to predict.

The inappropriate price band that IHMA has used, together with other factors such as the inadequate system of price differentials for quality, have produced high costs to this institution. In addition, there has been no systematic outside support which most of the time is required, as mentioned on page 21 of this report. Consequently, substantial operational losses have been incurred by IHMA since its creation.

Up to this point, this chapter has shown the internal causes and effects upon the administrative function of IHMA. Now, if we look at the role of this institution in society, the panorama is different.

The annual average grain production in the country is approximately 11.7 million quintals* of which corn represents 78 percent, beans and rice 7 percent each and sorghum 8 percent. It is estimated that the demand for consumption in terms of percentage is about 74 for corn, 94 for beans and rice, and 69 for sorghum. Thereby, with a storage capacity of 1.5 million quintals or 35 percent of the total capacity of the country, IHMA has purchased 4.4 million quintals, imported 400,000 and sold 4.5 million quintals in the domestic market during its first years of operations.¹ Besides this, there have been some grains exports about which available information was not found.

* 1 quintal = 100 lbs.

IHMA has established buying regulations according to its funds or credit available for purchases, its storage capacity, and its estimations of quantities required to influence market prices. Table I shows in detail such regulations, where the farmer's qualification depends upon whether he is a small producer or if he receives loans from BANADESA or technical assistance from MNR.

According to a FAO study,³ only a very few governments of developing countries attempt to buy the whole amount of a basic grain which is marketed. In that study it was found that purchased quantities have been 10 to 20 percent of the crop marketed in average years, with 14 to 15 percent as a common provisional target. In the case of Honduras, IHMA has been achieving its procurement volumes in these ranges most years, since its creation.

Total estimated benefits for the country were determined in a recent study prepared by IHMA/KSU Technical Mission.⁴ The estimated benefits, associated with the IHMA Marketing Plan for 1984-85, measured along the demand curves by net monthly injections and withdrawals gave a total of \$36.9 million. This includes about \$12.9 million to producers, \$20.9 million to consumers and \$3.1 million to grain processors. The monthly detail by type of grain (corn, beans, rice and grain sorghum) is shown in Table 2. From this data we can see that corn is the grain that gives the highest value and, in contrast, sorghum gives the lowest.

Broadly speaking, it has been regarded that IHMA has operated reasonably well in its policy of price stabilization, where the operative losses are mostly justified in terms of the social and economic benefits that IHMA has distributed to consumers and producers.¹

The previously mentioned Technical Mission of Kansas State University in Honduras has been working with IHMA for more than three years. During that

TABLE 1. IHMA's Buying Regulations, 1984/85.

Priority	Qualification	Maximum Quantities
FIRST	Persons/Groups with BANADESA * loans	Amount necessary to repay loan plus interest and 20% of remaining production
SECOND	Individuals receiving MNR** assistance without BANADESA loans	30 percent of production
THIRD	Small producers without loans or assistance	40 quintals

SOURCE: IHMA/KSU Technical Mission, IHMA's Strategy Simulation Model, Tegucigalpa, D. C., Honduras: 1984, p. 39.

* BANADESA: National Bank for Agricultural Development

** MNR: Ministry of Natural Resources

TABLE 2. Estimated Social Impact of IHMA, 1984-85 Season.

(\$ 1000)

MONTH	CORN	BEANS	RICE	SORGHUM	TOTAL
SEP	2334.3	379.8	402.6	59.2	3175.9
OCT	(481.4)	(506.1)	559.5	59.7	(368.3)
NOV	5627.4	(300.5)	(755.1)	(148.2)	4423.4
DEC	1030.2	185.4	(895.5)	(65.9)	254.2
JAN	(1077.3)	(309.4)	(190.3)	(25.8)	(1602.9)
FEB	(236.7)	(310.9)	399.0	100.8	(48.2)
MAR	1201.5	105.1	424.9	(21.8)	1710.3
APR	2062.4	188.8	694.2	125.8	3071.2
MAY	3119.9	676.8	697.5	218.2	4712.4
JUN	3512.3	1325.1	1513.5	266.6	6617.6
JUL	4172.6	1733.5	1594.8	403.7	7904.5
AUG	5053.8	459.8	1550.6	52.1	7116.3
TOTAL	26319.2	3627.3	5995.5	1024.4	36966.4

Source: IHMA/KSU Technical Mission, IHMA'S Strategy Simulation Model, Tegucigalpa, D. C., Honduras: 1984, Appendix C, Table 40.

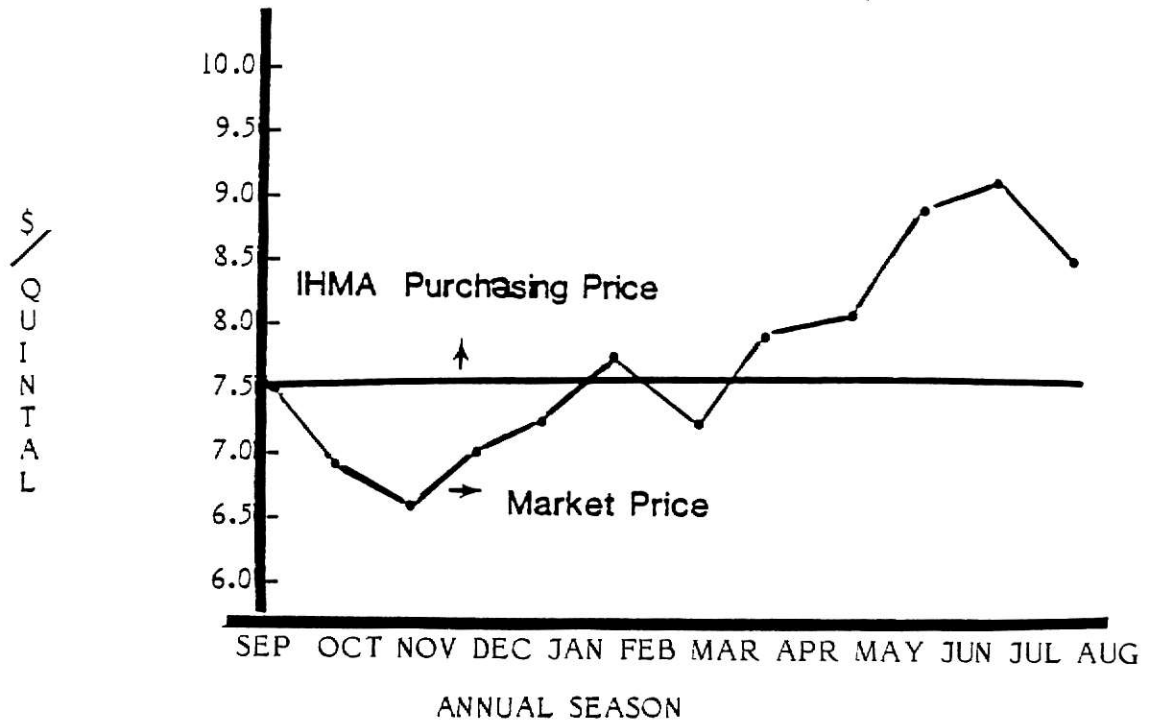
period some economic studies have been prepared which include various recommendations to the IHMA's administration. In one of the most relevant recommendations it was suggested that IHMA should conduct a new strategy in the policy of setting prices. That is, it should set "flexible" purchase and selling prices so that prices can be handled according to the existing market conditions. Thus, IHMA may increase its buying prices when the market prices are lower than the target level in order to encourage producers to sell to IHMA. On the other hand, when market prices are higher than targeted, IHMA may gradually decrease purchase prices and let farmers sell in the market. The IHMA's strategy may be the contrary in the case of sales. That is, increase or decrease the selling prices according to the behavior of prices in the market.

This new policy is in actuality a subject of analysis by IHMA's authorities in order to see if it is feasible under the administrative and economical condition of the institution. In Fig. 1 the behavior of market prices compared to IHMA buying prices under the fixed price system is shown. Fig. 2 shows the expected behavior under the new policy. In these two figures, a contrasting situation can be observed, whereas under present conditions there does not exist a close and proportional relationship between IHMA prices and market prices.

This new price policy is highly supported by the theoretical framework discussed in this report. The arguments of Keynes, Johnson and Cochrane are clear in this respect.⁵

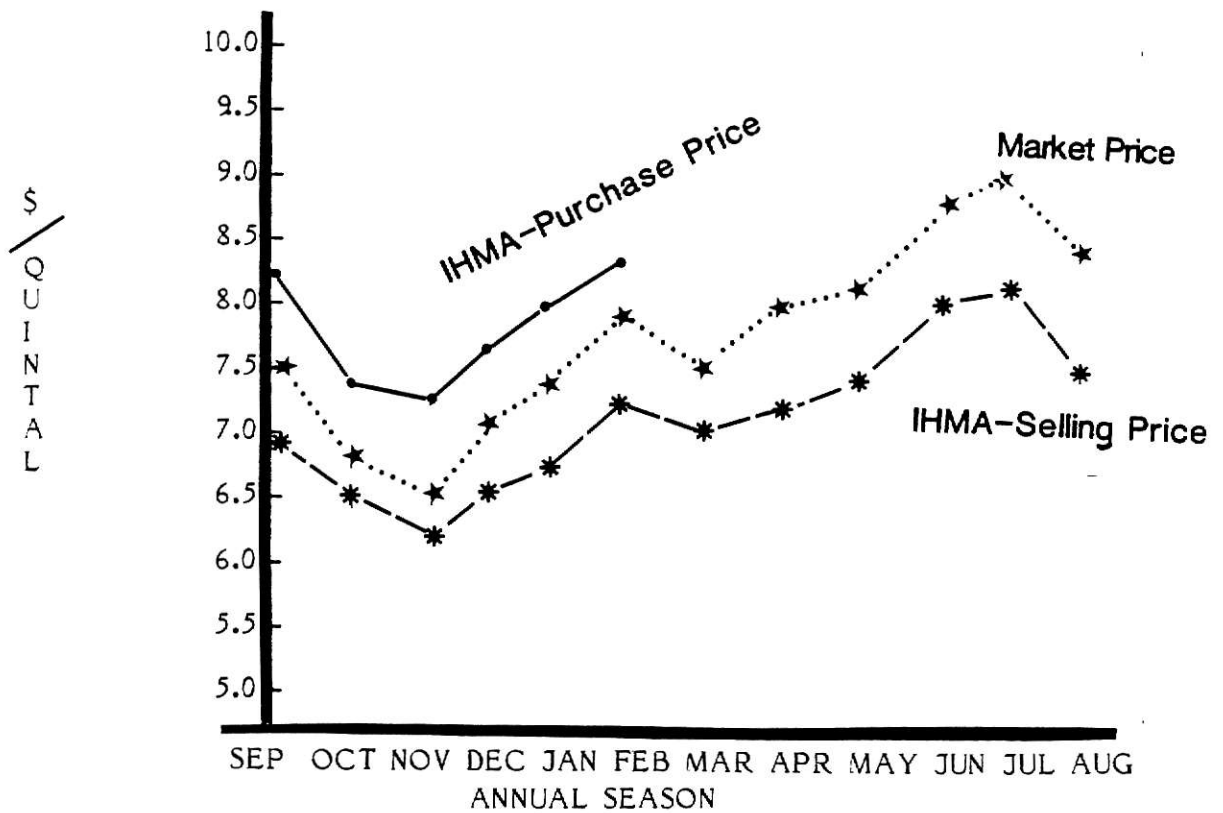
It can be expected, that with this new strategy, and the assumptions of improvement in the political issues, of a systematic governmental subsidy, and of solid participation by its personnel, IHMA can not only achieve fundamental benefits to society but also maintain its administrative and financial structure under a balanced budget.

FIGURE 1. Behavior of Market Prices Compared to IHMA Purchase Prices (1978/83 Season), under Current Fixed Price System.



SOURCE: IHMA/KSU, IHMA Institutional Diagnostic and New Operative Strategies, 1984-85, Tegucigalpa, D. C., Honduras: 1984.

FIGURE 2. Simulated Behavior of Market and IHMA Prices under Flexible Price System.



SOURCE: IHMA/KSU, IHMA Institutional Diagnostic and New Operative Strategies, 1984-85, Tegucigalpa, D. C., Honduras: 1984.

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5. This report, p. 17.

ECONOMIC BENEFITS OF PRICE STABILIZATION

The desirability of price stabilization from the standpoint of welfare has long been debated in economic literature. Government programs designed to stabilize the prices of agricultural commodities have stimulated economic analysis of welfare gains and losses of producers and consumers.

Utilizing the concept of consumer surplus, Waugh¹ demonstrated that consumers having a downward sloping demand curve gain from price fluctuations that originate from random supply shifts. In other words, consumers are made worse off if the price of a commodity is stabilized at the arithmetic mean of the variation. Samuelson² was replying to Waugh's theory when he said that:

Unless the system has an outside Santa Claus, we can now demonstrate that a closed system, when it goes from unstable prices average out to higher than the stable prices. So Waugh's theory can never feasibly be applied.

On the other hand, Oi³ showed that producers having an upward sloping supply curve gain from price fluctuations caused by random demand shift.

Massel⁴ generalized the analysis of Waugh and Oi within the framework of a linear demand-supply market model. He concluded that the total gains from stabilization are always positive from a global welfare standpoint. Therefore, consumers and producers are better off with price stability than with price instability.

The underlying assumption under Massel's conclusion is that the stock operation is costless. Obviously the economic costs of the stock operation need to be considered to arrive at estimated of net benefits.

According to a study prepared by Reutlinger and Bigman⁵, producers gain when a product is stored but they lose when a product is withdrawn from storage.

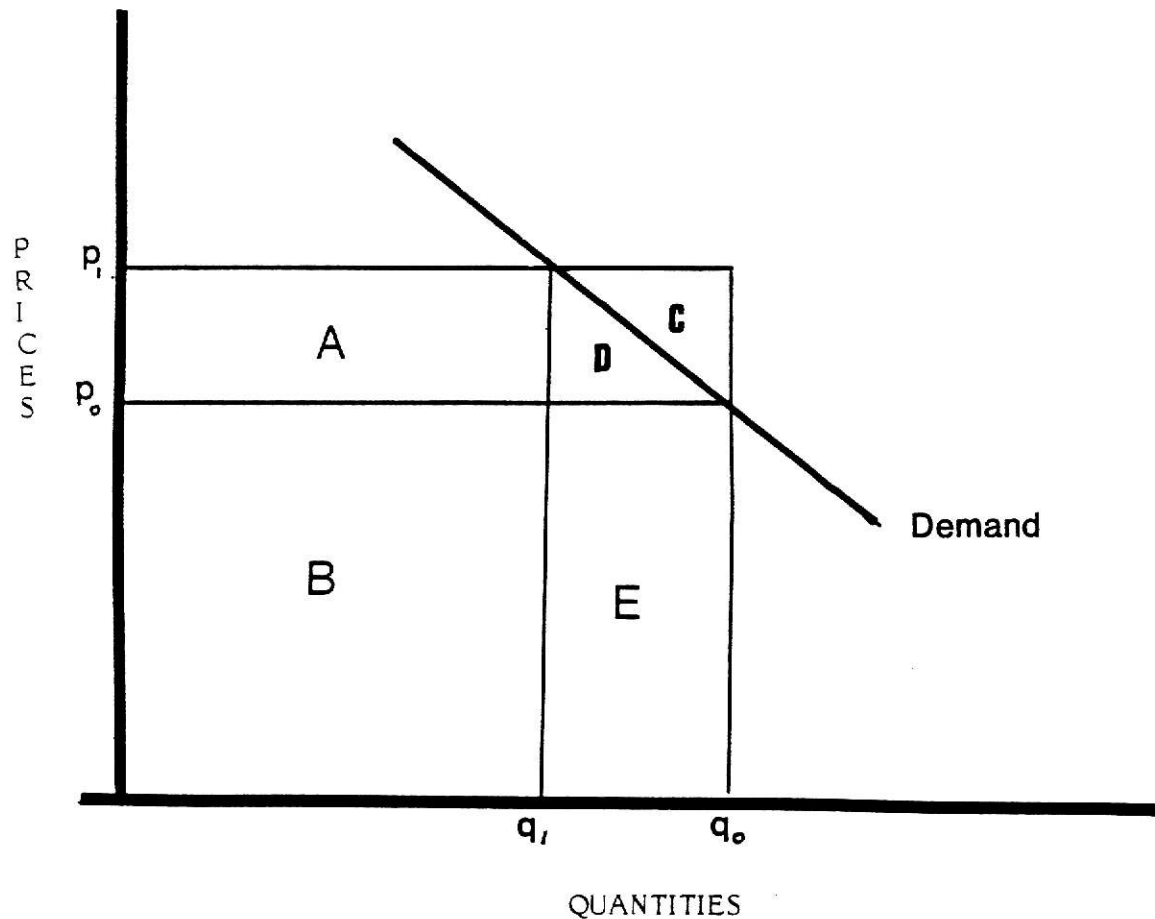
They also conclude that consumers gain when the domestic production is supplemented with that product from storage and they lose when the product is bought for storage. The results of the above conclusions were summarized by Corpus⁶ in various tables and graphs. Fig. 3 and 4 reproduce two of these illustrations.

In order to test whether or not grain price stabilization is desirable policy from the point of view of the United States, an empirical study was prepared by Konandreas and Schmitz.⁷ They conclude that U. S. producers and consumers taken together would benefit from feed grain price stabilization.

Basically stabilization programs are established in the interest of producers and consumers. It may be said that the benefits obtained tend not to be equal among each sector. In some instances, producers may benefit more than consumers and vice versa. The effects on welfare and on government costs of holding prices above equilibrium depend on several factors such as the price elasticity of demand and supply, the source of instability, the responsiveness of producers and consumers to stabilization programs, and the mechanism used to implement the program.

In developing countries, where limited resources are being allocated in survival and developmental programs, the question of who gains and who loses is important. However, it is even more important to determine whether total benefits from grain stabilization policies justify the costs of holding the needed stocks. Thus, empirical studies on this question are needed in order to identify and measure benefits and costs of price stabilization.

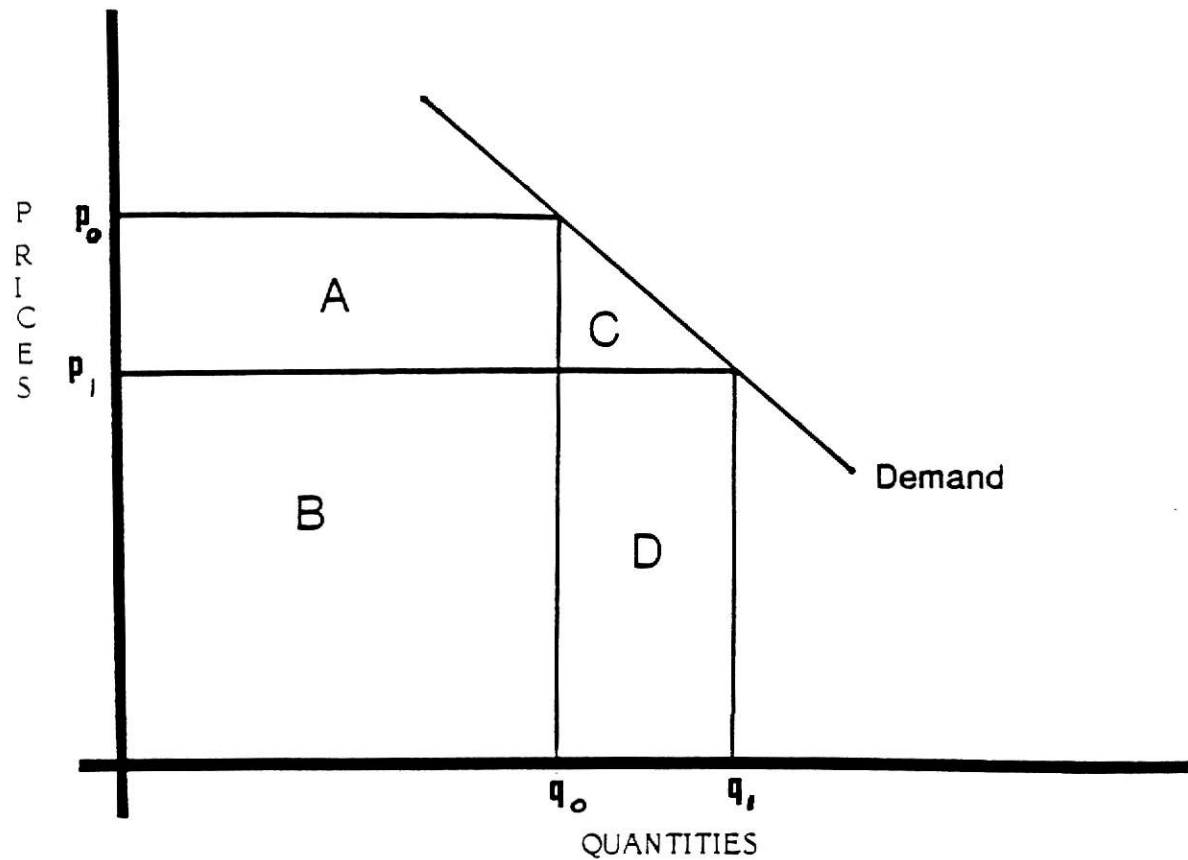
FIGURE 3. Gains and Losses when Grain is Stored



CONSUMER LOSS: $A + D$
 PRODUCER GAIN: $A + D + C$
 ECONOMIC LOSS: $D + E$

SOURCE: Reutlinger, S., and J. Bigman, "Should Developing Nations Carry Grain Reserves", illustrated by Marites S. Corpus in Grain Reserves: A Review of Literature, Master's Report, KSU: 1982, pp. 53-57.

FIGURE 4. Gains and Losses when Grain is Withdrawn from Storage.



CONSUMER GAIN: $A + C$
 PRODUCER LOSS: A
 ECONOMIC GAIN: $C + D$

SOURCE: Reutlinger, S., and J. Bigman, "Should Developing Nations Carry Grain Reserves", illustrated by Marites S. Corpus in Grain Reserves: A Review of Literature, Master's Report, KSU: 1982, pp. 53-57.

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ALTERNATIVE METHODS OF GOVERNMENT INTERVENTION

Special Reference to the United States Programs

In general terms, intervention in agriculture now takes many forms. Besides storage programs, other price policy techniques have been employed in recent years for safeguarding the interests of producers and consumers.

Price support, income support, export promotion, supply control, and some important restrictions such as tariffs and quotas are the most common. Nonetheless, most of these policies are used only in high-income countries. In this Chapter we will briefly discuss these measures with special reference to the United States.

Price Support

Price supports in the United States were made possible through the establishment of the Commodity Credit Corporation (CCC) in 1933. This program is intended to maintain farm prices at specified levels in times when supply exceeds demand or when reduced demand results in low prices. The two methods used to maintain commodity prices are nonrecourse loans and government purchases of commodities.¹

Nonrecourse Loans

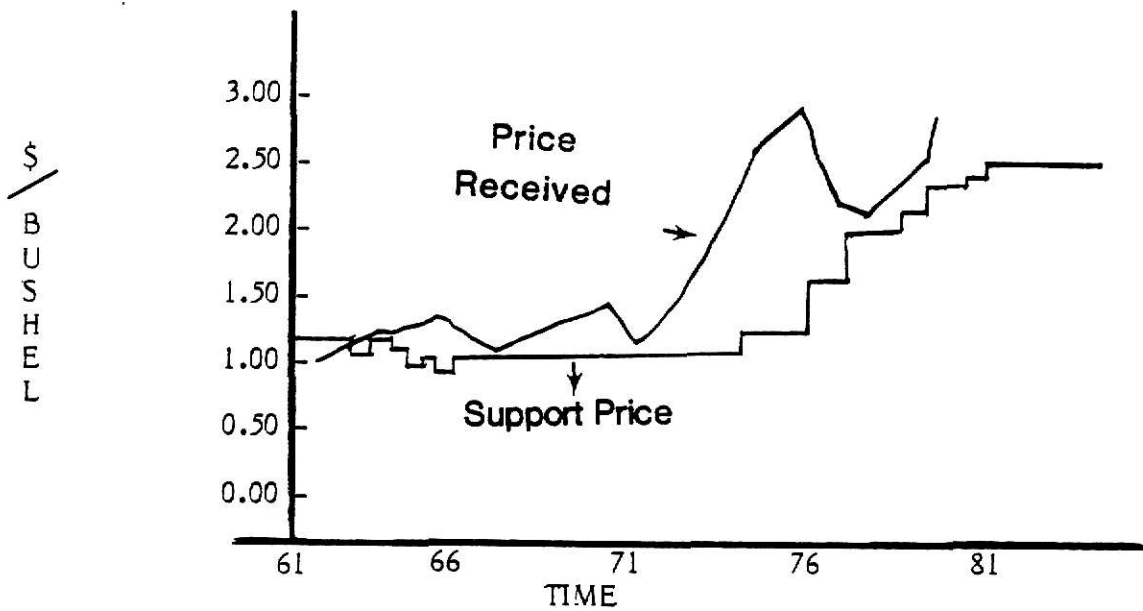
The loan program or post-harvest financing provides operating capital, and permits farmers to hold their commodities off the market and benefit from price increases that usually come later in the season after harvest. Although the program does not guarantee farmers profit, they are guaranteed a minimum price. The farmers may retain their products by paying off the loan with interest. The loans are nonrecourse because if a farmer cannot pay the loan before the

specified date, the CCC takes title to the stored commodity as payment for the loan. Thus, the farmer has the option to default on the loan if market prices do not become more favorable later in the marketing season. The nonrecourse loan program not only provides a source of credit to farmers who need financing, but also keeps prices stable for consumers. Farmers who comply with some measures, such as acreage allotment or marketing quotas, are eligible to obtain price-support loans on storable commodities (soybeans, wheat, corn, sorghum, rice, and cotton).²

The problem with this kind of program is that generally there exists considerable pressure to set price-support loan rates at high levels. The consequence is that the loan program becomes a substitute for market pricing and frequently it tends to build up a large inventory of stocks for the government. Hence, the government accumulates stocks when the high loan rate makes it more profitable for farmers to default on their nonrecourse loans rather than to place grains on the market. Consequently, the high inventory of stocks tends to damage the competitive position of the United States in the world market by moving United States prices above the world prices. Rather than being a competitive seller of farm products, the United States becomes a residual supplier after the stocks of other export countries are exhausted.³

Comparison of the loan rates for corn with the average prices received by the farmers during the 1961-81 period is shown in Figure 5.⁴ From this graph we can see that the market price most of the time has been higher than the support price. However, support price has been a solid guarantee to farmers. The price behavior for the other commodities included in the program is very similar to that shown in Figure 5.

FIGURE 5. Average Price of Corn Received Compared to Price-Support Loan Rates in the United States, 1961-81.



SOURCE: Peat Marwick Mitchel & Co., The Agricultural and Food Act of 1981, Goldberg Harvard Business School: 1982, p. 6.

Commodity Purchases

A second method of supporting commodity prices is through direct government purchases in the market. The United States government supports the price of dairy products under this procedure. The government may sell the surplus stocks only if they are in danger of damage or if the price rises above the purchase price by specified percentages.²

The economic effects of the price-support programs are shown in Figure 6. The more elastic the demand and supply schedules, the higher the costs to the government tend to be of keeping a given level of support. In addition, there will be losses for the government because of the management and storage of the commodities.⁵

Income Support

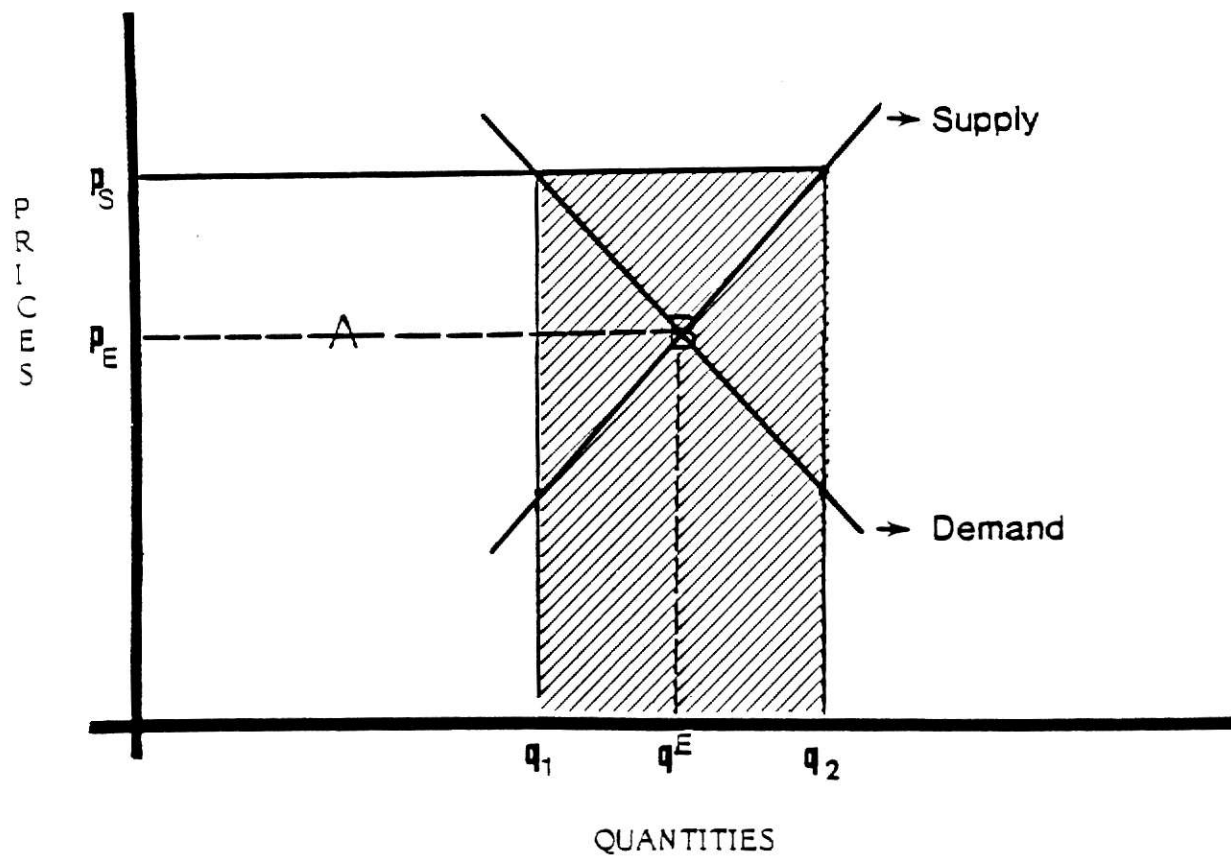
The federal government also supports farm income by making direct payments to farmers. Three types of direct payments are commonly used: price deficiency payments, incentive payments and disaster payments. Here we will discuss deficiency payments which are the most relevant to our topic.

Deficiency Payments

Deficiency payments are direct government payments to producers when the average price received by farmers falls below target price levels. Target prices were established in 1973 in order to support and to stabilize farm incomes without having a significant impact on markets.¹

When market prices are low, participating farmers receive a payment at a rate equal to the difference between the target price and the average market price or the loan level, whichever is higher, for their crops.⁴ In Figure 7 we can see the relationship between price-support loan rates and target prices of corn

FIGURE 6. Economic Effects of the Price-Support Programs



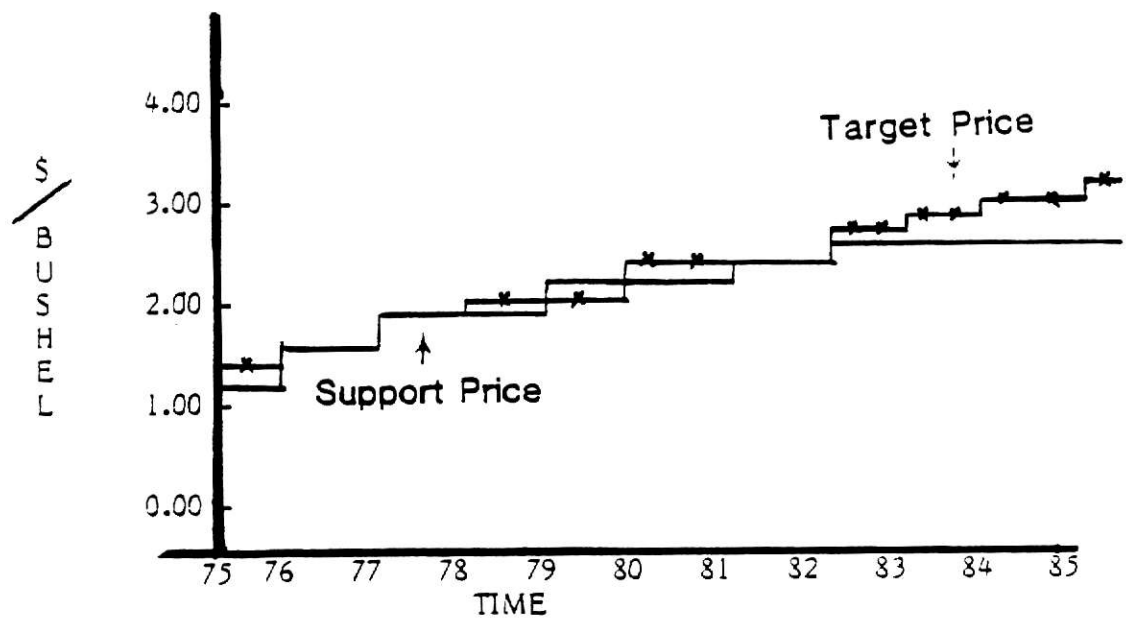
GOVERNMENT PURCHASES: $(q_2 - q_1) P_S = \text{area B}$

CONSUMER PURCHASES: $(q_1) P_S = \text{area A}$

PRODUCER REVENUE: $(q_2) P_S = \text{area A} + \text{B}$

SOURCE: Robinson and Tomek, op cit., p. 287.

FIGURE 7. Price-support loan rates of corn compared with its target price.
in the U.S., 1975-1985



SOURCE: Peat Marwick Mitchel & Co., op cit., p. 10.

for the 1975-85 period, where the difference between the two is the maximum payment rate that can be paid to farmers. Sometimes, not all farmers receive the target price. In years of oversupply, the government has required a farmer to reduce his acreage by a certain amount (usually 10 percent) in order to be eligible for deficiency payments.

This system is designed to moderate the effects on producers of short-run fluctuations, while avoiding the problem inherent in government purchases or in maintaining high loan rates. Thus storage, handling, and disposal problems are eliminated and consumers benefit from increased supplies of commodities and lower market prices; however, some families will pay more in taxes.⁶

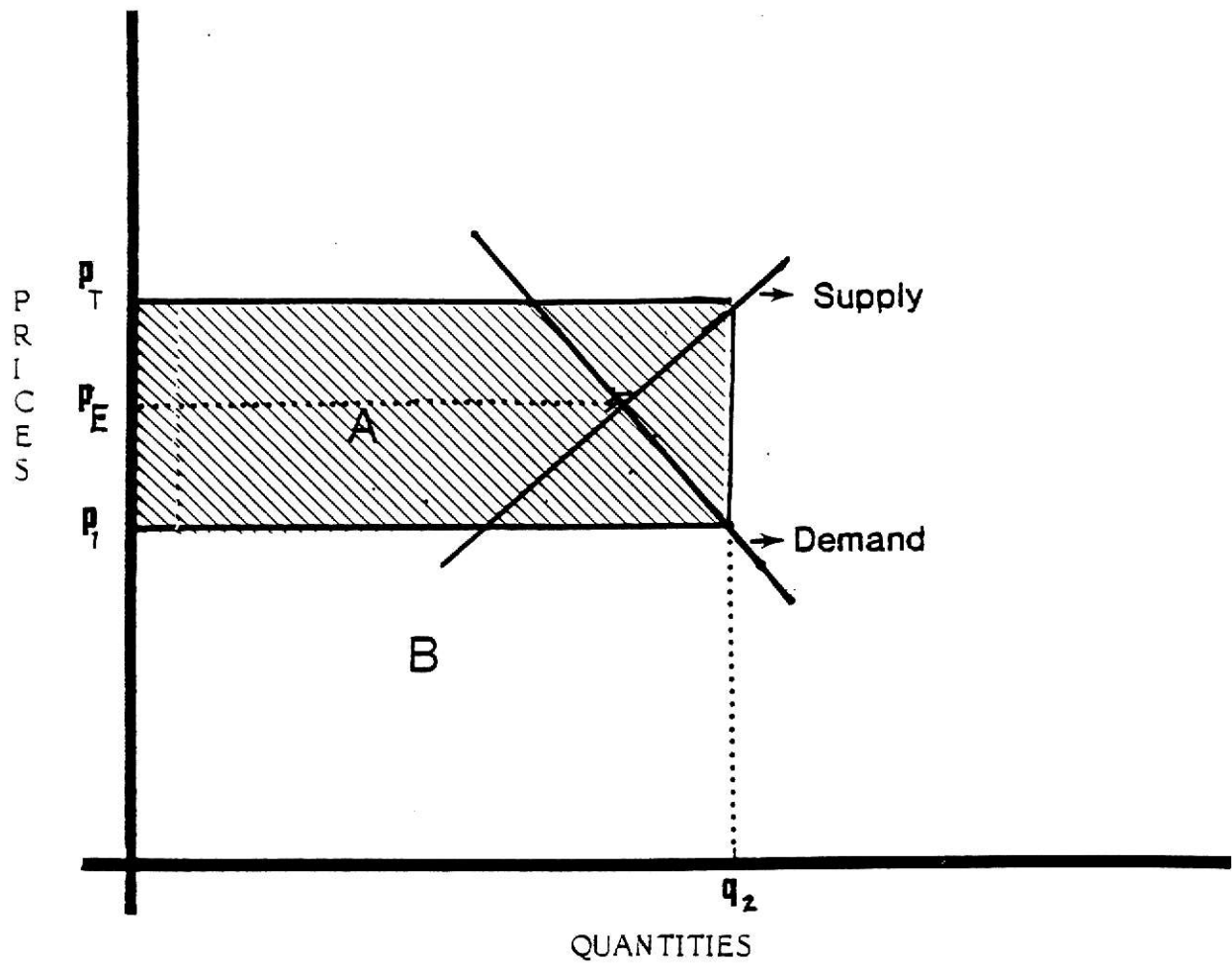
The economic effects of this program are shown in Figure 8. Here again the slopes of the demand and supply curves are critical in determining the cost of government prices above equilibrium by making deficiency payments to farmers. For example, government costs will be higher if the demand curve is relatively steep and the supply curve is relatively flat because the gap between the two prices is relatively large. In order to avoid too high payments to large farmers, the government has established a ceiling for the amounts of money that can be paid to individual producers.⁵

In short direct purchases are relatively "cheaper" when supply and demand are inelastic—deficiency payments are relatively "cheaper" when supply and demand are elastic.

Export Promotion

Export subsidies have been employed most often by relatively high income countries. In the United States agricultural exports, mainly of rice and wheat, have been substantially subsidized. The United States agricultural trade is carried out by private individual firms but, in order to remain competitive in the

FIGURE: 8. Economic effects of the deficiency payments program



GOVERNMENT PAYMENTS: $(P_t - P_1) q_2 = \text{area A}$

CONSUMERS PAYMENTS: $(P_1) q_2 = \text{area B}$

PRODUCERS REVENUE: $(P_t) q_2 = \text{area A} + B$

SOURCE: Robinson and Tomek, op cit., p. 292.

international market, the United States government assists exports through export promotions.⁷ The economic effect of this program is shown in Figure 9 where the shape of the demand and supply curves are the main determinants of the results.

Export subsidies are considered by other exporting countries to be an unfair form of competition, especially by those countries that do not have enough financial resources to compete with the United States.⁵

Supply Controls

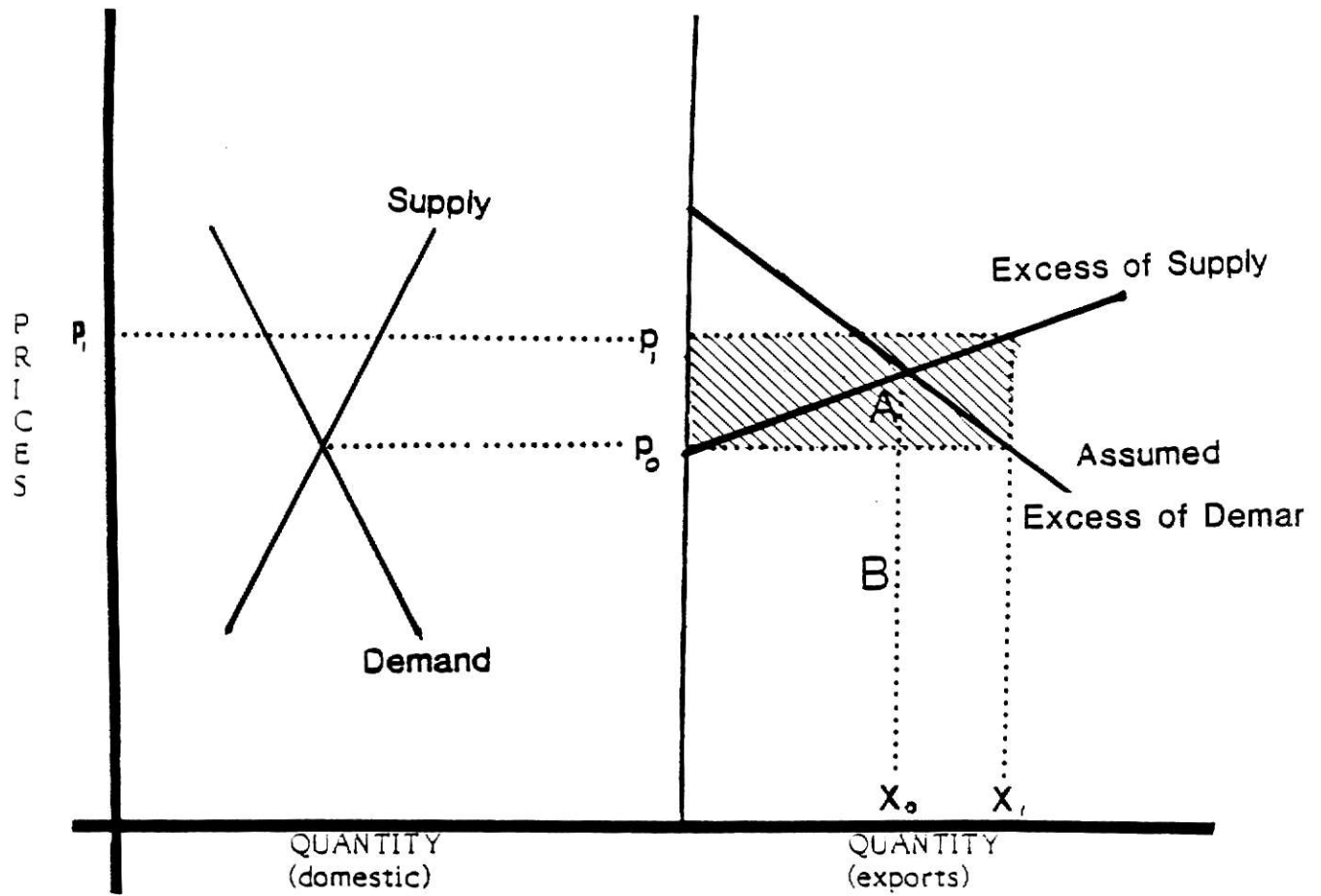
For supply control the United States government has various sub-programs to influence the supply of farm products on the market. These have included acreage allotment, marketing quotas and others. These kinds of programs are not common in developing countries, which instead try to increase production.

Farmers benefit from reducing the output of a commodity only if the demand for that product is price inelastic. In the short run, the demand for most of the major crops produced in the United States is sufficiently inelastic so that returns to farmers have been increased by reducing production. With this program the government attempts to hold down the cost of price supports and direct payments.³

Tariffs and Quotas

Finally, we will refer to some government restrictions used to limit imports. This kind of policy tends to be very common in developing countries which attempt to protect internal producers when it is considered necessary. Thus, if a country produces less of any commodity than it consumes, internal prices can be maintained above import prices simply by imposing tariffs or by restricting imports through quotas, thereby encouraging domestic production and reducing the market for potential exporting nations.⁸ The flatter the slopes of supply and demand

FIGURE 9. Economic effects of export subsidy programs.



GOVERNMENT SUBSIDY: $(P_1 - P_0) X_1 = \text{area A}$

IMPORTER PAYMENT: $(P_0) X_1 = \text{area B} +$

EXPORTER REVENUE: $(P_1) X_1 = \text{area A} + \text{B}$

INCREASE IN EXPORTS: $(X_1 - X_0)$

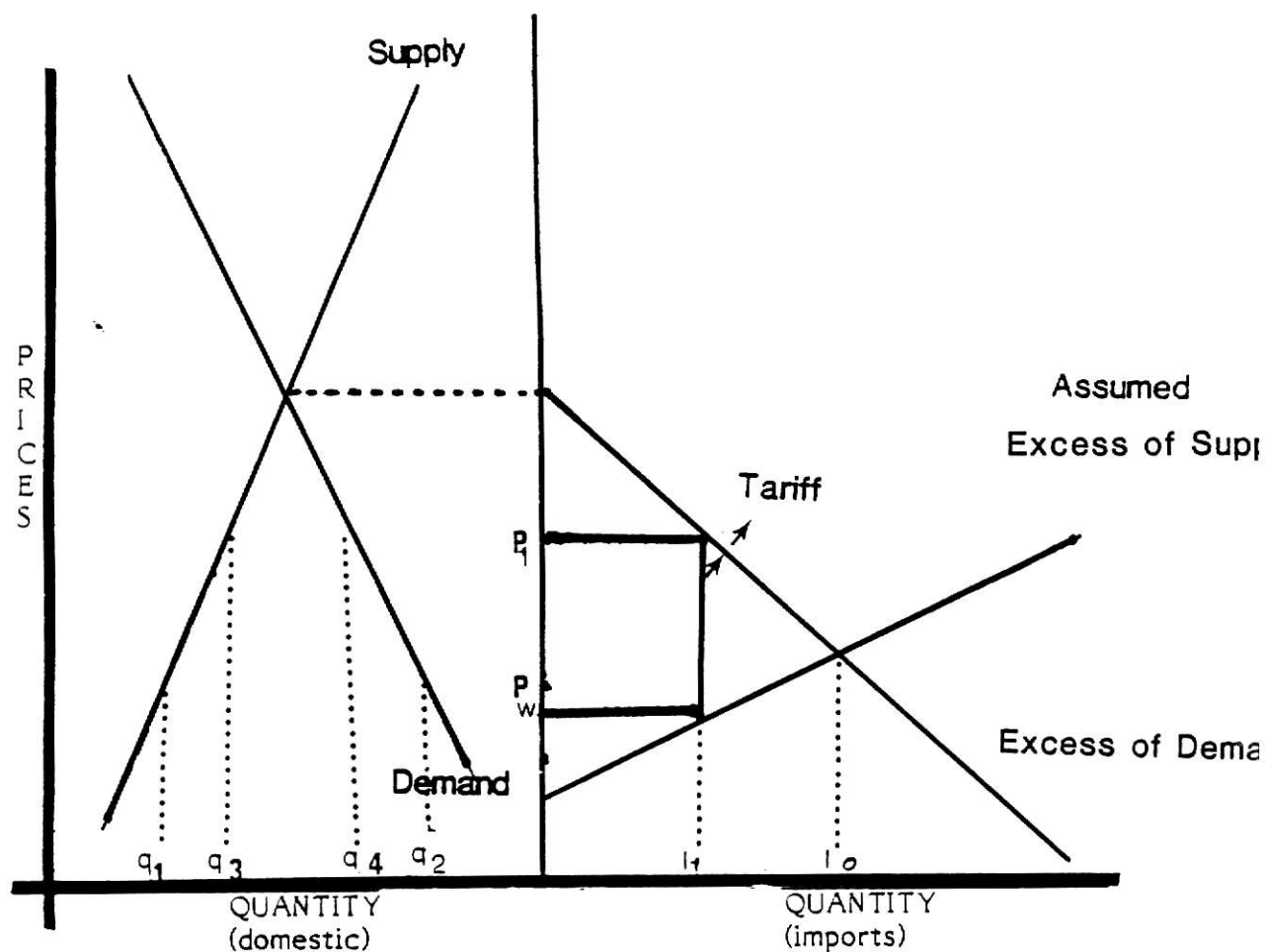
SOURCE: Notes of Agricultural Marketing Class (AGEC 805), Spring Semester, 1985.

curves, the more production will be increased and consumption reduced if a tariff is imposed. See Figure 10 for details of this type of governmental policy.

Where large quantities are imported, tariffs have the additional advantage of creating a source of government revenue. Consumers pay the the full cost of supporting agriculture if this is done through the use of tariffs.⁵

The same effect on prices as shown in the tariff case can be obtained simply by restricting imports by means of a quota, with the difference that the government will not obtain revenues. By restricting imports in this way, purchases can be distributed selectively to preferred suppliers. The allocation of such rights is likely to become a sensitive political issue since it tends to discriminate among suppliers. This fact is some times observed in the trade of the United States with Latin American countries for some products like sugar, coffee, bananas, beef, etc.

FIGURE 10. Economic effects of tariffs.



IMPORT REDUCTION: $I_0 - I_1$

PRODUCTION INCREASE: $q_3 - q_1$

CONSUMPTION REDUCTION: $q_2 - q_4$

IMPORTER'S PAYMENT TO EXPORTER: $(P_w) I_1$

IMPORTER'S PAYMENT TO GOVERNMENT: $(P_1 - P_w) I_1$

SOURCE: Notes of Agricultural Marketing Class (AGEC 805), Spring Semester, 1985.

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CONCLUSION

Stabilization of food-supplies and prices has continued to be an important concern of governments in most countries. Price policy programs have focused on providing adequate and reasonably priced food-grains to consumers while maintaining prices at profitable levels for numerous small producers.

The absence of economic incentives to farmers to produce more food for domestic consumption, and the effects of widely fluctuating price levels on social well-being and political stability are the major reasons governments seek effective intervention in this matter. Thus, most Asian, Latin American and African governments have believed it necessary to set up some market stabilization mechanisms. Grain stabilization reserves have been the most important. The feasibility of instituting and maintaining stocks in most developing countries is likely to depend very much upon the availability of assistance in financing the purchase and management of such stocks. Thus, even when the public service burden remains within acceptable limits, the stabilization institution usually requires some outside financial support.

Other alternative methods of government intervention such as price support and income support are workable in industrial countries. In developing countries this is not possible because in the early period of industrialization there is some transfer of resources from agriculture in order to finance other sectors. Policies for the transfer of resources from non-agriculture sectors to agriculture would be against the interest of economic development, particularly in this early stage of transition. In the United States these types of programs have been used successfully to transfer income from the non-farm sectors of the economy to

agriculture. However, although the government will continue to support and stabilize commodity prices and producer incomes, the trend seems to be toward greater reliance on the market and less reliance on government intervention in agriculture.

In terms of welfare, it can be concluded that consumers and producers benefit with price stability. However, most of the studies here mentioned are based on theoretical frameworks. They usually employed partial equilibrium analysis, assumed perfectly competitive markets, and assumed costless storage. Since the gains and losses from price stabilization depend on several factors, such as source and magnitude of the instability, the welfare consequences from price stabilization for an individual country can only be determined ultimately in an empirical framework. The benefits and costs of a stabilization policy should be identified and evaluated, and the conditions that make price stabilization desirable should be derived and tested.

GOVERNMENT PARTICIPATION IN PRICING
FARM PRODUCTS

by

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B. S., National Autonomous University of Honduras, 1982

AN ABSTRACT OF A MASTER'S REPORT

Submitted in partial fulfillment of the
requirements for the degree
MASTER OF SCIENCE

Department of Agricultural Economics
Kansas State University
Manhattan, Kansas

1985

ABSTRACT

This report was undertaken to discuss the role of government in pricing agricultural products, with special emphasis on storable commodities.

The focus of this report has been based on the fact that the price problems in agriculture involve three important policy questions. First, is there any basis for governmental intervention to improve the functioning of agricultural prices as an allocating mechanism of both resources and income? Second, which types of policies or actions seem most likely to provide success in improving the functioning of the price system? And third, how should government policies be introduced?

According to the reviewed literature, governments generally intervene in pricing farm products to achieve various specific objectives which are of particular interest to individuals and of general concern to governments in order to adequately direct the economic process of their countries. In terms of welfare, it is reported that consumers and producers benefit from price stabilization programs. However, the degree of this benefit is an issue that theoretically and empirically has not been clearly determined. This is because of various circumstances such as the source and magnitude of stability, the behavior of supply and demand, the type of governmental programs, and in general the political, social, and economical conditions of each country.

Some general principles of agricultural price policy are briefly mentioned. Further, the most common methods used by governments to stabilize prices of farm products are discussed. Emphasis is given to the storage programs in developing countries, with special reference to the Honduran case. Other

alternative methods are discussed with special attention given to their application in the United States.

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