DEMAND CHARACTERISTICS FOR PEANUTS AND THE

IMPACT OF A DIRECT PRICE SUPPORT PROGRAM

ON FARM INCOME, GOVERNMENT COST,

AND PEANUT CONSUMPTION

By

INBUM SONG

Bachelor of Science
University of Maryland
College Park, Maryland
1962

Master of Science
University of Maryland
College Park, Maryland
1965

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
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Thesis Approved:

John R. Franzmann
Thesis Adviser

Vernon R. Eidman

Robert D. Morrison

Larkin Warner

D. Durham
Dean of the Graduate College

763666

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CHAPTER I

INTRODUCTION

General Problem Area

The total value of field and seed crops produced in the United

States in 1950 was 12.279 billion dollars[1] and the total value of major

oilseed crops was 1.449 billion dollars.[2] During the same year, the

total value of peanut production was roughly 222 million dollars or

about 1.8 percent of total field and seed crop production, and slightly

less than 15 percent of major oilseed crop production. Since World War

II, these percentages have been declining but peanuts account for over

ten percent of major oilseed crop production today.

Although the value of peanut production comprises a small percent-

age of total field and seed crop production, peanuts comprise nearly

one-tenth of the value of major oilseed crop production today and have

occupied a prominent place in the U.S. farm commodity programs. Govern-

ment expenditures on peanut programs totaled 19.7 million dollars in

1950 and 31.4 million dollars in 1967. The justification for the

United States peanut programs over the past three and one-half decades

is manifold but is based on two main reasons: (1) peanuts are an

important source of vegetable oil used for human consumption and in the

manufacture of war munitions and (2) peanut production has become the

principle source of income to certain areas of the Southeast and

Southwest.

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The problems related to peanuts may be better viewed from the historical perspective. The outbreak of World War II resulted in a shortage of vegetable oils throughout the western world and the peanut program was merged with other programs in the general effort to increase oilseed production. Therefore, producers were encouraged to expand production when price supports were initiated and various prewar measures designed to limit production were lifted. With the ending of the war, the demand related to war needs diminished and the need for peanuts decreased. Thus, the restrictive measures limiting peanut output were restored. However, peanut production trended upward, mainly due to the increased yields, creating a surplus of peanuts.

In view of the fact that peanut output was expanded by government inducement; that producers were unable to adjust independently; that producers are concentrated in certain geographical areas; that the surplus of peanuts would result in an economic hardship to these local economies; and that profitable alternative crops which were not already included in the commodity programs were lacking, the federal government initiated a program to purchase surplus peanuts at the support price level. The objectives of the commodity programs related to peanuts were to maintain the economic well-being of the many farmers affected and to purchase time for those affected to adjust their operations.

Government expenditures related to direct peanut price support programs excluding the costs of administering the programs and of indirect price support programs were over 434 million dollars during the period 1947-1970. The cost of price support programs since 1960 alone amounts to more than 275 million dollars. On the basis of projections of surplus peanuts to be acquired during the period 1967-1971;

the average loss experienced in the past on peanuts acquired; and the
1967 support price level, the losses under the existing peanut price
support program during the 5-year period are estimated to be about 250
million dollars.

The increased expenditures of the federal government on programs
related to farm commodities including peanuts have aroused the concern
of several economic groups. Taxpayers have complained of the high
government costs and, thus, higher tax burdens. Processors of peanut
products have criticized the price support program as doing a greater
disservice to the consumer than the benefits rendered to the grower.
In the long-run the price support may defeat its own objective unless
the demand for peanuts and peanut products is inelastic and the consumer
reaction to a higher price is not great.

Consumers want low prices for peanuts and peanut products. They
criticize the price support program as an arbitrary factor which is
responsible for higher prices for peanuts and their products.[3] The
arbitrary price support increases the cost to processors of peanut pro-
ducts and the cost will be passed on, in part, to consumers.[4] The end
result of the price support program might be higher consumer prices for
peanuts and their products and a somewhat decreased level of peanut
consumption.

Peanut producers themselves dislike a price support program that
is accompanied by production controls and marketing quotas. They pre-
fer to have more freedom in decisions concerning the production and
marketing of their product.

When the interests of so many groups concerned with commodity pro-
grams for peanuts are so diverse, it is most difficult to find a single

criterion for evaluating the past and current programs and for proposing
an equitable future program. Thus, past studies of commodity program
alternatives have emphasized the implications in terms of farm income,
consumer food costs, total treasury costs, net farm income per dollar
of U. S. treasury cost, or individual freedom for decision making. The
difficulty with these program alternatives is that, when any one of
them is pursued rigorously, the result would be to protect the interests
of only a particular group. However, in an economy where the consumer
satisfaction is the ultimate goal, modern economic theory offers an
approach to the choice of program alternatives based on demand charac-
teristics.

In considering the ever increasing government expenditures on pea-
nut programs and the sentiments of taxpayers, consumers, peanut pro-
cessors, and peanut farmers, the purpose of this study is to conduct a
study of demand characteristics of peanuts. The results of this study
will provide a basis for evaluating past commodity programs and dis-
cussing alternative commodity programs for the future.

The influence of price changes upon the government support cost,
consumption, and farm income depends partly upon the demand character-
istics for peanuts and their products. Given a reasonable income level
to be maintained, a higher price support level does not necessarily
mean a higher government cost if the demand for peanuts at farm level
is perfectly inelastic; a higher price for peanuts will not necessarily
bring a higher income for peanut farms if the demand for peanuts is very
elastic; and, often, a price increase does not necessarily result in
the lower consumption of peanuts if the demand for peanuts is perfectly
inelastic. The specification and quantification of the nature of

demand are the key for understanding and predicting the influence of a
policy upon government costs, consumption, and farm income.

Objectives of the Study

One of the two major objectives of this study is to identify and
measure the primary economic forces which affect consumption and farm
prices of edible peanuts and of non-edible peanuts at the farm level in
the United States. Alternative economic and statistical models are
presented to determine the numerical coefficients for (1) price and
income elasticities for both edible and non-edible peanuts, and (2) the
cross-elasticities of their major competing nuts where possible.

The other major objective is to evaluate the past and current pea-
nut programs and to determine the possible impact of future policy
alternatives upon farm income, direct government costs, and consumption.
This objective will be achieved by applying the results obtained in the
analysis of the first objective. Specifically, the impact of alterna-
tive support price levels upon the cost of government programs, upon
farm income, and upon peanut consumption will be analyzed.

Review of Related Research

Past studies designed to measure the demand characteristics for
peanuts and peanut products have been rare. Only three studies are
known to have been conducted in this area. In chronological order,
they are (1) by Banna and his associates, (2) by Reagan, and (3) by
Badger and Plaxico.

Banna and his associates have discussed the major factors that
affect peanut consumption in two major alternative uses -- cleaned

peanuts and shelled peanuts.[5] In explaining the annual variation in

cleaned peanut consumption, the average price of cleaned peanuts, per

capita disposable income, and time were used as the explanatory vari-

ables. The three explanatory variables used were: the average price

of cleaned peanuts, per capita disposable personal income, and time,

taking the crop year 1920 at zero so that the crop year 1950 was equal

to 30. The three explanatory variables accounted for 86 percent of the

variation in consumption of cleaned peanuts during the 1920-50 period.

The price and income elasticities of demand for cleaned peanuts were

estimated at -0.282 and 0.611, respectively.

In explaining the variation in shelled peanut consumption, Banna

and his associates used the price per pound of shelled peanuts, per

capita disposable personal income, time, and the price per pound of

sugar as explanatory variables. These four variables explained about

90 percent of the variation in the consumption of shelled peanuts during

the crop years 1920 through 1950. The price and income elasticities of

demand for shelled peanuts were -0.380 and 0.443, respectively. The

cross elasticity of demand for shelled peanuts with respect to the

price of sugar was estimated at 0.2. This means that a change of one

percent in the price of sugar would, on the average, result in a change

in the same direction of 0.2 percent in the shelled peanut consumption.

The study made by Banna and his associates covers the period from

1920 through 1950. The greater portion of their study is based on the

data which covers 1920 through 1940 prior to the outbreak of World War

II. Although their work is the most comprehensive of the three studies

cited, its value in evaluating present day commodity programs is

thought to be nil for several reasons. First, the pattern of peanut

consumption has changed; that is, cleaned and roasted peanuts appear to be less popular today than prior to World War II. Next, peanuts were traded without price support in most of the years the study covered; and finally, the prices of peanuts used in the study were not national data but the data existing at only a few major terminal markets.

Reagan estimated the demand for peanuts for edible uses and for crushing uses during the 1934-50 period excluding the war years 1941 and 1945 because of abnormal demand caused by the war.[6] His demand analysis for peanuts was conducted to lay a groundwork for an economic evaluation of peanut price support programs. Reagan estimated the demand for peanuts for edible uses and for crushing separately, because under the price support programs the markets for these two uses are separated. In estimating the demand characteristics for edible peanuts, annual per capita consumption was considered to depend upon the price per pound of edible peanuts and per capita disposable personal income. These two variables explained only 32 percent of the variation in edible peanut consumption. The price and income elasticities of demand for edible peanuts were estimated at -0.46 and 0.66 respectively.

In explaining the price-quantity relationship of peanuts for crushing uses, the price of peanuts for crushing uses was considered as the dependent variable and the price of cottonseed and the quantity of peanuts used for crushing as independent variables. These two variables explained only three percent of the variation in the price of peanuts for crushing. Reagan reported the estimate of price elasticity of demand for peanuts for crushing as -18.0.

Reagan's work could have been useful for discussing the present day commodity programs if his study covered the period from 1950 to

present. The low percentage of the variation of both edible and non-edible peanuts consumed, accounted for by the explanatory variables included in his study, is believed to be due to the lack of data.

At the time of his study, the price support program had existed for only a few years and the study was weakened by inadequate data. Although Reagan estimated the impact of the price support program upon farm income and consumption, the method employed needed a further refinement. However, Reagan's study contained several useful hints for further study. In this respect, this author owes a great deal to Reagan's work.

Badger and Plaxico estimated the consumption of peanuts for edible uses at the wholesale level and at the farm level for the period of 1920 through 1956.[7] Badger and Plaxico explained the consumption of peanuts for edible uses at the wholesale level using the price of peanuts, consumer disposable income, marketing charges, and the price of cashew nuts, a competing product. They reported that the estimates for price elasticity ranged from -0.22 to -0.33 and that the estimates for income elasticity ranged from a low of 0.73 to a high of 1.27 at the wholesale level. The coefficient of determination, R^2, ranged from 0.62 to 0.90.

At the farm level, the consumption of peanuts for edible uses excluding peanuts for crushing uses were explained by time, the price of peanuts at the farm level, consumer disposable income, market charges, and the price of cottonseed. Badger and Plaxico reported that the demand for peanuts was more elastic with respect to price at the farm level than at the wholesale level ranging from 0.28 to 0.43.[8] The income elasticity of demand ranged from a low of 0.39 to a high of 1.25.

When peanuts for crushing were included, the elasticity of price nearly doubled ranging from a low of 0.70 to a high of 0.87.

Badger and Plaxico's work did not cover the implication of their findings to peanut producers, processors, consumers, and government. Although the period which their study included covers many of the years in which the price support program existed and the markets for peanuts for edible uses and for crushing uses were separated under the price support program, the demand for peanuts for crushing uses was not carried out separately.

The statistical methods used for estimating demand functions in all three works were least-squares multiple regression analysis using market statistics. All three works employed a power function as the mathematical form of equation.

Several other works which have some minor relevance to the demand for peanuts were made at several Experiment Stations.[9] These studies deal with the various aspects of peanut marketing which are useful in the analysis of demand for peanuts. However, their importance for this study is not significant.

Outline of the Presentation

In this introductory chapter the problem area has been described and specific objectives of the study have been delineated. In addition, several past studies designed to measure the demand characteristics for peanuts and peanut products were reviewed.

The demand characteristics for peanuts and their products are an extremely complex set of technical, economic, and institutional relationships. Therefore, Chapter II is devoted to (1) summarizing the

information on the production and consumption of peanuts and their pro-
ducts in the world and in the United States in order to interpret the
significant changes in the factors believed to influence the peanut
economy in the United States; (2) reviewing the legal institutions
related to the peanut economy and the federal programs which affect the
peanut industry; and (3) surveying the peanut marketing system in the
United States with particular regard to its structure, conduct, and
performance.

Following the descriptive aspects of the peanut industry, Chapter
III presents the related economic theory and general statistical models
for demand for peanuts. In Chapter IV, the related economic theory
and the general statistical models discussed in Chapter III are applied
to derive the empirical demand relationships for peanuts and for edible
uses as well as for crushing uses.

Chapter V discusses the impact of past price support programs upon
farm income, upon government cost, and upon the consumption of peanuts.
In addition, the demand characteristics for peanuts are used to esti-
mate the impact of a future price support program upon farm income,
upon government cost, and upon the consumption of peanuts and their pro-
ducts. The final chapter summarizes the findings and the implications
of a future price support program for the various sectors of the
economy.

FOOTNOTES

[1]Field and seed crops include wheat, barley, soybeans, and 28
other field crops. The figures in this section were compiled from U. S.
Department of Agriculture, Field and Seed Crops, Production, Farm Use,
Sales, and Value, Statistical Bulletin No. 311 (Washington: Economic
Research Service, 1964), and U. S. Department of Agriculture, Field
and Seed Crops, Production, Farm Use, Sales, and Value (Washington:
Economic Research Service), selected issues.

[2]Major oilseed crops include cottonseed, flaxseed, soybeans, and
peanuts. The figures were compiled from U. S. Department of Agriculture,
Fats and Oil Situation (Washington: Economic Research Service),
selected issues.

[3]Mr. James T. Hintlian, President of the Peanut Butter Manufac-
turers Association, testified in behalf of consumers before the Sub-
committee on Agricultural Production, Marketing, and Stabilization of
Prices, Senate Agricultural Committee, regarding the price support pro-
gram for peanuts on July 18, 1968.

[4]Eugene H. Methvin, "Time to Say No to Big-Farm Subsidies,"
Reader's Digest (New York, May, 1970), pp. 78-82.

[5]Antoine Banna, Sydney J. Armor, and Richard J. Foot, Peanuts and
Their Uses for Food, Marketing Research Report No. 16 (Washington:
Bureau of Agricultural Research, 1952).

[6]Sydney Reagan, "Peanut Price Support Programs, 1933-1952, and
Their Effect on Farm Income" (unpub. Ph.D. dissertation, Harvard Univer-
sity, 1953).

[7]Daniel D. Badger and James S. Plaxico, Selected Supply and Demand
Relationships in the Peanut Industry, Processed Series P-338 (Oklahoma
State University, 1959).

[8]Ibid., p. 32.

[9]N. M. Penny, Some Factors Affecting Quality and Value of Farmers'
Stock Peanuts, Mimeo Series 2 (Georgia, 1949); The Supply, Price, Value,
and Utilization of Peanuts, 1909-1948, Mimeo Series 9 (Georgia, 1949);
Physical Aspects of Peanut Marketing, Bulletin 284 (Georgia, 1952);
D. Upton Livermore, Response of Peanut Production to Technological Pro-
gress, Institutional Changes, and Economic Conditions, Research Report
No. 49 (Virginia Polytechnic Institute, 1960).

CHAPTER II

DESCRIPTIVE ASPECTS OF THE PEANUT INDUSTRY

The peanut industry is an extremely complex set of technical, eco-
nomic, and institutional relationships, particularly when the realm of
consideration encompasses the entire world. An analysis of the demand
for peanuts produced in the United States can only be viewed in proper
perspective when related to the general framework of the peanut indus-
try including its world aspects.

It is the objective of this chapter to describe various aspects of
the peanut industry. Specifically, this chapter is intended: (1) to
summarize the available information on the production and consumption
of peanuts and their products in the world and the United States and to
interpret the significance of changes in factors believed to influence
the peanut industry, (2) to review the institutional aspects of the
peanut industry, (3) to survey the federal peanut programs, and (4) to
examine the peanut marketing system in the United States with particu-
lar regard to its structure, conduct, and performance.

World Production and Consumption

Peanuts are indigenous to South America.[1] In the early sixteenth
century, the Portuguese introduced peanuts to Africa from Brazil.
Since then, the trading vessels, missionaries, and the slave traders
are credited with spreading peanuts to various parts of the world.

Peanuts have an irresistible nutty flavor and a smooth texture which makes it rare that a person can eat one and quit. In addition to its unique aroma, peanuts are described as nature's masterpiece of food value; peanuts are rich in energy and, in fact, one pound of peanuts provides approximately the energy value of 2-pounds of beef, 1.5 pounds of Cheddar cheese, 9-pints of milk, or 36 medium size eggs.[2]

Due to their irresistible flavor and their food value, peanuts have become a major farm crop in many countries of the world. They are one of the major agricultural staples in China and India; they are a major cash crop for earning foreign exchange in many countries of Africa; and they are one of the six basic agricultural crops in the United States.

The peanut has the proverbial "thousand and one" uses, with virtually all of it utilized: peanut kernels are eaten roasted or as peanut butter; the hulls are used for fuel or insulation; and peanut vines are used as hay. Inclusive but not exhaustive uses of peanuts and their products are listed in Table I.

Peanuts are consumed in the forms of (1) peanuts and their products, (2) peanut oil, and (3) peanut cake and meal. Peanuts are used as peanut butter, salted nuts, and roasted peanuts. They are also used in candy and bakery products. Peanut oil is used for the manufacture of shortening, margarine, soap, and lubricant. Peanut cake and meal are used for feed and fertilizer.

Peanut Production and Consumption

Adequate statistics on the world peanut production prior to 1960 are not available and some available data are, unfortunately, too sketchy to be of practical use. According to the latest estimates,

TABLE I

USES OF PEANUTS AND PEANUT PRODUCTS

```
Peanut     Plant------------------------------------| Hogged off
plant                                                | Hay

                              Cleaned---------------| Roasted peanuts for
                                                     |   out of hand eating

                                                     | Peanut butter
                                                     | Salted nuts
                                     Kernels-------  | Peanut candy
                                                     | Bakery products
                                                     | Ice cream
           Commercial  Shelled                       | Cookery
           production
                                                     | Insulation
                                                     | Fuel
                                     Hulls           | Stock feeds
                                                     | Paper board
                                          ---------  | Plastic filler
                                                     | Bedding for live-
                                                     |   stock
                                     Hulls           | Floor sweeping com-
                                                     |   pounds
                                                     | Explosives

                                                     | Feed meal
                                                     | Food flour
                                     Cake----------  | Fertilizer
                        Crushed                      | Proteins-Industrial
                                                     | Proteins-Artificial
                                                     |   wool

                                                     | Shortening
                                                     | Margarine
                                                     | Salad
                                                     | Cookery
                                                     | Deep fat frying
           Farmers'                  Oil----------   | Packing
           stock                                     | Medicinal
           peanuts                                   | Illuminating
                                                     | Textile lubricant
                                                     | Massage
                                                     | Cosmetics
                                                     | Soap
                                                     | Glycerine

           Farm use-------------------------------- | Seed
                                                     | Household
                                                     | Feed
```

Source: National Peanut Council, Inc., _Peanuts--Their Food Values and Interesting Recipes_ (Atlanta, Georgia, 1941), p. 2.

about 20 million tons of peanuts are produced annually in the world.
There are four principal regions of production in the world: Asia,
Africa, North America, and South America.

The Asian region, the largest among the four, is comprised pri-
marily of China, India, Burma, and Indonesia. These countries combined
produce over one-half of the world's peanuts.

The African region, the second largest among the four, is comprised
of Nigeria, Senegal, Sudan, South Africa, Niger, and several other
African countries. The African region annually produces about 6 million
tons which is roughly 30 percent of the world's peanuts.

The North American region is comprised of the United States,
Mexico, and a few other countries in the region. They annually produce
about 1.2 million tons or about 6 percent of the world's peanuts.

The South American region is comprised of Brazil, Argentina, and a
few other countries in the region. The South American region produces
about 1 million tons or about 5 percent of the world total.

Although the countries in Europe and in Oceana produce peanuts,
their combined annual production is not significant in the world total.

Peanuts are grown in over 60 countries of North America, South
America, Europe, Africa, Asia, and Oceana. The five leading countries
are India, Mainland China, Nigeria, Senegal, and the United States with
roughly 35, 13, 9, 6, and 6 percent of the world's production, respec-
tively. A detailed production estimate by individual countries is
presented in Appendix D, Table XXX.

In the crop year, 1967, over 45 million acres were harvested for
nuts in the world. This was an increase of 6 million acres from the
crop year 1960. The estimated acreage harvested in specified countries

is presented in Appendix D, Table XXXI. Based on the average 1960-64
data, the world average yield per acre was only 0.39 tons. The acreage
yield varies from a high of 1.5 tons for Isreal to a low of 0.12 tons
for the Congo (Appendix D, Table XXXII).

The world peanut production has been increasing in the past and is
expected to rise in the future due, partly, to an increase in yield
and, partly, to an increase in acreage harvested.[3] More land is
expected to be put into production of peanuts in most countries of
Africa and in India. Yield is also expected to increase for most of
the countries of Africa and India. If the world yield should rise to
that of the United States, the world peanut production would be nearly
doubled.

According to rough estimates, slightly less than one-half of the
world's peanuts are consumed in the form of peanuts and their products
(Appendix D, Table XXXIII). More than one-half of the world's peanuts
are crushed for oil and meal. Detailed estimates on peanuts for various
uses in the form of nuts and nut products are not available. Peanuts
consumed in India, China, and countries in Africa, Asia, and South
America are believed to be mostly roasted which requires the simplest
processing. However, peanuts consumed by the countries in Europe,
North America, Oceana, and Japan are believed to have the various forms
of uses that are found in the United States. Peanuts other than those
crushed for oil are used in peanut butter, salted peanuts, peanut
butter sandwiches, and roasted nuts. Smaller amounts are also used in
candy and cookery.

India, China, and the United States are the leading peanut con-
sumers as well as producers of the world. The exports by these

countries account for less than one percent of their respective annual productions.

The countries in the African region export peanuts to European countries. In fact, the countries in Africa combined exported about 92 percent of the world peanuts traded. About 6 percent of the world pea-nuts traded were exported by the countries in Asia. Only 3 percent of the world's peanuts traded came from both North and South American countries (Appendix D, Table XXXIV).

The countries in Europe were the main consumers of peanuts exported from the countries in Africa. Nearly 88 percent of the total peanuts traded were imported into the countries in Europe. Most of the peanuts imported into countries in Asia are believed to come from the export-ing countries in the same region. The estimated peanut imports into specified countries are presented in Appendix D, Table XXXV.

France is a leading consumer of peanuts. During the 1935-39 period, France had a net import of about one million tons annually, which was over 200 thousand tons[4] more than the annual production of the United States. During the period 1960-64, France consumed annually over 600 thousand tons of peanuts which were nearly 70 percent of the annual output of the United States. Annual peanut imports of France remained at about 70 percent of the peanut production in the United States throughout the postwar period. The rest of the European coun-tries combined consume slightly less than France (Appendix D, Table XXXV).

Other leading peanut consumers are United Kingdom, Italy, Luxembourg, and Germany with about 15, 9, 6, and 5 percent of the world peanuts traded, respectively.

Peanut Oil Production and Consumption

The peanut became an economic plant of commercial importance only after it was recognized as one of the leading crops for the production of oil and plant protein. Prior to the development of the peanut oil industry, world production and trade in peanuts and peanut products was unimportant. The increasing demand for edible oils and the shortage of other oils during war periods prompted the expansion of peanut production. The fact that peanuts are demanded mainly for oil and oil products remains true even today.

Peanut oil is one of the five leading edible vegetable oils in the world along with cottonseed, soybean, sunflowerseed, and rapeseed oils. Peanut oil has been exceeded only by the soybean in importance. Since 1955, production of peanut oil has been equal to about 20 percent of the total edible vegetable oils production. Annual production rose from 2.025 million tons in 1955 to an estimated 3.3 million tons in 1967 and over 3.8 million tons were forecasted for 1968. Appendix D, Table XXXVI shows the estimated annual production of major edible vegetable oils including peanut oil.

Since data on the amount of peanuts crushed for oil were not available, an estimate was made by converting estimated peanut oil production into an unshelled peanuts equivalent on the basis of a 28.71 percent oil extraction rate (conversion factor equals to 3.483)[5] (Appendix D, Table XXXIII).

According to the estimates made on the basis of the average conversion factor for the United States, roughly one-half of the world peanut production was crushed into oil in the 1950's and about two-thirds in the 1960's. Since the estimates were made on the basis of

edible peanut oil production alone, the figures should be interpreted

conservatively. In recent years, only one-third of the world production

of peanuts has been consumed in the form of nuts and nut products.

Information on the production of peanut oil by country or continent

is sketchy. India, the producer of over 35 percent of the world's pea-

nuts, crushes roughly 80 percent of her annual output into peanut oil.[6]

Nigeria with nearly 10 percent of the world's peanuts crushes about one-

quarter of her annual production into peanut oil. Mainland China with

12 percent of the world's peanuts is believed to crush most of her pea-

nuts into oil. Although Senegal has nearly 7 percent of the world's

annual total, the proportion of her peanuts crushed into oil is not

known.

The United States crushes only peanuts of inedible grades and the

surplus peanuts purchased by the government. She crushes about one-

quarter of her annual output into oil, producing about 2 percent of the

estimated world peanut oil.

Although France does not produce peanuts in any significant amount,

she is believed to be a leading peanut oil producer. Historically,

France has been a leader in the peanut crushing industry utilizing pea-

nuts imported from Africa.[7] Prior to World War II, the annual French

peanut imports exceeded the annual peanut output of the United States

and, during the postwar years, France's imports amounted to over two-

thirds of the annual output of the United States. In fact, France

imported about 0.85 million tons of peanuts in 1966 while the United

States produced about 1.2 million tons in the same year. Despite large

importations of peanuts and her traditional role in the peanut crushing

industry, the extent of France's annual peanut oil production is not known.

Peanut producers are also believed to be the crushers. The countries in Africa exported nearly 60 percent while the countries in Europe imported about 80 percent of the world's peanut oil traded during the 1960's. The exporters in Africa are Senegal, Nigeria, and South Africa (Appendix D, Table XXXVII) while the leading importers are France, the United Kingdom, West Germany, Spain and the rest of the European countries (Appendix D, Table XXXVIII).

In both North and South America, the United States, Argentina, and Brazil are the exporters and Canada and the Dominican Republic are the importers. The net export of both North and South America amounts to over 13 percent of the world peanut oil traded (Appendix D, Tables XXXVII and XXXVIII).

In Asia, Mainland China, India, and Indonesia are the leading exporters while Burma, Hong Kong, and Malaysia are the importers. The net export of the Asian region is only about 4 percent of the world peanut oil traded. Most peanut oil produced in Asia is consumed in the same region.

Peanut Meal Production and Consumption

Since peanut cake and meal is the by-product of the peanut oil industry, its output depends upon the level of peanut oil production. Thus, peanut oil producers are also the peanut meal producers.

India, Mainland China, Nigeria, Senegal, and the United States are the leading countries that produce peanut cake and meal in the world. However, the extent of the production of peanut oil, peanut cake, or

peanut meal is not known for an individual country other than the United States. The United States produces about 250 million pounds of peanut cake and meal annually.

On the basis of world peanut oil production, the world peanut meal production was estimated in Appendix D, Table XXXIII. According to this estimate, about 6 million tons of peanut meal were produced in 1968. Data on peanut meal production by individual countries or regions are not available. Since the data on the international trade of peanut cake and meal were sketchy, no further attempt was made to compile the data on peanut meal trade.

United States Production and Consumption

The United States has the largest acreage and the largest production of peanuts of any country in the Western Hemisphere and ranks fifth among the leading peanut producers in the world. The per acre yields of peanuts were the highest among the five leading peanut producers. According to the 1960-64 statistical average, the United States produced nearly 5.6 percent of the world's total peanuts with less than 3.4 percent of the world's total acreage for peanuts (Appendix D, Table XXXII).

Peanut Production and Consumption

The United States has produced over 2 billion pounds of peanuts annually since 1964. The output for the crop year 1967 was estimated at over 2.5 billion pounds.

There are three principal areas of production in the United States, each with nuts of different characteristics (Figure 1). The
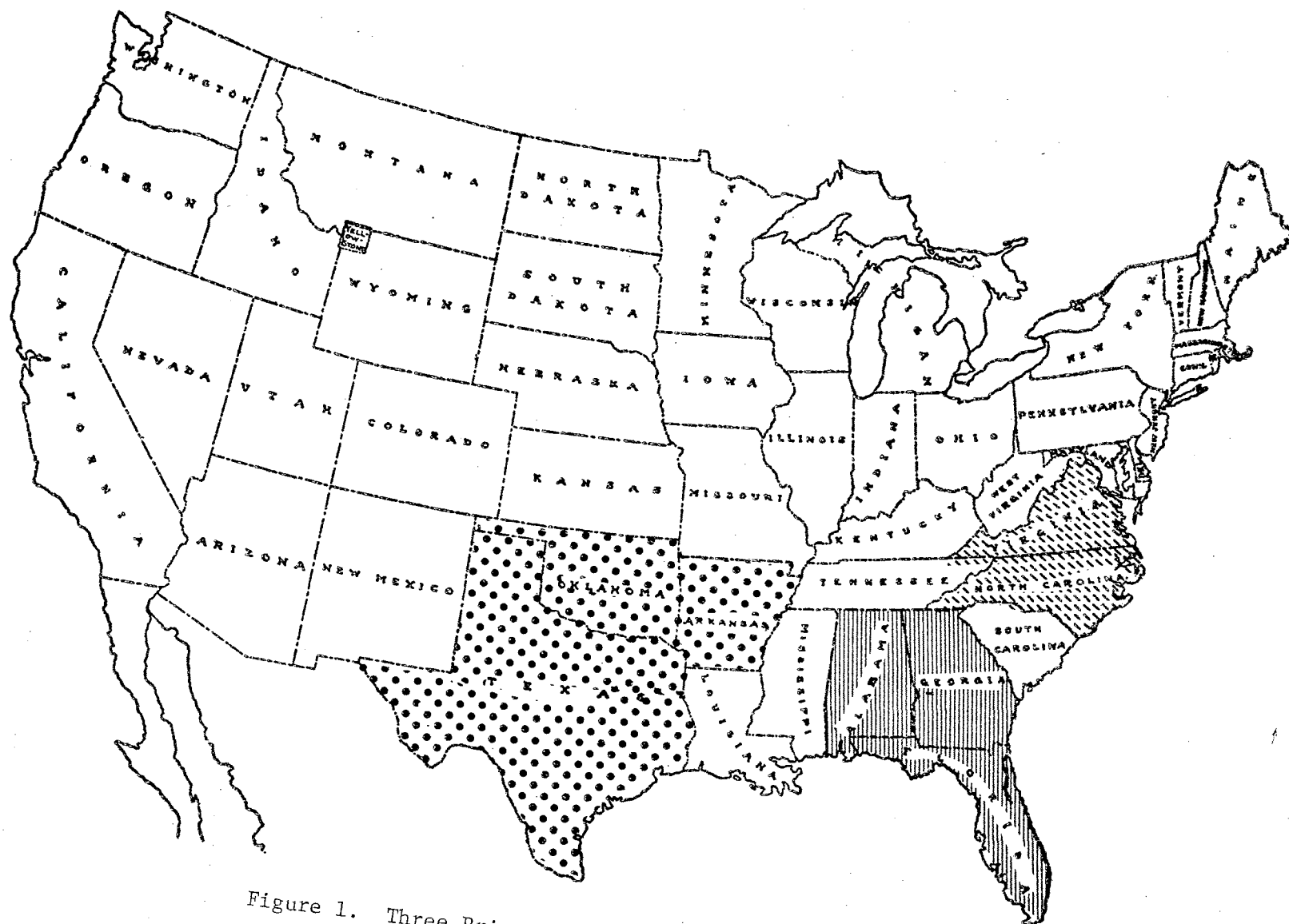
Figure 1. Three Principal Areas of Peanut Production

Virginia-Carolina area is comprised of Virginia, North Carolina, and Tennessee, and Virginia type predominates. The Virginia type includes Virginia Bunch Large, Virginia Bunch 46-2, Virginia Runner G26, NC 4X, and Holland Jumbo[8] (Appendix D, Table XXXIX). The Virginia type nuts are large podded, usually containing two large elongated seeds with light reddish skins.

South Carolina, Georgia, Florida, Alabama, and Mississippi comprise the Southeastern area. This area produces two types, Spanish and Runner, in roughly equal proportions. Runners are grown mostly in Alabama, Florida, and Mississippi. The Spanish type is grown mostly in Georgia. Dixie Runner, Alabama Runner, Georgia Runner, and Wilmington Runner are the major varieties of Runner type peanuts. Like the Spanish type, the nuts are smaller in size than the Virginia type and are used in candies and peanut butter and in the production of peanut oil.

Arkansas, Louisiana, Oklahoma, Texas, New Mexico, and a few parts of California comprise the Southwestern area. About 98 percent of the production is Spanish. However, the peanuts produced in the Southwest area are known as Southwest Spanish. Most of the nuts produced in the Southwest area are small but of high quality and are used in candies and peanut butter and in the production of peanut oil and cake.

The annual production is determined by the number of harvested acres and the yield. Although the acreage harvested for nuts has been declining, the annual output has increased each year because of the sharp uptrend in yields per acre (Figure 2). The acreage harvested has decreased from 3.4 million acres in 1947 to 1.4 million acres in 1956 and has remained at about 1.4 million acres since then. Yet, the yields

Harvested
Acres
(Millions)

Production
(Million Pounds)

Yield Per Harvested
Acre (Pounds)

Production

Yield Per Acre
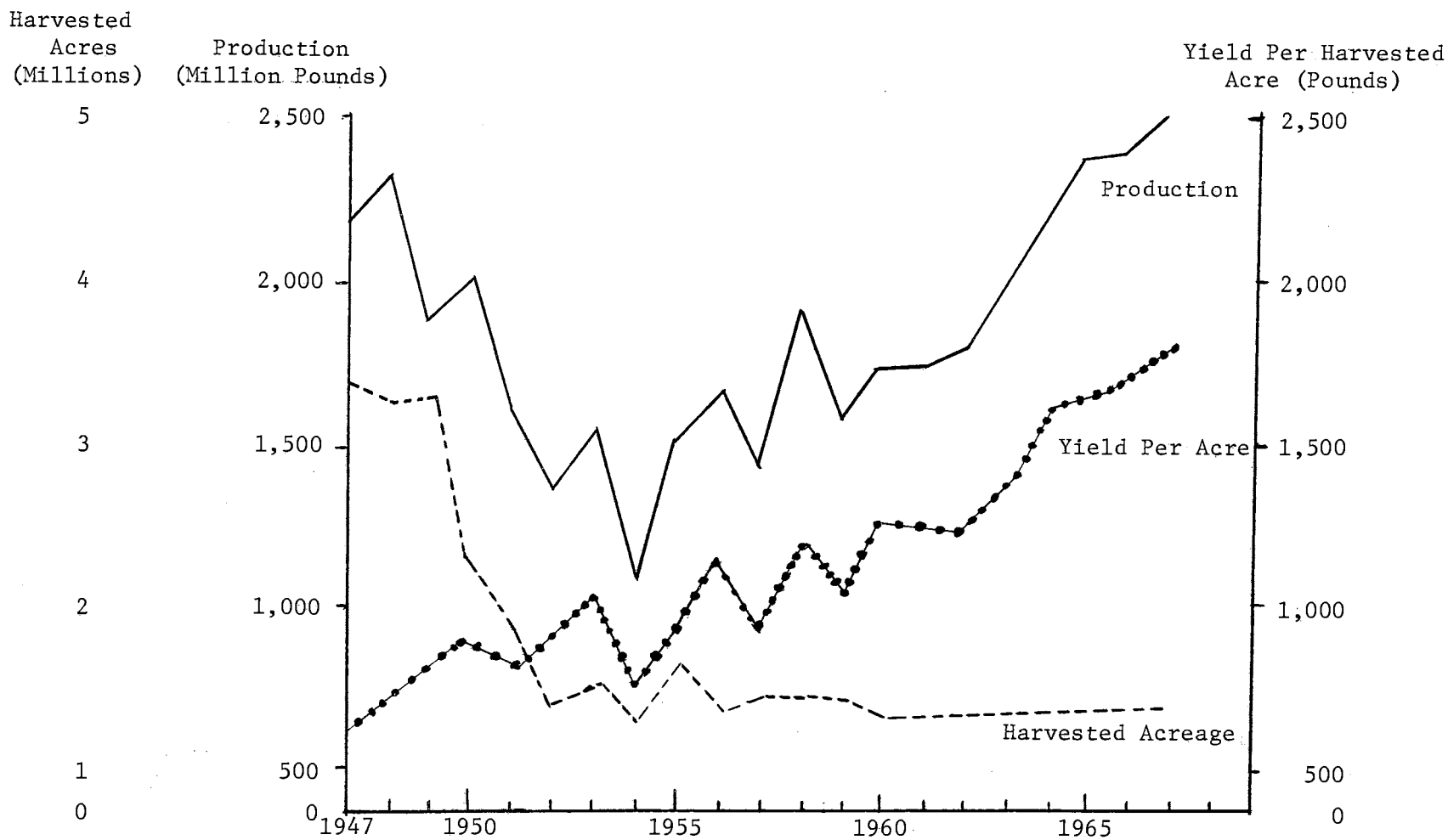
Harvested Acreage

Figure 2. Peanuts: Acreage Harvested, Yield Per Acre, and Production in the
United States, 1940-67

24

per acre have increased steadily from 646 pounds in 1947 to 1,765 pounds per acre in 1967 (Appendix D, Table XL).

The yield continued to increase in each of the three major production areas of peanuts in the United States. Several factors that contributed to the increased yield are (1) the government commodity programs that tend to influence the farmers to choose lands best suited to the particular crop and to adopt better cultural practices, and (2) the use of better seeds.[9]

The total output of peanuts in the United States is expected to continue rising in the years ahead due to the increase in yield. Although the acreage allotment is maintained at the legal minimum and the acreage harvested is maintained at 1.4 million acres, the increase in yield per acre will raise the total output. For the crop year 1972, over 3,010 million pounds of peanuts are expected to be produced because of the sharp uptrend in yeild per acre.

Peanuts produced in the United States are (1) consumed for domestic food uses, (2) crushed for oil and meal, (3) used for seed and feed on the farm, and (4) exported abroad. Annually, about 60 percent of the peanuts produced are consumed for domestic food uses, 25 percent are crushed, 10 percent are exported, and the remainder are used for seed and feed on the farm (Appendix D, Table XLI).

For the crop year 1967, roughly 2.5 billion pounds of peanuts were produced and, out of this, about 1,493 million pounds were used for domestic food purposes, 644 million pounds were crushed, 198 million pounds were exported, and nearly 155 million pounds were used on the farm.

Due to its irresistible nutty flavor and smooth texture, the peanut consumption for edible uses is on the increase in the United States; the per capita consumption of peanuts increased from practically none in 1865 to 2.4 pounds in 1909, 4.3 pounds in 1940, 6.9 pounds in 1960, and 7.8 pounds in 1967. About 4 million pounds of peanuts are consumed each day in the United States in the form of nuts and nut products.

The quantity of peanuts crushed annually varies because only surplus peanuts and peanuts of low quality unsuitable for direct human consumption are crushed into oil and meal. The quantity of peanuts exported fluctuates widely also because of unpredictable market conditions abroad. The quantity of peanuts used on the farm has remained stable in the past years.

Most peanuts consumed for domestic food uses move through commercial channels and reach consumers in the form of peanut butter, peanut candy, salted peanuts, peanut butter sandwiches, and roasted in the shell or shelled nuts roasted. These are only the major forms of peanut uses which can hardly be listed exhaustively.[10]

Peanut Butter. More peanuts are consumed in the form of peanut butter in the United States than any other country in the world. Peanut butter first came into use about 1890 as a food for the invalids.[11] Today, it is consumed by the young and healthy and nearly 700 million pounds of peanuts are consumed, annually, in the form of peanut butter.

Peanuts used in the manufacture of peanut butter are on the increase: the per capita peanut consumption rose from 2.6 pounds in 1946 to nearly 4.0 pounds in 1966. The peanuts used in peanut butter rose from 36 percent of the total domestic peanut use in 1946 to over 45 percent in 1966 (Appendix D, Table XLII).

Salted Peanuts. Salted peanuts refer to those that are shelled, roasted, and salted to taste. Second to peanut butter, the largest amount of edible peanuts are salted. About 25 percent of shelled edible grade peanuts are consumed in salted forms. In 1966, nearly 229 million pounds of shelled peanuts were used for salting. This was nearly twice the amount of peanuts salted in 1947 in which 116 million pounds were used for salting.

Three types of peanuts are used for salting -- the Virginia type, the Spanish, and the Runner. The Virginia type accounts for over 70 percent, the Spanish about 25 percent, and the Runner less than 5 percent of salted peanuts.

Over one-half million pounds of salted peanuts are consumed each day in the United States. Salted peanuts are distributed through grocery and drug stores and through discount stores and vending machines. Although no data on the amount of salted peanuts sold through different commercial channels were available, the sales through vending machines are believed to have increased in recent years. It is reported that out of 20 leading food items sold in vending machines, 14 of them contain peanuts in some form.[12] Salted peanuts are one of the main peanut products sold through vending machines.

Peanut Candies. Peanut candies, peanut bakery sweets, and peanut candy in desserts are the three major groups of peanut confectionery products. Since the data on the peanuts used in bakery sweets and candy in desserts are not available, no estimate can be made on the amount of peanuts used in these peanut confectionery products. However, peanuts used in peanut candy have amounted to over 135 million pounds since 1947 and to nearly 290 million pounds in 1967.

Spanish peanuts are most widely used in candy. However, some of each type is used in peanut candies. Slightly over one-half of the peanuts used in candy are Spanish peanuts while the Virginia type and the Runners account for nearly 30 percent and 20 percent of the peanuts used in candy, respectively.

Peanut candies contain little other than peanuts and sugar; butter, cream, milk solids, egg solids, chocolate, starch, flavors, and colors are the common ingredients in peanut candies. The relative uses of these ingredients in peanut candies differ from one type of candies to the other.

The variety of peanut candies is numerous and cannot be listed exhaustively. Peanut candies include chocolate coated bars, peanut planks, peanut rolls, peanut cups, and peanut brittle. However, the largest use of shelled peanuts in candy is in the manufacture of peanut rolls.

Peanut candies are relatively high in fats, which tend to shorten the shelf life. Thus, peanut candies are made as needed or stored under refrigeration or an antioxidant is added which doubles the shelf live.

Roasted Peanuts. The roasted peanuts are those farmers' stock peanuts cleaned and roasted in the shell. They are called ballpark peanuts since they are sold mostly to baseball or football fans in the ballparks.

Roasted peanuts are also sold at theaters and playgrounds and outdoor games and other entertainment places. They were the pioneers of the peanut industry in that they exposed the peanuts to wider ranges

of consumers with favorable taste and entertaining ability. In the early period, most peanuts were consumed in this form.

Although the absolute amount of peanuts roasted was maintained at over 90 million pounds annually, the per capita consumption of roasted peanuts declined from one pound in the 1920's to less than one-half pound in the 1960's. Prior to the early 1920's, nearly 20 percent of the peanuts consumed in food were roasted, but today it accounts for less than 7 percent of the peanuts for edible uses.

Salted peanuts and popcorn are considered as the main reasons for the declining popularity of roasted peanuts. Salted peanuts offer greater convenience to eaters and present no cleaning problems after the game or entertainment is over. Popcorn is believed to be a major competitor. No attempt is made in this study to test it statistically.

Peanut Butter Sandwiches. Peanut butter sandwiches have gained an increasing popularity in recent years. They are cracker-type sandwiches with peanut butter and constitute a snack item that could be eaten conveniently at snack time. Peanuts used for this product were not listed separately until 1956 in which about 16 million pounds of shelled peanuts were reported for peanut butter sandwiches. However, peanuts used in sandwiches account for only 2 percent of the total peanuts for food use (Appendix D, Table XLII).

Peanut Oil Production and Consumption

The enormous demand for vegetable oils to supply glycerines for munition purposes and to meet the growing requirements for margarines and lard substitutes served as a stimulus to increase crushing.

Peanut oil production was expanded to meet the demand during the war, producing over 140 million pounds annually.

As the war ceased, the demand for munition purposes subsided; but the demand for vegetable oils in Europe stimulated the peanut crushing in the United States and the peanut oil production rose further until it reached 186 million pounds in 1950. Annual output of peanut oil during the 1950's remained under 100 million pounds and rose again during the 1960's. About 170 million pounds were produced in 1967 (Appendix D, Table XLIII).

The production, imports, exports, and domestic consumption of peanut oil fluctuated from year to year (Appendix D, Table XLIII). The fluctuation is due to the instability in the amount of peanuts released for crushing by the Commodity Credit Corporation. The quantity of peanuts crushed depends upon the quantity of peanuts released by the CCC and the quality of peanuts produced. When more peanuts are crushed into oil and meal, production, exports, and domestic consumption of peanut oil increases while imports decrease.

Most peanut oil produced in the United States is consumed domestically and only a small portion of the output is exported. Nearly 170 million pounds of peanut oil were consumed in the United States in 1966 and nearly 200 million pounds were estimated for domestic consumption for 1967[13] (Appendix D, Table XLIV).

Peanut oil is used in the manufacture of food products as well as non-food products. About 90 percent of the peanut oil consumed in the United States is used for food products and the remaining 10 percent is used for non-food products (Appendix D, Table XLIV).

Mayonnaise, shortening, oleomargarines, salad dressings, pastries, and other food products are made from peanut oil. But most peanut oil is used in the manufacture of cooking oil and shortening. Since peanut oil has an unusually high smoking point, it can be used under higher heats than other cooking oils before it begins to scorch and smoke, allowing foods to cook thoroughly. For this reason, peanut oil is rated as better than cottonseed, coconut, corn, and soybean oils.[14]

The industrial utilization includes peanut oil used in the manufacture of soap, detergents, paints, and drying materials. Peanut oil is also used in face creams, shaving creams, hair lotions, and other cosmetics.

Peanut Meal Production and Consumption

Peanut cake is a solid residue when peanuts are crushed for oil in a hydrolic press. Peanut cake is left in solid form for exports, but for domestic sale it is ground into a meal of about the consistency of corn meal.

The production of peanut cake varies with the production of peanut oil. One hundred pounds of farmers' stock peanuts crushed yield about 42.4 pounds of peanut cake on the average. About 300 million pounds of peanut cake were produced in 1950 when the output of peanut oil was nearly 180 million pounds. In recent years, peanut cake production has been over 240 million pounds (Appendix D, Table XLV).

Peanut cake is ground into meal and used mostly for feeds. Tests have shown that peanut meal is fully equal to linseed meal, cottonseed meal, and soybean meal in feeding value for different kinds of livestock.[15] Probably the most extensive use of peanut meal has been for

feeding dairy cattle.[16] Peanut meal is also used for feeding hogs.
The hams from the hogs that were fed the peanut oil or peanut meal in
the ration lost significantly less weight during the processing.[17]

Peanut meal unsuitable for feed is used as fertilizer. The value
of peanut meal as a fertilizer is determined on the basis of its nitro-
gen content. Peanut meal contains sufficient nitrogen to yield about
nine percent of ammonia and a small percentage of available phosphoric
acid and soluble potash.[18]

Institutional Aspects of the Peanut Industry

There are two distinctive institutional settings today in which
the production and distribution of agricultural products are performed:
one is the free market and the other is the controlled market. The
institutional setting which is represented by a free market is defined
as the type of market that existed for several generations prior to the
Agricultural Adjustment Act of 1933 and the institutional settings
represented by a controlled market as the type of market developed
after the Agricultural Adjustment Act of 1933 for certain agricultural
commodities that are included in the agricultural programs. Today,
these two types of markets exist side by side for agricultural products
in the United States. Non-basic agricultural commodities are produced
and traded on the free market and some commodities are produced and
traded on both types of markets on the basis of two price systems.

Free Market

The free market system is a part of the private enterprise economy.
The free market system performs one of the most important functions as

public policy affecting enterprise competition and monopoly has been
toward preserving competition and preventing monopoly.[20] The institu-
tional arrangements which were founded to promote and preserve competi-
tion were applied to all industries including agriculture.

However, much legislation was enacted and new commercial institu-
tions were created during the 1930's for agriculture. The special
legislation of the 1930's excluded agriculture from the restraints of
antitrust laws and encouraged farmers, by their collective actions, to
improve or maintain farm prices. For some farm commodities, produc-
tion, marketing, and prices were made subject to collective control by
legal means. This meant the end of a completely free market system for
some agricultural commodities including peanuts.

The termination of a completely free market system for some farm
commodities including peanuts was not a sheer coincidence of the 1930's.
The economic disturbances created by World War I, the agricultural
depression of the 1920's, and a marked change in the attitude of
farmers and the general public with respect to the role of the federal
government in dealing with farm problems are the direct influences upon
the adoption of the 1933 statute. The constant and continuous influ-
ence came from the farmers' suspicions that unfair institutional
arrangements for agriculture was the main cause of farm problems. The
so-called "atomistic competition" among the agricultural producers has
often been suspected and widely considered as a major obstacle to the
achievement of increased incomes for farmers.[21]

Agriculture is generally understood as the closest approximation
to a purely competitive industry. A large number of firms sell
undifferentiated products and the action of any one farmer has no

an arbiter of demand and as a mechanism through which private initiatives in directing the economy are rendered possible by forming free market prices.

Free market prices are the "automatic" prices which are the simple, natural, flexible kind of prices that emerge spontaneously in free markets patronized by individual unorganized producers and buyers.[19] They are those formed through the registered forces of supply and demand on the market in the absence of any arbitrary influence upon either supply or demand by individuals, groups of individuals, or a government. In a private enterprise economy, they are the guideposts upon which resource owners, entrepreneurs, and consumers make their free economic decisions. Free market prices provide not only a mechanism through which society renders decisions concerning how it allocates its resources and distribute the resulting output, but they also provide a mechanism through which these decisions are implemented and carried out.

The essence of a free market system is competition. Free market systems presuppose that there are numerous buyers and sellers competing with each other for the economic goods and services which are offered for sale and that no one individual is able to exercise any decisive influence on the formation of the market prices, either as a buyer or as a seller.

Since competition is a key element in a private enterprise system, the problems of monopoly have been the special concern. The maintenance of competition has been the foundation of the institutional arrangement of the American economy, and a series of legislation was established to maintain competition. The main orientation of American

perceptible influence on the market price. The markets in which farmers purchase inputs and sell commodities are generally characterized as some form of imperfect competition.[22] Therefore, the legal and commercial institutions which were designed to preserve and promote atomistic competition among the industries were suspected to have some defects as they were applied to agriculture.

Faced with imperfect competition in product and factor markets, farmers have long complained of their comparative lack of bargaining power in the market. They tended to place their emphasis strongly on the desirability of a single coordinated control of the distribution of a given commodity so that the total supply of the whole producer group could be administered as manipulated in the market in such a way as to secure the maximum return which seemed feasible in view of the conditions of demand. As a result, large federated or centralized cooperatives grew up along the commodity line or on a local basis.[23]

However, the concentration of marketing control resulting from combinations of farmers in cooperatives was apparently not sufficient to overcome their unsatisfactory marketing position. Since no scheme of voluntary cooperation in marketing ever succeeds in welding all individual producers into one integrated group, there has been for many years a wistful turning of cooperative thought toward some practicable device for bringing about "compulsory" cooperation.[24] The first legislative statute which made such compulsory cooperation possible is the Agricultural Adjustment Act of 1933. A series of legislations and government programs after 1933 terminated the free market for some agricultural commodities. Peanuts were designated as one of six basic

agricultural commodities and have been traded only on the controlled

market since 1934.

Controlled Market

A controlled market is one in which price-making is influenced by

action of particular individuals, groups of individuals, or by govern-

ment agencies. The peanut market in the United States has been under

control by various government programs since 1934. These programs have

been provided with legal authority by a series of statutes.

Legal Institutions for Government Programs[25]

The government programs which are designed to control the market

draw their authority from several legal statutes which have been estab-

lished for that purpose. They are the Agricultural Adjustment Act of

1933, the 1934 and 1935 Amendments to the 1933 Agricultural Adjustment

Act, the Soil Conservation and Domestic Allotment Act of 1936, and the

Agricultural Marketing Agreement Act of 1937.

Market control sections of these acts were an experiment in new

fields of law and economics. These legislations were designed to re-

duce competition among the members of agricultural industry and

assigned the regulation of agricultural industry to a public agency

which regulates the prices and conditions of services of the firms.

The scope of permissible agricultural market control has slowly but

continuously widened through a series of acts such as the Capper-

Volstead Act of 1922, the Co-operative Marketing Act of 1926, McNary-

Haugen bills, and the Agricultural Marketing Act of 1929.[26]

The Capper-Volstead Act of 1922 provided the right of free association, cooperation, and collective actions among the agricultural producers in production and marketing without the fear of antitrust law violation. The Co-operative Marketing Act of 1926 authorized agricultural cooperatives to exercise powers in handling statistical and other information that had been denied to open-price association.[27]

The McNary-Haugen bill proposed selling part of the supply on foreign markets at low prices in order to maintain relatively high prices on the domestic market. Losses on the export sales were financed through an equalization fee levied on processors. This bill also included clauses to promote orderly marketing of agricultural products designating cooperative association of producers as the agencies through which the export surpluses would be handled and the general price policy carried out.[28] The McNary-Haugen bill was defeated in Congress on May 21, 1926, but was reintroduced and was passed in 1927 and again in 1928. It was vetoed by President Coolidge on both occasions.[29] However, the McNary-Haugen plan was incorporated in the marketing agreements and licenses section of the 1933 Agricultural Adjustment Act.[30] The Agricultural Marketing Act of 1929 declared economic equality for agriculture and declared that the method of obtaining such equality was an orderly distribution of agricultural products. It authorized the cooperatives to organize and combine for joint marketing of their products.

Through these statutes, by 1933, federal law had accorded to certain agricultural groups the authority to combine, and in some measure to control, interstate trade. Although these laws had been entirely permissive in nature, the experience of cooperative groups with

voluntary control programs had demonstrated that permissive authority was inadequate. Since the earlier provisions did not give authority to enforce the collective actions, cooperatives could not prevent the accrual of disproportionate benefit to the relatively small minority which abstained from participation. Thus, market control was unattainable by these statutes alone. This defect was remedied by the Agricultural Adjustment Act of 1933 which compels universal participation by all producers and handlers.

The Agricultural Adjustment Act of 1933 contained four broadly phrased sections which provide the statutory basis for the compulsory programs in the first two years of the Agricultural Adjustment Administration. They gave to the Secretary of Agriculture virtually absolute power to do anything with agricultural commodities. The Secretary of Agriculture had been empowered to control production of any commodity, to effectuate voluntary acreage reduction, to enter into marketing agreements where acreage or production control was unavailing, and to impose licenses as supports for either production or market control.

The Agricultural Adjustment Act of 1933 declared a radically modified national policy with reference to agriculture. This statute embraced the economic equality for agriculture and authorized four major lines of procedure by which the economic equality was expected to be brought about. They are (1) the enhancement of agricultural prices through widespread restraints on production or the removal of supplies from the market, (2) the enlargement of farmers' income through direct payments for participation in production control programs, (3) the levying of excise taxes on processors of farm products as a means of

defraying the cost of adjustment operations, and (4) the regulation of marketing through voluntary agreements among processors and distributors or compulsory licensing to eliminate unfair practices or charges.[31]

The Agricultural Adjustment Act of 1933 was amended on several occasions in such a way as to broaden its scope and modify certain phases of operation. In April 1934, peanuts and several other commodities were added to the list of basic commodities by an amendment to the Agricultural Adjustment Act.[32] The proposals in the amendments to the act were designed to protect the control programs against the legal defects and to remove serious enforcement difficulties. However, some of these proposals were not included in the 1934 Amendment to the 1933 statute.

The generality of the 1933 statute created serious problems with confusion in specific application and the legal defects compounded the gravity of administrative problems. Some of these defects were removed by the 1935 Amendments to the 1933 statute. The provisions set up in the 1935 Amendments to the 1933 statute explicitly authorized the Secretary of Agriculture to compel a minority of handlers of any line of produce to abide by a plan of distribution drawn up and approved by the majority, or, even without the approval of a majority of handlers, if two-thirds of the producers agreed to the arrangement. When the legality of the 1933 statute was attacked by a processor, the Supreme Court held it unconstitutional, in 1936, on the grounds that since it was used to purchase compliance with acreage limitations it undertook to regulate a matter belonging to the states.[33] Thus, the processing-tax provisions of the 1933 Act proved to be fatal to the entire Act.

However, the major substances of this Act survived through the enact-
ment of new bills.

When the 1933 statute came under judicial attack, the court
declared that the processing-tax provisions were unconstitutional but
no rule was made on the production control itself. Thus, the pro-
cessing-tax provisions were deleted and the remainder of the production
control sections of the 1933 statute were revised, broadened, and reen-
acted in the Soil Conservation and Domestic Allotment Act of 1936.
This act retained the substance of the production control section of
the 1933 statute but the programs undertaken under this act were not
financed by earmarked tax and therefore were not vulnerable to judicial
attack.[34] The Soil Conservation and Domestic Allotment Act of 1936
authorized two classes of payments: Class I payments were made for
withdrawal from planted acreage of "soil-depleting" crops and Class II
payments were made for the adoption of approved practices such as
fertilizing, contour plowing, and terracing.

Since no ruling was issued on the validity of the market control
provisions of the 1933 statute by the court in 1936, the market control
and other relevant provisions were amended and reenacted in the 1937
Marketing Adjustment Act. Thus, the major provisions of the 1933
statute were reenacted through the laws passed during 1936 and 1937.

Both production and market controls were considered as different
aspects of the same price support operation. Yet, they were authorized
by several laws and thus created confusion. For this reason, they were
combined and were enacted in a single statute, the 1938 Agricultural
Adjustment Act.

The Agricultural Adjustment Act of 1938 authorizes the Secretary of Agriculture to determine the quantity of peanuts that should be produced in the next calendar year in order to ensure the orderly marketing of peanuts. The Act provides that the annual marketing quota be determined on the basis of the average quantity of peanuts harvested for the edible trade during the preceding five-year period, adjusted for current trends and prospective demand.

The Act provides also that the annual national marketing quota be converted to a national acreage allotment, that is, the number of acres that should be planted to produce the quota of peanuts. This Act sets, specifically, the minimum national acreage allotment at 1.610 million acres. The national acreage allotment is apportioned to producing states. The state acreage allotment is subsequently apportioned to individual farms.

The price support program for peanuts, authorized by the Agricultural Adjustment Act of 1949, is operated by the Commodity Credit Corporation for the purpose of supporting and stabilizing the peanut prices received by producers. The Act requires that the Secretary of Agriculture, at the beginning of the marketing season for each crop of peanuts, determine the level of price support. The Act provides that the level of price support be based on the latest parity price for peanuts. The Act also sets the maximum and minimum levels of price support at 90 and 75 percent of the parity price, respectively. Full parity should result in the commodity having the same purchasing power that it had during the period 1910 to 1914 when the prices received by farmers for their crops and their expenses were considered to be in balance.

The price support level fluctuated between the maximum and the minimum levels set by the 1949 Act.

There are several other statutes passed after 1950 which have some bearing upon peanut programs. However, they were mostly amendments to the Agricultural Adjustment Acts of 1938 and 1949, and serve principally to broaden the scope of the original acts. Their major provisions are much the same as originally framed. The Agricultural Adjustment Acts of 1938 and 1949 have been the legal basis of all federal peanut programs.

The federal statutes have provided the legal basis for the various programs for agriculture. Most of the specific programs undertaken were organized along the farm commodity line although the common objective was that of improving the farm income generally. The agricultural programs may appropriately be termed as price support programs rather than income support programs since they are related to farm commodities rather than to farms. Furthermore, the price support programs increase farm income but the increased farm income is not necessarily the result of price support. The price support programs varied in effective duration and were initiated at different times creating a condition in which multiple programs were effective concurrently.

Federal Programs for Peanuts[35]

In each year since 1933, with the exception of 1936-37, the federal government has had a combination of programs in effect to support the price received for peanuts by producers. The federal programs and the details of the programs have varied greatly from year to year. They reflect changes in production trends and in the relative demands

for peanuts for direct use in edible products and for crushing for oil
and meal.

The various federal programs applied since 1933 can be classified
as follows:

1. Marketing Agreement and License Program,

2. Production Control Program Under Agreement,

3. Peanut Diversion Program,

4. Peanut Acreage Diversion Program,

5. Acreage Allotment Program,

6. Marketing Quotas Program,

7. Direct Purchase Program,

8. Program in War Years,

9. Price Support Program,

10. Acreage Reserve Program, and

11. Miscellaneous Programs: School Lunch Program, Food Stamp Pro-
    gram, and Relief Purchase Program.

Programs Under Marketing Agreement and License. Under this pro-
gram, the processors of peanuts agreed to pay growers not less than the
minimum prices for the 1933 crop, starting from January 27, 1934. The
agreed minimum prices ranged from $55 per ton for Runners to $60 for
Virginia types. This agreement was approved by a majority of the pro-
cessors and was extended to nonsigners by means of licenses which had
been authorized by the marketing agreement and license section of the
1933 Agricultural Adjustment Act. This program was the most short-
lived and ineffective program because the processors discontinued their
purchase of peanuts on the grounds that they were unable to sell the
products at prices that would cover their costs if they paid the

minimum prices to growers. This program was terminated in September, 1934.

Production Control Program Under Agreement. The 1934 Amendment to the Agricultural Adjustment Act of 1933 added peanuts to the list of basic commodities. This Amendment opened the way for the levying of processing taxes to finance production control and other programs relating to peanuts. The majority of growers agreed to reduce acreage for the 1935 crop year on a voluntary basis and in return growers were to receive the taxes collected from the peanut processors. The production control program under agreement ended in failure because non-signers increased production. The program was terminated when the financial source of operation was depleted as the court declared the processing tax provision of the 1933 statute unconstitutional. Thus, the voluntary production control under agreement was effective for only the 1935 crop.

Peanut Diversion Program. This program was designed to support the price of peanuts by diverting a part of the edible grade peanuts into crushing for oil and meal. This program was initiated for the 1934 crop. Under this program, small payments were offered to growers of peanuts sold for crushing and the processors who bought the peanuts for crushing were paid a subsidy by the Department of Agriculture.

A peanut diversion program was put into effect when prices were low and was lifted when prices were high. After the inception of this program, two distinctive changes occurred in the method of supporting this program. The first change took place in 1937 when the payments in the form of subsidies to buyers and sellers were terminated and, instead, the four regional growers' marketing associations were

authorized to buy peanuts from the growers up to a stated quantity at a schedule of prices established by the Department of Agriculture and then sell them to shellers and cleaners. The peanuts acquired by the growers' association and not disposed of to shellers and cleaners were sold for crushing for oil. The financial loss involved during this process was absorbed by the Department of Agriculture.

The second change was introduced in 1943 when the Commodity Credit Corporation was authorized as the sole purchaser of peanuts from growers and the mills and growers' associations became the agents of the Corporation to buy and dispose of the peanuts acquired. Purchases were made on the basis of the guaranteed minimum prices and sales were at prices related to the ceiling prices of the products. The loss incurred during the operation was absorbed by the Commodity Credit Corporation.

The peanut diversion program was put into effect after 1934 and has continued with the exception of 1936. The method of supporting this program is composed of one or a combination of the methods mentioned earlier. In the postwar years, the Commodity Credit Corporation acted as the sole purchaser of peanuts. The growers' associations were designated as the agents of the Corporation. The loss was counted as a cost of the price support operations.

Peanut Acreage Diversion Program. Peanuts were classified as a soil-depleting crop in 1936 by the Soil Conservation and Domestic Allotment Act. Since the invalidation of processing taxes and control contracts by the court made peanut production control illegal, the programs initiated under the 1933 statute were made impossible to be applied. The Soil Conservation and Domestic Allotment Act offered an

alternative way of controlling production. The peanut acreage diversion program initiated under this act became the principal mechanism through which peanut acreage could be controlled. Under this program, payments were made for diverting peanut acreage to soil-conserving crops. The peanut acreage diversion program was in force until 1941.

Acreage Allotment Program. The purpose of this program was to control production by limiting the acreage planted and harvested for peanuts. This program, on a non-mandatory basis, was initiated in 1934 as a part of the peanut diversion program. However, the mandatory peanut acreage allotment program was adopted in 1949 and has remained in force since then. The Peanut Control Act of 1941 (Public Law 27, 77th Congress, approved on April 3, 1941) provided the legal basis for marketing quotas and acreage allotment programs. These programs were initiated in 1941 but lifted in the same year for the war.

Marketing Quota Program. This program was authorized by the Peanut Control Act of 1941 which amended the Agricultural Adjustment Act of 1938. Under the marketing quota system, producers were allowed to market their peanuts produced only on the alloted acreages. Peanuts produced on acreages not alloted were prohibited from the market. This program has been in force since 1941 with a brief interruption during the war and with minor changes in the detail of the program from year to year.

Direct Purchase Program and the Storage and Loan Program. The direct purchase program is designed to remove surplus peanuts from the market by the federal government. As mentioned under the peanut diversion program, the peanut growers' cooperatives, acting as agents of the federal government, were authorized in 1937 to purchase peanuts directly

from growers. The purchased peanuts were resold to private buyers for edible uses and for crushing for oil. In 1943, the Commodity Credit Corporation was designated as the sole purchaser of peanuts. However, the growers' cooperatives acting as agents of the Commodity Credit Corporation carried out the direct purchasing operation. In connection with the direct purchase program, the storage and loan program was put into effect in order to assist the growers in marketing their products.

Under the Storage and Loan Program, a grower may sell his peanuts outright to a private buyer or he may store the peanuts with the warehouse which has an agreement with a producers' cooperative. The farmer may secure an advanced loan on his stored peanuts from the cooperative. The loan he receives reflects closely the support price of the farmer's peanuts. The farmer is allowed to sell his peanuts in storage during the season to a private buyer at higher prices. If he cannot sell at higher prices, he can give up his peanuts in storage for the loan he receives.

The purpose of the direct purchase and the storage and loan programs is to keep the prices paid by private buyers from dropping below the support level. The direct purchase and the storage and loan programs have been in force since 1937 and have been the major function of the Commodity Credit Corporation with regard to peanuts.

Program in War Years. The outbreak of war changed the federal peanut programs. Although the Peanut Control Act of 1941 provided marketing quotas for peanuts and growers approved quotas for the 1941-43 seasons, the quotas and allotment were lifted and production control was abandoned for the duration of the war. In February 1942, the Secretary of Agriculture announced a goal to expand peanut acreage to

5 million acres from the 1.9 million acres in 1941. He promised to support prices at 85 percent of the "comparable" parity price on peanuts for oil, and, subsequently, the support level was raised to 90 percent.

In order to increase production, price supports were continued but without the distinction between peanuts for nuts and peanuts for oil. The only restraining influences on production were the availability of resources and price ceilings set by the government. Yet, the acreage grown in the war years was continuously below the goals announced by the Department of Agriculture. The wartime program was in force until 1947. However, the return to production and marketing controls was approved by a majority of growers in October, 1947. Therefore, the wartime program was terminated from 1948.

Price Support Program. One of the most important federal programs has been the support price for peanuts. The diverse programs described in this section were intended to support price in one way or another. Therefore, the various devices used should be appropriately called price support programs. However, the particular program covered under "price support" is the price support schedule and other related devices.

The first price support schedule was announced in 1934 under the marketing agreement and license program. This was a multiple schedule in nature since the minimum prices to be paid to producers ranged from $55 per ton for Runners to $65 for Virginias. The minimum price support schedule was abandoned in the same year for the reasons given in the program under marketing agreement and license.

In 1943, a single schedule of support prices for all peanuts was announced based on 90 percent of the parity price.[36] A single schedule of support prices was adopted through 1951 although the level of

support changed from year to year. Under the single schedule of the

support price program, a minimum price per ton for all peanuts was set

by the federal government. The peanuts which the producer could not

sell at prices above the minimum support price on the market were sold

to the federal government through the Commodity Credit Corporation or

other designated cooperative agencies. The price support level fluctu-

ated between 80 percent and 90 percent of the parity price under the

single schedule of support price.

The single schedule of support prices for all peanuts was abolished

in 1952 and a multiple support price schedule was adopted. The level of

price support for each type of peanuts was announced on June 23, 1952.

The support price differentials were determined from a 20 year (1930-

1950) price series but eliminated from the series two high and two low

indices of relative prices for each type (Table II).

The support price for any lot or load was computed from the speci-

fied premiums and discounts from the basic price per ton. The base

grade ton of both Virginia and Runner types had 65 percent sound mature

kernels, and the Spanish type 70 percent. The screen size used for

determining the percentage of sound mature kernels for the Virginia

type was 15/64 by 3/4 of an inch. Premiums and discounts for sound

mature kernels above and below the base grade specifications are indi-

cated in Table II. Virginia peanuts received a special premium for

extra large kernels of $1.25 per ton per percent for each full 1 per-

cent above 15 percent.

TABLE II

PEANUTS: SUPPORT LEVELS AND PREMIUMS AND DISCOUNTS FOR SOUND
MATURE KERNELS BY PRINCIPAL TYPES, 1952 PROGRAM

Item	Type			
	Virginia	Runner	Southeast Spanish	Southwest Spanish
Support price:				
Average grade ton	$252.71	$277.90	$245.38	$233.52
Base grade ton[a]	$231.00	$215.00	$236.00	$232.00
SMK percentage, base per percent	65	65	70	70
SMK premium and discount:				
Deviation from base grade	$ 3.60	$ 3.30	$ 3.40	$ 3.30

[a]Average support price per average grade ton, all types $239.40
which was 90 percent of $266.00, the effective parity.

Grade factors used for determining support prices by types were
based on grade data for the three years, 1949-51. These were the three
years that inspections had been made by the United States Department of
Agriculture.

The support price schedule for each type of peanuts based on
grade factors remained basically unchanged. The basic support price
changed as the support level of the parity price changed and the pre-
mium and discount rate varied slightly from year to year. See the dis-
count rate for damaged kernels in Table III.

Acreage Reserve Program. This program was authorized by the Soil
Bank Act of 1956 and was applicable only to producers of basic farm

commodities for the 1956-59 crops. The producers of basic commodities

were compensated for reducing their acreage of the commodities below

their farm acreage allotments. No grazing or harvesting of a hay crop

was allowed from the reserved acreage. The acreage reduction of non-

basic commodities was covered by the conservation program authorized by

the Soil Bank Act.

TABLE III

SCHEDULE OF DISCOUNTS FOR DAMAGED KERNELS, 1952 CROP PEANUTS

Type	Percentage Damaged Kernels						
	2	3	4	5	6	7	8 and Over
	Dollars						
Virginia	3.60	7.20	14.40	21.60	35.00	55.00	120.00
Runner	3.30	6.60	13.20	19.80	35.00	55.00	120.00
Southeast Spanish	3.40	6.80	13.60	20.40	35.00	55.00	120.00
Southwest Spanish	3.30	6.60	13.20	19.80	35.00	55.00	120.00

Source: D. Upton Livermore, Response of Peanut Production to Technological Progress, Institutional Changes, and Economic Conditions, Research Report No. 50 (Virginia: Virginia Polytechnic Institute, 1960), p. 24.

Miscellaneous Programs. Some types of food are distributed free

of charge to needy school children and families. They are distributed

to school children through school lunch and/or breakfast programs which

were authorized by the National Lunch Act of 1946 and the Child Nutrition Act of 1966. To needy families, food can be distributed through the food stamp program which was authorized by the Food Stamp Act of 1964. The relief program includes the donation of food for disaster and for penal institutions. The relief program is authorized by several statutes such as the Farm Disaster Relief Act of 1950, the Agricultural Act of 1956 (Donation to Penal and Correctional Institutions), and the Agricultural Trade Development and Assistance Act of 1956 (Public Law 480).

Since the amount of peanuts and their products consumed under these programs is small relative to total production, these programs are relatively less important in peanut programs. For the same reason there are other programs which have not been mentioned in this section.

Peanuts being one of the basic agricultural commodities, have experienced more diversified programs than any other commodity. The objective of these programs has been to maintain the price received by producers through production control and marketing control and surplus removal with a minimum price set by the government. The various programs that the peanut industry experienced are summarized in Table IV.

The imposition of these government programs upon an existing industry alters the characteristic structure, conduct, and performance of the industry as is explained in the next section.

Peanut Market Organization

Peanut market organization can logically be viewed from three different but closely interrelated aspects; namely, structure, conduct, and performance.

TABLE IV

MAJOR PROGRAMS OF THE FEDERAL GOVERNMENT ON PEANUT
PRODUCTION AND MARKETING SINCE 1934

Crop Year	Federal Programs										
	I[a]	II[b]	III[c]	IV[d]	V[e]	VI[f]	VII[g]	VIII[h]	IX[i]	X[j]	XI[k]
1934	x		x		v				m		
1935		x	x		v						
1936				x	v						
1937			x	x	v						
1938			x	x	v						
1939			x	x	v						
1940			x	x	v						
1941			x	x	v	x					
1942			x					x			
1943			x				x	x	s		
1944			x				x	x	s		
1945			x				x	x	s		
1946			x				x	x	s		LF
1947			x				x	x	s		LF
1948			x				x	x	s		L
1949			x		M	x	x		s		L
1950			x		M	x	x		s		L
1951			x		M	x	x		s		L
1952			x		M	x	x		m		L
1953			x		M	x	x		m		L
1954			x		M	x	x		m		L
1955			x		M	x	x		m		L
1956			x		M	x	x		m	x	L
1957			x		M	x	x		m	x	L
1958			x		M	x	x		m	x	L
1959			x		M	x	x		m		L
1960			x		M	x	x		m		L
1961			x		M	x	x		m		L
1962			x		M	x	x		m		L
1963			x		M	x	x		m		L
1964			x		M	x	x		m		LF
1965			x		M	x	x		m		LF
1966			x		M	x	x		m		LF
1967			x		M	x	x		m		LF
1968			x		M	x	x		m		LF

[a]Marketing Agreement and License Program.

TABLE IV (Continued)

[b]Production Control Program Under Agreement.

[c]Peanut Diversion Program.

[d]Peanut Acreage Diversion Program.

[e]Acreage Allotment Program, v: voluntary basis, M: mandatory basis.

[f]Marketing Quotas Program.

[g]Direct Purchase Program.

[h]Program in War Years.

[i]Price Support Program, m: multiple schedule, s: single schedule.

[j]Acreage Reserve Program.

[k]L: School Lunch Program, F: Food Stamp Program.

Market structure refers to the physical and institutional dimensions of market organization. Market structure is important since it creates the economic environment through which the observable behavior of a firm has a logical meaning. Market conduct consists of the behavior of various constituents of the market toward setting prices, quality, and quantity of the product and toward the institutions. Market performance refers to the efficiency of the market organization as measured in terms of such variables as price, cost, and volume of output.

In surveying the peanut market organization, primary emphasis is placed on the farmers' stock peanut market. The availability of data is one reason for placing the emphasis on this particular market and the other is to derive the demand characteristics of the peanut market at the farm level in order to measure the effects of the price support program of the federal government.

Market Structure

The market environment is created by (1) the legal institutions, (2) the federal programs, (3) the characteristics of industry as associated with the growth of market demand and supply and demand elasticities with respect to price changes, (4) the number and distribution of growers, handlers, processors, and their respective trade associations, and (5) the state and federal agencies.

Since the first three elements were viewed rather in detail under the institutional aspects of the peanut industry, they are not reviewed in this section.

Peanut marketing is organized along the physical movement of peanuts from the hands of growers to the consumers. Peanuts move from growers to millers, from millers to processors, from processors to retailers, and from retailers to the consumer. Thus, there are four levels of peanut markets; they are (1) the farmers' stock peanut market, (2) the cleaned or shelled peanut market, (3) the processed peanut market, and (4) the retail market for peanut products (Figure 3).

On the farmers' stock peanut market, peanuts are traded between growers and millers; on the shelled market, shelled peanuts are traded between the millers and the processors; on the processed peanut market, the peanut products such as peanut butter, peanut candies, roasted peanuts or salted peanuts are traded between the processors and the food stores; and, finally, on the retail market for peanut products, processed peanut products are traded between the food stores and the consumers.

The peanut market in this study is defined more or less loosely to refer mainly to the farmers' stock market and, to some extent, the shelled or cleaned peanut market and the processed peanut market. Therefore, more emphasis is placed, in descending order, upon the farmers' stock peanut market, the shelled or cleaned peanut market, and the processed peanut market.

The complexity of the peanut marketing system is revealed amply by the large number of growers, shellers, crushers, and processors and their respective trade associations, by the state and local agencies involved in peanut marketing, and by their differing and often conflicting goals and their behavior.

Domestic Market

| Farmers' Stock Peanut Market | Shelled or Cleaned Peanut Market | Export Market | Processed Peanut Market | Retail Market for Peanut Products[a] | Consumers |

Shellers

Peanut and Nut Salters → Food Chains → Consumers

First-Hand Buyers

Peanut Candy Manufacturers

Exporters

Peanut Butter Manufacturers → Retail Stores → Consumers

Crushers

Peanut Sandwich Manufacturers

Growers

Oil Refinery

Commodity Credit Corporation

Feed Manufacturers → Farm Supply Stores → Consumers

Soap and Others Manufacturers → Retail Stores → Consumers

Foreign Market

[a]Wholesale market is skipped although its existence is recognized.

Figure 3. Physical Flow Chart and the Levels of Peanut Market

Growers and Growers' Associations. There are over 13,000 peanut farms in the Virginia-North Carolina area, approximately 18,500 in the Southwestern area, and nearly 45,000 in the Southeastern area. The peanut growers in each area are organized into the Peanut Growers' Cooperative Marketing Association. The Peanut Growers' Cooperative Marketing Association and the Southwestern Peanut Growers' Association represent the growers in the Virginia-North Carolina area and in the Southwestern area, respectively. The growers in the Georgia, Florida, and Alabama area belong to the GFA Peanut Association. These associations assist the growers and the government in the marketing of peanuts under the price support program, endeavor to enlarge markets for peanuts and peanut products, and foster activities of benefit to members and the industry in general.

In addition to these regional growers' cooperative marketing associations, each peanut producing state has a state peanut growers' association. The state peanut growers' association is composed of all peanut growers paying the assessment provided in the Act, and it is established by state law for the purpose of promoting production, marketing, and consumption of peanuts produced in the state. The association also has the duty of conducting a referendum of the members to determine the proportion of the growers that favor or disfavor the continuation of the program.

First-Hand Buyers. One of the peculiar elements of the farmers' stock peanut market is the arrangement between the first-hand buyers and their principals. First-hand buyers act as the purchasing agents for shellers or crushers and occasionally for processors. There are some independent first-hand buyers who possess their own storage

facilities and purchase peanuts of good quality in order to resell them

at a later date to a sheller or a processor at a profit. In case he is

unable to sell them to a sheller or a processor, he is assured of dis-

posing of them to the regional growers' cooperative marketing association

which acts as the agent of the Commodity Credit Corporation. Although

the first-hand buyer and principal arrangement exists in all peanut

producing areas, data on the number of first-hand buyers and the exact

arrangement on a national basis are not available.[37]

Millers and Their Associations. In this study, a miller is defined

as the one who cleans or shells or crushes farmers' stock peanuts for

processors. Thus, a miller may be a cleaner or sheller or crusher or

sheller-and-crusher or cleaner-and-sheller or cleaner-and-crusher.

In 1966 there were only 119 millers in the United States (Table V)

although nearly 80,000 growers place annually over 2.5 billion pounds

of their peanuts on the market for sale. Out of 119 millers, 97 were

shellers, only eight were crushers, and 14 were shellers as well as

crushers. Millers are distributed among the major peanut producing

states, the number of millers in each state being nearly proportional

to the state peanut production. Shellers are also cleaners of peanuts.

Crushers produce peanut oil using the peanuts of low inedible grades or

the surplus peanuts released by the Commodity Credit Corporation.

Millers purchase peanuts either directly from the growers or indirectly

through the first-hand buyers of peanuts or from the Commodity Credit

Corporation.

In spite of the fewness in numbers, shellers have regional asso-

ciations of their own just like the growers. Shellers associations

have a powerful voice in any decisions related to peanut support prices,

quality regulations, and other matters which affect their industry.

Peanut crushers have also organized a peanut crushers association which

represents the crushers in any decision related to crushers' interest.

The main purpose of these trade associations is to protect and to

further their interest as well as that of the entire peanut industry

by their powerful lobby.

TABLE V

PEANUT MILLERS IN THE UNITED STATES, 1966

State	State Total	Millers		
		Sheller	Crusher	Sheller & Crusher
Alabama	15	12		3
California	2	1	1	
Florida	4	3		1
Georgia	39	34		5
Illinois	1		1	
New Mexico	5	4		1
North Carolina	16	16		
Oklahoma	4	3		1
Texas	19	12	5	2
Virginia	14	12	1	1
U. S. Total	119	97	8	14

Source: U. S. Department of Agriculture, List of
Peanut Millers (Shellers and Crushers) (Washington:
Statistical Reporting Service, 1966).

Buyer Concentration at Farmers' Stock Peanut Market. There are

few buyers while there are many sellers at the farmers' stock peanut

market level. In 1967 only 119 millers bought most of the peanuts

from nearly 80,000 growers in the United States.

Although no evidence is available to confirm the existence of a
market in which the sellers market is competitive and the buyers market
is monopsonistic in any locality, a high buyer concentration was docu-
mented for the Southwest area during the 1964-66 seasons (Table VI).
Altogether 22 firms purchased peanuts each year in the Southwest area
excluding the Southwest Peanut Growers' Association. In 1966, the top
six firms combined purchased over 60 percent of the total peanuts pro-
duced in the area. The remaining 16 firms combined purchased less than
seven percent. The Commodity Credit Corporation purchased about 33
percent. The same six firms combined purchased nearly the same percent-
age of peanuts in 1964 and 1965. The purchase of the top three firms
amounted to nearly 40 percent of the peanuts each year surveyed.
Although this finding can hardly be generalized to other areas, it is
believed that the buyer concentration might be similar in other areas.
Peanut growers, like farmers of any other commodity, have long sus-
pected the unfavorable market conditions as the sole reason for the
low prices of their product. The unfavorable market condition was an
important factor for a series of legal statutes and federal programs
to maintain growers' incomes.

Processors and Their Trade Associations. In 1967 there were 415
peanut processors who purchased raw peanuts from the 119 millers.
Peanut processors are peanut candy or butter manufacturers, salters of
nuts, and roasters. Of these 110 were candy manufacturers, 50 were
peanut manufacturers, 33 were roasters, 42 were salters of nuts,
and 167 were manufacturers of any combination of candy, butter,
roasted or salted peanut products. The 13 firms listed as processors

TABLE VI

PEANUTS PURCHASED BY MILLERS AND PROCESSORS IN THE SOUTHWEST AREA 1964-66

| | | Year | | | | | |
| | | 1964 | | 1965 | | 1966 | |
Firm	Town[a]	Quantity Ton	Per-cent	Quantity Ton	Per-cent	Quantity Ton	Per-cent
Bain Peanut Co.	San Antonio	12,533.0	5.96	11,050.0	4.74	13,791.0	4.59
Brady Mills, Inc.	Brady	1,556.0	0.74	1,605.0	0.68	179.0	0.06
Charlotte Feed & Seed	Charlotte	1,342.0	0.65	961.0	0.41	1,334.0	0.44
Choice Products	Aubrey	37.0	0.02				
De Leon Peanut Co.	De Leon	8,607.0	4.09	14,087.0	5.97	17,928.0	5.96
Denison Peanut Co.	Denison	3,212.9	1.53	2,547.0	1.08	2,361.0	0.78
Durant Cotton Oil Co.	Durant	12,274.7	5.83	11,813.0	5.00		
Durant Peanut Co.	Durant	5,202.1	2.47	4,804.5	2.03	4,798.9	1.60
Durham Peanut Co.	Comanche	2,772.0	1.32				
Joe Estroda	Floresville	829.0	0.39	985.0	0.42		
Ellis L. Ganey	Abilene	3,014.0	1.43	2,939.0	1.24	3,318.0	1.10
Gold Kist Peanut Growers	Comanche	45,311.8	21.52	56,323.2	23.85	73,415.4	24.40
Gorman Peanut Co.	Gorman	19,454.9	9.24	24,472.9	10.36	28,351.1	9.42
Hou-Tex Peanut Co.	Houston	20,621.9	9.80	22,568.8	9.56	30,215.6	10.05
King Peanut Co.	Abilene			392.0	0.17	196.0	0.07
Lee County Peanut Co.	Giddings	1,294.0	0.61	1,299.0	0.55	1,422.0	0.47
Lytle Feed & Seed Co.	Lytle	48.0	0.02	3.0	0.00		
Quality Peanut Co.	Federicksburg	17,179.1	8.16	19,457.1	8.24	19,558.0	6.51
Ranger Peanut Co.	Ranger			181.0	0.08		
Texas Agri. Exp. Station	Pearsall	323.0	0.16			284.0	0.10
Wilson County Peanut Co.	San Antonio	2,027.0	0.96	2,237.0	0.95	3,142.0	1.04
Woldert Peanut Co.	Tyler	6,546.5	3.11	6,089.9	2.58	3,816.2	1.27
S.W.P.G.A. (C.C.C.)	Gorman	46,305.8	22.00	52,172.2	22.09	96,722.3	32.15
Southwest Total		210,511.7		236,120.9		300,832.3	

TABLE VI (Continued)

Source: Data received from Oklahoma Peanut Commission and Southwest Peanut Growers' Association.

of other products are mostly the manufacturers of sandwiches (Table VII).

The processors of peanuts are distributed among 37 states. California, Texas, Pennsylvania, and New York are the leading states in the number of peanut processors (Table VII). Thirteen states are listed as having no processors of peanuts.

Peanut processors have three different types of trade associations to which they belong. They are the National Confectioners' Association, the Peanut Butter Manufacturers' Association, and the Peanut and Nut Salters' Association. The National Confectioners' Association is the national trade association of candy manufacturers and suppliers of goods and services to that industry. The Peanut Butter Manufacturers' Association is the national trade association of peanut butter manufacturers, peanut butter sandwich manufacturers, and suppliers of goods and services to the industry. The Peanut and Nut Salters' Association is a national trade association of salters of peanuts and tree nuts, and suppliers of goods and services to the industry.

These trade associations are formed to advance the legitimate mutual interests of those involved in the manufacture of peanut products and to make it possible for their members to be kept in close touch with any congressional actions which affect their daily operations. The main contacts of these associations are with the Department of Agriculture, the Food and Drug Administration, the Tariff Commission and the National Bureau of Standards.

Peanut Council. The peanut industry is peculiar in the sense that the growers, the millers, the processors, and the federal government are closely coordinated in their efforts to promote the industry and to

TABLE VII

PEANUT PROCESSORS (USERS OF RAW PEANUTS)
IN THE UNITED STATES 1966

State	State Total	Processors					
		C[a]	B[b]	O[c]	R[d]	S[e]	Mixed[f]
Alabama	8	1	3		2		2
California	44	12	5	3	4	2	18
Colorado	7					2	5
Connecticut	1				1		
District of Col.	1		1				
Florida	3		1			1	1
Georgia	17	5	4	1			7
Idaho	2				1		1
Illinois	37	15	4	2	4	6	6
Indiana	12	2	3			1	6
Iowa	6	1	1				4
Kansas	1					1	
Kentucky	4		1	1			2
Louisiana	3	1	1		1		
Maryland	5		1				4
Massachusetts	16	7					9
Michigan	10				1	3	6
Minnesota	9	1	2		1	2	3
Missouri	14	5			2		7
Nebraska	1						1
New Jersey	8	3				2	3
New Mexico	1	1					
New York	29	7	2	3	1	4	12
N. Carolina	11	3			2		6
Ohio	27	1	3	2	0	2	19
Oklahoma	8	3	2		1	2	
Oregon	4	1				1	2
Pennsylvania	35	16	3		1	2	13
Rhode Island	1						1
S. Carolina	3		1				2
S. Dakota	1				1		
Tennessee	6	2	3				1
Texas	6	2	3				1
Utah	8	1			2		5
Virginia	10		1		1	1	7
Washington	15	4	3		2	2	3
Wisconsin	9	3			1	2	3
U. S. Total	415	110	50	13	33	42	167

[a] Candy manufacturers.

[b] Peanut butter manufacturers.

TABLE VII (Continued)

^cOther than candy, butter, roasted or salted peanuts.

^dRoasters.

^eSalters.

^fManufacturers of any combination of the above items.

Source: U. S. Department of Agriculture, <u>List of Peanut Processors</u> (<u>Users of Raw Peanuts</u>) (Washington: Statistical Reporting Service, June, 1966).

solve the problems that the peanut industry faces. Their close coordination is revealed by the organization and operation of the National Peanut Council and the Peanut Administrative Committee. The National Peanut Council is an industry organization which represents the peanut growers, handlers, and manufacturers of peanut products. Thus, it consists of representatives of growers, handlers, and processors.

The Peanut Council was organized to promote the peanut industry by research and education in production, milling, and processing or peanuts, by advertisement of peanuts and their products on both domestic and foreign markets through the publication of recipes and the exhibition of peanuts and their products, by serving as a liason between the industry and the federal government, by close coordination of growers, handlers, and processors, and by publication of Peanut News which serves as an important medium of communication among the members of the industry.

State and Federal Agencies. Each peanut producing state has a state peanut commission which is composed of several members selected from the peanut producing districts within the state. The state peanut commission was established by state law and its functions is similar to that of the state peanut growers' association. In fact, both the state peanut growers' association and the state peanut commission coordinate their efforts to promote production, marketing, and consumption of peanuts produced in the state. The state peanut commission has also the duty of overseeing and conducting a referendum of the growers to determine the proportion of the growers that favor or disfavor the continuation of the program.

Above all, the most important organization in the peanut marketing system is the federal government. The current peanut price support program operates basically by the purchase of the surplus peanuts at the prescribed prices from the market as long as they are produced on the alloted acreages. This program is augmented by acreage control and marketing quota programs and marketing agreements. The federal government administers the price support program through the Commodity Credit Corporation who makes the purchase, storage, and sale of the surplus peanuts.

The Peanut Administrative Committee was established to administer the terms and the provisions of the marketing agreement regulating the quality of domestically produced peanuts. It consists of 18 members who represent equally both growers and handlers. The members of the Peanut Administrative Committee are nominated by producers and handlers and are selected by the Secretary of Agriculture. Any complaints of violations of terms or provisions of the marketing agreement are received, investigated, and reported by the Peanut Administrative Committee to the Secretary of Agriculture. Any amendments to this agreement are also made based on the recommendations by the committee.

Market Conduct

In the two previous sections, the major elements of market structure -- the description of the market, the physical constitutuents of market organization, the distribution of firms, the legal institutions, and the characteristics of industry associated with the growth rate of market demand affected by war and peace -- were viewed. These major elements of market structure make up the economic environment of firms

in the industry. The importance of these structural elements lies in the way they induce growers, millers, processors, their local or national trade associations, and the federal or local government agencies to behave. Market conduct refers to their behavior in changing prices, output, qualities, and research expenditures.

This section will present information related to the procedures and methods used in determining the following: (1) price support levels, (2) changes in quality standards, (3) output control, and (4) the behavior of firms toward price, output, and quality.

Determination of Price Support Level. The price support level for peanuts along with other basic agricultural commodities was authorized by the Agricultural Act of 1949, as amended by subsequent years' legislation.[38] The act set both the minimum and maximum support levels as 75 and 90 percent of parity, respectively. However, the actual level of support was to be determined depending on the supply percentage as follows:[39]

Supply Percentage	The Level of Support Shall Not be Less Than the Following Percentage of the Parity Price
Not more than 108	90
More than 108 but not more than 110	89
More than 110 but not more than 112	88
More than 112 but not more than 114	87
More than 114 but not more than 116	86
More than 116 but not more than 118	85
More than 118 but not more than 120	84
More than 120 but not more than 122	83
More than 122 but not more than 124	82
More than 124 but not more than 125	81
More than 125 but not more than 126	80
More than 126 but not more than 127	79
More than 127 but not more than 128	78
More than 128 but not more than 129	77
More than 129 but not more than 130	76
More than 130	75

This act was to be applied from the 1950 crop year and the support level was to be determined by the supply percentage at the beginning of the marketing season. However, the amendments passed in subsequent years set the level of support differently from the one shown above. The level of support, for the crop year 1950 was at 90 percent of the parity price and, for the 1955 crop year, it was set between the maximum of 90 and the minimum of 82.5 percent of the parity price.

In determining the level of support, the most important measure is the parity price. The measure of the parity price consisted of three parity measures; namely, the old parity, the new parity, and the transition parity. The old parity as applied to price prior to 1949 was defined as the price for the commodity which will give to the commodity a purchasing power with respect to articles that farmers buy equivalent to the purchasing power of such commodity in the base period which, in the case of peanuts, was from August, 1909 to July, 1914.

The new parity after 1949 for any agricultural commodity was determined by multiplying the adjusted base price of such commodity as of such date by the parity index of the price paid as of such date.[40]

The adjusted base price of any agricultural commodity is the average of the prices received by farmers for such commodity in the last 10 years divided by the ratio of the general level of prices received by farmers for agricultural commodities during such period to the general level of prices received by farmers for agricultural commodities during the period, January, 1910 to December, 1914, inclusive. The parity index, as of any date, is defined as the ratio of the general level of prices for articles and services paid by farmers, including wages paid for hired farm labor, interest on farm indebtedness secured by farm

real estate, and taxes on farm real estate to the general level of such

prices, wages, rates, and taxes during the period January, 1910 to

December, 1914, inclusive.

The transitional parity price for any agricultural commodity is

defined as the old parity less five percent of the old parity price mul-

tiplied by the number of full calendar years which have elapsed after

January 1, 1955 in the case of the basic agricultural commodities. The

transitional parity thus computed was considered as the rightful parity

price until such time as the transitional parity price may be lower than

the new parity price. Basic commodities completed transition to the

new basis in January, 1960 and non-basic commodities in January, 1965.[41]

The prices and the indices used for the computation of the level

of price support were determined by the Secretary of Agriculture. In

case the parity price for any agricultural commodity appears to be ser-

iously out of line with the parity prices of other agricultural commo-

dities, the Secretary of Agriculture may hold a public hearing to deter-

mine the proper relationship between the parity price of such commodity

and the parity prices of other commodities.

Thus, the peanut support price is determined by the supply per-

centage, the parity price, and the discretionary action of the Secretary

of Agriculture. However, the close examination indicates that the sup-

port price level is rather influenced by the administrative action of

the federal government, by the general level of the price received by

farmers, and by the general level of the prices paid by farmers. Since

the imports and exports in the peanut trade are not so important, the

supply percentage is generally determined by the carry-over and the

estimated production and the domestic consumption. The estimated

production and consumption can be predicted by using the production and consumption trends. The carry-over, however, is the amount of peanuts in the hands of the Commodity Credit Corporation which can be varied by administrative action. The parity price is determined by the general level of prices paid by farmers and the general level of prices received by the farmers.

An important feature in the Agricultural Acts of 1949 is that the support price will be flexible and the actual level of support will be somewhere between 90 and 75 percent of the parity price depending upon the actual supply percentage. The supply percentage is a measure of the relationship between the estimated supply and the estimated require-ments for peanuts. The supply percentage of 130 implies that the esti-mated supply is over the estimated requirement by 30 percent. Whenever the supply exceeds the quantity demanded by a certain percentage, the support price level will be lowered by the prescribed level.

Type and Quality Factors in the Price Support Schedule. The national support price for any crop year as figured from the parity price and the supply percentage cannot be the actual support price for each and every lot of peanuts anywhere in the United States. There are differences in the type and quality of peanuts. The Virginia and North Carolina area grows the Virginia bunch and Runner type; the Southwestern area produces the Southwest Spanish type; and the Southeastern area grows both Southeast Spanish and Runner type peanuts. In addition to these four types, Valencia type peanuts are grown mostly in New Mexico and the total acreage grown is slightly over 10,000 acres.[42] Thus, the support price schedules are set up for five types of peanuts. They are Virginia Runner, Southwest Spanish, Southeast Spanish, and Valencia.

The Valencia type peanuts are supported at the same rates as Virginia type peanuts if they are suitable for cleaning and roasting.

The national average support price for 1968 crop peanuts was $240.25, which was $3.25 above the national average support price for the 1967 crop peanuts. The support prices by type per average grade ton for 1968 crop peanuts were:

Type	Dollars Per Ton
Virginia	253.73
Runner	227.37
Southeast Spanish	245.63
Southwest Spanish	236.07
Valencia	253.73

The support price for Valencia type peanuts not suitable for cleaning and roasting will be the same as for Spanish type peanuts in the same area.

The national average support prices, and the support prices by type per average grade ton since 1951 crop years are shown in Table VIII. The national average support price is determined by the supply percentage and the parity price. In turn, the support prices by type are determined on the basis of the national average support price. The support price differentials among types were determined from a 20 year (1930-50) price series but eliminating from the series two high and two low indices of relative prices for each type.

In incorporating the quality differences into a price support schedule, two different but basically similar methods were adopted. They are the base grade method which was used for peanuts produced prior to 1955 and the revised method which was applied to peanuts produced after 1956. Under the base grade method, the price for each type

TABLE VIII

PEANUTS: UNITED STATES AVERAGE SUPPORT LEVEL AND SUPPORT RATES BY TYPE,
FARMERS' STOCK BASIS, 1951-68

Crop Year[a]	U. S. Average Support Level			Announced Final Support Rate of Average Grade Ton				
	Supported At							
	Effective Parity Aug. 1	Percent of Aug. Parity	Amount	Virginia	Runner	Southeast Spanish	Southwest Spanish	Valencia[b]
	Dollars	Percent	Dollars			Dollars Per Ton		
1951	262	88	320.56	244.00	218.51	238.11	266.47	c
1952	266	90	239.40	252.71	227.90	245.38	233.52	c
1953	264	90	237.60	250.77	225.90	243.38	231.52	c
1954	272	90	244.80	257.99	233.29	250.66	238.56	c
1955	272	90	244.80	257.99	233.29	250.66	238.56	c
1956	264	86	227.04	242.98	212.56	230.30	223.43	231.83
1957	272	81.4	221.40	236.80	206.70	224.38	218.33	226.95
1958	264	80.8	213.20	224.97	200.50	217.69	209.69	220.17
1959	258	75	193.50	205.30	180.64	197.90	189.83	200.94
1960	256	78.6	201.24	213.93	188.08	204.36	197.61	210.95
1961	258	85.6	221.00	233.69	207.84	224.12	217.37	233.82
1962	270	82	221.40	234.19	208.71	226.35	217.13	234.19
1963	280	80	224.00	236.86	211.24	228.98	219.70	236.86
1964	282	79	224.00	236.86	211.24	228.98	219.70	236.86
1965	290	77.2	224.00	236.86	211.24	228.98	219.70	236.86
1966	296	76.7	227.00	239.86	214.24	231.98	222.70	239.86
1967	302	75.2	227.00	239.86	214.24	231.98	222.70	239.86
1968	271	77.5	240.25	253.73	227.37	245.63	236.07	253.73

TABLE VIII (Continued)

[a]Crop year starts August 1.

[b]Defined as Valencia suitable for cleaning and roasting after 1961.

[c]Basis of support price determination over 1951-55 period not comparable with that of 1956-68. During the 1951-55 period support was on the basis of a "base grade ton".

Source: For 1951-1962: U. S. Department of Agriculture, U. S. Fats and Oils Statistics, 1905-64, Statistical Bulletin No. 376 (Washington: Economic Research Service), p. 53. 1963-1968: Obtained by correspondence.

of peanuts was fixed at the base grade which was set on the basis of
sound mature kernels. Each percentage of sound mature kernels above
the base percentage commanded a premium, and each percentage below the
base was given a discount. The support schedule by types under the
base grade method for the 1953 crop peanuts is presented in Table IX.

In the early years, the base grade was specified only by the per-
centage of sound mature kernels in the peanuts. The base grade specifi-
cation was expanded and refined in later years to include foreign
material, loose kernels, damaged kernels, and moisture content. Any
deviations from the base grade specification was taken into the support
price by premiums or deductions. Therefore, the computation of the
support price for a particular lot consisted of computing the net weight
and adjusting the base price for the deviations from the base grade
specifications by premiums and deducations. The base grade specifica-
tions for the crop year 1954 are tabulated in Table X and the premiums
and deductions for deviations from the base grade specifications are
shown in Table XI.

The revised method introduced rates for each percent of sound
mature kernels abolishing the premiums and the deductions for the devia-
tions from specification for sound mature kernels. The new method re-
tained, however, the deductions for damaged kernels, foreign material,
and sound split kernels, and the premiums for extra large kernels. The
support price per ton for peanuts of a particular type and quality
under the revised method was computed on the basis of given rates, pre-
miums, and discounts. The rates, premiums, and the discounts for 1968
crop peanuts were as follows:

TABLE IX

PEANUTS: SUPPORT LEVELS, PREMIUMS, DISCOUNTS BY
PRINCIPAL TYPES, CROP YEAR 1953

	Type[a]			
Item	Virginia	Runner	Southeast Spanish	Southwest Spanish
Support price:				
Average grade ton	$250.71	$225.90	$243.38	$231.60
Base grade ton	$229.00	$213.00	$234.00	$230.00
SMK percentage, base grade ton[b]	65	65	70	70
SMK premium or discount per percent deviation from base grade	$ 3.60	$ 3.30	$ 3.40	$ 3.30
Discount for damaged kernels containing of:				
2%	$ 3.60	$ 3.30	$ 3.40	$ 3.30
3%	7.20	6.60	6.80	6.60
4%	12.60	11.55	11.90	11.55
5%	19.80	18.15	18.70	18.15
6%	27.00	24.75	25.50	24.75
7%	37.80	34.65	35.70	34.65
8% and over	Not eligible for price support			

[a]For U. S. average support price, effective parity price, and support level, refer to Table VII.

[b]SMK represent Sound Mature Kernels.

Source: The National Archives of the United States, Federal Register (Washington: The Government Printing Office, 1953), pp. 5055-5561.

TABLE X

THE BASE GRADES AND THE SUPPORT PRICES FOR THE 1954 CROP

Item	Virginias	Runners	Spanish East of the Miss.	Spanish East of the Miss.
Base Grade Specifications				
All types:				
Foreign Materials[a]	4%	4%	4%	4%
Loose Kernels[a]	5%	5%	5%	5%
Damaged Kernels[b]	1%	1%	1%	1%
Sound Mature Kernels				
Weight[c]	65%	65%	70%	70%
Screen slots: inches	15/64 x	15/64 x	14/64 x	14/64 x
Moisture Content	8%	7%	7%	7%
Virginia type alone:				
"Fancy" size pods: 25 % of gross weight; screen slots in inches: 43/64 x 3; otherwise "Runners".				
Extra Large Kernels; 15% of gross weight; screen slots in inches: 12.5/64 x 1.				
Support Prices for 1954				
One Ton Net Weight	$236.00	$220.00	$241.00	$237.00

[a]In percent of gross weight.

[b]In percent of sample weight.

[c]In percent of the weight of the cleaned sample.

Source: The National Archives of the United States, Federal Register (Washington: The Government Printing Office, 1954), pp. 6214-6218.

TABLE XI

PREMIUMS AND DEDUCTIONS AS FIGURED FROM THE SUPPORT PRICE FOR
THE BASE GRADE, PER TON NET WEIGHT IN DOLLARS
AND CENTS, CROP YEAR 1954

Items on Inspection Certificate	Virginias	Runners	Spanish East of the Miss.	Spanish West of the Miss.
	Dollars			
Sound Mature Kernels: Discount or premium for each one percent below or above the SMK content of the base grade	3.70	3.40	3.50	3.40
Foreign Material: Discount for each full percent in excess of 4% and not over 10%	1.00	1.00	1.00	1.00
Loose Shelled Kernels: Discount for each full one percent above 5% in farmers' stock peanuts	.50	.50	.50	.50
Damaged Kernels: Discount for each full percent above 1% and no above 8%, as follows:				
2%	3.70	3.40	3.50	3.40
3%	7.40	6.80	7.00	6.80
4%	12.95	11.90	12.95	11.90
5%	27.75	25.50	26.26	25.50
6%	27.75	25.50	26.25	25.70
7%	38.85	35.70	36.75	35.70
Extra Large Kernels: Premium for each full one percent in excess of 15%	1.25			

Moisture: Each full percent above 8% in the Virginia-Carolina area, and above 7% in the other areas reduces the gross weight by the same percentage (determination of net weight).

Virginia Type Peanuts: Any lot or load of peanuts which would otherwise be considered Virginia type but which contains less than 25% "Fancy" peanuts (riding a 34/64 x 3" slotted screen) will be considered "Runner" type peanuts.

Source: The National Archives of the United States, Federal Register (Washington: The Government Printing Office, 1954), pp. 6214-6218.

Rates: Rates apply to sound mature kernels, other kernels, and loose shelled kernels.

(a) Price for each percent of sound mature and sound split kernels by type:

Type	Dollars Per Ton
Virginia	3.530
Runner	3.309
Southeast Spanish	3.448
Southwest Spanish	3.372
Valencia:	
Southwestern area – suitable for cleaning and roasting	3.872
Southwestern area – not suitable for cleaning and roasting	3.372
Areas other than Southwestern	3.448

(b) Price for each percent of other kernels for all types is $1.40.

(c) Price of loose shelled kernels per pound for all types is seven cents.

Premiums: The premium for each one percent extra large kernels in Virginia type peanuts is 45 cents, except that no premium is applicable to any lot if the lot contains more than seven percent damaged kernels.

Discounts: Discounts are applied to (a) damaged kernels, (b) sound split kernels, (c) foreign material, (d) mixed type, and (e) location adjustment.

(a) Damaged kernel discount: For all types of peanuts, the discount per ton for damaged kernels is as follows:

Percentage of Damaged Kernels	Discount Per Ton (Dollars)
1	None
2	3.40
3	7.00
4	11.00

Percentage of Damaged Kernels	Discount Per Ton (Dollars)
5	25.00
6	40.00
7	60.00
8-9	80.00
10 and over	100.00

(b) Sound split kernel discount: For all types of peanuts, the discount for sound split kernels is as follows:

Percentage of Sound Split Kernels	Discount Per Ton (Dollars)
1-4	None
5	1.00
6	1.60
7 and over	2.40

For each additional percent of sound split kernels in excess of seven percent, 80 cents are added to the above discount schedule.

(c) Foreign material discount: The discount for each full one percent material in excess of four percent and not over 10 percent is one dollar per ton.

(d) Mixed types discount: Individual lots of farmers' stock peanuts containing mixtures of two or more types in which there is less than 90 percent of any one type is supported at a rate which is $10.00 less than the support price applicable to the type in the mixture having the lowest support price.

(e) Location adjustment: Peanuts produced in specified states where peanuts are not customarily shelled or crushed are discounted from the 1967 crop year. The purpose of location adjustment is believed to be intended to discourage peanut production outside the current 11 major peanut producing states.

The rates, premiums, and discounts for the crop years 1966-68 are summarized in Table XII. The rates, premiums, and discounts varied as the national support price level was changed. However, the method of computing the price of a particular lot of peanuts remained the same throughout the years since 1956.

The explanations on determining the support price schedule so far are based on farmers' stock peanuts sold either to a sheller, a crusher, or a processor. Peanuts are supported not only at the grower level but also at the sheller level. Shelled peanuts are also purchased by the Commodity Credit Corporation as a part of the general operation to support the income of peanut growers. Shelled peanuts are supported on the basis of grade specifications for each type of peanuts. The grade specifications for each type are shown in Appendices A, B, and C.

For purchasing shelled peanuts by the Commodity Credit Corporation, shelled peanuts are classified into nine grades, they are: U. S. No. 1 (all types); U. S. Extra Large Virginia; U. S. Medium Virginia; U. S. Split (all types); No. 1 Size; Large Whole Kernels; Large Split Kernels; Small Kernels; and Falls Through. The grade specifications for the purpose of supporting shelled peanuts are defined and the actual support prices by grade are shown for the crop years 1965-68 in Table XIII.

When shelled peanuts are delivered to the Commodity Credit Corporation by a sheller after the specified date, the Commodity Credit Corporation pays the carrying charge commencing on the specified date in each shelling area.[43] Shelled peanuts are purchased on the basis of the net weight determined at the time of delivery at specified prices. The carrying charge is limited by a maximum per ton net weight.

TABLE XII

PEANUT SUPPORT PRICE: RATES, PREMIUMS,
AND DISCOUNTS 1966-68

Rates, Premiums,	Crop Year		
and Discounts	1966	1967	1968
Price Per Ton		Dollars	
Rates:			
Sound Mature Kernels[a]			
Virginia	3.305	3.278	3.530
Runner	3.110	3.145	3.309
Southeast Spanish	3.214	3.224	3.448
Southwest Spanish	3.169	3.169	3.372
Valencia:			
Southwestern area[b]	3.578	3.664	3.872
Southwestern area[c]	3.178	3.169	3.448
Other area[d]	3.214	3.224	3.372
Other Kernels[e]	1.400	1.400	1.400
Loose Shelled Kernels[f]	0.070	0.070	0.070
Premiums:[g]			
Damaged Kernels[h]			
1	None	None	None
2	3.40	3.40	3.40
3	7.00	7.00	7.00
4	11.00	11.00	11.00
5		25.00	25.00
6		40.00	40.00
7		60.00	60.00
8-9		80.00	80.00
10 and over		100.00	100.00
Sound Split Kernels[i]			
1-2		None	None
3		1.20	None
4		1.20	None
5		1.20	1.00
6		1.20	1.60
7 and over		1.20	2.40
Foreign Material[j]		1.00	1.00
Mixed Type[k]		10.00	10.00
Location Adjustment[l]			
Arizona		25.00	25.00
Arkansas		10.00	10.00
California		33.00	33.00
Louisiana		7.00	7.00
Mississippi		20.00	20.00
Missouri		10.00	10.00
Tennessee		25.00	25.00

TABLE XII (Continued)

[a]Price for each percent of sound mature and sound split kernels.

[b]Valencia suitable for cleaning and roasting.

[c]Valencia type peanuts unsuitable for cleaning and roasting.

[d]Valencia type peanuts produced in areas other than Southwestern area.

[e]Price for each percent of other kernels for all types.

[f]Value of loose shelled peanuts of all types.

[g]Premium for each one percent extra large kernels in Virginia type peanuts provided that the damaged kernels are less than seven percent.

[h]Discount per ton for demanded kernels for all types.

[i]Discount for sound split kernels for all types.

[j]Discount for each full one percent foreign material in excess of four percent and not over 10 percent.

[k]Individual lots of farmers' stock peanuts containing mixtures of two or more types in which there is less than 90 percent of any one type will be supported at a rate which is $10.00 less than the support price.

[l]Peanuts produced in specified states where peanuts are not customarily shelled or crushed are discounted.

Sources: U. S. Department of Agriculture, Federal Register (Washington: U. S. Government Printing Office), 1966, pp. 10242-10245; 1967, pp. 10910-10912; and 1968, pp. 11897-11899.

The farmers' stock peanuts in the hand of shellers are also pur-
chased by the Commodity Credit Corporation at the support prices plus
carrying charge if the peanuts are delivered after November in the
Southeastern area and December in the Southwestern and Virginia-Carolina
areas. The carrying charge is limited by a maximum per ton net weight
per calendar month and by a maximum total charge per ton net weight.

The basis for determining the support prices for shelled peanuts
by grade are not available. However, the shelled peanut statistics by
grade from farmers' stock peanuts, the market prices of shelled peanuts
by grade, the cost of shelling and storing peanuts are believed to be
the basis.

Output Control. The control of peanut output is based on the
Agricultural Adjustment Act of 1938 as amended. As the quantity of
peanuts marketed in the commercial channel increases above the quantity
of peanuts needed for cleaning, shelling, and processing, the prices at
which all peanuts are marketed are depressed to low levels. These low
prices tend to cause the quantity of peanuts available for marketing
in later years to be less than normal, which in turn tends to cause
relatively high prices. The fluctuation of prices and marketing of
peanuts creates harmful effects not only to growers but also to
cleaners, shellers, crushers, processors, and consumers. Thus, the
purpose of controlling the output of peanuts was to protect all seg-
ments of the industry and consumers.

According to Section 358 of the Agricultural Adjustment Act of
1938 as amended, between July and December 1 of each year the Secretary
of Agriculture has to proclaim the amount of the national marketing
quota for peanuts for the crop produced in the next succeeding calendar

TABLE XIII

SUPPORT PRICE FOR SHELLED PEANUTS, 1965-68[a]

Grade	1965	1966	1967	1968
	Cents Per Pound			
U. S. Grade Shelled Peanuts:[b]				
U. S. No. 1 (all types)	20.06	17.25	17.25	18.25
U. S. Extra Large Virginia	22.74	20.50	20.50	21.75
U. S. Medium Virginia	20.60	18.50	18.50	19.50
U. S. Split (all types)	17.66	16.75	16.77	17.75
Shelled Peanuts - Not U. S. Grade				
No. 1 Size[c]	17.92	17.00	17.00	17.90
Large Whole Kernels[d]	17.12	16.25	16.25	17.10
Large Split Kernels[e]	17.66	16.75	16.75	17.60
Small Kernels[f]	--	12.00	12.00	12.60
Falls Through[g]	6.42	6.00	6.00	6.25

[a]The prices specified for shelled peanuts described in this table will be discounted for damaged and unshelled kernels and minor defects at prescribed rates and for foreign material at the rate of one-tenth of one cent per pound for each full one-tenth of one percent by the foreign material is in excess of one percent.

[b]For grade specifications for shelled peanuts by type, refer to Appendices A, B, and C.

[c]Peanuts which ride U. S. No. 1 screens.

[d]Kernels which will not pass through screens with the following size openings: Virginia 14/64 x 1" slot; Runner 14/64 x 3/4" slot; Spanish 13/64 x 3/4" slot.

[e]Large kernels separated into halves and which sill not pass through the screen with the following size openings: Virginia 17/64" round; Runner 17/64" round; Spanish 14/64" round.

[f]Kernels which will not pass through screens with the following size openings: Virginia 12/74 x 1" slot; Runner 12/74 x 3/4" slot; Spanish 11/64 x 3/4" slot.

[g]All kernels of portions thereof which will pass through screens with the following size openings: Virginia 12/64 x 1" slot, 17/64" round; Runner 12/64 x 3/4" slot, 17/64" round; Spanish and Valencia 11/64 x 3/4" slot, 16/64" round.

Sources: U. S. Department of Agriculture, Federal Register (Washington: U. S. Government Printing Office), 1965, pp. 9407-9408; 1966, pp. 10242-10245; 1967, pp. 10910-10912; and 1968, pp. 11897-11899.

year. The computation of the national marketing quota is based on the average quantity of peanuts harvested for nuts during the five years immediately preceding the year in which such quota is proclaimed, adjusted for current trends and prospective demand conditions.

The national marketing quota for any year, thus computed, is converted to a national acreage allotment by dividing such quota by the average yield per acre of peanuts in the five years preceding the year in which the quota is proclaimed, adjusted for trends in yield and for abnormal conditions of production affecting yields in such five years.

The national acreage allotment is apportioned to states producing peanuts based on the past acreage of peanuts, abnormal conditions affecting the acreage such as land, labor, and equipment in the production of peanuts, crop rotation practices, and soil and other physical factors affecting the production of peanuts. The acreage allotment apportioned to the state is allotted to producers through local committees among farmers such as the Peanut Producers Association or the state peanut committee.

The national acreage allotment for the past several years has been set at 1.610 million acres which is the minimum national acreage set by Section 358 (a) of the Agricultural Adjustment Act of 1938 as amended. Section 358 (f) of the 1938 statute as amended also provides for the establishment of a national reserve acreage for new farms of not more than one percent of the national acreage allotment for approtionment among the farmers on which peanuts are to be produced in the year.

The national acreage allotment for the 1968 crop year was set at 1.610 million acres less the national reserve for new farms of 1,610 acres. The national acreage for 1968 apportioned to states on the

basis of their share of the national acreage allotment for 1968 was as follows:[44]

State	State Acreage Allotment (Acres)
Alabama	217,352
Arizona	713
Arkansas	4,194
California	933
Florida	55,300
Georgia	528,347
Mississippi	7,513
Missouri	247
New Mexico	5,612
North Carolina	168,286
Oklahoma	138,415
South Carolina	13,858
Tennessee	3,618
Texas	356,950
Virginia	105,101
Total Acreage Apportioned to States	1,608,390
Total Reserve for New Farms	1,610
Total National Acreage Allotment	1,610,000

Any transfer of allotment is allowed among the producers but the temporary transfer does not result in a reduction of the allotment for any subsequent year for the farm from which acreage is transferred, and any temporary transfer does not operate to increase the allotment for the subsequent year for the farm to which acreage is transferred. However, any farm that failed to produce peanuts during the three year period is ineligible for an allotment.

Growers' Referendum. The marketing quota system is tied with other federal programs such as price support, surplus removal, and non-recourse loans to maintain farm income. The quota system becomes effective when it is approved by more than two-thirds of those farmers voting in a referendum. The Secretary of Agriculture conducts a referendum of farmers engaged in the production of peanuts not later than December 15

of each calendar year in order to determine whether farmers are in
favor of or opposed to the marketing quota with respect to the crops of
peanuts produced in the three years immediately following the calendar
year in which the referendum is held. If more than two-thirds of those
voting favored the marketing quota, the Secretary of Agriculture pro-
claims the results of the referendum, and the marketing quota becomes
effective for the coming three years.

The majority of those voting favored the marketing quota since the
first referendum was held in April, 1941. Over 87 percent of those
voting favored the marketing quota in each referendum since 1941 except
1950 in which only about 71 percent of those who voted favored the
quota system. In 1965, over 97 percent of those voting favored the
quota system. Table XIV shows the results of referendums held since
1941.

Growers' Behavior. The procedures and methods of determining sup-
port prices, of the quality factors which are incorporated in the
actual support price schedule, and of the output control through acre-
age allotment were examined in detail in this section. Usually, the
function of establishing policies toward setting and changing price,
quality, and output is a major element of market conduct of a firm. In
the peanut industry, it is a function of the federal government and its
agencies as explained in detail in this and the previous sections of
this chapter, and individual firms are limited in the scope of their
market conduct. The behavior of a firm has to be viewed within the
limitations imposed by market structures among which the statutory
institutions and the federal government and its agencies with various
programs and the power to enforce the programs are the most important.

Under the conditions of the peanut industry structure described, the market for peanuts is assured at the price set by the government as long as the peanuts are produced from the allotted acreage and the behavior to be expected logically is the growers' endeavor to increase yield. Since production is restricted by limiting only one factor of production, namely, acreage, producers are free to increase their output by applying other factors of production.

If we assume the average and marginal cost curves of a grower as indicated in Figure 4, the grower's policy toward output would be to increase the output to Q_o for the price P_o which is set by the government. If the firm expects a price higher than P_o, the output will be pushed to the right of Q_o.
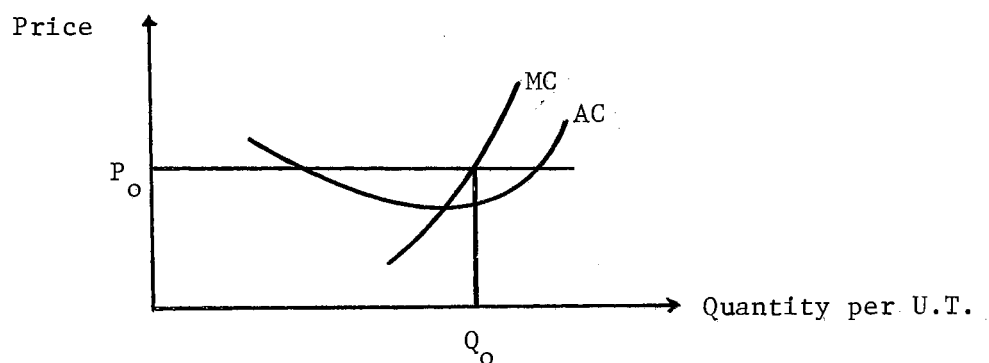
Figure 4. Average and Marginal Cost Curves and Assumed Support Price Level

TABLE XIV

RESULTS OF NATIONAL REFERENDUM FOR MARKETING
QUOTA FOR PEANUTS 1941-65

Crop Year[a]	Date of Referendum	Total Voted	Votes		Percent of Yes Votes
			Yes	No	
1941 1942 1943[b]	April 1941	73,850	64,462	9,338	87.3
1948[b] 1949 1950	Dec. 1947	105,098	92,136	12,953	87.7
1951 1952 1953	Dec. 1950	68,910	48,790	20,120	70.8
1954 1955 1956	Dec. 1953	66,433	62,637	3,796	94.3
1957 1958 1959	Dec. 1956	39,138	36,596	2,542	93.5
1960 1961 1962	Dec. 1959	33,598	31,875	1,723	94.9
1963 1964 1965	Dec. 1962	42,838	41,508	1,330	96.9
1966 1967 1968	Nov. 1965	36,413	35,516	897	97.5

[a]Crop years for which the referendum was held.

[b]Suspended.

Source: Southwestern Peanut Growers Association, _Southwestern Peanut Grower News_ (Gorman, Texas, October, 1968), p. 3.

If the grower expects the price of P_o (often, the price of the previous year is expected to continue in the coming year), his main concern would be to increase the production as long as the cost to add the last unit is equal to or slightly less than P_o. If the cost curve shifts to the right by improved cultivation and harvesting method or by proper irrigation method, the output will be increased. In essence, as long as they can lower per unit production cost, they can increase their output, and thus have an increased total profit.

The industry's effort to lower unit cost by increasing yield is reflected to the annual grants made for peanut research. The grants were made mostly to increase yield, decrease cost, and improve quality. The itemized grants to each area of research are shown in Table XV. Although the information is not on a national basis, it gives the general idea on the effort directed by peanut growers and their trade associations.

The economic environment as created by the elements of market structure, some created and some inherited, and the behaviors of firms and of the federal government and its agencies are a complex entity to be described in a few paragraphs. However, both the economic environment and the behavior of firms have a closely related meaning since market structure exists to influence the behavior of firms and the firms behave in order to build a better society. "How well did the firms behave" in the aggregate sense implies "How well did the industry perform". How well did the peanut industry perform in the economy is a subject to be studied in the next sub-section.

TABLE XV

PEANUT RESEARCH GRANTS BY OKLAHOMA PEANUT
COMMISSION FOR 1966-67

Area of Research	1966	1967
	(Dollars)	(Dollars)
General Peanut Equipment	6,800.00	
Genetic and Breeding	5,000.00	6,750.00
Weed Control in Peanut	4,500.00	4,500.00
Mechanization	5,000.00	
Economics (Peanut Market)	5,000.00	
Biochemistry	5,000.00	4,500.00
Peanut Disease Control	5,000.00	6,750.00
Irrigation Equipment	5,000.00	6,800.00
Soil Fertility Research		4,365.00
Nematode Control		4,500.00
Water Requirements of High Population Peanuts		4,050.00
Total Grants	46,300.00	44,015.00

Market Performance

The evaluation of market performance requires three distinctive but interrelated studies on: (1) identifying the crucial dimensions of market performance, (2) measuring the actual performance in each of the relevant dimensions, and (3) establishing norms of ideal or satisfactory performance against which actual performance may be evaluated.[45]

Although the dimensions of market performance can be identified without difficulty, measuring actual performance in each of the relevant dimensions and establishing norms of ideal performance are considered difficult. Any statement on the performance of a particular industry such as the peanut industry requires a rather thorough knowledge on the various segments of the industry and on the functioning of

each segment in the entire industry. The study of such a nature is beyond the scope and capability of this study with limited manpower and resources. Therefore, no further attempt was made to describe the market performance of the peanut industry.

FOOTNOTES

[1] Roy Johnson, The Peanut Story (Murfreesboro, N. C., 1964), p. 1.

[2] J. G. Woodroof, Peanuts: Production, Processing, and Products (Westport, Connecticut, 1966), p. 6.

[3] U. S. Department of Agriculture, Foreign Agricultural Circular (Washington: Foreign Agricultural Service), selected issues.

[4] During the 1935-1939 period, France imported 1,111,070 tons of peanuts and 1,438 tons of peanut oil and exported 51,519 tons of peanut oil, annually. On the basis of the 30 percent oil extraction rate, France had a net import of 944,300 tons of peanuts, annually.

[5] Based on the experience of the United States during the 1947-1964 period, unshelled peanuts yielded on the average 28.71 percent of oil and 43.99 percent of peanut cake and meal by weight and shelled peanuts yielded 40 and 60 percent, respectively. Refer to U. S. Department of Agriculture, Fats and Oils Situation (Washington: Economic Research Service, May, 1965), p. 126.

[6] U. S. Department of Agriculture, Foreign Agricultural Circular, FFO 7-67 (Washington: Foreign Agricultural Service, August, 1967), p. 20.

[7] B. B. Higgins, The Peanut: The Unpredictable Legume, A Symposium (Washington: National Fertilizer Association, 1951), p. 2.

[8] For the description of varieties, refer to J. G. Woodroof, Peanuts: Production, Processing, and Products, pp. 34-43.

[9] K. L. Bachman, et. al., Peanuts in Southern Agriculture (Washington: BAE, U. S. Department of Agriculture, 1947), p. 5.

[10] For various forms of peanut uses, refer to J. G. Woodroof, Peanuts: Production, Processing, and Products, pp. 113-258.

[11] Antoine Banna, Sidney J. Aromor, and Richard J. Foote, Peanuts and Their Uses for Food, Marketing Research Report No. 16 (Washington: U. S. Department of Agriculture, 1952), p. 6.

[12] Woodroof, Peanuts: Production, Processing, and Products, p. 193.

[13] U. S. Department of Agriculture, Foreign Agricultural Circular, FFO 11-68 (Washington: Foreign Agricultural Service, 1968), p. 18

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[14] J. G. Woodroof, Helen H. Thompson, and S. R. Cecil, Peanut Oil: The Stability of Peanut Oil, Comparison of Peanut Oil with Other Cooking Oils, Bulletin 247 (Experiment, Georgia, 1946), pp. 11-24.

[15] F. R. Edwards and Z. A. Massey, Peanut Meal in Livestock Production, Bulletin 216 (Experiment, Georgia, 1941), p. 24.

[16] Ibid., p. 28.

[17] H. B. Craig, et. al., "Chemical, Physical, and Organoleptic Evaluation of Aged Country-Style Hams from Hogs Fed Rations With and Without Peanut Oil," Journal of Animal Science, XXIII, No. 4 (1964), pp. 956-959.

[18] U. S. Department of Agriculture, Marketing Peanuts and Peanut Products, Miscellaneous Publication No. 416 (Washington: Agricultural Marketing Service, 1941), p. 146.

[19] Edwin G. Nourse, Between Automatic and Authoritarian Price-Making (Washington: The Brookings Institution, 1942), p. 7.

[20] Joe S. Bain, Industrial Organization (New York: John Wiley & Sons, 1959), p. 541.

[21] John A. Jamison and Karl Brandt, Marketing Orders: Performance, Potential, and Limitations, The Case of California's Cling Peaches and Asparagus (California: Stanford University, 1965), p. 1.

[22] L. G. Tweeten, Foundations of Farm Problems (Lincoln: University of Nebraska Press, 1970), Chapter VI.

[23] Edwin G. Nourse, The Legal Status of Agricultural Co-operation (New York: The McMillan Company, 1927); Donal F. Blankerts, Marketing Cooperatives (New York: The Ronal Press Company, 1940).

[24] Edwin G. Nourse, Marketing Agreements Under the AAA (Washington: The Brookings Institution, 1935), p. 318.

[25] For further information on the statutes related to agriculture, refer to U. S. Department of Agriculture, Compilation of Statutes Relating to Agricultural Programs, Agricultural Handbook No. 327 (Washington: Agricultural Stabilization and Conservation Service, 1967).

[26] For detailed description of earlier antecedents of the 1933 market control provisions, refer to Dudley F. Pegrum, Public Regulation of Business (Homewood, Illinois: Richard D. Irwin, Inc., 1965), pp. 296-304.

[27] Ibid., p. 299.

[28] Edwin G. Nourse, Marketing Agreement Under the AAA, p. 6.

[29]Edwin G. Nourse, Joseph S. Davis, and John D. Black, Three Years of the Agricultural Adjustment Administration (Washington: The Brookings Institution, 1937), p. 6.

[30]Ibid., p. 44.

[31]Ibid., p. 32.

[32]Murray R. Benedict and Oscar C. Stine, The Agricultural Commodity Programs (New York: The Twentieth Century Fund, 1956), p. 149

[33]Melvin Anshen and Francis D. Wormuth, Private Enterprise and Public Policy (New York: The MacMillan Company, 1943), p. 463.

[34]Ibid., p. 463.

[35]Federal programs for peanuts between 1933 and 1955 draw material heavily from the following three sources without citing a specific reference: Sydney C. Reagan, "Peanut Price Support Programs, 1933-1952, and Their Effect on Farm Income" (unpub. Ph.D. dissertation, Harvard University, 1953); Murray R. Benedict and Oscar Stine, The Agricultural Commodity Programs (New York: Twentieth Century Fund, 1956); and D. Upton Livermore, Response of Peanut Production to Technological Progress, Institutional Changes, and Economic Conditions (Virginia: Virginia Polytechnic Institute, 1960).

[36]Our legislation defines fair returns in terms of the parity price for a particular agricultural commodity. To assure farmers that they receive such a price, the law requires that the prices of the so-called basic commodities shall not drop below 90 percent of their parity prices. Peanuts are one of the basics, and that floor or support price must be figured from the parity prices of the month of August preceding the new peanut crop. The base years for parity price computation are the 60 months from August 1909 through July 1914.

[37]Gilber W. Biggs, et. al., Buying Farmers' Stock Peanuts in the Virginia-Carolina Area (Washington: U. S. Department of Agriculture, 1962).

[38]U. S. Department of Agriculture, Compilation of Statutes Relating to Agricultural Programs, Agricultural Handbook No. 327 (Washington: Agricultural Stabilization and Conservation Service, 1967), pp. 170-197.

[39]Supply percentage = $\frac{\text{Total Supply}}{\text{Normal Supply}}$ x 100, where the total supply is defined as the sum of carry-over at the beginning of the marketing year, the estimated production, and the estimated imports; and the normal supply is defined as the sum of the estimated domestic consumption, the estimated export, and the allowance for carry-over.

[40]Ibid., pp. 49-65. Parity prices are computed under the provisions of Title III, Subtitle A, Section 301 (a) of the Agricultural Adjustment Acts of 1948, 1949, and 1956.

[41]U. S. Department of Agriculture, _Agricultural Prices_, _Supplement_ _No. 1_ (Washington: Crop Reporting Board, January, 1968).

[42]United States Government Printing Office, _Federal Register_, XXXII, No. 59 (July 20, 1967), p. 5566.

[43]Carrying charge to peanuts delivered to the CCC after November in Southeastern area and December in Southwestern and Virginia-Carolina areas. The carrying charge will commence on December 1 in the Southeastern area and January 1 of next calendar year in Southwestern and Virginia-Carolina areas.

[44]United States Government Printing Office, _Code of Federal Regulations_, Revised as of January 1, 1968, Title 7, p. 501.

CHAPTER III

THEORY, MODELS, AND DATA

Success in evaluating past commodity programs and in assessing the
impact of future policy alternatives for peanuts on consumers, tax-
payers, and peanut growers is conditioned by the ability of the investi-
gator to estimate quantitatively the demand relationships. In turn,
the estimation of demand relationships depends upon demand theory as
applied to the peanut industry, the statistical models, and the avail-
able data.

Demand Theory

Few subjects in economics have been investigated as widely as con-
sumer demand. Demand theory, pertinent to the explanation and predic-
tion of consumer behavior, has become increasingly complex. For
example, psychologists rely heavily on behavioralism; sociologists tend
toward institutional description; anthropologists observe closely pri-
mitive culture; and economists rely upon neo-classical utility theory.[1]
In recent years, revealed preference developed as an alternative
approach to the theory of consumer behavior.[2]

Theories of consumer demand vary widely and are dealt with exten-
sively elsewhere in the literature.[3] Although the importance of these
theories in explaining consumer behavior is fully recognized, special
elaboration of them is not attempted in this study. The purpose herein

is to direct attention to other more related theoretical concepts to be examined in this study. Attention is focused on a particular body of demand theory which helps to develop relevant testable hypotheses that are consistent with available data and estimation techniques.

Demand theory postulates that the quantity of a commodity consumed at a given time and place depends on it's own price, consumer income, the prices of related goods, the number of consumers, price expectations, and tastes and preferences. This relationship can be expressed in functional form as follows:

$$Q_x = f(P_x, Y, P_i, N, E, T) \tag{3-1}$$

where Q_x stands for the quantity demanded of commodity X; P_x refers to the price of commodity X; P_i represents the prices of related goods that are both complementing and competing goods; N denotes the number of consumers; E refers to price expectation; and T stands for tastes and preferences.

Demand theory can be treated at two levels -- individual consumer demand and market demand. At the individual consumer level, demand theory explains individual behavioral patterns in the choice and amount of a commodity or service.

Market demand for a good is obtained by summing the individual demands in the market. Therefore, the market demand curve for a commodity is the horizontal summation of the individual consumer demands for the commodity. Equation (3-1) expresses the market demand relationships for the good, X.

The purpose of demand analysis is to estimate the impact of changes in any one or combination of variables upon the quantity of a

commodity demanded that is consumed. A theoretical concept in measuring the impact of a change in any one of the determinants upon the quantity of a good consumed is elasticity. The elasticity concept is useful in applying the results of a demand estimate to a discussion of possible program alternatives.

Elasticity

The elasticity of demand with respect to any variable in Equation (3-1), say P_x, is defined as the relative responsiveness of quantity demanded, Q_x, to changes in that variable. The elasticity of demand with respect to any variable may be measured by the ratio of the percentage changes in the quantity of a commodity demanded to the percentage changes in the variable.[4]

The elasticity of demand with respect to its own price is often considered the most important elasticity in demand analysis because of its relationship to total receipts. If it is elastic, a decrease in price will increase the total amount of money spent on the commodity. If it is inelastic, a decrease in price will lower the total expenditures on the commodity. If it is unit elasticity, price changes will not result in the cahnges in the total expenditures on the commodity.

Income elasticity of demand is also considered important because it is useful in estimating the influence of changes in income upon the consumption of a commodity. Income elasticity may be used together with price elasticity in assessing the impact of changes in both price and income upon the quantity demanded.

The elasticity of demand with respect to the price of a related good is called the price cross-elasticity of demand. It is defined

as the proportional change in the quantity of a commodity demanded resulting from a given proportional change in the price of a related commodity. Cross-elasticity is useful since it can be used in estimating the influence of price changes of related goods upon the consumption of a commodity.

With respect to variable E in Equation (3-1), Hicks defines the elasticity of expectations.[5] However, the future price expectations are difficult to quantify and, therefore, no further attempt was made to measure the elasticity of expectations in this study. The population variable, N, can be removed from Equation (3-1) by dividing both sides of Equation (3-1) by N. Thus, it is unnecessary to measure the elasticity with respect to population, N, if the empirical demand function is estimated on a per capita basis. No attempt was made to discuss the elasticity of demand with respect to tastes and preferences because individual tastes and preferences cannot be quantified in any known manner.

The postulates of demand theory may be applied to both peanut markets, namely the market for peanuts for edible uses and the market for peanuts for crushing.

Peanut Markets

Generally, peanuts are traded in two basic markets with peanuts for edible uses being traded on one market and peanuts for crushing uses on the other. The peanut market is separated on the basis of uses and, furthermore, the separation of markets is enforced by price support programs and marketing orders for peanuts.

During the period covered by this study, growers sold peanuts at support prices to commercial buyers only for edible uses while the remainder was sold to the Commodity Credit Corporation. The Commodity Credit Corporation later sold the purchased peanuts to crushers at a much lower price. Growers were prohibited from selling peanuts to crushers directly at a price lower than the support price level and the Commodity Credit Corporation was prohibited from selling purchased peanuts for edible uses to processors. These provisions appear in the market orders for peanuts.

The price of peanuts for edible uses was determined by the price support program and the price of peanuts for crushing uses was determined by competitive bidding by crushers.

In this study, the market for edible uses and the market for crushing uses were analyzed separately and then both markets were integrated into a single market which serves as the basis for assessing the impact of future commodity program alternatives and for evaluating the impact of the past commodity programs on farm income, on government cost, and on peanut consumption. In addition, the relationships between the two peanut markets were analyzed.

Statistical Models of Demand for Peanuts

In order to estimate quantitatively the relationships postulated in demand theory, two basic statistical models of demand for peanuts were developed, one for demand for peanuts for edible uses and the other for crushing uses.

The statistical models of demand for peanuts developed in this section will serve as a basis for the estimation of parameters which

will be useful in gauging the consequences of changes in one or more variables included in the models. Economic theory related to the analysis of the demand for peanuts, knowledge of the peanut industry, and econometric theory, form the basis for statistical models developed in this section.

Choice Among Models

A statistical model may contain a single relationship or a multiple of relationships in the system, each relationship being determined simultaneously within the system. In estimating the parameters of relationships, a single equation approach is used when a single relationship is postulated and a simultaneous equation approach is applied when more than one relationship is hypothesized to exist in the system.

A single equation approach was considered appropriate in building a statistical model for analyzing the demand for peanuts since a system of simultaneous equations, representing a free market situation, was thought to be inappropriate in view of government price support programs. The effect of price support programs on the choice of method can be explained in the following way:

Assume a simple simultaneous equations model which contains three endogenous variables, price, the quantity supplied, and quantity demanded denoted by P, S, and D, respectively. The simultaneity among the variables means that

(a) $P = P(S, D, Z_1, Z_2, \ldots z_n)$,

(b) $S = S(D, P, Z_1, Z_2, \ldots Z_n)$, and

(c) $D = D(S, P, Z_1, Z_2, \ldots Zn)$

are determined simultaneously. Z's are the exogenous variables. The

removal or alteration of any one of these relations would destroy the
simultaneity among the variables and render a simultaneous equations
approach inappropriate. The price support programs remove equation (a)
completely and alter the structural form of equations (b) and (c).[6]
For this reason, a single equation approach was adopted for this study.

Two single equation models, one for edible uses and the other for
crushing uses were formulated to estimate the parameters of each type
of demand. The available data for this study also presented some limit
in the freedom of choice for building statistical models. The
restraints due to data are discussed at appropriate places in the
following section.

Estimating Technique

The least squares estimating technique was adopted in this study.
The actual forecasts or estimates obtained from least squares estima-
tion are believed to be superior to those obtained by a simultaneous
equation system.[7] For the practical problems of estimating and fore-
casting undertaken in this study, more reliable estimates of the depen-
dent variable is believed to be the most important factor in consider-
ing the choice of an estimating technique.

In estimating the parameters associated with independent variables
in the statistical models, the following simple assumptions are made:

(a) $E(e) = 0$,

(b) $E(e'e) = I_n \sigma^2$, and

(c) Independent variables are a set of fixed numbers.

Under these assumptions, the ordinary least squares method was
adopted in this study. Some of the problems regarding the assumptions

are rather complex and several estimating methods other than the ordinary least squares method are available depending on the assumptions concerning the error term. Since detailed discussions as to the necessary assumptions and as to the choice of estimating techniques are found elsewhere, no attempt has been made to discuss them in this study.[8]

Model for Demand for Edible Peanuts

Edible peanuts include peanuts used for salting and roasting and those used in the manufacture of peanut butter, candy, and sandwiches. The general statistical model of the demand for edible peanuts is expressed as follows:

$$Y_{et} = B_o + B_1 Z_{1t} + B_2 Z_{2t} + \sum_{i=3}^{n} B_i Z_{it} + U_t \qquad (3-2)$$

where

Y_{et} stands for the quantity of peanuts purchased for edible uses in year t, and the Z's are defined as follows:

Z_{1t} is the per capita disposable personal income in dollars,

Z_{2t} is the price of peanuts for edible uses in cents per pound, and

Z_{3t} is the price of i-th good complementary to or competitive with peanuts for edible uses in cents per pound.

The subscript, t, refers to the order of observation and the B's imply the parameters associated with respective independent variables (Z's). The term, U_t, represents the random disturbances.

In this general model of demand for edible peanuts, the parameters are unknown and the main purpose is to obtain the estimates of these

unknowns. The statistical model specifies that the quantity demanded of peanuts for edible uses is a linear function of its own price, consumer income, and the prices of related goods.

Since the price of peanuts for edible uses is determined by the price support level, the variable Z_{2t} can also represent the support price for edible peanuts. The detailed discussion on the relationship between the price of peanuts for edible uses and the support price for peanuts is presented in Chapter IV.

Model of Demand for Peanuts for Crushing

Low quality peanuts not suitable for direct human consumption or peanuts in excess of direct edible requirements are crushed into oil and meal.

Since the U. S. supply of peanut oil and meal is insignificant compared to that of other edible oils and meals, peanut oil and meal are faced with many close substitutes. Therefore, the prices of other edible oils and meals would affect the demand for peanuts for crushing through their influence on the prices of peanut oil and meal. The price-quantity relationship for peanuts for crushing is also influenced by the price support program for edible peanuts. The general model of demand for crushing is constructed so as to incorporate these special characteristics into the model.

The federal government is the major supplier of peanuts for crushing. Peanuts in excess of edible requirements or peanuts of low quality are purchased by the federal government through the Commodity Credit Corporation, from both peanut producers and the primary processors of peanuts, at the support price level set by the government.

The peanuts purchased are then stored and resold only for crushing.

Some peanuts purchased by processors for edible uses but declared unsuitable for direct human consumption due to deterioration after the purchase are also crushed into oil and meal. However, the amount of peanuts crushed for this reason is considered to be insignificant as compared to the peanuts supplied by the government.

Since storage capacity is limited, old peanuts have to be sold as new peanuts are purchased. Even if storage capacity is not limited, the storage cost may become higher than the value of the peanuts if they are stored for a long enough period. For this reason, the govern- ment has limited flexibility in bargaining for a higher price for stored peanuts. The amount of peanuts already in storage and the amount of newly purchased peanuts will weaken the position of the government in bidding for a higher price. This peculiar structure of the market for crushing peanuts is incorporated in the general model. It is expressed as follows:

$$Y_{ct} = A_o + A_1 X_{1t} + A_2 X_{2t} + A_3 X_{3t} + A_4 X_{4t} + \sum_{i=5}^{m} A_i X_{it} + V_t \qquad (3-3)$$

where

Y_{ct} refers to the price of peanuts for crushing as dependent upon the variables (X's), on the right hand side of Equation (3-3). The independent variables in Equation (3-3) are explained as follows:

X_{1t} is the quantity of peanuts used for crushing measured in pounds per capita,

X_{2t} is the wholesale price of peanut meal in cents per pound

containing 45 percent protein, f.o.b. southeastern mills,

X_{3t} is the wholesale price of crude peanut oil, tank cars,

f.o.b. southeastern mills, in cents per pound,

X_{4t} is the amount of peanuts purchased by the Commodity

Credit Corporation measured in pound per capita, and

X_{it} is the price of i-th good complementary to or competitive

with peanuts for crushing uses.

The subscript, t, refers to the order of observation, and the A's imply

the parameters associated with respective independent variables (X's).

The term, V_t, represents the random disturbances.

In the general statistical model of demand for crushing peanuts,

the parameters are unknown and the purpose is to obtain the estimates

of these parameters. The statistical model for crushing peanuts speci-

fies that the price of crushing peanuts is a linear function of the

quantity of peanuts demanded for crushing, the prices of peanut oil

products (only two major ones), the amount of peanuts purchased by the

government, and the prices of related goods.

The amount of peanuts purchased by the government, X_{4t}, is, roughly,

the difference between the amount of edible peanuts supplied and the

amount of peanuts consumed for edible uses. Defining the amount of

peanuts supplied in year t as X_{st}, the amount of peanuts purchased by

the Commodity Credit Corporation, X_{4t}, may be expressed as follows:

$$X_{4t} = X_{st} - Y_{et} \qquad (3-4)$$

where Y_{et} is the amount of peanuts consumed for edible uses.

Since the variable, X_{4t}, is defined as in Equation (3-4), Equation (3-3) may be rewritten as Equation (3-5) replacing X_{4t} with the expression on the right hand side of Equation (3-4).

$$Y_{ct} = A_o + A_1 X_{1t} + A_2 X_{2t} + A_3 X_{3t} + A_4 (X_{st} - Y_{et})$$

$$+ \sum_{i=5}^{m} A_i X_{it} + V_t \qquad (3-5)$$

In Equation (3-5), the variable Y_{et} may be replaced with the right hand side expression of Equation (3-2). Then, the price of peanuts for crushing as expressed in Equation (3-5) becomes the function of a whole set of variables which affect the consumption of peanuts in both the edible and the crushing markets. This is considered to be reasonable since the market for crushing depends upon the price-quantity relationships in the edible peanut market. Equations (3-3) and (3-5) form the basis for a large number of trial or alternative models which were fitted to the actual data.

Relationship Between the Models

The demand for edible uses and for crushing uses have different characteristics and the peanuts in these two major uses have always been traded on separate markets under a direct price support program. The market for crushing uses is linked to the market for edible uses through the relationships expressed by Equations (3-4) and (3-5). The price of crushing peanuts is determined by the amount of peanuts supplied for crushing assuming the other variables are fixed. However, the amount of peanuts supplied for crushing uses is determined by the

price-quantity relationship for peanuts for edible uses. Therefore,
the market for crushing uses is dependent upon the market for edible
uses. The dependency is incorporated into Equation (3-5). Equation
(3-5), thus obtained, may be used for estimating the free market price.

Free market price of peanuts can be estimated from Equation (3-5)
in the following manner: First, substitute the right hand side of
Equation (3-2) for Y_{et} in Equation (3-5); then, let $P_{et} = Z_{2t} = Y_{ct}$;
and, finally, simplify Equation (3-5) to obtain Equation (3-6). The
equilibrium price, thus, obtained may be considered as the free market
price. In the absence of any price support program, peanuts would
have been traded for both edible and crushing uses without price
differentials since the peanut supply would be adjusted in such a
manner as to have a single price for both uses.

$$P_{et} = \frac{1}{1 + A_4 B_2}[(A_o - A_4 B_o) + A_1 X_{1t} + A_2 X_{2t} + A_3 X_{3t}$$

$$+ A_4 X_{st} - A_4 B_1 X_{1t} - A_4 \sum_{i=3}^{n} B_i Z_{it} + \sum_{i=5}^{m} A_i X_{it}$$

$$+ (V_t - A_4 U_t)] \tag{3-6}$$

The equilibrium price, P_{et}, computed from Equation (3-6) can be
used to obtain the price-quantity relationship for peanuts for edible
uses in a free market system by replacing Z_{2t} with P_{et} in Equation (3-2).
Similarly, the equilibrium price, P_{et}, may also be used to estimate
the price-quantity relationship for crushing peanuts in a free market
system by replacing Y_{et} with P_{et} in Equation (3-3). The demand rela-
tionships estimated in this manner can be used in evaluating the impact

of past price support programs and in assessing the impact of future price support programs on consumers, on government cost, and on farm income.

Under a direct price support program, peanuts are traded on two separate markets, one for edible peanuts and the other for crushing. The differences between the two markets are (1) that the changes in the price of peanuts on the edible market have a direct effect on farm income, on peanut consumption, and on government cost of a direct price support program, and (2) that changes in the price of peanuts for crushing have a direct effect on the government expenditures for the price support program but not upon farm income. The second difference needs further elaboration.

The production of peanuts exceeding the requirements of commercial channels for edible uses are purchased by the federal government and are resold to commercial channels for crushing purposes. Since the purchasing price is higher than the selling price, the federal government incurs a financial loss during the purchase-and-resell operation. Since the loss is considered as a part of the government cost of a direct price support program, the price changes on the crushing market have no direct effect upon farm income but upon the cost of price support operation.

Data

There are several levels of market and of aggregation at which the study can be concentrated. However, the limitations imposed by the availability of data restrict the choice of levels of both market and aggregation.

Since the main purpose of this study is to measure the effect of manipulating a certain policy variable, specifically the price, upon the consumption of peanuts for edible uses, farm income, and the cost of government price support programs, the demand analysis for edible peanuts may be centered at two levels of market, the retail market and the market at the farm level. The demand analysis for the purpose of this study can be made at the retail level by treating the demand for peanuts at the farm level as a derived demand.[9] The derived demand approach which was considered as a possibility in the early stage of this study but was abandoned when it became clear that the necessary data at the retail level were not available. Therefore, this study is concentrated at the farm level.

The analysis in this study is at the national level. That is, the demand analysis for peanuts is for all types produced in all regions. Specific study of a particular type of peanut or of peanuts produced in a particular region could not be conducted since the available data were not based on type of peanut or production region. For example, the demand for peanuts produced in the Oklahoma and Texas areas was considered as one of several possible subjects in the early stages of this study. However, the data are available at the national level rather than at regional levels. The study of a particular type of peanut or of peanuts produced in a particular region can be a subject of future study if the necessary data become available.

Time series data taken annually are used in this study because (1) they were the only available data, and (2) peanut marketing falls into an annual pattern with a particular year's crop being marketed in the same year but consumed in the following year. Adjustment was made

in the analysis for this discrepancy between marketing and consumption years.

The data used in this analysis of demand for both edible and crushing uses start with 1947 and extend through 1967, the last year for which data were available. The prewar years are not included in this study on the assumption that structural changes may have occurred after World War II. The war years of 1941 through 1946 are excluded because of abnormal demand and supply situations created by the war.

FOOTNOTES

[1]Marguerite C. Burk, "Survey of Interpretations of Consumer Behavior by Social Scientists in the Postwar Period," *Journal of Farm Economics*, XLIX (February, 1967), p. 1.

[2]William J. Baumol, *Economic Theory and Operations Economy* (Englewood Cliffs, New Jersey: Printice-Hall, Inc., 1965), p. 167.

[3]For references of earlier works, the reader is directed to the following publications: J. R. Hicks, *Value and Capital* (Oxford: The Clarendon Press, 1939), Chapters 1-3; R. T. Norris, *Theory of Consumers Demand* (New Haven: Yale University Press, 1941), Chapters 1-10; P. A. Samuelson, *Foundations of Economic Analysis* (Cambridge: Harvard University Press, 1948), Chapter 5; H. Schultz, *Theory and Measurement of Demand* (Chicago: The Chicago Press, 1938), Chapters 1-4. For references of recent works, the reader is directed to the following publications: J. M. Henderson and R. E. Quandt, *Microeconomic Theory* (New York: McGraw-Hill Book Company, 1958), Chapters 1-4; William J. Baumol, *Economic Theory and Operations Economy* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), Chapters 9-10; Kelvin J. Lancaster, "A New Approach to Consumer Theory," *Journal of Political Economy*, LXIV (April, 1966), pp. 132-57; H. S. Houthakker, "The Present State of Consumption Theory," *Econometrica*, XXIX (October, 1961), pp. 704-740; James Morgan, *A Review of Recent Research on Consumer Behavior* (New York: Research on Consumer Reactions, 1967), pp. 93-219.

[4]Mathematically, it is defined as $E_{qp} = \dfrac{dQ}{Q}\dfrac{P_x}{dP_x}$ where E_{qp}, dQ, and dP_x denote the elasticity of demand with respect to P_x, the changes in Q and the changes in P_x, respectively.

[5]J. R. Hicks, *Value and Capital* (Oxford: The Clarendon Press, 1939), pp. 202-206.

[6]For controversial discussions on the qualification of simultaneous equations model, the reader is directed to refer to the following articles: Carl F. Christ, "A Symposium on Simultaneous Equation: Simultaneous Equation Estimation: Any Verdict Yet," *Econometrica*, XXVIII, No. 4, (October, 1960), pp. 835-45; Clifford Hildreth, "Simultaneous Equations: Any Verdict Yet," *Econometrica*, XXVIII, No. 4 (October, 1960), pp. 846-853; and L. R. Klein, "Single Equations Vs. Equation System Methods of Estimation in Econometrics," *Econometrica*, XXVIII, No. 4, pp. 866-871.

[7]Frederick V. Waugh, "The Place of Least Squares in Econometrics," *Econometrica*, XXIX, No. 3 (1961), pp. 392-394. For further argument

on least squares estimation refer to Franklin M. Fisher, "The Place of Least Squares in Econometrics: Comment," and Frederick V. Waugh, "Further Comment," Econometrica, XXX, No. 3 (1962), pp. 565-567, and pp. 568-569.

[8]For detailed discussion on the assumptions and the corresponding estimating methods, refer to J. Johnston, Econometric Methods (New York: McGraw-Hill Book Company, 1963), pp. 145-230; and Carl F. Christ, Econometric Models and Methods (New York: John Wiley & Sons, Inc., 1966), pp. 347-481.

[9]The demand for farm products at the farm level as a derived demand is thoroughly treated in Richard J. Foote, Analytical Tools for Studying Demand and Price Structures, Agricultural Handbook No. 146 (Washington: U. S. Department of Agriculture, 1958), pp. 87-110.

CHAPTER IV

EMPIRICAL RESULTS

In the previous chapter general econometric models were developed
for edible peanuts and for peanuts for crushing. It is the purpose of
this chapter to report the results of quantifying these models over the
time period 1947-1967.

Demand for Peanuts for Edible Uses

Peanuts for edible uses include peanuts that are salted, roasted
in the shell, ground into peanut butter, used in candies, and ground
and combined with crackers into peanut butter sandwiches. Peanuts in
these uses account for nearly 50 to 70 percent of the total domestic
consumption each year and represent a major domestic market outlet.

In a practical attempt to estimate the demand structures, it is
neither possible nor practical to take into account all of the factors
which influence the consumption of edible peanuts. For one reason, no
data are available for some factors which are believed to influence the
consumption of edible peanuts and, for another, the number of variables
that can be included is limited by the number of observations.[1] For
these reasons, only several variables are included in the analysis,
dropping those considered to be less important and ignoring those for
which data are not available.

Variables Included and Factors Considered

The variables included in the analysis of demand for edible pea-
nuts are shown in Table XVI. The variables included in several other
model formulations, but not formally presented in this study, are
explained at appropriate places of this section.

The quantity of farmers' stock peanuts used for edible uses was
chosen as the dependent variable and the average price received was
considered as determined outside of the structure. Treating the aver-
age price received as an independent or exogenous variable was consid-
ered appropriate because the prices were determined chiefly by the
government price support policies during the period under analysis.

During the period analyzed, only small quantities of peanuts were
imported and the data on the uses of imported peanuts were not avail-
able. The quantities imported were not included in the analysis because
the amount of peanuts imported was restricted by the quota system and
the imports remained insignificant in the total supply of peanuts.[2]

Although the peanuts exported amounted to nearly 20 percent of
the total production in some years, they were not included in the analy-
sis because they did not influence the quantity-price relationships on
the domestic market under the price support programs. Only the excess
peanuts purchased by the government were exported.

Disposable personal income was selected as one of the important
factors affecting demand. Two previous studies indicated the import-
ance of disposable personal income on the consumption of peanuts for
edible uses. A study conducted by Banna showed: (1) per capita
expenditures for peanut products eaten at home tended to increase as
income increased, (2) the rate of expenditure was about twice as large

TABLE XVI

DOMESTIC PURCHASES OF FARMERS' STOCK PEANUTS FOR EDIBLE
USES AND RELATED VARIABLES, 1947-1967

Marketing Year[a]	Per Capita		Price Per Pound			
	Peanuts Purchased[b] Y_e	Disposable Income[c] Z_1	Farmers' Peanuts[d] Z_2	Peanut Butter[e] Z_3	Butter[f] Z_4	Tree Nuts[g] Z_5
	Pounds	Dollars	Cents			
1947	5.9	1,179	10.1	35.9	80.5	21.77
1948	6.1	1,290	10.5	38.1[h]	86.7	17.05
1949	5.4	1,264	10.4	40.3[h]	72.5	17.38
1950	6.1	1,364	10.9	42.5[h]	72.9	24.38
1951	6.3	1,468	10.4	44.7[h]	81.9	21.16
1952	6.2	1,518	10.9	46.9[h]	85.5	20.96
1953	6.1	1,582	11.1	49.0	79.0	19.95
1954	6.1	1,585	12.2	49.3	72.4	22.17
1955	5.5	1,666	11.7	54.4	70.9	32.27
1956	5.9	1,743	11.2	53.6	72.1	25.66
1957	6.2	1,831	10.4	53.6	74.3	22.57
1958	6.0	1,801	10.6	55.5	74.2	24.44
1959	6.3	1,905	9.6	55.7	75.3	26.12
1960	6.6	1,937	10.0	55.5	74.9	26.25
1961	6.7	1,983	10.9	55.8	76.3	27.06
1962	6.8	2,064	11.0	57.4	75.2	27.24
1963	6.9	2,136	11.2	57.7	75.0	28.81
1964	7.1	2,280	11.2	58.4	74.4	21.85
1965	7.4	2,432	11.4	59.9	75.4	22.22
1966	7.3	2,598	11.3	59.7	85.7	26.76
1967	7.2	2,744	11.4	58.4	83.1	30.41

[a]Crop year and marketing year are used interchangeably. Both begin from August 1.

[b]Domestic purchases of edible peanuts exclude peanuts used for edible purposes on farms and local sales.

[c]Disposable personal income used as working data for demand analysis by the U. S. Department of Agriculture.

[d]Average price received for all types.

[e]Retail price.

[f]Retail price.

TABLE XVI (Continued)

[g]Average price of tree nuts which include pecans, almonds, fil-
berts, and walnuts was obtained by dividing the total value of sales
by the total volume of sales as reported in a series of U. S. Depart-
ment of Agriculture, Tree Nuts by States (Washington: Statistical
Reporting Service).

[h]Estimated by a simple trend line.

Sources: For Y_e, Z_2, Z_3, and Z_4: U. S. Department of Agricul-
ture, Fats and Oils Statistics, Statistical Bulletin No. 376 (Wash-
ington: Economic Research Service, 1966) and Fats and Oils Situa-
tion (Washington: Economic Research Service), selected issues.
For Z_1: U. S. Department of Agriculture, Working Data for Demand

Analysis (Washington: Economic Research Service, 1968). For Z_5:

U. S. Department of Agriculture, Tree Nuts by States (Washington:
Statistical Reporting Service), selected issues.

for the highest income groups as for the lowest, and (3) the percent-age which peanuts and peanut products represent of the total expendi-tures for food varied only slightly among income groups.[3] The other study conducted recently by Raunikar reported findings similar to those of Banna.[4]

Since the peanut butter industry consumes about 50 percent of the peanuts used for all food purposes, the price of peanut butter is con-sidered an important factor affecting the quantity of farmers' stock peanuts consumed for edible purposes. Although wholesale prices were considered more appropriate than retail prices because the analysis is centered at the farm level, retail prices were used since wholesale prices were not available for the entire period.

The price of butter was included in the analysis because it was believed that butter might bear a competitive or complementary rela-tionship to peanut butter. Whether butter is complementary to or com-petive with peanut butter has not been clearly established by previous empirical studies. Although Banna assumed that jams, jellies, butter, and fruit butter are, to some extent, competitors of peanut butter, the findings of a study by Woodroof indicate the contrary.[5]

Peanut salting is the second largest peanut-consuming industry in the United States. The quantity of peanuts salted each year amounts to nearly 25 percent of the peanuts used for edible purposes. The whole-sale price of salted peanuts was considered to have an affect upon the consumption of farmers' stock peanuts for edible uses, but these prices also were not available. Instead, the prices of tree nuts at the farm level were used in this analysis. According to peanut salters, salted tree nuts are complementary to salted peanuts. The average price of

tree nuts was obtained by dividing the total value of sales by the total quantity of tree nuts sold at the farm level. Tree nuts included were almonds, walnuts, filberts, pecans, and tung nuts.

Changes in the population are believed to have an important affect upon consumption of edible peanuts and are incorporated into the analysis by including both the amount of peanuts used for edible purposes and disposable personal income on a per capita basis. The total consumption of farmers' stock peanuts for edible uses each year was divided by the civilian population of the United States as of July 1 of each year.

The data on price and disposable personal income used in this analysis were not adjusted to changes in the general price level. When both price and disposable personal income are adjusted by the same general price index, both variables change proportionally and the adjustment will not result in the changes in the parameter estimates. Several early models indicated no significant improvements would be obtained when both price and disposable personal income were adjusted by the Consumer Price Index or Wholesale Price Index.

Other factors whose influences were recognized but not included in the analysis are numerous and can hardly be listed. They are principally socio-economic factors such as the size and age distribution of households, sports activities, games, social gatherings, outdoor games, and theater attendance, to mention just a few. In addition to these, government programs, and food stamp programs influence the total consumption of edible peanuts. It was assumed that these omitted factors combine to affect the consumption of peanuts in a random fashion.

Models of Demand for Edible Peanuts

Although a larger number of models were tested, only five models are presented. Each of the models, the associated parameters estimates and the results of significance tests are listed in Table XVII.

Model I included only disposable personal income and the price of farmers' stock peanuts in explaining the variation in the consumption of farmers' stock peanuts. According to this model, a dollar rise in disposable personal income would increase the per capita consumption of peanuts by 0.001 pounds or, other things being equal, a $1,000 rise in disposable personal income would be expected to result in a one pound increase in the use of farmers' stock peanuts for edible purposes.

As expected, the price of farmers' stock peanuts has a negative effect upon consumption. A one cent increase in the price of farmers' stock peanuts would be expected to decrease the per capita consumption of peanuts by 0.07 pounds. The per capita consumption of peanuts would respond inelastically to changes in its own price.

The relationships that exist between the quantity of peanuts used for edible purposes and the explanatory variables included in Model I are expressed in

$$Y_e = 5.03488 + 0.0115Z_1 - 0.0697Z_2 \qquad (4\text{-}1)$$

where Z_1 and Z_2 are as defined in Table XVI.

Model II was obtained by including the retail price of peanut butter as an additional explanatory variable. As a result, the constant and the parameter estimate associated with disposable personal income were increased slightly over the estimates in Model I. However, the

TABLE XVII

MODELS OF THE DEMAND FOR PEANUTS FOR EDIBLE USES: PARAMETER ESTIMATED
BASED ON ANNUAL TIME SERIES DATA, 1947-67[a]

| Model | Constant | Disposable Personal Income Z_1 | Price Per Pound | | | | R^2 | F |
			Farmers' Stock Peanuts Z_2	Peanut Butter Z_3	Butter Z_4	Tree Nuts Z_5		
I	5.03488	0.00115****	-0.06970*				0.7551	27.751****
II	5.72945	0.00170****	-0.05187	-0.03649**			0.8019	22.988****
III	5.75299	0.00167****	-0.03831	-0.02481**		-0.02996**	0.8267	19.078****
IV	3.96121	0.00144****	-0.03497	-0.02102*	0.01628*		0.8125	17.338****
V	4.26955	0.00146****	-0.02499	-0.01256	-0.01364*	-0.02810**	0.8341	15.078****

*Significance level greater than 50 percent.

**Significance level greater than 75 percent.

***Significance level greater than 90 percent.

****Significance level greater than 99 percent.

[a]Refer to Table XVI for detailed specification of variables included in this table.

parameter estimate associated with the price of farmers' stock peanuts fell slightly. On the basis of these results, the retail price of peanut butter has a negative influence upon the use of farmers' stock peanuts for edible purposes; a one cent increase in the retail price of peanut butter would be expected to produce a reduction in the consumption of farmers' stock peanuts by 0.036 pounds per capita.

Since the demand for peanuts at farm level is a derived demand of peanut products including peanut butter, an increase in the retail price of peanut butter will cause the quantity demanded of peanuts at farm level to contract. Because peanuts occupy 95 percent of the ingredients of peanut butter and because the price elasticity of peanut butter at retail level is assumed to be elastic due to a variety of close substitute goods, the increase in the price of peanut butter may cause the peanuts demanded at the farm level to fall.

Model III was obtained by including the price of tree nuts at the farm level as an explanatory variable to Model II. Tree nuts include pecans, almonds, filberts, and walnuts. The price of tree nuts was obtained by dividing the total value of sales by the volume of the sales of tree nuts.[6] The result obtained by adding an additional variable indicates that the constant and the parameter estimate associated with disposable personal income remained unchanged for all practical purposes but the parameter estimates associated with prices of peanuts and peanut butter decreased slightly.

Tree nuts affect the consumption of peanuts through the relationship between tree nuts and salted peanuts. Tree nuts are considered as complementary goods to salted peanuts by salters.[7] Therefore, the

negative influence of the price of tree nuts upon peanut consumption is interpreted as consistent with the expectations.

Two other models, which are not presented here, were tested by including the prices of pecans and almonds at the farm level in Model II. As expected, increases in the price of both pecans and almonds resulted in a reduction in the quantity of peanuts used for edible purposes. The combined affect of pecans and almonds was less than the affect of tree nuts as a whole. This is reasonable because the individual components of tree nuts are complementary to salted peanuts and the combined affect of individual tree nuts should roughly add up to the affect of tree nuts taken as a whole.

Model IV was obtained by adding the retail price of butter as an explanatory variable to Model II. According to this model, the constant value is about 1.8 pounds less than that of Model II and is the lowest among the five models presented. The coefficient associated with the butter variable has a positive sign implying that butter is competitive with peanuts, particularly those used in the manufacture of peanut butter. The coefficient of determination was improved only slightly over Model II by including the price of butter.

The coefficient associated with the price of butter has a positive sign in Model IV and a negative sign in Model V. Butter along with many other spreading commodities such as jellies, cheese, and margarines is considered as a substitute for peanut butter.[8] If this is true, the parameter estimate of butter should have a positive affect and the result of Model IV must be correct. However, according to the studies by Woodroof, butter, jellies, and margarines are completing goods to peanut butter. The negative affect of butter price in Model V has to

be correct if Woodroof's findings are a common practice among the consumer. No further attempt was made in this study to clarify the contradictory results concerning the relationship between the peanuts for edible uses and butter.

The models presented indicate that disposable personal income and the price of peanuts are the most important variables in explaining the variation in the quantity of peanuts consumed for edible uses. In Model I, these two variables explained over 75 percent of the variation in the quantity of peanuts consumed for edible purposes. The inclusion of additional variables improved the coefficient of determination by at most only eight percent. Therefore, Model I is considered as good as Models II through V for all practical application of the results in the analysis.

Model V which includes the prices of peanut butter, butter, and tree nuts in addition to the variables included in Model I explained about 84 percent of the variation in the quantity of peanuts used for edible purposes. Although Model V has a higher value for the coefficients of determination, the difference between the two coefficients of determination in Models I and V is about eight percent. The difference between the two coefficients of determination in Models I and V is shown graphically by Figure 5. The figure shows actual consumption as a percentage of calculated consumption. The difference between the line, which represents actual consumption as a percentage calculated and the line drawn at the 100 percent level, indicates the unexplained residuals expressed as a percentage of calculated consumption. The unexplained residuals plotted against time does not exhibit any form of trend.

Actual Con-
sumption
as % of
Calculated
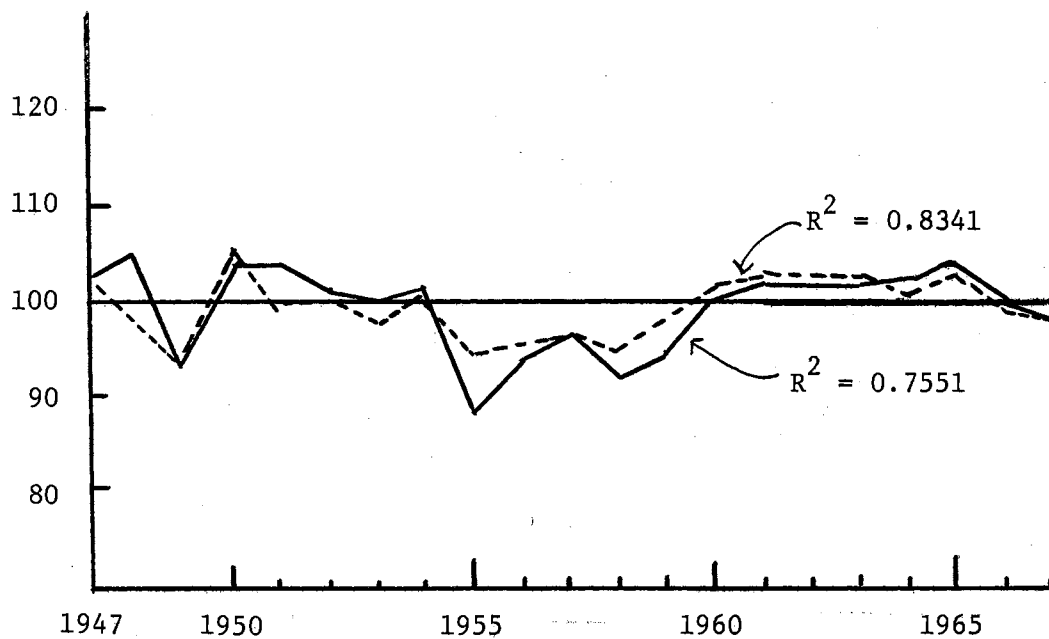
Figure 5.   Actual Consumption as a Percentage of
Calculated Consumption

Individual parameter estimates were tested as to whether they are significantly different from zero by using the t-statistic. The test is to see whether Z_j has a linear influence upon the consumption of peanuts for edible uses.[9] The significance level of each estimate tested by the t-statistic is indicated by the number of astericks (*) in Table XVII. According to the t-statistic computed, disposable personal income has a linear influence upon the consumption of peanuts for edible purposes at the 99 percent level of significance. No general statement can be made concerning the significance level of variables other than disposable personal income because the level varies so widely from model to model.

The hypothesis that Z_1, ..., Z_n jointly exercises an influence significantly different from zero upon Y_e, was tested by the F-statistic.[10] The F-statistic provides a test of overall relation, that is, a test of whether all the independent variables combined exercise any linear influence upon the consumption of peanuts for edible uses. The F-test for each model indicates that the overall influence of all explanatory variables included in each model is significantly different from zero at the 99 percent level.

Time series data can be applied ideally in demand analysis when the explanatory variables are orthognal to each other, that is, when the intercorrelation among the explanatory variables is zero. The intercorrelation among the variables included in the models presented is generally low as shown in Table XVIII. The sole exception is the correlation between the price of peanut butter and disposable personal income. The correlation coefficient of these two explanatory variables is nearly 0.90. The inclusion of two highly correlated variables in

TABLE XVIII

MATRIX OF SIMPLE CORRELATION COEFFICIENTS (r_{jj}) OF VARIABLES
INCLUDED IN THE ANALYSIS OF DEMAND FOR EDIBLE PEANUTS
BASED ON ANNUAL TIME SERIES DATA, 1947-67[a]

| | Purchases Per Capita Y_e | Disposable Income Per Capita Z_1 | Price Per Pound | | | |
			Farmers' Stock Peanuts Z_2	Peanut Butter Z_3	Butter Z_4	Tree Nuts Z_5
	Pounds	Dollars		Cents		
Y_e	1.0000	0.8660	0.2278	0.6711	0.2960	0.2982
Z_1		1.0000	0.3397	0.8910	0.0771	0.5699
Z_2			1.0000	0.3383	-0.1396	0.2808
Z_3				1.0000	-0.2329	0.6600
Z_4					1.0000	-0.2488
Z_5						1.0000

[a]Refer to Table XVI for detailed specification of variables
included in this table.

the same model may be undesirable because the high correlation may
(1) reduce the statistical significance of the demand coefficients, (2)
affect the size of the coefficients,[11] and (3) change the sign of
regression coefficients.[12] In addition, two highly correlated variables
may result in a biased, inefficient, and inconsistent estimator. How-
ever, both disposable income and the price of peanut butter were
included in Models IV and V because the significance levels of both dis-
posable personal income and the price of butter and the size of the
coefficients did not change appreciably. Also, the sign of other vari-
ables in the model did not change when both disposable personal income
and the price of butter were included in the same model.

Elasticities of Demand for Peanuts for Edible Uses

Since disposable personal income and the price of peanuts are the
most important variables in all models, the elasticities of demand for
peanuts with respect to these variables were computed and are presented
in Table XIX. Income elasticity is the percentage change in the quan-
tity of peanuts demanded for edible uses resulting from a one percent
change in disposable personal income. The value of income elasticity
varies from model to model with the lowest value in Model I and the
highest value in Model II.

The income elasticities reported in Table XIX have a positive sign
indicating that both income and quantity change in the same direction
in all models. A positive income elasticity implies that the quantity
of peanuts demanded for edible uses would increase as income increases.
However, the increase in the quantity demanded of peanuts as a percent-
age change depends upon the magnitude of income elasticity. If the

estimate of Model I is accepted, the quantity of peanuts demanded for edible uses would increase by 0.33 percent resulting from a one percent change in disposable personal income. If, on the other hand, Model II is accepted, the quantity of peanuts demanded would be expected to increase by 0.49 percent resulting from the same percentage change in disposable personal income.

TABLE XIX

ESTIMATED ELASTICITIES OF DEMAND FOR PEANUTS FOR
EDIBLE USES DERIVED FROM VARIOUS MODELS

Model	Income Elasticity $(E_{Y_e Z_1})$	Price Elasticity $(E_{Y_e Z_2})$
I	0.03290	-0.1187
II	0.4864	-0.0883
III	0.4778	-0.0652
IV	0.4120	-0.0596
V	0.4177	-0.0426

Price elasticity is the percentage change in the quantity of peanuts demanded for edible uses resulting from a one percent change in the price of peanuts. The value of price elasticity varies from Model I with the highest to Model V with the lowest. The price elasticities reported in Table XIX have a negative sign in all models indicating

that the price and quantity demanded of peanuts move in the opposite direction. If the estimate of Model V is accepted, the quantity of peanuts for edible uses would be expected to decrease by 0.04 percent resulting from a one percent increase in the price of peanuts. Generally, the price elasticities reported in Table XIX are inelastic implying that the quantity of peanuts demanded does not respond much to changes in the price.

Both income and price elasticities are an important consideration in government policy relating to the peanut market in the future and for evaluating past government policies. Because the markets for peanuts for edible and for crushing uses are related to each other, disposable personal income and the price charged in the edible market affect the market for crushing also. Therefore, the income and price elasticities on the edible market are important considerations for policies regarding not only the edible market but also policies regarding the crushing market.

Demand for Peanuts for Crushing

Since the market for crushing peanuts is separated from the market for edible uses, the demand on this market needs a separate analysis.

Peanuts supplied for crushing come principally from the peanuts that are in excess over the domestic requirement of peanuts for edible uses and purchased by the government. Some peanuts purchased by the processors for edible uses but unsuitable for direct human consumption are also crushed for oil and meal. However, the quantity of peanuts crushed because of low quality is thought to be negligible.[13]

Peanuts demanded on this market are crushed into oil and meal. Peanut oil is used for high quality salad or cooking oil which consumers prefer to salad or cooking oils made from several competing vegetable oils such as soybean or cottonseed oils. Peanut meal is used for feed as a high protein concentrate or is used as fertilizer.

Variables Included and Factors Considered

The variables believed to be important in the analysis of demand for peanuts for crushing are summarized in Table XX. Those variables which were tried in several models but not formally presented are explained at an appropriate place in this section.

The price of peanuts for crushing was considered an appropriate choice as the dependent variable and the quantity of peanuts crushed as an independent variable. This relationship is the reverse of that assumed in the edible market where the quantity of peanuts consumed was treated as the dependent variable. The reversal is believed appropriate in the crushing market because the price is affected not only by the level of demand but also by the government management of storage stocks of peanuts, especially its disposal operations to provide space for new peanuts that the government expects to purchase and to avoid excessive storage costs. Therefore, the amount of peanuts that the government purchases was included as an independent variable.

The quantity of peanuts supplied was considered to have an affect upon the peanuts purchased by the government. Therefore, peanut supplies also were used as an explanatory variable. Supplies include peanuts produced, imported, and carried over in inventory by commercial channels.

TABLE XX

PRICE OF FARMERS' STOCK PEANUT FOR CRUSHING AND RELATED VARIABLES
MARKETING YEARS 1947-67

| Crop Year | Price Per Pound | | | | Per Capita Peanuts[a] | | | | Disposable Personal Income |
	Peanuts Crushed[b] Y_c	Cotton-seed[c] X_5	Soy-beans[c] X_6	Edible Peanuts[b] Z_2	Crushed X_1	Purchased By Gov't X_4	Produced X_p	Supplied[d] X_s	Z_1
	Cents				Pounds				Dollars
1947	8.7	4.29	5.55	10.1	3.31	3.60	15.14	16.863	1179
1948	5.4	3.36	3.79	10.5	3.26	7.82	15.93	17.538	1290
1949	4.4	2.17	3.60	10.4	4.09	5.30	12.50	13.854	1264
1950	7.5	4.33	4.01	10.9	4.15	5.41	13.41	14.753	1364
1951	6.2	3.47	4.55	10.4	2.79	3.50	10.75	13.001	1468
1952	7.2	3.48	4.53	10.9	1.24	0.68	8.64	11.261	1518
1953	6.5	2.63	4.53	11.1	1.90	0.00	9.86	12.494	1582
1954[e]	7.2	3.15	4.10	12.2	0.10	1.81	6.21	9.058	1585
1955	5.6	2.23	3.67	11.7	1.56	1.59	9.36	10.629	1666
1956	5.5	2.67	3.63	11.2	1.55	1.95	9.56	11.766	1743
1957	5.2	2.55	3.34	10.4	1.40	0.62	8.38	10.887	1801
1958	5.0	2.19	3.33	10.6	1.92	2.16	10.42	12.366	1831
1959	5.3	1.94	3.26	9.6	1.62	1.36	8.97	11.773	1905
1960	5.1	2.14	3.55	10.0	2.02	1.63	9.93	12.336	1937
1961	5.0	2.55	3.80	10.9	1.40	1.24	9.51	11.585	1983
1962	5.0	2.39	3.90	11.0	1.64	1.75	9.74	11.890	2064
1963	4.2	2.03	4.02	11.2	2.01	1.96	10.72	12.891	2136
1964	4.8	2.35	4.10	11.2	2.47	2.63	11.53	13.349	2280

TABLE XX (Continued)

| | Price Per Pound | | | | Per Capita Peanuts[a] | | | | Disposable |
Crop Year	Peanuts Crushed[b] Y_c	Cotton-seed[c] X_5	Soy-beans[c] X_6	Edible Peanuts[b] Z_2	Crushed X_1	Purchased By Gov't X_4	Produced X_p	Supplied[d] X_s	Personal Income Z_1
	Cents				Pounds				Dollars
1965	5.4	2.33	4.36	11.4	2.67	3.49	12.31	14.455	2432
1966	5.2	3.29	4.86	11.3	2.80	3.52	12.30	14.637	2598
1967	4.8	2.76	4.36	11.4	3.25	3.05	12.90	15.026	2744

[a]On the basis of farmers' stock peanuts.

[b]Price received for farmers' stock peanuts resold by the government to commercial channel for crushing.

[c]Price received by farmers for peanuts for edible uses.

[d]Includes production, imports, and beginning stocks. Beginning stocks include the peanuts (in stock) in commercial channel for both edible uses and crushing.

[e]Data for this year are not included in the consumption since the production of peanuts was low due to poor weather during the harvesting season and the peanuts produced were mostly disappeared for edible uses and the peanuts crushed was negligible.

Sources: For 1947-64: U. S. Department of Agriculture, U. S. Fats and Oils Statistics, 1905-65, Statistical Bulletin No. 376 (Washington: Economic Research Service, August, 1966). For 1965-68: U. S. Department of Agriculture, Fats and Oils Situation (Washington: Economic Research Service), selected issues. For Z_1: U. S. Department of Agriculture, Working Data for Demand Analysis (Washington: Economic Research Service, October, 1968), p. 4.

The quantity of peanuts produced was included as an important variable in explaining the changes in the price of peanuts for crushing. The quantity of peanuts produced is the most important item in the supply of peanuts because imported peanuts comprise a negligible part of the total supply and peanuts carried over in inventory account for less than 15 percent of the peanuts supplied in most of the years covered. Although the amount of peanuts imported varies each year, it does not influence the amount of peanuts supplied appreciably because of its small magnitude relative to the total production. The amount of peanuts carried over in inventory depends primarily on the quantity of peanuts produced and has a high correlation with the quantity of peanuts produced.

The prices of cottonseed and soybeans were included as explanatory variables because the oils and meals produced from both cottonseed and soybeans are the major products competing with peanut oil and meal.

The prices of oils and meals produced from cottonseed and soybeans were used in some models instead of the prices of cottonseed and soybeans, but no improvement in the explanation of the variation of the prices of peanuts for crushing was realized.[14]

The prices of peanut meal and crude peanut oil were also included in some models but no improvement in the explanation of the variation of the prices of peanuts for crushing was realized. Therefore, the prices of peanut meal and crude peanut oil are not included in any model presented.

Changes in population are believed to have a great affect upon the price-quantity relationship of peanuts for crushing and are incorporated into the analysis by taking the quantities of peanuts crushed,

purchased by the government, produced, and supplied on a per capita

basis. Per capita disposable personal income is used to represent

income.

Disposable personal income was included among the explanatory

variables in spite of the fact that the price-quantity relationship of

fats and oils does not usually respond to income changes.[15] However,

the relationship between the markets for edible peanuts and for crush-

ing makes the disposable personal income affect both markets.

The price of peanuts for edible uses was also included as an

explanatory variable because the price of peanuts for edible uses

affects the peanuts purchased by the government. Therefore, the price

of peanuts for edible purposes affects the market for edible peanuts

directly and the market for crushing indirectly through its influence

upon the quantity of peanuts purchased by the government.

Theoretically, for the same reason given for including the price

of peanuts for edible uses, the variables and the factors that are

involved in the analysis of demand for edible uses may also be included

in the analysis of demand for crushing. However, only two important

variables, disposable personal income and the price of peanuts received

for edible uses, were included in the analysis of demand for crushing.

The reasons for including only these two variables are (1) that these

two variables affect the peanuts purchased by the government most and,

thus, influence the market for crushing indirectly, and (2) that a

greater number of degress of freedom is saved for statistical estima-

tion of parameters.

Prices and disposable personal income used in this analysis are

not adjusted to changes in the general price level. The results of

several models tested were not improved when both prices and disposable income were adjusted by the Consumer Price Index.

Models of Demand for Peanuts for Crushing

Although over a dozen models were tested, only nine models are presented. Each of the models, their associated parameters, and the test of significance for the parameters estimates are listed in Table XXI.

Models I through III were developed to ascertain the influence of peanuts purchased by the government on prices of peanuts for crushing; Models IV through VI were developed to estimate the affect of peanut supply upon the price of peanuts for crushing and Models VII through IX were developed to appraise the influence of peanut production upon the variation in the price of peanuts for crushing.

Model I includes the price of cottonseed, the quantity of peanuts crushed, and the quantity of peanuts purchased by the government. According to this model, cottonseed is competitive with peanuts for crushing and a one cent increase in the price of cottonseed can be expected to raise the price of peanuts for crushing by 1.5 cents.

The quantity of peanuts purchased by the government influences the price of peanuts for crushing negatively, that is, the increase in the quantity of peanuts purchased by the government by one pound per capita is expected to lower the price of peanuts for crushing by 0.132 cents. A one pound per capita increase in the quantity of peanuts purchased by the government implies nearly 200 million pounds of new peanuts to be stored and handled by the government. The limited storage facilities and the cost of storage and handling weaken the bargaining position of

TABLE XXI

MODELS OF DEMAND FOR PEANUTS FOR CRUSHING: PARAMETER ESTIMATES
BASED ON ANNUAL TIME SERIES DATA 1947-67[a]

Model	Constant	Price Per Pound			Per Capita Peanuts				Disposable Personal Income	R^2	F
		Cotton-seeds X_5	Soybeans X_6	Edible Peanuts Z_2	Crushed X_1	Purchased By Gov't X_4	Produced X_p	Supplied X_s	Z_1		
		Cents			Pounds				Dollars		
I	2.26294	1.44996****			−.13385	−.13211**				.7555	16.4843****
II	0.99209		1.13107****		−.08969	−.06406				.3837	3.3198****
III	1.88544	1.37499****	.14852		−.15627	−.11782**				.7586	5.6622****
IV	5.73078	1.31763****		−.00052	−.26903*			−.04396	−.14759**	.7876	10.3828****
V	5.45350		1.30155****	−.14357	−.09437			−.06141	−.00138****	.7225	7.2907****
VI	5.28568	.92748****	.67707***	−.15198*	−.17097			−.11383*	−.00078***	.7820	11.5502****
VII	5.67290	1.32113***		−.00053	−.23260*		−.05635		−.14532**	.7888	10.4587****
VIII	5.26325		1.29817	−.13470	−.06595		−.06602		−.00140	.7234	7.3235****
IX	4.80830	.92533****	.66354***	−.12885	−.14545		−.10696*		−.00083	.8424	19.7612****

*Significance level greater than 50 percent.

**Significance level greater than 75 percent.

***Significance level greater than 90 percent.

****Significance level greater than 99 percent.

[a]Refer to Table XX for detailed specification of variables included in this table.

the government for a better price as it tries to sell the purchased
peanuts for crushing.

The relationships that exist between the price of peanuts for
crushing, Y_c, and the explanatory variables included in Model I are
expressed in

$$Y_c = 2.26294 + 1.44996X_5 - 0.13385X_1 - 0.13211X_4 \qquad (4-2)$$

where:

X_5 is the price of cottonseed,

X_1 is the quantity of peanuts crushed on per capita basis,

and

X_4 is the quantity of peanuts purchased by the government on

a per capita basis.

Model II is obtained by replacing the price of cottonseed, X_5, in
Model I with the price of soybeans, X_6. The replacement of cottonseed
with soybean shows that the independent variables in Model I explain
about 76 percent while the independent variables in Model II explain
about 38 percent of the variation in the price of peanuts for crushing.
Cottonseed is thought to be more competitive with peanuts for crushing
since both peanuts and cottonseeds are produced in the same areas of
the United States, and a change in any one of these prices is believed
to have a greater influence upon the supply of and demand for the
other. In fact, the removal of cottonseed halved the coefficient of
determination.

The removal of the cottonseed price from Model I and replacing it
with the price of soybeans reduced the parameter values associated with
the level of peanuts crushed and the quantity of peanuts purchased.

by the government by one-third and one-half, respectively.

As in Model I, the quantity of peanuts purchased by the government, X_4, influenced the price of peanuts crushed negatively in Model II. An increase of one pound per capita in the quantity of peanuts purchased by the government reduced the price of peanuts crushed by 0.06 cents.

Model III involves both the cottonseed price and the soybean price along with the level of peanuts crushed and peanuts purchased by the government. When both the cottonseed price and the soybean price are included in the same model, the coefficient of determination, R^2, rose slightly over that of Model I, explaining about 76 percent of the variation in the price of peanuts for crushing. Both cottonseed and soybeans are competitive with peanuts for crushing. However, cottonseed has a greater influence on the price of peanuts for crushing than soybean as indicated by the parameter values associated with cottonseed price and soybean price.

As in Models I and II, increases in the level of peanuts crushed and peanuts purchased by the government reduced the price of peanuts for crushing. The effect of a one pound per capita increase in peanuts purchased by the government reduced the price of peanuts crushed by 0.11 cents. Assuming that other things remain unchanged, a 10 pound increase in the quantity of peanuts purchased by the government would be expected to reduce the price of peanuts for crushing by 1.18 cents per pound.

Models IV through VI were obtained by replacing the quantity of peanuts purchased by the government, X_4, with the quantity of peanuts supplied, X_5, and by adding the price of peanuts for edible uses, Z_2, and disposable personal income, Z_1, to the remaining variables already

included in Models I through III. The reason for replacing and adding the variables is explained as follows. The quantity of peanuts purchased by the government was considered as the difference between the supply of peanuts and the demand for peanuts for edible uses; that is, $X_4 = X_s - Y_e$, where X_4, X_s, and Y_e stand for the quantity of peanuts purchased by the government, peanuts supplied, and peanuts consumed for edible uses, respectively. Since the quantity of peanuts used for edible purposes, Y_e, depends upon the price of peanuts for edible uses, Z_2, and disposable personal income, Z_1, the quantity of peanuts purchased by the government, X_4, may be expressed as $X_4 = X_s - Y_e = X_s - (B_o + B_1 Z_1 - B_2 Z_{2t-1})$.[16]

Models IV through VI were developed to estimate the effect of peanuts supplied upon the price of peanuts for crushing. Peanut supply includes peanuts produced, imported, and carried in inventory (the beginning stocks) which included peanuts in commercial channels for both edible and crushing uses. The effect of supply in Models IV through VI is measured without regard to the cause of supply. Peanut supply may be the result of production, imports, carry-over from the preceding year or any combination of these causes.

According to models IV through VI, the quantity of peanuts supplied shows a negative influence upon the price of peanuts for crushing. That is, when the peanut supply increases, the price that the government receives for the peanuts sold for crushing would be expected to be lower. The impact of the total peanut supply upon the price of peanuts for crushing varies among Models IV through VI.

The price of peanuts for edible uses in Models IV through VI exhibited a negative influence upon the price of peanuts for crushing.

As the price of peanuts for edible uses increases, less peanuts would be expected to be consumed for edible uses and, consequently, more peanuts would have to be sold for crushing. Thus, an increase in the price of peanuts for edible uses affects the peanuts supplied for the crushing market which, in turn, affects the price of peanuts for crushing.

Disposable personal income in Models IV through VI indicates that peanuts used for crushing are an inferior good. That is, as income increases less peanuts would be demanded for crushing. The quantity of peanuts demanded for edible uses depends upon the income level as in Models I through V in the previous section. In fact, peanuts for edible uses command a higher price than peanuts for crushing on the market.

Cottonseed price, soybean price, and per capita peanuts crushed for oil and meal in Models IV through VI exhibited a similar influence upon the price of peanuts for crushing as in Models I through III although the estimated parameter values associated with these variables changed slightly.

Models VII through IX were designed to ascertain the effect of the quantity of peanuts produced upon the price of peanuts for crushing. Models VII through IX were obtained by replacing the quantity of peanuts purchased by the government, X_4, with the quantity of peanuts produced, X_p, and by adding the price of peanuts for edible uses, Z_2, and disposable personal income, Z_1, to the remaining variables already included in Models I through III. The reason for replacing and adding the variables is as follows. The quantity of peanuts purchased by the government was considered as the difference between the peanuts produced and the quantity demanded for edible uses, that is, $X_4 = X_p - Y_e$

where X_p refers to the quantity of peanuts produced. Since the quantity of peanuts used for edible uses, Y_e, depends upon the price of peanuts for edible uses and disposable personal income, Z_1, the quantity of peanuts purchased by the government, X_4, may be expressed as

$$X_4 = X_p - (B_0 + B_1 Z_1 - B_2 Z_2).$$

According to Models VII through IX, the quantity of peanuts produced shows a negative influence upon the price of peanuts for crushing. When more peanuts are produced for a given demand, more peanuts would be purchased by the government and the price that the government receives for the peanuts sold for crushing would be expected to be lower. A one pound per capita increase in the production of peanuts would be expected to lower the price of peanuts for crushing by 0.06 to 0.11 cents.

The price of peanuts for edible uses and disposable personal income in Models VII through IX exhibit a similar effect upon the price of peanuts for crushing as in Models IV through VI. This is considered reasonable because Models VII through IX were obtained by replacing the quantity of peanuts supplied in Models IV through VI with the quantity of peanuts produced, respectively, and because the quantity of peanuts supplied and the quantity or peanuts produced should have a similar effect upon the price of peanuts for crushing.

In all the models tested, only eight independent variables were used to explain the variation in the price of peanuts for crushing. The explanatory variables exhibited a uniform direction of effect upon the price variation although the magnitude of influence of each variable differed from one model to another. As shown in Table XXI, the competing products, cottonseed and soybeans, have positive parameter

values in the models and the remaining variables exhibited negative parameter values.

The independent variables in each model combined explain over 72 percent of the variation in the price of peanuts for crushing. Model II is the exception which accounts for only 38 percent of the variation while Model IX explained over 84 percent of the variation.

The individual parameters were tested by use of the t-statistic to see whether they are significantly different from zero. The significance level of each parameter estimate is indicated by the number of asterisks (*) in Table XXI. The test that a parameter estimate is significantly different from zero indicates that the variable has a linear influence upon the variation of the price of peanuts for crushing.

The parameter estimates associated with the prices of competing goods, cottonseeds, and soybeans are significantly different from zero at the 95 percent probability level and disposable personal income is also significantly different from zero at the 95 percent probability level in most models.

A test of the overall relation, that is, a test of whether all the independent variables combined exercise any linear relationship upon the price of peanuts for crushing, was tested by the F-statistic. The F-test for each model shows that the overall influence of all explanatory variables included in each model is significantly different from zero at the 99 percent probability level as shown in Table XXI. The sole exception is Model II which has the overall influence significantly different from zero at the 90 percent probability level.

In general, the results of the estimation process were considered satisfactory. All the parameters estimates exhibited signs consistent with economic theory. Furthermore, in estimating the parameter values associated with each explanatory variable, it was fortunate that this analysis did not encounter serious problems of multicollinearity among the variables.

The use of time series data often presents difficulties in a demand analysis because of multicollinearity among the explanatory variables. However, the intercorrelation among the variables included in the models of demand for peanuts for crushing was reasonably low as shown in Table XXII with two exceptions. One is the correlation between the per capita peanuts crushed, X_1, and the per capita peanuts produced, X_p, with a value of 0.85. However, these two variables were used together only for Models IV through VI and the results obtained in these models did not show the difficulty appreciably (Table XXI). The other is the correlation between the per capita peanuts crushed, X_1, and the per capita peanuts supplied, X_s, with a value of 0.81. However, these two correlated variables were used only for Models VII through IX and the results obtained did not indicate any serious difficulty (Table XXI). Although the correlation between peanuts produced, X_p, and the peanuts supplied, X_s, is high with a value of 0.98, both of these variables were not used together in any model tested.

Elasticity of the Price of Peanuts for Crushing

The elasticity of price or price flexibility is a concept equivalent to elasticity of consumption demand. The elasticity of price instead of elasticity of demand was computed in this analysis since the

TABLE XXII

MATRIX OF SIMPLE CORRELATION COEFFICIENTS (r_{jj}) OF VARIABLES INCLUDED IN THE ANALYSIS
OF DEMAND FOR PEANUTS FOR CRUSHING BASED ON ANNUAL TIME SERIES DATA, 1947-67[a]

| Peanuts Crushed Y_c | Price Per Pound | | | Per Capita Peanuts | | | | Disposable Personal Income Z_1 |
	Cotton-seeds X_5	Soybeans X_6	Peanuts Z_2	Crushed X_1	Purchased By Gov't X_4	Produced X_p	Supplied X_s	
		Cents			Pounds			Dollars
1.0000	0.8215	0.6144	-0.4104	0.1964	-0.0638	0.2649	0.2750	-0.5638
	1.0000	0.6563	-0.3587	0.4842	0.2462	0.5494	0.5534	-0.4281
		1.0000	-0.1892	0.3307	-0.0044	0.4661	0.5149	0.0057
			1.0000	-0.2472	0.0581	-0.3485	-0.3894	0.4501
				1.0000	0.0543	0.8518	0.8085	-0.1988
					1.0000	0.3169	0.2640	-0.2244
						0.9818	1.0000	-0.1606
						1.0000		-0.1002
								1.0000

[a]Refer to Table XX for detailed specification of variables included in this table.

peculiar market structure believed to exist on the crushing market makes price rather than consumption the dependent variable in the demand structure. The elasticity of the price of peanuts for crushing with respect to a particular variable X_i may be defined as the percentage change in the price of peanuts for crushing relative to the percentage change in the variable, X_i.

The elasticity of the price of peanuts for crushing with respect to each explanatory variable included in the demand analysis for crushing is presented in Table XXIII. According to Model III, a one percent change in the price of cottonseed resulted in a 0.68 percent change in the price of peanuts for crushing in the same direction. This is considered reasonable because cottonseeds are competitive with peanuts on the crushing market and any rise in the price of cottonseed will shift the demand for peanuts for crushing to the right resulting in a price rise for a given amount of peanuts demanded.

Soybeans are also competitive with peanuts on the crushing market. A one percent change in the price of soybeans was estimated to result in a 0.11 percent change in the price of peanuts in the same direction.

In Model III, the elasticity of price of peanuts for crushing with respect to the level of government purchase was estimated at -0.06. This means that a one percent increase in the level of peanuts purchased by the government will cause the price of peanuts for crushing to fall by 0.06 percent.

According to Model VI, the elasticity of the price of peanuts for crushing with respect to the price of peanuts for edible uses is given as -0.29. This implies that, if the price of peanuts for edible uses is raised by one percent, the price of peanuts for crushing would fall

TABLE XXIII

ESTIMATED ELASTICITY OF PRICE WITH RESPECT TO EXPLANATORY VARIABLES INCLUDED IN THE DEMAND FOR PEANUTS FOR CRUSHING BASED ON ANNUAL TIME SERIES DATA 1947-67[a]

Experimental Model	Price Per Pound			Per Capita Peanuts				Disposable Personal Income Z_1
	Cottonseeds X_5	Soybeans X_6	Edible Peanuts Z_2	Crushed X_1	Purchased By Gov't X_4	Produced X_p	Supplied X_s	
	Cents			Pounds				Dollars
I	0.71396			-0.05657	-0.06180			
II		0.09449		-0.03797	-0.00302			
III	0.67705	0.10707		-0.06568	-0.05512			
IV	0.64880		-0.28331	-0.11307			-0.98138	-0.17077
V		0.93828	-0.27560	-0.03966			-0.14274	-0.45318
VI	0.45687	0.48810	-0.29174	-0.07186			-0.26459	-0.25615
VII	0.65052		-0.27896	-0.09776		-0.11149		-0.17405
VIII		0.93585	-0.25857	-0.02772		-0.13062		-0.45976
IX	0.45475	0.47835	-0.24734	-0.06113		-0.21162		-0.27572

[a]For a detailed specification of variables, refer to Table XX.

by 0.29 percent. A rise in the price of peanuts for edible uses will
result in a lesser quantity of peanuts demanded on the edible market
and a larger quantity of peanuts has to be purchased by the government
and resold on the crushing market. This would depress the price of
peanuts for crushing.

The estimated elasticity of the price of peanuts for crushing with
respect to the price of peanuts for edible uses varied little from
model to model.

The level of peanuts supplied also exhibited a depressing influence
upon the price of peanuts for crushing. According to the estimate made
by Model VI, a one percent change in the level of peanuts supplied
would bring about a 0.26 percent change in the price of peanuts for
crushing in the opposite direction. In Models VII through IX, the
level of peanuts produced displayed a similar effect upon the price
of peanuts for crushing, as expected.

As explained in the general model of demand for peanuts for crush-
ing, disposable personal income affected primarily the demand for pea-
nuts for edible uses. An increase in the disposable personal income
would be expected to decrease the quantity of peanuts demanded for
crushing. Thus, peanuts for crushing are considered to be an inferior
good. A one percent increase in income was estimated to depress the
price of peanuts for crushing by as much as 0.28 percent.

FOOTNOTES

[1]For a few additional reasons, the reader is directed to the
appropriate chapters of the following publications: Karl A. Fox, et.
al., The Theory of Quantitative Econometric Policy (Chicago: Rand
McNally & Company, 1966); Alexander M. Mood and Franklin A. Graybill,
Introduction to the Theory of Statistics (New York: McGraw-Hill Book
Company, 1963); J. Johnston, Econometric Methods (New York: McGrase-
Hill Book Company, 1960); Carl F. Christ, Econometric Models and Methods
(New York: John Wiley & Sons, Inc., 1966); Tjalling C. Koopman, ed.,
Statistical Inference in Dynamic Economic Models, Cowles Commission
Monograph 10 (New York: John Wiley & Sons, Inc., 1950).

[2]Annually, less than 3 million pounds were imported compared to
over 2.4 billion pounds of annual production.

[3]Antoine Banna, Sidney J. Armore, and Richard J. Foote, Peanuts and
Their Uses for Food, Market Research Report No. 16 (Washington: Bureau
of Agricultural Economics, U. S. Department of Agriculture, 1952), p.
3.

[4]Robert Raunikar, J. C. Purcell, and J. C. Elrod, Consumption and
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[6]Data as reported in a series of Tree Nuts by U. S. Department of
Agriculture, Tree Nuts by States (Washington: Statistical Reporting
Service), selected issues.

[7]Banna, Armore, and Foote, p. 33.

[8]Woodroof and Roberson, pp. 1-9.

[9]J. Johnston, p. 118.

[10]Ibid., p. 122.

[11]Anthony S. Rojko, Agricultural Economics Research, XIII, No. 2
(April, 1961), p. 38.

[12]Karl A. Fox and James F. Cooney, _Effects of Intercorrelation Upon Multiple Correlation and Regression Measures_, AMS-341 (Washington: Agricultural Marketing Service, U. S. Department of Agriculture, 1954), p. 4.

[13]No data were available on the quantity of peanuts crushed due to low quality.

[14]Identical regression model used by Reagan was tried. For detailed information, refer to Sydney C. Reagan, "Peanut Price Programs, 1933-1952 And Their Effects on Farm Income" (unpub. Ph.D. dissertation, Harvard University, 1953), pp. 275-307.

[15]R. J. Fandendorre, _An Econometric Analysis of the Markets for Soybean Oil and Soybean Meal_, Agricultural Experiment Station Bulletin 723 (Urbana, 1967), p. 10.

[16]$Y_{et} = B_o + B_1 Z_{1t} - B_2 Z_{2t-1}$ as was estimated by Model I for peanuts for edible uses.

CHAPTER V

EFFECT OF A PRICE SUPPORT PROGRAM ON FARM INCOME,

GOVERNMENT COST, AND PEANUT CONSUMPTION[1]

As explained in Chapter II, there are several programs which are
related to peanuts. In a broad sense, all the programs discussed in
that chapter may be rightfully included in the price support classifi-
cation of programs because their aim in one way or another is to main-
tain the price received by the grower. Even such miscellaneous programs
as school lunches, food stamps, and relief purchases can be defined as
price support programs since they include price support of peanuts as
an aim. The analysis of the effect of a price support program defined
in such a broad sense, lies beyond the scope and capability of this
study. Therefore, a price support program is defined, in a limited
sense, to imply only to the program designed to purchase peanuts
directly by the government and to resell purchased peanuts. A price
support program defined in such a limited sense is termed as a direct
price support program for convenience.

In discussing the effects of a direct price support program on
farm income, government cost, and consumption of peanuts, this study
recognizes its own limitations, because this study places its emphasis
on the demand side, neglecting the possible impact of a direct price
support programs on the production and supply of peanuts. It is a
general concensus that the direct price support program has tended to

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maintain or increase the production of peanuts each year. However, the question of how much more or less peanuts have been produced and supplied each year due to a direct price support program cannot be answered by this study. Therefore, it is simply assumed that the same quantity of peanuts would have been produced and marketed each year regardless of a price support program.

Under this limitation, the general principles followed in ascertaining the effect of a direct price support program on farm income, consumption of peanuts, and government cost are illustrated in Figure 6. The increase in farm income was estimated as the difference between the support price and the free market price multiplied by the quantity of peanuts marketed.[3] The impact of a direct price support program on consumption was measured by the difference between the actual quantity of peanuts consumed under a direct price support program and the quantity of peanuts that would have been consumed at a free market price. Finally, the effect on government cost was estimated by the quantity of peanuts that the government purchased multiplied by the difference between the support price of peanuts for edible uses and the price of crushing peanuts.

Figure 6 shows the demand curve for edible peanuts where P_s and P_f refer to the support price and the free market price, respectively. The quantity of peanuts demanded for edible uses by commercial channels at price P_s is Q_c. The difference between the quantity demanded and the quantity supplied, $Q_s - Q_c$, is the amount of peanuts that the government has to purchase.
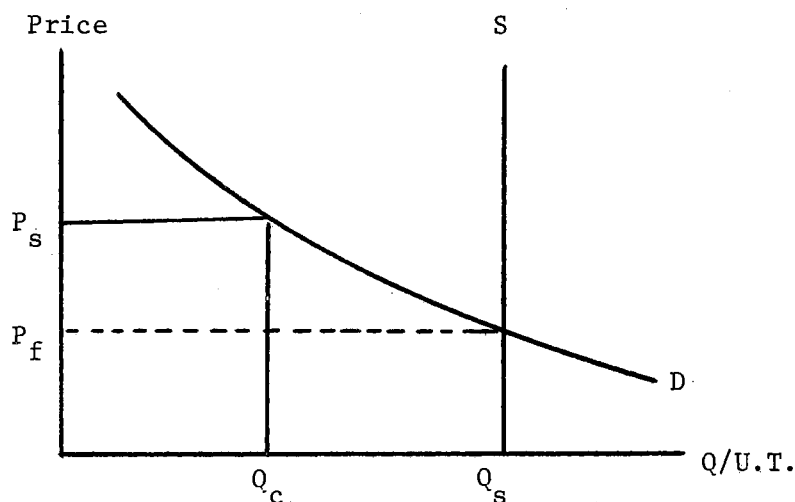
Figure 6. Demand for Peanuts for Edible Uses

Model I for peanuts for edible uses and Model IX for crushing pea-
nuts were used in analyzing the effects of direct price support programs
on farm income, government cost, and consumption of peanuts. Although
Model I for peanuts for edible uses contains only two variables, it
explains almost as much of the variation in the quantity of peanuts
demanded for edible uses as the other models estimated. In addition,
Model I can be combined into the price-quantity relationships for pea-
nuts for crushing uses without the multicolinearity problems that may
be present using other models. Furthermore, Model I is easier to work
with in analyzing the demand for edible peanuts.

Model IX for crushing peanuts was used because the variables
included in this model explained most of the variation in the price of
crushing peanuts. The coefficient of determination (R^2) was over 0.84.
In addition, the F-test shows that the explanatory variables included
in Model IX combined, exhibited a high linear influence. The overall

linear influence of all explanatory variables combined upon the dependent variable was significantly different from zero at 99 percent probability level as indicated by the F-statistics (Table XXI).

Effect of a Direct Price Support Program on Farm Income

The effect of a direct price support program on farm income was estimated by the changes in farm income as a result of the program. The change in farm income is the difference between the actual farm income under a direct price support program and the estimated farm income under the free market.

During the period covered by this study, peanuts were traded on the commercial market at the prescribed price schedule set and enforced by the government. Peanuts which could not be sold on the commercial channel were purchased by the government at the same price schedule. Thus, the farm income of peanut growers was determined by the support price level that the government set, and by the quantity of peanuts supplied.

The actual average price received by the grower was slightly different from the average support price -- the difference was attributed to the quality of peanuts actually marketed. Since a quality factor was incorporated into the prescribed price schedule, the actual price received was higher than the average support price only when the quality of peanuts was better than the quality standard set in the price schedule.

When the average price received by the grower was regressed upon the average support price, nearly 99.88 percent of the variation in the average price received was explained by the average support price.[4]

The unexplained portion accounts for only 0.12 percent of the variation and the quality of peanuts marketed is thought to be responsible for the unexplained residuals.

The key to estimating farm income under a free market hinges upon (1) the estimation of the peanut price which could have prevailed in the absence of a direct price support program, and (2) the estimation of the quantity of peanuts that would have been consumed for both edible and crushing uses under a free market.

The free market price of peanuts was estimated by Peanuts for Crushing Model IX which may be expressed in a functional form as:

$$Y_c = 4.808 - 0.14545X_1 + 0.92533X_5 + 0.66354X_6$$

$$- 0.1069X_p - 0.00083Z_1 - 0.12885Z_2 \qquad (5-1)$$

where the variables are defined as in the previous chapter. In Equation (5-1), the price of peanuts for crushing, Y_c, and the price of peanuts for edible uses, Z_2, are set equal to the equilibrium price, P_e, so that $Y_c = Z_2 = P_e$. Replacing P_e for Y_c and Z_2 and simplifying, Equation (5-1) can be expressed as:

$$P_e = 4.25946 - 0.12884X_1 + 0.8197X_5 - 0.5878X_6$$

$$- 0.09475X_p - 0.00073Z_1 \qquad (5-2)$$

From Equation (5-2), the equilibrium price, P_e, for a particular year, is obtained by supplying the data for the variables on the right hand side of Equation (5-2) for that year. The equilibrium price obtained by this method is considered as the estimate of the price of

peanuts that would have prevailed in the absence of a direct price

support program.

The reason for considering the equilibrium price obtained in Equa-

tion (5-2) as an estimate of the free market price is as follows:

Under a free market system, peanut supplies would have been adjusted

between the two markets -- the market for edible uses and the market

for crushing purposes -- so that, in equilibrium, the prices would have

been the same in both markets. That is, supplies would be free to

adjust between the markets and a single price would prevail under a

free market system. Thus, under a free market assumption, the price

of peanuts for crushing, Y_c, and the price of peanuts for edible uses,

Z_2, should have been equal to the equilibrium price, P_e.

The free market price of peanuts was expected to be lower than the

average price received by the growers and higher than the price received

for crushing by the government. The average price received by the

grower was determined by the support price level which has usually been

set higher than the free market price level. Since the government

sold peanuts in order to recover a part of the cost of the price sup-

port program, rather than to get the full market price for the peanuts

held in its storage facility, the price received by the government for

peanuts sold for crushing tended to be lower than the market price.

The free market price that would have prevailed without a direct

price support program is estimated in Table XXIV for the crop years

1947 through 1967. The estimated free market price is between the

average price received by the grower and the average price received by

the government for crushing except for the crop years 1947 and 1950.

The exceptions are a result of high demand for U. S. peanuts in Europe

TABLE XXIV

ACTUAL PRICE RECEIVED FOR FARMERS' STOCK PEANUTS FOR
EDIBLE USES AND FOR CRUSHING AND ESTIMATED
FREE MARKET PRICE OF PEANUTS

| Year | Price Per Pound (Cents) | | Estimated Free Market Price (Cents) |
	Edible[a] Uses	Crushing[b] Uses	
1947	10.088	8.7	8.307[c]
1948	10.537	5.4	6.362
1949	10.365	4.4	5.513
1950	10.887	7.5	7.354[c]
1951	10.429	6.2	7.319
1952	10.872	7.2	7.680
1953	11.088	6.5	6.736
1954	12.169	d	d
1955	11.739	5.6	5.933
1956	11.184	5.5	6.992
1957	10.364	5.2	6.015
1958	10.631	5.0	5.459
1959	9.561	5.3	5.305
1960	9.995	5.1	5.477
1961	10.943	5.0	6.045
1962	11.008	5.0	5.861
1963	11.211	4.2	5.444
1964	11.199	4.8	5.511
1965	11.415	5.4	5.435
1966	11.247	5.2	6.378
1967	11.425	4.8	5.429

[a]Computed from the data in U. S. Department of
Agriculture, Field and Seed Crops, Production, Farm
Use, Sales, Value (Washington: Statistical Reporting
Service), selected issues.

[b]Price received by the government for peanuts
resold for crushing

[c]Estimated free market price is higher than the
price per pound of peanuts for crushing.

[d]Due to unfavorable weather conditions during
the harvesting period, the production was low and
most of the peanuts harvested were sold for edible
uses. Therefore, the crop year 1954 is excluded
from the analysis of demand for crushing.

at the end of World War II and at the outbreak of the Korean conflict. The price received by the government in those years was unexpectedly higher than the free market price.

In most years, the estimated free market price of peanuts is slightly higher than the price of peanuts for crushing. This indicates that the minimum price of peanuts under a free market system could be close to the average price received by the government for peanuts sold for crushing.

The effect of a direct price support program upon the average price received by the grower, obtained by subtracting the free market price from the average price received, is estimated in Table XXV for crop years 1947 through 1967.

The increase in the price received by the grower as a result of a direct price support program ranged from a low of 1.8 cents to a high of 6.0 cents for a pound of peanuts. The average price received was higher than the estimated free market price in all years. The price received by the grower was higher than the estimated free market price by as much as six cents per pound in 1967.

Farm income in the absence of a price support program is estimated in the following manner: (1) the quantity of peanuts for edible uses that would have been consumed under a free market was estimated by supplying the free market price to Model I for edible uses, (2) the quantity of peanuts that would have been consumed for crushing was estimated by supplying the free market price to Model IX for crushing, and (3) the quantity of peanuts for both edible and crushing uses was multiplied by the free market price.

TABLE XXV

ESTIMATED CHANGES IN PRICE RECEIVED AND IN FARM INCOME AS A RESULT OF
DIRECT PRICE SUPPORT PROGRAM, CROP YEARS 1947-67

Crop Year	Peanuts[a] Produced	Sold	With Direct Price Support Program Price Received[b]	Farm Income[a]	Without Direct Price Support Program Price Estimated[c]	Farm Income	Effect of Direct Price Support Program Change in Price Received	Change in Farm Income
	Million Pounds		Cents	Million Dollars	Cents	Million Dollars	Cents	Million Dollars
1947	2,182	2,002	10.088	201.962	8.307	166.306	+1.781	+35.656
1948	2,336	2,194	10.537	231.130	6.362	139.582	+4.175	+91.548
1949	1,865	1,749	10.365	181.281	5.513	96.422	+4.852	+84.859
1950	2,035	1,949	10.887	212.196	7.354	143.329	+3.533	+68.867
1951	1,659	1,599	10.429	166.762	7.319	117.031	+3.110	+49.731
1952	1,356	1,305	10.872	141.885	7.680	100.224	+3.192	+41.661
1953	1,574	1,524	11.088	168.985	6.736	102.656	+4.352	+66.329
1954	1,008	958	12.169	116.581	d	d	d	d
1955	1,548	1,497	11.739	175.737	5.933	88.817	+5.806	+86.920
1956	1,607	1,561	11.184	174.583	6.992	105.999	+4.192	+68.584
1957	1,436	1,388	10.364	143.854	6.015	83.488	+4.349	+60.366
1958	1,814	1,769	10.631	188.058	5.459	96.570	+5.172	+91.488
1959	1,588	1,542	9.561	147.426	5.305	81.803	+4.256	+65.623
1960	1,786	1,676	9.995	167.516	5.477	91.795	+4.518	+75.722
1961	1,740	1,616	10.943	176.842	6.045	97.687	+4.898	+79.155
1962	1,810	1,677	11.003	184.527	5.861	98.289	+5.142	+86.238
1963	2,022	1,901	11.211	213.113	5.444	103.490	+5.767	+109.623
1964	2,205	2,059	11.199	230.593	5.511	113.471	+5.688	+117.122

TABLE XXV (Continued)

Crop Year	Peanuts[a] Produced	Peanuts[a] Sold	With Direct Price Support Program Price Received[b]	With Direct Price Support Program Farm Income[a]	Without Direct Price Support Program Price Estimated[c]	Without Direct Price Support Program Farm Income	Effect of Direct Price Support Program Change in Price Received	Effect of Direct Price Support Program Change in Farm Income
	Million Pounds		Cents	Million Dollars	Cents	Million Dollars	Cents	Million Dollars
1965	2,384	2,345	11.415	267.690	5.435	127.451	+5.980	+140.239
1966	2,411	2,376	11.247	267.237	6.378	151.541	+4.869	+115.696
1967	2,473	2,441	11.425	278.876	5.429	132.522	+5.996	+146.354

[a]Farmers' stock peanuts. Data were obtained from U. S. Department of Agriculture, Field and Seed Crops, Production, Farm Use, Sales, Value (Washington: Statistical Reporting Service), selected issues.

[b]Computed from the data in a.

[c]Free market price estimated in Table XXIV.

[d]Refer to footnote d in Table XXIV.

In estimating the farm income under a free market, it was assumed
that the quantity-price relationship that existed under price support
programs for peanuts for both edible and crushing uses remained
unchanged under a free market. It was further assumed that the prices
of related goods during a direct price support program would be the
same under a free market.

The estimated farm income under free market conditions (Table XXV)
for the crop years 1947 through 1967 shows that the actual farm income
under a direct price support program was higher than the estimated farm
income under a free market for all years. The low farm income under a
free market is considered to be a result of the low price for peanuts
in the absence of a direct price support program.

The estimated increase in farm income as a result of a direct
price support program ranged from a low of 36 million dollars in 1947
to a high of 146 million dollars in 1967. Nearly one-half of the actual
farm income was due to a direct price support program during the past
several years. Similarly, about one-half of the average price received
by the grower was the result of a direct price support program. Thus,
the price support program was an important factor in maintaining the
price of peanuts and the farm income of growers at a high level.

Effect of a Direct Price Support Program
on Government Cost

Although the farm income has been doubled by maintaining the price
received through a direct price support program, it was costly for the
taxpayer because the annual direct price support program cost totaled
millions of dollars. The total cost of a direct price support program

for peanuts in all years from 1947 to 1967 amounted to 434 million dollars. It totaled over 243.7 million dollars for the period 1960 through 1967.

The cost of a direct price support program does not include the payments made by the government to reduce peanut production through production control programs such as the acreage diversion or the acreage reserve program. The cost of a direct price support program is the net loss incurred when the Commodity Credit Corporation sells peanuts acquired under the price support program. The primary reason for the loss is that the price paid by the Commodity Credit Corporation for peanuts plus the cost to hold peanuts in storage is greater than the final sale price. The cost of administering the direct price support program is not included in the analysis.

The quantity of peanuts purchased and the net loss of the Commodity Credit Corporation for the years 1947 through 1967 are shown in Table XXVI. During the period 1947 through 1967, the Commodity Credit Corporation paid 10.75 cents per pound for the purchase of peanuts and received only 5.6 cents per pound when the purchased peanuts were sold for crushing. The net loss to the government for each pound of farmers' stock peanuts purchased and resold was about 5.15 cents in the same period.

The cost of a direct price support program is determined by the support price level set by the government and the demand characteristics for peanuts on both the edible and crushing markets. Given the quantity-price relationships for edible peanuts, the support price level set by the government determines the quantity of peanuts which have to be purchased by the government at the set support price level. On the other hand, the resale price that the government can expect on the

TABLE XXVI

QUANTITY OF PEANUTS PURCHASED AND THE COST OF A DIRECT PRICE SUPPORT
PROGRAM AND THE NET CHANGE IN FARM INCOME TO GOVERNMENT COST FOR
THE CROP YEARS 1947-1967

Crop Year	Peanuts Purchased[a]	Government Cost[b]	Net Change in Farm Income[c]	Change in FI to GC[d]
	Million Pounds	Million Dollars		
1947	528	3.470	35.656	10.27
1948	1,167	24.503	91.548	3.74
1949	763	40.860	84.859	2.09
1950	835	19.712	68.867	3.49
1951	540	10.493	49.731	5.31
1952	106	2.020	41.661	20.62
1953	294	8.671	66.329	7.65
1954	e	e	e	e
1955	268	11.418	86.920	7.61
1957	108	4.183	60.366	14.43
1958	383	13.120	91.488	6.97
1959	246	7.585	65.623	8.65
1960	299	11.944	75.722	6.34
1961	231	7.250	79.155	10.92
1962	331	10.935	86.238	7.88
1963	378	20.262	109.623	5.31
1964	512	21.565	117.122	5.43
1965	688	26.286	140.239	5.33
1966	701	28.179	115.696	4.11
1967	605	31.403	146.354	4.66

[a]Peanuts purchased by the government from the producer.

[b]Lodd incurred to the government by the purchase and resale of peanuts.

[c]Increase in farm income due to a direct price support program as estimated in Table XXV.

[d]Ratio of change in farm income to government cost.

[e]No peanuts were purchased by the government in this crop year.

crushing market is influenced, among other reasons, by the amount of peanuts purchased by the government.

Since the price elasticity of peanuts on the edible market is inelastic, an increase in the support price level is not expected to result in a decrease in the amount of peanuts purchased in the same proportion that the price was increased. According to Model I for edible peanuts, a one percent increase in the support price level is expected to result in a 0.04 percent decline in the amount of peanuts purchased by the commercial channel. The quantity of peanuts which could not be sold to commercial channels was purchased by the government. Therefore, an increase in the support price level raised the amount of peanuts that the government had to purchase.

On the other hand, the price elasticity of crushing peanuts, with respect to the quantity of peanuts purchased by the government, is elastic. That is, an increase in the quantity of peanuts purchased by the government is not expected to lower the price of peanuts for crushing in the same proportion as the quantity of peanuts purchased by the government is increased. According to Model IX for crushing, a one percent increase in the amount of peanuts purchased by the government is expected to lower the resale price of peanuts for crushing by only 0.06 percent.

When the support price level is raised, the government is expected to purchase more peanuts and to receive a lower resale price of peanuts for crushing. The quantity of peanuts purchased by the government has a depressing influence upon the price of peanuts for crushing. However, the price of peanuts for crushing is not expected to decrease as much as the support price level is raised because the price elasticity

of peanuts on the edible market is inelastic while the price elasticity on the crushing market is very elastic.

There is no optimal support price that will maximize farm income and minimize government cost of a direct price support program. The support price must lie somewhere between the free market price and the price that is high enough to choke off completely the quantity of peanuts demanded for edible uses. If the support price is set at the free market price, no government cost will be incurred. On the other hand, if the support price can be set at a high level, the government would have to purchase all the peanuts produced.

In the crop year 1947, for example, the free market price is estimated at 8.31 cents per pound while the support price that would prevent any quantity of peanuts demanded for edible uses is estimated at about 65.3 cents per pound.[5] At the support price of 65.3 cents, all the peanuts produced would be purchased by the government and would be sold for crushing. The price the government would have received for the peanuts resold for crushing would be about 1.1 cents for a pound.[6] Assuming a fixed supply, the cost to the government would be about 1,285 million dollars.

If a new price support level were to be determined, it would be difficult because a new support price level may depend on policy criteria. For example, if the support price program emphasizes increased farm income, the support price level will have to be set at a higher level relative to the free market price; if the policy is aimed at low consumer food costs, the support price level will have to be set at a price level closer to the free market price; and if the policy emphasizes treasury cost reductions, the support price

level will have to be set at a level closer to the free market price.

From its inception, a direct price support program has been aimed primarily at increasing farm income. Thus, the net increase in farm income as a result of a direct price support program has been high as shown in Table XXVI. The increase in farm income per dollar of treasury cost each year ranged from a low of two dollars to a high of 20 dollars. The ratio of net farm income change as a result of a direct price support program has been estimated in Table XXVI. Although a direct price support program was costly to the government and to the taxpayer, the increase in farm income was a multiple of the government cost. In view of past policy objectives, a direct price support program may be said to be successful.

Effect of a Direct Price Support Program
on Peanut Consumption

The effect of a direct price support program on consumption may be measured by the quantity of peanuts used and the price paid by the consumer.[7] The key in measuring the effect of a direct price support program on consumption depends on the successful estimation of the quantity of peanuts used and the price paid by the consumer under a free price system.

The price support programs have resulted in a diversion of peanuts from the edible uses to the crushing uses. Therefore, the quantity of peanuts used for edible purposes under a direct price support program relative to the quantity of peanuts that would have been used for such purposes under a free price system, is considered to be a measure of the effect of a direct price support program on consumption. Consumers

have generally paid a higher price under a direct price support program than they would have under a free price system. Thus, the price paid under a direct price support program relative to a price that would have been paid under a free system is also considered as a measure of the effect of a direct price support program on consumption.

The quantity of peanuts that would have been used for edible uses in the absence of a direct price support program was estimated in the following manner: (1) the free market price of peanuts was estimated by the method described in the previous section, (2) the quantity of peanuts that would have been consumed for edible purposes per person was estimated by Model I for edible uses by supplying the estimated free market price to Model I, and (3) the total consumption of peanuts for edible purposes was obtained by multiplying the estimated per capita consumption by the total civilian population.

The estimates of per capita and total consumption of peanuts for edible uses without a direct price support program are shown in Table XXVII.

Excluding the crop year 1954, the total amount of peanuts consumed for edible purposes was 22,054 million pounds with a direct price support program and 23,262 million pounds without a direct price support program. Therefore, the direct price support program is estimated to have reduced the peanuts consumed for edible purposes by as much as 1,208 million pounds during the crop years 1947 through 1967, excluding 1954.

According to the estimates in Table XXVII, on the average, peanuts consumed for edible purposes with a direct price support program amounted to about 95 percent of the peanuts that would have been

TABLE XXVII

ESTIMATES OF PER CAPITA AND TOTAL CONSUMPTION OF PEANUTS FOR EDIBLE USES
WITH AND WITHOUT DIRECT PRICE SUPPORT PROGRAM

Crop Year	With Direct Price Support Program[a]		Without Direct Price Support Program[a]		Effect of Direct Price Support Program on Consumption[d]	Relative Consumption[e]
	Per Capita[b]	Total[b]	Per Capita[c]	Total		
	Pounds	Million Pounds	Pounds	Million Pounds	Million Pounds	Percent
1947	5.9	853	6.024	868.058	-13.058	98.27
1948	6.1	889	6.391	936.921	-47.921	94.89
1949	5.4	800	5.738	856.100	-56.110	93.45
1950	6.1	917	6.346	962.688	-45.688	95.25
1951	6.3	962	6.517	1,005.573	-43.573	95.67
1952	6.2	961	6.422	1,008.254	-47.254	95.31
1953	6.1	971	6.403	1,021.919	-50.919	95.02
1954	6.1	980	f	f	f	f
1955	5.5	906	5.905	976.097	-70.097	92.82
1956	5.9	986	6.192	1,041.494	-55.494	94.67
1957	6.2	1,044	6.503	1,113.964	-69.964	93.72
1958	6.0	1,050	6.358	1,106.930	-56.930	94.86
1959	6.3	1,110	6.597	1,168.329	-58.329	95.01
1960	6.6	1,198	6.915	1,244.009	-46.009	96.30
1961	6.7	1,221	7.041	1,288.503	-67.503	94.76
1962	6.8	1,251	7.159	1,330.142	-79.142	94.41
1963	6.9	1,290	7.302	1,377.157	-87.157	93.67
1964	7.1	1,345	7.500	1,434.750	-89.750	93.74

TABLE XXVII (Continued)

Crop Year	With Direct Price Support Program[a]		Without Direct Price Support Program[a]		Effect of Direct Price Support Program on Consumption[d]	Relative Consumption[f]
	Per Capita[b]	Total[b]	Per Capita[c]	Total		
	Pounds	Million Pounds	Pounds	Million Pounds	Million Pounds	Percent
1965	7.4	1,439	7.817	1,514.347	-75.347	95.02
1966	7.3	1,427	7.639	1,497.244	-70.244	95.31
1967	7.2	1,434	7.618	1,509.888	-75,888	94.97

[a] Per capita and total consumption do not include peanuts used on farm household and sold on local market.

[b] Data were obtained from U. S. Department of Agriculture, U. S. Fats and Oils Statistics, Statistical Bulletin No. 376 (Washington: Economic Research Service, August, 1966), pp. 52-3.

[c] Estimated from Model I for edible uses by setting the price received for edible peanuts equal to the estimated free market price.

[d] Obtained by subtracting the total consumption of peanuts without a direct price support program from the total consumption with a direct price support program.

[e] Obtained by dividing the total consumption under a direct price support program with the total consumption without a direct price support program.

[f] No free market price was estimated for the crop year 1954 because no price of peanuts for crushing was available that year. Therefore, the consumption without a direct price support program could not be estimated.

consumed for edible purposes without a direct price support program. This implies that the direct price support program resulted in a diversion of about five percent of the peanuts from the higher-order edible uses to the lower-order crushing uses.

The free market price that would have prevailed in the absence of a direct price support program was estimated by a method described in the previous section. The estimated free market price is compared to the actual price received by the grower and the resale price received by the government for crushing (Table XXVIII). Generally, the price paid by the consumer at the farm level for peanuts for edible purposes was higher than the free market price. However, the consumer paid less for the peanuts for crushing than the free market price.

Although the price paid by the consumer for peanuts used in crushing has been lower than the free market price, the price paid for peanuts for edible purposes has been much higher than the free market price. Thus, the consumer's bill for peanuts increased due to a direct price support program as shown by the change in farm income in Table XXV. Without considering the effect of a direct price support program on the marketing margins at the various stages of processing distribution, the change in the total consumer's bill for peanuts, due to a direct price support program, is the change in the farm income as estimated in Table XXV.

Assuming a fixed supply, a direct price support program has resulted in an increase in the consumer's bill for peanuts by millions of dollars in all the years considered. The increase in the consumer's bill for the crop year 1967 alone amounted to nearly 1.5 million dollars, due to a direct price support program as shown in Table XXV.

TABLE XXVIII

EFFECT OF DIRECT PRICE SUPPORT PROGRAM ON ACTUAL PRICE
RECEIVED FOR EDIBLE PURPOSES AND FOR CRUSHING AND
THE ESTIMATED FREE MARKET PRICE

Year	Price Received Per Pound of Peanuts Under Direct Price Support Program		Free Market Price	Changes in the Price Received Due to Direct Price Support Program	
	Edible Uses[a]	Crushing[b]		Edible Uses	Crushing
			Cents		
1947	10.088	8.7	8.307	+1.781	+0.393
1948	10.537	5.4	6.362	+4.175	-0.962
1949	10.365	4.4	5.513	+4.852	-1.113
1950	10.887	7.5	7.354	+3.533	+0.146
1951	10.429	6.2	7.319	+3.110	-1.119
1952	10.872	7.2	7.680	+3.192	+0.480
1953	11.088	6.5	6.736	+4.352	-0.236
1954	12.169	c	c	c	c
1955	11.739	5.6	5.933	+5.806	-0.333
1956	11.184	5.5	6.992	+4.192	-1.492
1957	10.364	5.2	6.015	+4.349	-0.815
1958	10.631	5.0	5.459	+5.172	-0.459
1959	9.561	5.3	5.305	+4.256	-0.005
1960	9.995	5.1	5.477	+4.518	-0.377
1961	10.943	5.0	6.045	+4.898	-1.045
1962	11.008	5.0	5.862	+5.142	-0.861
1963	11.211	4.2	5.444	+5.767	-1.244
1964	11.199	4.8	5.511	+5.688	-0.711
1965	11.415	5.4	5.435	+5.980	-0.035
1966	11.247	5.2	6.378	+4.869	-1.178
1967	11.425	4.8	5.429	+5.996	-0.629

[a]U. S. Department of Agriculture, Field and Seed Crops, Production, Farm Use, Sales, Value (Washington: Statistical Reporting Service), selected issues.

[b]Price received by the government for peanuts resold for crushing.

[c]Due to unfavorable weather conditions during the harvesting period, the production was low and most of the peanuts harvested were sold for edible uses. Therefore, the crop year 1954 is excluded from the analysis of demand for crushing.

The Implications of Findings to the Grower,

Government, and Consumer for the

Crop Year 1972

According to a study made by the Agricultural Stabilization and

Conservation Service for the meeting of the Stabilization Advisory

Committee on Peanuts, if the present program were to be continued

through the crop year 1972 at the minimum allotment and minimum support

level, (1) over 3,010 million pounds of peanuts could be expected to be

produced for the crop year 1972, (2) out of 3,010 million pounds pro-

duced, about 1,954 million pounds could be expected to be consumed for

edible uses, and (3) roughly, 1,056 million pounds could be expected

to be diverted to crushing.[8] The same study estimated the cost of pur-

chasing and reselling the 1,056 million pounds of peanuts by the govern-

ment at about 79 million dollars. The detailed projections on peanut

programs for the crop years 1967 through 1972 made by the Agricultural

Stabilization and Conservation Service are listed in Table XXIX.

However, on the basis of the price-quantity relationship for

edible peanuts and for crushing peanuts estimated in this study: (1)

only 1,751 million pounds of peanuts could be expected to be consumed

for edible uses, (2) about 1,104 million pounds could be expected to

be diverted to crushing, and (3) the cost of a direct price support

program to the government would be expected to run as high as 94 mil-

lion dollars for the crop year 1972.

Both the Agricultural Stabilization and Conservation Service and

the author made estimates on the assumption that 3,010 million pounds

of peanuts will be produced and that the price will be supported at

TABLE XXIX

PEANUTS: ESTIMATES OF PRODUCTION, EDIBLE REQUIREMENTS, SURPLUS TO DIVERT BY CCC, AND THE
PROGRAM COST OF DIRECT PRICE SUPPORT PROGRAM WITH CONTINUATION OF PRESENT PROGRAM
THROUGH 1972 AT MINIMUM ALLOTMENT AND MINIMUM SUPPORT LEVEL

Item	Unit	1967	1968	1969	1970	1971	1972
Acreage Allotment	1,000 Acres	1,610	1,610	1,610	1,610	1,610	1,610
Acreage Harvested	1,000 Acres	1,400	1,400	1,400	1,400	1,400	1,400
Yield Per Acre	Pounds	1,827	1,850	1,925	2,000	2,075	2,150
Production	Million Pounds	2,556	2,590	2,696	2,800	2,906	3,010
Edible Requirements[a]	Million Pounds	1,770	1,806	1,842	1,878	1,916	1,954
Surplus to Divert by CCC	Million Pounds	786	784	854	922	590	1,056
Parity Price Per Pound	Cents	15.1	15.4	15.7	16.0	16.3	16.6
Support–Percent of Parity	Percent	75	75	75	75	75	75
Support–Dollars Per Pound	Cents	11.35	11.55	11.8	12.0	12.25	12.45
CCC Loss Per Pound[b]	Cents	6.35	6.55	6.8	7.0	7.25	7.45
CCC Loss on Peanuts	Million Dollars	50	51	58	64	72	79
Farm Value of Production	Million Dollars	290	299	318	336	356	375

[a]Including section 32 peanut butter.

[b]Support minus five cents per pound.

Source: Material for use at meeting of Stabilization Advisory Committee on Peanuts, Washington, D. C.,
September 1967, prepared by the Agricultural Stabilization and Conservation Service, U. S. Department of
Agriculture.

12.45 cents for a pound of farmers' stock peanuts. Thus, the estimates made by the author compared to the estimate made by the Agricultural Stabilization and Conservation Service was lower by 203 million pounds on the quantity of peanuts that would be consumed for edible uses; was higher by 48 million pounds on the quantity of peanuts that would be diverted to crushing; and was higher by 15 million dollars on the cost of direct price support program.

The reason for the differences between the estimates made by the author and by the Agricultural Stabilization and Conservation Service lies in the method of analysis in deriving the estimates. Since the study made by the ASCS does not indicate the method of analysis, an adequate evaluation of method employed by the ASCS cannot be made. However, several basic assumptions upon which the estimates might have been made can be deduced from Table XXIX. The assumptions might have been: (1) yield will increase annually at a rate of 75 pounds per acre, (2) edible requirements will increase by 36 million pounds for 1967-1969 and by 38 million pounds for 1970-1972 annually, (3) the support price will be increased by 0.20 cents per pound annually, and (4) the financial loss for each pound of peanuts purchased and resold by the Commodity Credit Corporation will increase annually by 0.20 cents for odd years and by 0.25 cents for even years starting from 1967. The analysis by the ASCS is based on relatively fixed annual rates of increase in yield, support price, edible requirement, and financial loss of price support operation.

On the other hand, the author's analysis is based on the demand characteristics for edible uses and for crushing purposes; on the relative relationships between the demand characteristics for edible uses

and for crushing purposes and does not necessarily imply the same assumptions. The detailed analysis in deriving the estimates for the crop year 1972 is presented in the remainder of this chapter.

The quantity of peanuts that would be purchased for edible uses was estimated at 1,751 million pounds in the following manner: (1) the per capita consumption of peanuts for edible uses was determined by Model I for edible uses, and (2) the quantity of peanuts for edible uses was obtained by multiplying the per capita consumption by the population estimate.[9] The per capita consumption was estimated at 8.1 pounds at the average price of 12.22 cents[10] and the estimated disposable personal income of 3,417 dollars.[11] The expected high per capita consumption was due to an increase in disposable personal income. The highest per capita consumption ever recorded was about 7.7 pounds for the crop year 1965.

If the peanuts consumed for edible uses are 1,954 million pounds as the Agricultural Stabilization and Conservation Service estimated, the per capita consumption will be nearly 9.1 pounds. The per capita consumption is expected to be less than 8.3 pounds even if the price is supported at 11 cents a pound. Therefore, it appears plausible to believe that the actual peanuts consumed for edible uses for the 1972 crop year will be less than the ASCS estimate by 203 million pounds.

The peanuts that the government has to divert to uses other than edible purposes are estimated at 1,104 million pounds in the following way. Out of 3,010 million pounds, about 1,751 million pounds will be consumed for edible uses and about 155 million pounds will be used for seed and for farm household uses. This leaves nearly 1,104 million

pounds to be diverted by the government into uses other than edible
purposes.

The cost of purchasing 1,104 million pounds of peanuts by the
government is expected to amount to nearly 135 million dollars at the
expected average price of 12.22 cents per pound when the price is sup-
ported at 12.45 cents per pound.

Out of 1,104 million pounds purchased by the government, about 198
million pounds are expected to be exported abroad and the remaining 906
million pounds are to be crushed into oil and meal by the domestic
crushers. As the government resells the purchased peanuts, it is
expected to recover 7 million dollars from the peanuts exported and
about 34 million dollars from peanuts sold for crushing on the domestic
market. Thus, the net loss to the government for the price support
operation is expected to amount to over 94 million dollars.

The expected net loss of 94 million dollars by the government was
estimated in the following manner. The resale price of peanuts for
crushing was estimated at 3.74 cents per pound by using Model IX for
crushing peanuts. Since the purchase price was estimated at 12.22 cents
per pound, the net loss per pound of peanuts purchased and resold by
the government will be about 8.48 cents. Therefore, the net loss for
the estimated 1,104 million pounds that the government has to divert to
crushing will be about 94 million dollars. The resale price of 3.74
cents per pound is considered a liberal estimate. Since both cotton-
seed and soybeans are competitive with peanuts for crushing, a decline
in the prices of these competing goods is expected to lower the resale
price of peanuts for crushing. Although the prices of cottonseed and
soybeans have been declining in the past years, they were assumed to be

maintained at the 1967 crop year level in estimating the resale price of peanuts for crushing. As in the past, the world market price of peanuts was assumed to be the same as the resale price for crushing in the United States. Thus, the government could be expected to lose about 8.48 cents per pound of peanuts shipped abroad.

A direct price support program is expected to increase the average price received by the grower by 7.5 cents for each pound of peanuts sold and the farm income by 214 million dollars for the crop year 1972. The free market price of peanuts was estimated at 4.7 cents.[12]

Out of 3,010 million pounds, 155 million pounds will be used on the farm and 2,855 million pounds are expected to be marketed by the grower to the commercial channel or to the government. The total farm income should be about 349 million dollars and, out of this, about 214 million dollars should be due to a direct price support program. In the absence of direct price support program, the grower could have only 135 million dollars for the 2,855 million pounds marketed.

A direct price support program is expected to lower the per capita peanut consumption for edible uses by 0.53 pounds and the total peanut consumption for edible purposes by 113 million pounds for the crop year 1972. In the absence of a direct price support program, the price will be about 4.7 cents a pound. At this price, the per capita peanut consumption for edible uses will be 8.64 pounds and the total peanuts consumed for edible uses will be 1,864 million pounds. However, with a direct price support program, the per capita peanut consumption will be about 8.1 pounds and the total consumption for edible uses about 1,751 million pounds.

In summary, the direct price support program is an important determinant of farm incomes of peanut producers. If the program were to be removed for the crop year 1972, the price of peanuts can be expected to fall roughly to 4.7 cents from an expected price of 12.2 cents. Without a direct price support program, farm income can be expected to fall to roughly 134 million dollars from 349 million dollars under the direct price support program.

As long as the present trend in production and consumption continues, the cost of a direct price support program can be expected to rise in the future. The cost to the government for the crop year 1972 may exceed 94 million dollars if the price is to be supported at 12.45 cents a pound. Even if the price is supported at the 1967 crop year model, the cost of a direct price support program to the government for the crop year 1972 can be expected to run over 75 million dollars.

The consumer will have to pay a higher price for peanuts as long as price is supported at a level higher than the equilibrium price that would prevail in the absence of a direct price support program. The quantity of peanuts moving into edible uses will be less than the quantity of peanuts that would move into such uses without a direct price support program.

FOOTNOTES

[1]Similar subject was treated in an earlier work by Sydney C. Reagan, "Peanut Price Support Programs, 1933-1952 And Their Effect on Farm Income" (unpub. Ph.D. dissertation, Harvard University, 1953). However, the methods of analysis in this study are author's own.

[2]An increase in direct price support level will tend to encourage higher production and to decrease the quantity of peanuts demanded for edible uses. Thus, the amount of peanuts that the CCC would have to purchase is a result of increased quantity of peanuts supplied as well as decreased quantity of peanuts demanded.

[3]Due to the limited scope of this study, it is assumed that the same quantity of peanuts marketed under a direct price support program would have been marketed under a free market system.

[4]$Y = 0.0083 + 0.977X$ where Y and X refer to the average price received and the average support price, respectively. The coefficient of determination (R^2) was 0.99878.

[5]The price at which no peanut will be demanded for edible uses may be estimated by Model I for edible uses which is $Y_e = 5.035 + 0.00115Z_1 - 0.0697Z_2$. Solving for Z_2 after setting $Y_e = 0$ and $Z_1 = 1179$ for the crop year 1947, we obtain $Z_2 = 65.3$.

[6]Computed from Model IX for crushing which is $Y_c = 4.8083 + 0.92353X_1 + 0.66353X_6 - 0.14545X_5 - 0.12885Z_1 - 0.0083Z_2$ by setting $Z_2 = 65.3$ and supplying the data for the rest of the variables for the crop year 1947.

[7]The effect of a direct price support program on peanut consumption was first measured by Sydney C. Reagan, "Peanut Price Support Programs, 1933-1952 And Their Effect on Farm Income" (unpub. Ph.D. dissertation, 1953).

[8]The Agricultural Stabilization and Conservation Service, U. S. Department of Agriculture, prepared the material for use at the meeting of the Stabilization Advisory Committee on Peanuts, Washington, D. C., in September, 1967.

[9]The population is expected to reach 215,849 million in 1972 according to U. S. Bureau of the Census, Current Population Reports, Population Estimates, Series P-25, Pub. No. 359 (Washington: February, 1967), p. 8.

[10]The average price received by the grower is generally lower than the support price because of the high quality standard built into the support price schedule.

[11]The disposable personal income for 1972 was estimated from the 1968 disposable personal income assuming a four percent annual increase.

[12]Estimated by Model IX for crushing peanuts assuming the prices of cottonseed and soybeans at the 1967 crop year level.

CHAPTER VI

SUMMARY AND CONCLUSIONS AND SUGGESTIONS

FOR FUTURE STUDY

This research was undertaken to estimate quantitatively the demand

characteristics for peanuts for edible uses and for crushing purposes.

The estimates were used to evaluate the impact of past direct support

programs and to assessing future price support programs on farm income,

on the consumption of peanuts, and on government cost.

In order to estimate the peanut demand characteristics quantita-

tively, two basic statistical demand models were constructed: one for

edible uses and the other for crushing uses. An additional statistical

model was then built combining the two models into one reflecting the

interrelationships that exist between the two basic statistical models.

The additional model estimates the free market price of peanuts. A

simple multiple linear regression model was adopted for the estimate

after testing several mathematical forms of equations. In estimating

the demand relationships for peanuts for both edible and crushing uses,

the least squares technique was used in this study. Because the data

were available only at the national level, this study was conducted at

the national level. Data were annual time series.

Because the peanut industry is an extremely complex set of data

consisting of technical, economic, and institutional relationships

which cannot be completely incorporated into a statistical mode,

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Chapter II reviewed the important descriptive aspects of the U. S. peanut industry.

The United States produces only about six percent of total world peanuts annually and consumes most of her production. The United States exports about four percent of domestically produced peanuts. Therefore, the position of the United States in world peanut trade is not so important. Peanuts consumed in the United States, however, have a wider variety of uses than peanuts consumed in other countries where most peanuts are crushed into oil and meal. Peanut uses domestically for both edible uses and industrial uses range from peanut butter to cosmetics.

Since 1930, more peanuts have been produced than the edible requirements and thus price tended to decline. For this reason, the price of peanuts has been maintained by various price support programs. The legal institutions for the various price support programs are numerous but among the most important legislation are the Agricultural Adjustment Act of 1933, the 1934 and 1935 Amendments to the 1933 Agricultural Adjustment Act, the Soil Conservation and Domestic Allotment Act of 1936, and the Agricultural Marketing Agreement of 1937. In addition, the Agricultural Adjustment Acts of 1949 and several other statutes passed after 1950 are also important but they are primarily amendments to the Agricultural Adjustment Acts of 1937 and 1949.

The federal programs applied since 1933 include the marketing agreement and license program, the production control program under agreement, the peanut diversion program, the acreage allotment program, the marketing quota program, the direct purchase program, and the producer loan program among others.

The federal legislation and the federal programs have resulted in a structure and conduct peculiar to the peanut industry. The major elements of the peanut market are the growers and grower associations, the first-hand buyers, the millers and their trade associations, the processors and their trade associations, the Peanut Council, and state and federal government agencies. Peanuts are traded at a price described in a price schedule which reflects the support price level, the quality and the type of peanuts, the locality of production, the quantity of peanuts supplied, and the edible requirements. The peanut price is determined by marketing agreements. Peanuts for edible uses are sold directly to commercial channels by the growers and the surplus peanuts are purchased by the government at a price prescribed in the price schedule and then are sold to crushers for crushing. Usually, the purchase price is higher than the resale price and, for this reason, the purchase-and-resell operation results in a financial loss to the government. The loss is absorbed by the government as the cost of a direct price support program.

In estimating the statistical price-quantity relationship for peanuts for edible uses, the quantity of peanuts demanded was regressed upon disposable personal income, its own price, and the prices of several related goods. Five trial models were fitted to the basic statistical model. These trial models were designed to provide information about the influence of independent variables upon the dependent variable. According to the results obtained, disposable personal income and the price of peanuts were the two most important factors. Together, they explained over 75 percent of the variation in the quantity of peanuts consumed for edible uses ranging from 1.15 pounds to

1.70 pounds per capita depending on the model tried. A one percent
rise in the price of peanuts was accompanied by a fall in the amount
of peanuts demanded ranging from 0.025 to 0.069 pounds per person. Both
income and price elasticities of demand were inelastic for edible uses:
Income elasticity ranged from 0.33 to 0.49 and price elasticity ranged
from -0.043 and -0.119. Several additional variables were added but they
increased the coefficient of determination (R^2) by only 0.08.

For estimating the price-response relationships for peanuts for
crushing, the price of crushing peanuts was regressed upon the quantity
of peanuts demanded for crushing uses, disposable personal income, the
quantity of peanuts produced (or the quantity of peanuts supplied),
and the prices of several closely related goods. Altogether nine trial
models were tested to obtain the information about the influence of
independent variables upon the price of peanuts for crushing uses.
According to the empirical results obtained, an increase in the amount
of peanuts purchased by the government (or in the amount of peanuts
produced or supplied) has the effect of depressing the price of peanuts
for crushing. On a per capita basis, a one pound increase in the quan-
tity of peanuts purchased by the government would depress the price of
peanuts for crushing in the range of 0.06 to 0.13 cents per pound; a
one pound increase in the amount of peanuts produced would be expected
to lower the price of peanuts for crushing ranging from a low of 0.06
to a high of 0.11 cents per pound; and, the price of crushing peanuts
is expected to fall ranging from 0.04 to 0.11 cents per pound in
response to a one pound increase in the quantity of peanuts supplied.
Supply includes peanuts produced plus the carry-over from the previous
year.

The empirical results for price-quantity relationship of crushing peanuts also indicated that the most closely related goods with peanuts for crushing were cottonseed and soybeans. A one percent change in the price of cottonseed is expected to result in a percentage change in the price of peanuts for crushing with a range of 0.45 to 0.71 percent in the same direction. A one percent change in the price of soybeans is also expected to result in a 0.09 to 0.94 percent change in the price of crushing peanuts in the same direction.

The estimate of price elasticity of demand for crushing peanuts was highly elastic ranging from a low of -9.0 to a high of -26.3. This means that a one percent change in the price of crushing peanuts would result in a percentage change in the amount of peanuts demanded for crushing ranging from a low of -9.0 to a high of -26.3 percent.

The free market price of peanuts was estimated by a statistical model which incorporated the demand characteristics for edible uses into the price-quantity relationship for peanuts for crushing uses. Then the prices of peanuts for both edible and crushing uses were permitted to settle to an equilibrium price. The estimated free market price of peanuts was higher than the average price of crushing peanuts received by the government but lower than the average price received by the grower sold for edible uses except for two crop years 1947 and 1950. The exceptions are believed to be a result of high demand for U. S. peanuts in Europe at the end of World War II and at the outbreak of the Korean conflict. The relationship between the estimated free market price and the average price of peanuts for both edible and crushing uses indicates the following: If a direct price support program were lifted, the price of peanuts for edible uses is expected to

fall by one-half of the average price that would be received under a direct price support program. However, the price of peanuts for crushing uses in a free market is expected to be higher than the average price received by the government for crushing uses.

The estimated free market price was applied to the price-quantity relationship for peanuts for edible uses to estimate the quantity of peanuts demanded for edible uses in the absence of a direct price support program. The estimated free market price was also applied to the price-quantity relationship for crushing uses to estimate the quantity of peanuts demanded in a free market. The estimated free market price, the free market quantity of peanuts for edible uses and crushing uses, and the actual prices of quantities of peanuts for both uses form the basis for measuring the impact of past direct price support programs on farm income, government cost, and peanut consumption.

The increase in the average price received by the grower as a result of a direct price support program ranged from a low of 1.8 cents to a high of 6.0 cents per pound. The estimated increase in annual farm income as a result of a direct price support program ranged from a low of 36 million dollars in 1947 to a high of 146 million dollars in 1967. If a direct price support program were lifted, farm income would be expected to fall by one-half of the actual farm income received under a direct price support program.

The cost of a direct price support program was incurred when the government purchased peanuts at a price prescribed in the support price schedule and then sold them for crushing uses at a price lower than the purchase price. During the period 1947 through 1967, the Commodity Credit Corporation purchased peanuts for approximately 10.75 cents per

pound and sold them for about 5.6 cents per pound. Thus, the net loss to the government for each pound of peanuts purchased and resold was about 4.15 cents in the same period. The total cost of a direct price support program in the same period amounted to 434 million dollars.

If the support price level were raised, the government would be expected to purchase more peanuts and to receive a lower resale price of peanuts for crushing. The quantity of peanuts purchased by the government has the effect of depressing the price of peanuts for crushing uses. However, the price of peanuts for crushing is not expected to decrease as much as the support price level is raised because the price elasticity of peanuts on the edible market is inelastic while the price elasticity of demand on the crushing market is very elastic.

Direct price support programs resulted in a diversion of peanuts from the edible uses to the crushing uses. The program is estimated to have reduced the peanuts consumed for edible uses by as much as 1,208 million pounds during the crop years 1947 through 1967 excluding 1954. Peanut production was reduced due to unfavorable weather at harvesting time and the peanuts produced in 1954 were used for edible uses. On the average, peanuts consumed for edible uses with a direct price support program amounted to about 95 percent of the peanuts that would have been consumed without a direct price support program.

Consumer expenditure on peanuts and peanut products was higher under direct price support programs. The increased farm income because of a direct price support program is an extra expenditure for peanuts by consumers. In addition to the higher price paid for peanuts, the cost of a direct price support program is also paid by the consumer through taxes.

In assessing the impact of a direct price support program on farm income, on government cost, and on consumption of peanuts for the crop year 1972, it was assumed that about 3,010 million pounds of peanuts would be produced, that the price would be supported at 12.45 cents a pound, and that the prices of closely related goods would remain at the 1967 level. On the basis of these assumptions and the price-quantity relationships, about 1,751 million pounds could be expected to be consumed for edible uses while roughly 1,104 million pounds could be expected to be diverted to crushing. Finally, the cost of a direct price support program to the government could be expected to be approximately 94 million dollars.

If the price were supported at 12.45 cents, the average price received by the grower would be expected to be at 12.22 cents per pound because of the high quality standard incorporated into the price support schedule. As the government purchased 1,104 million pounds of peanuts at 12.22 cents a pound, the resale price of peanuts for crushing uses would be expected to be about 3.74 cents per pound. On the average, the government is expected to lose about 8.48 cents for each pound of peanuts purchased and resold for crushing. Therefore, the total loss is expected to be about 94 million dollars.

The free market price for the crop year 1972 was estimated at 4.7 cents a pound. Because the average price received by the grower was estimated at 12.22 cents if the price were supported at 12.45 cents a pound, the increase in the average price received by the grower due to a direct price support program will be about 7.5 cents a pound. The total increase in farm income as a result of price support programs, therefore, was estimated at 215 million dollars.

A direct price support program is expected to lower the per capita peanut consumption for edible uses by 0.53 pounds. The total peanut consumption for edible uses will be reduced by 113 million pounds for the crop year 1972.

Suggestions for Future Study

This study has several weaknesses. First, the study is limited to the analysis of demand for peanuts. It ignores the impact of a direct price support program on the supply side of the peanut industry. Next, a direct price support program is limited to imply the operation of peanut purchases at a supported price and reselling peanuts for crushing uses by the government. It excludes discussions of the impact of other programs such as acreage control, acreage reserve, school lunches, on farm income, on government cost, and on peanut consumption. Third, in analyzing the cost of government expenditures on the peanut program, the cost includes only those directly involved with the purchase-and-resell operation. It excludes the cost of administering the program and other associated costs. Finally, data used in this study are not as refined as could be for this type of study. In view of these weaknesses, this study can only be said partial in scope and in degree of refinement. Improvement in these areas would undoubtedly make a future study of this type more comprehensive and refined.

Therefore, future study should include the supply side of the peanut industry. That is, the impact of a direct price support program on the supply side of the peanut industry should also be analyzed. Next, future study should include all the federal programs on peanuts. The inclusion of all federal programs would undoubtedly make the study

a comprehensive one. Finally, more refined data should be obtained

for the analysis.

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APPENDIX A

APPENDIX A

UNITED STATES STANDARDS FOR SHELLED

RUNNER TYPE PEANUTS

Grades

U. S. No. 1 Runner

"U. S. No. 1 Runner" consists of shelled Runner type peanut ker-
nels of similar varietal characteristics which are whole and free from
foreign material, damage and minor defects, and which will not pass
through a screen having 16/64 x 3/4 inch openings.

In order to allow for variations incident to proper grading and
handling, the following tolerances, by weight, shall be permitted:

(1) One percent for other varieties of peanuts;

(2) Three percent for sound peanuts which are split or broken;

(3) 1.5 percent for damaged or unshelled peanuts;

(4) 0.5 percent for minor defects: provided, that in addition,
     any unused part of the tolerance for damaged or unshelled
     peanuts shall be allowed for minor defects;

(5) 0.1 percent for foreign material; and,

(6) Three percent for sound whole peanuts which will pass through
     the prescribed screen.

U. S. Runner Splits

"U. S. Runner Splits" consists of shelled Runner type peanut kernels of similar varietal characteristics which are split or broken, but which are free from foreign material, damage and minor defects, and which will not pass through a screen having 17/64 inch round openings.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1)   Two percent for other varieties of peanuts;

(2)   Two percent for damaged or unshelled peanuts and minor defects;

(3)   0.2 percent for foreign material;

(4)   Two percent for sound portions of peanuts which will pass through the prescribed screen; and,

(5)   Four percent for sound whole peanuts.

U. S. No. 2 Runner

"U. S. No. 2 Runner" consists of shelled Runner type peanut kernels of similar variety characteristics which may be split or broken, but which are free from foreign material, damage and minor defects, and which will not pass through a screen having 17/64 inch round openings.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1)   Two percent for other varieties of peanuts;

(2)   2.5 percent for damaged or unshelled peanuts and minor defects;

(3)   0.2 percent for foreign material; and,

(4) Six percent for sound peanuts and portions of peanuts which
     will pass through the prescribed screen.

Application of Tolerances

The tolerances provided in these standards are on a lot basis and
shall be applied to a composite sample representative of the lot. How-
ever, any container or group of containers in which the peanuts are
obviously of a quality materially different from that in the majority
of containers shall be considered a separate lot, and shall be sampled
separately.

Definitions

Damage - "Damage" means that the peanut kernel is affected by one
or more of the following:

(a) Rancidity or decay;

(b) Mold;

(c) Insects, worm cuts, web or frass;

(d) Freezing injury causing hard, translucent or discolored
     flesch; and,

(e) Dirt when the surface of the kernel is heavily smeared,
     thickly flecked or coated with dirt, seriously affecting its
     appearance.

Broken - "Broken" means that more than one-fourth of the peanut
kernel is broken off.

Foreign Material - "Foreign Material" means pieces of loose par-
ticles of any substance other than peanut kernels or skins.

Minor Defects — "Minor Defects" means that the peanut kernel is not damaged but is affected by one or more of the following:

(a) Skin discoloration which is dark brown, dark gray, dark blue or black and covers more than one-fourth of the surface;

(b) Flesh discoloration which is darker than a light yellow color or consists of more than a slight yellow pitting of the flesh;

(c) Sprout extending more than one-eighth of an inch from the tip of the kernel; and,

(d) Dirt when the surface of the kernel is distinctly dirty, and its appearance is materially affected.

Similar Varietal Characteristics — "Similar Varietal Characteristics" means that the peanut kernels in the lot are not of distinctly different varieties. For example, Spanish type shall not be mixed with Runners.

Split — "Split" means the separated half of a peanut kernel.

Whole — "Whole" means that the peanut kernel is not split or broken.

Source: United States Government Printing Office, Code of Federal Regulations, Revised as of January 1, 1968 (Washington, 1968), Part 7, Chapter I, pp. 316-321.

APPENDIX B

APPENDIX B

UNITED STATES STANDARD FOR GRADES OF

SHELLED SPANISH TYPE PEANUTS

Grades

U. S. No. 1 Spanish

"U. S. No. 1 Spanish" consists of shelled Spanish type peanut ker-
nels which are whole and free from foreign material, damage and minor
defects, and which will not pass through a screen having 15/64 x 3/4
inch openings.

In order to allow for variations incident to proper grading and
handling, the following tolerances, by weight, shall be permitted.

(1) One percent for other types of peanuts;

(2) Three percent for sound peanuts which are split or broken;

(3) 1.5 percent for damaged or unshelled peanuts;

(4) 0.5 percent for minor defects: provided, that in addition,
     any unused part of the tolerance for damaged or unshelled
     peanuts shall be allowed for minor defects;

(5) 0.1 percent for foreign material; and,

(6) Two percent for sound whole peanuts which will pass through
     the prescribed screen.

U. S. Spanish Splits

"U. S. Spanish Splits" consists of shelled Spanish type peanut kernels which are split or broken, but which are free from foreign material, damage and minor defects, and which will not pass through a screen having 16/64 inch round openings.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1) Two percent for other types of peanuts;

(2) Two percent for damaged or unshelled peanuts and minor defects;

(3) 0.2 percent for foreign material;

(4) Two percent for sound portions of peanuts which will pass through the prescribed screen; and,

(5) Four percent for sound whole kernels.

U. S. No. 2 Spanish

"U. S. No. 2 Spanish" consists of shelled Spanish type peanut kernels which may be split or broken, but which are free from foreign material, damage, and minor defects, and which will not pass through a screen having 16/64 inch round openings.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1) Two percent for other types of peanuts;

(2) 2.5 percent for damaged or unshelled peanuts and minor defects;

(3) 0.2 percent for foreign material; and,

(4) Six percent for sound peanuts and portions of peanuts which
will pass through the prescribed screen.

Application of Tolerances

The tolerances provided in these standards are on a lot basis and
shall be applied to a composite sample representative of the lot. How-
ever, any container or group of containers in which the peanuts are
obviously of a quality materially different from that in the majority
of containers shall be considered a separate lot, and shall be sampled
and graded separately.

Definitions

Broken - "Broken" means that more than one-fourth of the peanut
kernel is broken off.

Damage - "Damage" means any specific defect described in this sec-
tion; or any other defect, or any combination of defects which mate-
rially detracts from the edible quality of the peanut. The following
specific defects shall be considered as damage:

(a) Rancidity or decay;

(b) Mold;

(c) Insects, worm cuts, web or frass;

(d) Freezing injury causing hard, translucent, or discolored
flesh; and,

(e) Dirt when the surface of the kernel is heavily smeared,
thickly flecked or coated with dirt, seriously affecting
its appearance.

Foreign Material — "Foreign Material" means pieces or loose particles of any substance other than peanut kernels or skins.

Minor Defects — "Minor Defects" means that the peanut kernel is not damaged but is affected by one or more of the following:

(a)   Skin discoloration which is dark brown, dary gray, dark blue or black and covers more than one-fourth of the surface;

(b)   Flesh discoloration which is darker than a light yellow color or consists of more than a slight yellow pitting of the flesh;

(c)   Sprout extending more than one-eighth of an inch from the tip of the kernel; and,

(d)   Dirt when the surface of the kernel is distinctly dirty, and its appearance is materially affected.

Spanish Type — "Spanish Type" means peanuts of varieties which belong to the Spanish classification group and which are free from kernels of Runner, Virginia, or other types.

Split — "Split" means the separated half of a peanut kernel.

Unshelled — "Unshelled" means a peanut kernel with part or all of the hull (shell) attached.

Whole — "Whole" means that the peanut kernel is not split or broken.

Source: United States Government Printing Office, Code of Federal Regulations, Revised as of January 1, 1968 (Washington, 1968), Part 7, Chapter I, pp. 316-321.

APPENDIX C

APPENDIX C

UNITED STATES STANDARDS FOR SHELLED

VIRGINIA TYPE PEANUTS

Grades

U. S. Extra Large Virginia

"U. S. Extra Large Virginia" consists of shelled Virginia type
peanut kernels of similar varietal characteristics which are whole and
free from foreign material, damage and minor defects, and which will
not pass through a screen having 20/64 x 1 inch openings. Unless other-
wise specified, the peanuts in any lot shall average not more than 512
per pound.

In order to allow for variations incident to proper grading and
handling, the following tolerances, by weight, shall be permitted:

(1) 0.75 percent for other varieties of peanuts;

(2) Three percent for sound peanuts which are split or broken;

(3) One percent for damaged or unshelled peanuts;

(4) 0.75 percent for minor defects: provided, that in addition,

    any unused part of the tolerance for damaged or unshelled

    peanuts shall be allowed for minor defects;

(5) 0.1 percent for foreign material; and,

(6) Three percent for sound, whole peanuts which will pass

    through the prescribed screen.

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U. S. Medium Virginia

"U. S. Medium Virginia" consists of shelled Virginia type peanut kernels of similar varietal characteristics which are whole and free from foreign material, damage and minor defects, and which will not pass through a screen havint 18/64 x 1 inch openings. Unless otherwise specified, the peanuts in any lot shall average not more than 640 per pound.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1) One percent for other varieties of peanuts;

(2) Three percent for sound peanuts which are split or broken;

(3) 1.25 percent for damaged or unshelled peanuts;

(4) 0.75 percent for minor defects: provided, that in addition, any unused part of the tolerance for damaged or unshelled peanuts shall be allowed for minor defects;

(5) 0.1 percent for foreign material; and,

(6) Three percent for sound, whole peanuts which will pass through the prescribed screen.

U. S. No. 1 Virginia

"U. S. No. 1 Virginia" consists of shelled Virginia type peanut kernels of similar varietal characteristics which are whole and free from foreign material, damage and minor defects, and which will not pass through a screen having 15/64 x 1 inch openings. Unless otherwise specified, the peanuts in any lot shall average not more than 864 per pound.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1) One percent for other varieties of peanuts;

(2) Three percent for sound peanuts which are split or broken;

(3) 1.25 percent for damaged or unshelled peanuts;

(4) 0.75 percent for minor defects: provided, that in addition, any unused part of the tolerance for damaged or unshelled peanuts shall be allowed for minor defects;

(5) 0.1 percent for foreign material; and,

(6) Three percent for sound, whole peanuts which will pass through the prescribed screen.

U. S. Virginia Splits

"U. S. Virginia Splits" consists of shelled Virginia type peanut kernels of similar varietal characteristics which are free from foreign material, damage and minor defects, and which will not pass through a screen having 20/64 inch round openings. Not less than 90 percent, by weight, shall be splits.

In order to allow for variations incident to proper handling and grading, the following tolerances, by weight, shall be permitted:

(1) Two percent for other varieties of peanuts;

(2) Two percent for damaged or unshelled peanuts and minor defects;

(3) 0.2 percent for foreign materials; and,

(4) Three percent for sound peanuts and portions of peanuts which will pass through the prescribed screen.

U. S. No. 2 Virginia

"U. S. No. 2 Virginia" consists of shelled Virginia type peanut kernels of similar varietal characteristics which may be split or broken, but which are free from foreign material, damage and minor defects, and which will not pass through a screen having 17/64 inch round openings.

In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, shall be permitted:

(1) Two percent for other varieties of peanuts;

(2) 2.5 percent for damaged or unshelled peanuts and minor defects;

(3) 0.2 percent for foreign material; and,

(4) Six percent for sound peanuts and portions of peanuts which will pass through the prescribed screen.

Application of Tolerances

The tolerances provided in these standards are on a lot basis and shall be applied to a composite sample representative of the lot. However, any container or group of containers in which the peanuts are obviously of a quality materially different from that in the majority of containers shall be considered a separate lot, and shall be sampled separately.

Definitions

Broken – "Broken" means that more than one-fourth of the peanut kernel is broken off.

Damage – "Damage" means that the peanut kernel is affected by one or more of the following:

(a) Rancidity or decay;

(b) Mold;

(c) Insects, worm cuts, web or frass;

(d) Freezing injury causing hard, translucent or discolored

flesh; and,

(e) Dirt when the surfact of the kernel is heavily smeared,

thickly flecked or coated with dirt, seriously affecting its

appearance.

Foreign Material - "Foreign Material" means pieces or loose parti-
cles of any substance other than peanut kernels or skins.

Minor Defects - "Minor Defects" means that the peanut kernel is
not damaged but is affected by one or more of the following:

(a) Skin discoloration which is dark brown, dark gray, dark blue

or black and covers more than one-fourth of the surface;

(b) Flesh discoloration which is darker than a light yellow

color or consists of more than a slight yellow pitting of the

flesh;

(c) Sprout extending more than one-eighth of an inch from the tip

of the kernel; and,

(d) Dirt when the surface of the kernel is distinctly dirty, and

its appearance is materially affected.

Similar Varietal Characteristics - "Similar Varietal Characteris-
tics" means that the peanut kernels in the lot are not of distinctly

different varieties. For example, Sapnish type shall not be mixed with

Virginia type.

Split - "Split" means the separated half of a peanut kernel.

Unshelled – "Unshelled" means a peanut kernel with part or all of the hull (shell) attached.

Whole – "Whole" means that the peanut kernel is not split or broken.

Source: United States Government Printing Office, Code of Federal Regulations, Revised as of January 1, 1968 (Washington, 1968), Part 7, Chapter I, pp. 316-321.

APPENDIX D

TABLE XXX

PEANUTS:[a] PRODUCTION IN SPECIFIED COUNTRIES AND THE WORLD,
AVERAGE 1960-64, ANNUAL 1960-67

Continent and Country	Average 1960-64	1960	1961	1962	1963	1964	1965	1966	1967[e]
				1,000 Tons					
North America:									
United States	914	869.8	904.9	904.9	1,011.0	1,102.0	1,192.0	1,205.0	1,237.0
Mexico	103	99.6	99.2	98.8	103.0	106.0	95.0	105.0	110.0
Cuba	15	--	--	--	--	--	17.0	--	--
Dominican Republic[b]	56	47.6	57.2	57.2	53.0	58.0	50.0	56.0	45.0
Other	6	--	--	--	--	--	9.0	6.0	6.0
Total[c]	1,094	1,042.0	1,093.0	1,092.5	1,190.0	1,290.0	1,363.0	1,387.0	1,413.0
South America:									
Argentina	342	293.2	477.3	477.3	344.0	367.0	484.0	453.0	390.0
Brazil[d]	598	644.2	561.1	714.1	561.7	518.8	819.0	986.0	595.0
Paraguay	23	9.9	10.0	10.0	22.0	21.0	21.0	22.0	15.0
Uruguay	7	7.2	8.6	8.6	8.0	8.0	1.0	5.0	2.0
Other	26	--	--	--	--	--	34.0	37.0	39.0
Total	996	973.5	1,081.5	1,231.5	1,060.0	935.0	1,359.0	1,503.0	1,041.0
Europe:									
Greece	6	5.1	6.4	6.7	7.0	6.0	7.0	7.0	7.0
Italy	13	14.1	13.6	13.6	13.0	12.0	8.0	8.0	7.0
Spain	9	9.0	--	11.1	9.0	9.0	8.0	8.0	8.0
Other	3	--	--	--	--	--	34.0	37.0	39.0
Total	31	30.5	31.5	34.0	30.0	30.0	25.0	25.0	24.0
Africa:									
Sudan	264	195.0	165.0	165.0	301.0	316.0	336.0	346.0	340.0
United Arab Republic	44	27.5	53.0	54.4	50.0	51.0	55.0	45.0	44.0

TABLE XXX (Continued)

Continent and Country	Average 1960-64	1960	1961	1962	1963	1964	1965	1966	1967[e]
					1,000 Tons				
Angola	30	24.8	--	36.4	38.0	33.0	35.0	--	--
Cameron	123	83.0	--	88.0	138.0	127.0	143.0	154.0	--
Central African Republic	59	--	--	--	83.0	74.0	64.0	66.0	--
Chad	150	215.0	--	--	123.0	140.0	154.0	165.0	130.0
Congo (Brazzaville)	11	--	--	--	--	--	12.0	--	--
Congo (Kinshasa)	146	143.0	--	93.7	99.0	95.0	125.0	125.0	125.0
Dahomey[b]	26	--	--	--	--	--	28.0	--	--
Gambia	90	95.8	60.0	84.0	82.0	104.0	159.0	145.0	165.0
Ghana	50	54.0	--	110.0	115.0	--	56.0	56.0	56.0
Guinea	25	29.8	22.3	22.3	12.0	16.0	25.0	--	--
Malagasy Republic	34	26.5	35.3	35.3	35.0	36.0	40.0	50.0	--
Mali	134	110.0	115.0	115.0	34.0	95.0	99.0	66.0	--
Mozambique[e]	49	38.0	34.7	34.7	34.0	95.0	105.0	248.0	--
Niger	204	167.3	226.4	226.4	243.0	219.0	310.0	345.0	380.0
Nigeria	1,445	1,375.0	1,670.0	1,670.0	1,535.0	1,360.0	1,860.0	1,975.0	1,575.0
Portuguese Guinea	71	70.5	70.5	70.5	--	--	72.0	--	--
Malawi[b]	155	--	--	--	172.0	117.0	145.0	265.0	285.0
Rhodesia[b]	136	119.7	142.8	277.0	180.0	173.0	65.0	80.0	85.0
Zambia[b]	74	--	--	--	107.0	15.0	50.0	90.0	95.0
Senegal	1,050	1,100.0	950.0	955.0	1,050.0	1,070.0	1,235.0	970.0	1,275.0
Tanzania[b]	28	--	--	--	34.0	30.0	15.0	13.0	12.0
Uganda	181	198.5	--	179.7	175.0	175.0	180.0	180.0	--
Upper Volta	129	--	--	--	--	--	150.0	140.0	--
South Africa[d]	247	289.6	201.7	205.5	295.0	234.0	209.0	217.0	460.0

TABLE XXX (Continued)

Continent and Country	Average 1960-64	1960	1961	1962	1963	1964	1965	1966	1967[e]
					1,000 Tons				
Other	103	--	--	--	--	--	143.0	152.0	157.0
Total	5,061	4,578.5	4,680.0	4,929.5	5,380.0	5,105.0	5,870.0	6,068.0	6,279.0
Asia:									
Israel	15	16.0	13.7	13.7	14.0	10.0	15.0	12.0	12.0
Turkey[d]	23	19.8	27.0	27.0	25.0	25.0	33.0	30.0	33.0
Mainland China	2,065	1,875.0	1,875.0	1,800.0	2,095.0	2,525.0	2,535.0	2,600.0	2,700.0
Taiwan[b]	112	115.3	105.2	105.3	101.0	128.0	139.0	127.0	139.0
Burma[d]	408	404.3	446.9	446.9	361.0	364.0	317.0	306.0	436.0
India	5,673	5,164.3	5,062.3	5,314.4	5,748.0	6,808.0	4,663.0	4,944.0	6,945.0
Indonesia	399	417.0	416.2	416.2	349.0	446.0	439.0	462.0	381.0
Japan[d]	151	164.2	165.0	165.0	167.0	151.0	151.0	153.0	155.0
Philippines	14	14.1	12.0	11.5	12.0	16.0	15.0	15.0	17.0
Thailand	133	118.9	132.3	123.9	124.0	132.0	143.0	143.0	148.0
Other	126	--	--	--	--	--	171.0	209.0	215.0
Total[c]	9,119	8,373.0	8,329.0	8,507.0	9,080.0	10,705.0	8,622.0	9,001.0	11,176.0
Oceania:									
Australia	21	25.6	20.3	16.8	18.0	26.0	12.0	31.0	31.0
World Total[c]	16,322	15,023.5	15,235.5	15,811.5	16,758.0	18,091.0	17,251.0	18,015.0	19,964.0

[a] Peanuts in the shell. Southern Hemisphere peanut crops, which are harvested from April to June, are combined with those of the Northern Hemisphere harvested from September through December of the same year.

[b] Less than five years in the average.

[c] Includes estimate for the above countries for which data are not available and for minor producing countries.

TABLE XXX (Continued)

dPeanuts from planted area.

ePreliminary.

Source: Compiled from selected issues of U. S. Department of Agriculture, World Agricultural Production and Trade, and Foreign Agriculture Circular (Washington: Foreign Agricultural Service).

TABLE XXXI

PEANUTS:[a] ACREAGE HARVESTED IN SPECIFIED COUNTRIES AND THE WORLD,
AVERAGE 1960-64, ANNUAL 1960-67

Continent and Country	Average 1960-64	1960	1961	1962	1963	1964	1965	1966	1967[e]
					1,000 Acres				
North America:									
United States	1,397	1,410	1,412	1,412	1,409	1,405	1,435	1,418	1,402
Mexico	184	186	178	181	188	190	160	167	173
Cuba	40	--	--	--	--	--	--	--	--
Dominican Republic[b]	124	--	124	124	124	124	124	136	112
Other	19	--	--	--	--	--	33	33	33
Total[c]	1,764	1,800	1,805	1,805	1,800	1,805	1,789	1,789	1,756
South America:									
Argentina	627	468	693	691	657	851	935	824	809
Brazil[d]	1,016	1,078	1,003	1,177	1,045	1,062	1,336	1,590	1,544
Paraguay	57	26	26	26	54	49[d]	56[d]	58	40
Uruguay	22	21	25	25	23	19	15[d]	13	8
Other	49	--	--	--	--	--	71	75	76
Total	1,771	1,635	1,800	1,970	1,825	2,035	2,413	2,560	2,477
Europe:									
Greece	6	6	7	7	7	7	7	7	7
Italy	13	14	14	14	12	11	12	13	6
Spain	13	13	--	16	13	--	12	13	12
Other	5	--	--	--	--	3	3	3	3
Total	37	40	40	45	35	35	30	30	28
Africa:									
Sudan	677	493	--	--	843	1,000	970	961	865
United Arab Republic	48	35	54	55	55	52	56	51	50

TABLE XXXI (Continued)

Continent and Country	Average 1960-64	1960	1961	1962	1963	1964	1965	1966	1967[e]
					1,000 Acres				
Angola	104	82	--	--	--	--	104	--	--
Cameron	301	408	--	--	301	310	297	--	--
Central African Republic	212	--	--	--	--	--	178	185	--
Chad	440	330	--	--	445	443	445	470[d]	365
Congo (Brazzaville)	92	--	--	--	--	--	96	--	--
Congo (Kinshasa)	545	568	--	--	--	--	469	--	--
Dahomey[b]	182	--	--	--	--	--	156	--	--
Gambia	328	--	--	--	335	--	445	--	--
Ghana[b]	150	--	--	--	--	--	166	--	--
Guinea[b]	85	--	--	--	--	--	60	--	--
Malagasy Republic	95	90	100	100	--	--	100	--	--
Mali	491	--	--	--	620	640	545	545	--
Mozambique[e]	96	--	--	--	--	--	104	--	--
Niger	796	862	798	798	787	736	988	878	--
Nigeria	3,000	--	--	--	--	--	3,000	3,000	3,000
Portuguese Guinea	222	--	--	--	--	--	222	--	--
Malawi[b]	173	--	--	--	--	--	173	--	--
Rhodesia[b]	379	--	--	--	--	--	415	--	--
Zambia[b]	103	--	--	--	--	--	124	--	--
Senegal	2,550	2,500	2,515	2,505	2,680	2,720	2,755	2,500	2,720
Tanzania[b]	124	--	--	--	--	--	124	--	--
Uganda	561	556	--	615	615	587	627	618	--
Upper Volta	561	--	--	--	--	--	680	680	--
South Africa[d]	726	732	683	722	840	937	745	724	704

TABLE XXXI (Continued)

Continent and Country	Average 1960–64	1960	1961	1962	1963	1964	1965	1966	1967[e]
					1,000 Acres				
Other	395	--	--	--	--	--	499	506	510
Total	13,437	12,755	12,855	13,490	14,775	15,070	14,534	14,186	14,205
Asia:									
Israel	10	10	8	9	10	6	10[d]	10[d]	9
Turkey[d]	23	21	25	25	23	22	27	28	30
Mainland China	4,135	3,955	3,955	3,755	4,005	4,645	4,795	4,900	4,900
Taiwan[b]	241	244	238	238	234	249	256	242	--
Burma[d]	1,394	1,385	1,532[d]	1,536	1,489	1,600	1,785	1,790	1,417
India	16,922	15,869	16,407	16,962	16,825	17,475	18,355	17,970	--
Indonesia	909	902	923	923	855	964	866	945	966
Japan[d]	153	162	159	159	152	155	164	160	151
Philippines	55	54	49	49	48	62	60	64	64
Thailand	224	204	236	211	202	237	236[d]	245[d]	247
Other	280	--	--	--	--	--	340	376	374
Total[c]	24,346	22,950	23,700	24,055	24,015	25,595	26,894	26,677	26,703
Oceania:									
Australia	40	43	35	35	35	45	46	58	67
World Total[c]	41,395	39,220	40,235	41,400	42,486	44,585	45,706	45,300	45,235

[a]Peanuts in the shell. Southern Hemisphere peanut crops, which are harvested from April to June, are combined with those of the Northern Hemisphere harvested from September through December of the same year.

[b]Less than five years in the average.

[c]Includes estimates for the above countries for which data are not available and for minor producing countries.

TABLE XXXI (Continued)

^{d}Planted area.

^{e}Preliminary.

Source: Compiled from selected issues of U. S. Department of Agriculture, World Agricultural Production and Trade, and Foreign Agriculture Circular (Washington: Foreign Agricultural Service).

TABLE XXXII

PEANUTS:[a] ACREAGE AND PRODUCTION IN SPECIFIED COUNTRIES AND THE
WORLD, ACREAGE AVERAGE 1960-64, PRODUCTION AVERAGE 1960-64,
AND YIELD PER ACRE AVERAGE 1960-64

Continent and Country	Acreage[b] Average 1960-64	Percent	Production Average 1960-64	Percent	Yield Per Acre
	1,000 Acres		1,000 Short Tons		Tons
North America:					
United States	1,397	3.370	914	5.599	0.654
Mexico	184	0.444	103	0.631	0.560
Cuba	40	0.096	15	0.091	0.375
Dominican Republic	124	0.299	56	0.343	0.451
Other	19	0.045	6	0.036	0.316
Total[c]	1,764	4.261	1,094	6.702	0.620
South America:					
Argentina	627	1.514	342	2.095	0.545
Brazil	1,016	2.454	598	3.663	0.589
Paraguay	57	0.137	23	0.140	0.404
Uruguay	22	0.053	7	0.042	0.318
Other	49	0.118	26	0.159	0.531
Total[c]	1,771	4.278	996	6.102	0.562
Africa:					
Sudan	677	1.635	264	1.617	0.390
United Arab Republic	48	0.115	44	0.269	0.917
Angola	104	0.256	30	0.184	0.288
Cameron	301	0.958	123	0.753	0.408
Central African Republic	213	0.514	59	0.361	0.276
Chad	440	1.062	150	0.919	0.341
Congo (Brazzabille)	92	0.223	11	0.067	0.121
Congo (Kinsasha)	545	1.316	146	0.894	0.267
Dahomy	182	0.439	26	0.159	0.143
Gambia	328	0.792	90	0.551	0.274
Ghana	150	0.362	50	0.306	0.333
Guinea	85	0.205	25	0.153	0.294
Malagasy Republic	95	0.229	34	0.203	0.356
Mali	491	1.186	137	0.839	0.279
Mozambique	96	0.229	49	0.300	0.510
Niger	796	1.922	204	1.249	0.256
Nigeria	3,000	9.555	1,445	8.853	0.482
Portuguese Guinea	222	0.536	71	0.434	0.320
Malawi	173	0.417	155	0.949	0.896

TABLE XXXII (Continued)

Continent and Country	Acreage[b] Average 1960-64	Percent	Production Average 1960-64	Percent	Yield Per Acre
	1,000 Acres		1,000 Short Tons		Tons
Rhodesia	379	0.915	136	0.833	0.359
Zambia	103	0.248	74	0.453	0.718
Senegal	2,550	6.160	1,050	6.433	0.412
Tanzania	124	0.299	28	0.171	0.226
Uganda	561	1.355	181	1.108	0.323
Upper Volta	561	1.355	129	0.790	0.229
South Africa	726	1.755	247	1.513	0.340
Other	395	0.954	103	0.631	0.261
Total[c]	13,437	32.460	5,061	31.007	0.376
Europe:					
Greece	6	0.014	6	0.014	1.000
Italy	13	0.031	13	0.079	1.000
Spain	13	0.031	9	0.055	0.692
Other	5	0.012	3	0.018	0.600
Total[c]	37	0.089	31	0.189	0.838
Asia:					
Israel	10	0.024	15	0.091	1.500
Turkey (Europe & Asia)	23	0.055	23	0.140	1.000
China					
Mainland	4,135	9.989	2,065	12.651	0.499
Taiwan	241	0.582	112	0.686	0.465
Burma	1,394	3.367	408	2.499	0.293
India	16,922	40.879	5,673	34.756	0.335
Indonesia	909	2.195	399	2.444	0.439
Japan	153	0.369	151	0.925	0.987
Philippines	55	0.132	14	0.085	0.259
Thailand	224	0.541	133	0.814	0.594
Other	280	0.676	126	0.772	0.451
Total[c]	24,346	58.813	9,119	55.869	0.375
Oceania:					
Australia	40	0.096	21	0.128	0.525
World Total	41,395		16,322		0.394

[a]Peanuts in the shell. Southern Hemisphere peanut crops, which are harvested from April to June, are combined with those of the Northern Hemisphere harvested from September through December of the same year.

[b]Harvested areas as far as possible.

TABLE XXXII (Continued)

^{c}Includes estimates for the above countries for which data are not available.

Source: Compiled from selected issues of U. S. Department of Agriculture, World Agricultural Production and Trade, and Foreign Agriculture Circular (Washington: Foreign Agricultural Service).

TABLE XXXIII

PEANUTS, PEANUT OIL, AND PEANUT MEAL: ESTIMATED WORLD PRODUCTION,
ANNUAL 1955-67, FORECAST 1968

Crop Year	Peanut Production	Peanut Oil Production	Peanuts Crushed for Oil[a]	Peanut Meal Production[b]	Peanuts Crushed as a Percentage of Production
	Million Tons				Percent
1955	13.233	2.025	7.053	3.103	53.30
1956	14.015	2.155	7.506	3.302	53.56
1957	14.640	2.270	7.906	3.478	54.00
1958	15.311	2.510	8.742	3.846	57.10
1959	13.645	2.525	8.795	3.869	64.46
1960	15.235	2.560	8.916	3.923	58.52
1961	15.235	2.720	9.474	4.168	62.19
1962	15.811	2.860	9.961	4.382	63.00
1963	16.758	2.995	10.432	4.589	62.23
1964	18.091	3.115	10.850	4.773	59.97
1965	17.251	3.310	11.529	5.072	66.83
1966	18.015	3.190	11.111	4.888	61.68
1967	19.964	3.265	11.372	5.003	56.96
1968[c]	21.913	3.810	13.270	5.838	60.56

[a]Estimated by converting peanut oil into unshelled peanuts on the basis of 28.71 percent oil extraction rate (conversion factor 3.483).

[b]Computed from the estimated unshelled peanuts crushed for oil on the basis of 43.99 percent cake and meal yield rate.

[c]Forecast.

Sources: 1955-59: U. S. Department of Agriculture, World Agricultural Trade and Production (Washington: Foreign Agricultural Service, January, 1963), p. 7; Foreign Agriculture Circular, FFO 8-62 (1962), p. 8. 1960-67: World Agricultural Production and Trade (February, 1968), p. 8; Foreign Agriculture Circular, FFO 7-67 (August, 1967), p. 2

TABLE XXXIV

PEANUTS:[a] EXPORTS FROM SPECIFIED COUNTRIES AND ESTIMATED WORLD TOTAL,
AVERAGE 1960-64, ANNUAL 1960-67

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965	1966
	Tons				Tons		
North America:							
Mexico	15,293	0.72	19,329	17,357	12,854	10,760	12,746
United States	34,600	1.64	12,620	27,090	63,006	125,230	94,916
Total	49,893	2.36	31,949	44,447	75,960	135,990	107,662
South America:							
Argentina	79	0.00	47	0	127	785	500
Brazil	12,954	0.61	34,539	23,442	163	29,062	21,419
Total	13,033	0.61	34,686	23,442	290	29,847	21,919
Africa:							
Angola	4,158	0.19	2,284	3,408	5,311	5,234	3,500
Cameron	18,028	0.85	12,307	27,930	28,535	16,684	18,915
Cape Verde Islands	298	0.01	192	323	881	290	900
Congo (Kinshasa)	45	0.00	15	69	110	0	0
United Arab Republic	8,015	0.38	3,795	6,191	5,030	6,456	6,034
Ethiopia	5,057	0.24	3,514	6,015	7,926	6,000	6,000
Chad	1,951	0.09	871	2,801	4,061	433	200
Congo (Brazzaville)	1,725	0.08	961	1,103	460	536	912
Gabon	462	0.02	273	433	514	459	400
Central African Republic	2,369	0.11	1,993	1,184	3,071	2,703	0
Guinea	6,571	0.31	10,212	3,941	1,734	1,500	1,500

TABLE XXXIV (Continued)

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965	1966
	Tons				Tons		
Senegal	384,155	18.23	436,401	322,197	337,109	341,817	455,894
Mali	66,629	3.16	64,428	72,688	74,414	34,990	20,490
Ivory Coast	1,470	0.06	708	4,065	1,884	3,348	1,000
Niger	117,048	5.55	109,302	144,255	146,225	136,195	197,000
Upper Volta	2,868	0.13	1,896	5,046	5,762	5,000	5,000
Dahomy	12,834	0.60	6,781	10,392	6,280	3,575	4,000
Gambia	68,256	3.24	99,294	64,447	48,565	53,280	55,950
Kenya and Uganda	13,452	0.63	13,019	10,707	8,723	2,575	12,000
Libya	7,997	0.37	7,227	7,040	8,855	4,500	3,000
Malagasy Republic	10,276	0.48	113,549	11,424	7,047	6,623	4,379
Mozambique	357	0.01	235	0	0	0	0
Nigeria	805,246	38.22	848,137	983,648	871,885	820,051	917,580
Portuguese Guinea	43,343	2.05	49,653	46,542	44,183	23,208	25,220
Malawi	4,969	0.23	0	0	24,844	30,142	28,630
Rhodesia	48,621	2.30	74,672	101,927	6,063	251	2,360
Zambia	195	0.00	0	0	976	4,277	4,720
Sudan	168,513	8.00	186,030	181,900	239,837	239,821	156,525
Tanzania	15,155	0.71	10,273	18,982	17,561	10,325	8,670
Togo	3,916	0.23	2,900	4,428	4,103	3,356	6,000
South Africa	100,141	4.75	80,314	118,527	115,306	29,623	27,082
Total	1,924,073	91.23	2,025,136	2,161,376	2,027,154	1,733,253	1,973,861
Asia:							
China, Mainland	25,649	1.21	8,000	13,000	56,000	75,000	96,000
India	52,325	2.48	59,262	53,063	46,534	2,921	399
Indonesia	7,589	0.36	7,532	6,023	2,295	9,505	9,000
Israel	5,775	0.27	7,577	4,745	3,600	4,225	4,903
Malaysia	1,429	0.06	1,364	1,204	1,104	1,430	1,000

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TABLE XXXIV (Continued)

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965	1966
	Tons				Tons		
Philippines	839	0.03	923	e	146	561	500
Syria	4,036	0.19	5,238	3,667	6,009	6,501	5,000
Thailand	19,745	0.93	22,207	21,827	17,793	26,606	22,000
Turkey	1,958	0.09	1,895	2,650	1,431	2,215	3,960
Total	119,345	5.71	113,998	106,179	134,912	128,964	142,762
World Total	2,106,391		2,205,769	2,335,444	2,238,316	2,088,054	2,246,204

[a]Peanuts in the shell. Shelled peanuts have been converted to an unshelled equivalent on the basis of shelled weight equal to 70 percent unshelled weight.

[b]Peanuts exported as a percentage of the world average 1960-64.

[c]Includes the following of prepared and roasted peanuts: 1965, 1,382 tons; 1966, 432 tons.

[d]Unofficial estimates.

[e]Less than 50 tons.

Source: United States Department of Agriculture, Foreign Agriculture Circular, FFO 7-67 (Washington: Foreign Agricultural Service, August, 1967), p. 25.

TABLE XXXV

PEANUTS:[a]   IMPORTS INTO SPECIFIED COUNTRIES, AVERAGE 1960-64, ANNUAL 1962-66

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965	1966
	Tons				Tons		
North America:							
Canada[d]	42,882	2.41	48,048	42,169	46,095	54,084	49,855
United States	1,071	0.06	848	1,796	1,326	708	1,310
Total	43,953	2.47	48,996	43,965	47,421	54,792	51,165
Europe:							
Belgium-Lexembourg	93,137	5.23	117,884	97,554	115,807	91,092	83,083
Czechoslovakia	61,790	3.47	50,441	72,509	66,204	58,323	63,050
Denmark	4,596	0.25	5,696	5,833	4,729	5,420	2,917
France	600,489	33.75	723,758	841,054	689,338	794,826	849,463
Germany, West	100,561	5.65	171,088	42,555	72,503	88,784	118,281
Hungary	12,820	0.72	25,626	11,211	12,847	5,517	6,936
Italy	163,528	9.19	127,937	279,803	205,324	160,026	258,768
Netherlands	67,119	3.77	85,609	62,636	66,859	66,546	61,218
Norway	9,128	0.51	9,776	9,648	7,923	9,915	13,513
Poland	18,008	1.01	12,900	25,213	32,375	30,900	33,070
Portugal	73,980	4.15	53,810	114,117	83,838	144,980	164,879
Spain	13,434	0.75	26,400	15,925	24,459	31,538	33,358
Sweden	791	0.04	881	819	907	1,037	1,124
Switerland	78,849	4.43	81,835	72,867	83,476	77,869	85,107
United Kingdom	270,344	15.19	337,897	309,824	235,136	144,637	125,478
U.S.S.R.	40,069	2.25	42,875	40,984	45,712	32,944	23,645
Total	1,568,574	88.11	1,831,538	1,961,568	1,701,925	1,711,410	1,900,235
Africa:							
Algeria	24,560	1.38	33,694	20,025	5,551	23,644	23,644
Morocco	15,793	0.88	32,665	7,411	23,786	7,456	3,941

TABLE XXXV (Continued)

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965	1966
	Tons				Tons		
Rhodesia, Zambia							
Malawi	7,119	0.40	7,421	0	5,910	2,954	0
South Africa	31	0.00	9	9	102	n.a.	n.a.
Total	47,503	2.66	73,789	27,445	35,349	34,054	27,585
Asia:							
Burma	16,286	0.91	0	0	81,431	0	0
Ceylon	394	0.02	777	35	0	0	0
Cyprus	805	0.04	603	918	778	797	1,045
Hong Kong	20,003	1.12	19,826	19,833	19,984	15,171	19,815
Israel	2,600	0.14	0	821	0	32	54
Japan	13,017	0.73	5,260	15,531	29,478	39,618	59,621
Malaysia	21,859	1.22	22,561	21,652	21,734	22,997	22,063
Total	74,964	4.18	59,027	58,790	153,405	78,615	102,603
Oceania:							
Australia	3,961	0.20	3,655	4,344	5,091	2,501	12,127
World Total	1,778,754		2,059,880	2,137,086	1,943,191	1,914,316	2,117,360

[a]Peanuts in the shell. Shelled peanuts have been converted to an unshelled equivalent on the basis of shelled weight equal to 70 percent of the unshelled weight.

[b]Imports as a percentage share of the world average 1960-64.

[c]Year ending June 30.

Source: United States Department of Agriculture, Foreign Agriculture Circular, FFO 7-67 (Washington: Foreign Agricultural Service, August, 1967), p. 27.

TABLE XXXVI

FATS, OILS, AND OILSEEDS (FAT OR OIL EQUIVALENT): ESTIMATES OF WORLD PRODUCTION, AVERAGE 1955-64, ANNUAL 1955-67[a]

Commodity	Average 1955-59	Average 1960-64	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967[b]	Forecast 1968
								1,000 Tons								
Edible vegetable oils:[c]																
Cottonseed	2,089	2,493	2,075	2,135	2,030	1,985	2,220	-2,360	2,360	2,485	2,585	2,675	2,775	2,750	2,410	2,615
Peanut	2,297	2,850	2,025	2,155	2,270	2,510	2,525	2,560	2,720	2,860	2,995	3,115	3,310	3,190	3,265	3,810
Soybean	3,024	4,088	2,525	2,745	2,985	3,200	3,665	3,920	3,755	4,115	4,290	4,360	4,585	5,000	5,300	5,640
Sunflowerseed	1,423	2,130	865	1,415	1,565	1,375	1,895	1,575	1,990	2,185	2,565	2,335	3,040	2,995	3,450	3,550
Rapeseed	1,212	1,264	1,210	1,095	1,260	1,235	1,260	1,285	1,310	1,300	1,190	1,235	1,665	1,520	1,600	1,620
Sesameseed	668	575	790	660	630	570	690	590	525	580	585	595	630	590	580	570
Safflowerseed		187						140	155	200	245	195	230	240	285	275
Olive oil[d]	1,089[d]	1,319[e]	1,085	820	1,200	1,250	1,195	1,300	1,480	1,475	1,020	1,875	1,095	1,340	1,345	1,360
Corn oil		225						195	210	225	240	255	270	270	265	270
Total	11,802	15,131	10,575	11,025	11,940	12,125	13,450	13,925	14,505	15,425	15,715	16,640	17,600	17,895	18,500	19,710
Palm oils:[f]																
Coconut	2,266	2,363	2,230	2,425	2,435	2,210	2,030	2,240	2,395	2,325	2,420	2,435	2,360	2,550	2,425	2,500
Palm kernel	447	426	425	470	425	460	455	455	440	405	410	420	405	415	350	350
Palm	1,394	1,404	1,360	1,380	1,400	1,405	1,425	1,455	1,410	1,365	1,390	1,400	1,405	1,410	1,300	1,350
Babassu kernel[g]	51	59	53	40	51	57	53	64	57	66	50	57	60	73	74	76
Total	4,158	4,252	4,068	4,315	4,311	4,132	3,963	4,214	4,302	4,161	4,270	4,312	4,230	4,448	4,149	4,276
Industrial oils:[c]																
Linseed	1,138	1,121	975	1,085	1,405	1,100	1,125	1,121	1,110	1,080	1,150	1,190	1,155	1,255	1,075	920
Caster	233	313	215	215	250	245	240	313	265	290	320	395	370	380	305	320
Oiticica	9	19	13	14	11	8	1	19	18	28	6	19	13	20	8	15
Tung[h]	128	133	105	101	145	150	141	133	127	126	125	153	160	140	158	129
Total	1,508	1,586	1,308	1,415	1,811	1,503	1,507	1,528	1,520	1,524	1,601	1,757	1,698	1,795	1,546	1,384
Animal Fats:																
Butter (fat content)	4,014	4,350	3,870	3,930	4,050	4,130	4,090	4,350	4,295	4,375	4,375	4,455	4,740	4,660	4,700	4,700
Lard[i]	3,727	4,060	3,475	3,650	3,610	3,820	4,080	4,060	4,045	4,085	4,005	4,165	4,360	4,405	4,520	4,700
Tallow and grease	3,243	3,869	2,970	3,265	3,265	3,250	3,465	3,869	3,640	3,745	4,085	4,435	4,335	4,470	4,570	4,700
Total	10,984	12,279	10,315	10,845	10,925	11,200	11,635	11,690	11,980	12,205	12,465	13,055	13,435	13,535	13,790	14,100
Marine oils:																
Whale	427	356	420	425	440	435	417	418	428	390	295	249	211	125	105	95
Sperm whale	119	137	100	120	110	135	130	137	120	130	149	165	170	161	160	160
Fish (including liver)	429	687	443	457	385	384	476	687	665	738	680	838	865	1,001	1,020	1,050
Total	975	1,180	963	1,002	935	954	1,023	1,052	1,213	1,258	1,124	1,252	1,246	1,287	1,285	1,305
Estimated world total:	29,427	34,428	27,229	28,602	29,922	29,914	31,578	32,409	33,520	34,573	35,175	37,016	38,209	38,960	39,270	40,775

[a]Years indicated are those in which the predominant share of the given oil was produced from its related raw material.

[b]Preliminary.

[c]Estimates of U. S. oil production include actual oil produced plus the oil equivalent of exported oilseeds; estimates for other countries are based upon the production of various oilseeds times the estimated normal proportions crushed for oil.

[d]Excludes sulfur oil.

[e]1960-63 average.

[f]Estimated on the basis of exports and information available on consumption in the various producing areas.

[g]Mill production only.

[h]Includes revised estimates for Mainland China.

[i]Rendered lard only in most countries.

Sources: 1955-59: U. S. Department of Agriculture, Foreign Crops and Market Statistical Supplement (Washington: Foreign Agriculture Service, January, 1963), pp. 7-8. 1960-67: World Agricultural Production and Trade (February, 1968), p. 8.

TABLE XXXVII

PEANUT OIL:[a] EXPORTS FROM SPECIFIED COUNTRIES AND ESTIMATED WORLD TOTAL,
AVERAGE 1960-64, ANNUAL 1962-66

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965[c]	1966[d]
	Short Tons				Short Tons		
North America:							
United States	11,618	3.09	82	4,572	40,664	30,563	7,497
South America:							
Argentina	47,308	12.74	108,522	40,153	539	68,183	87,321
Brazil	1,905	0.50	245	9,280	0	0	3,300
Total	49,708	16.33	108,767	49,433	539	68,183	90,621
Europe:							
Belgium-Luxembourg	6,544	1.74	5,603	7,380	9,534	7,472	5,282
Denmark	32	0.00	2	22	86	63	47
France	8,169	2.17	3,567	14,687	13,730	9,815	12,822
Germany, West	2,573	0.68	2,112	778	2,552	4,163	5,407
Netherlands	7,752	2.06	8,564	10,889	4,786	4,681	150
United Kingdom	6,676	1.77	5,708	15,170	6,136	2,172	3,465
Total	31,746	8.42	25,556	48,926	36,824	28,366	27,173
Africa:							
Angola	134	0.03	6	267	8	3	1
Congo, Brazzaville	591	0.15	341	158	180	2,425	1,248
Congo, Kinshasa	1,235	0.32	0	e	24	3,148	e
Gambia	2,858	0.76	0	4,960	9,330	13,670	24,360
Ivory Coast	11		0	6	50	50	50
Kenya/Uganda	26		49	14	0	0	0
Malagasy Republic	3		2	2	1	0	0
Mozambique	2,594	0.69	1,262	3,674	6,491	9,977	8,800
Mali	27		11	63	60	0	0
Senegal	130,427	34.76	130,728	114,220	142,782	157,126	165,015

TABLE XXXVII (Continued)

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965[c]	1966[d]
	Short Tons				Short Tons		
Niger	3,632	0.96	2,382	3,462	6,101	5,303	5,600
Nigeria	68,052	18.13	70,430	77,699	89,273	101,642	116,243
Rhodesia	564	0.15	0	0	1,945	1,831	1,900
Zambia	e	0.00	311	295	2	0	0
Portuguese Guinea	18	0.00	32	0	35	40	30
Sudan	300	0.07	0	0	1,501	893	2,200
Tanzania	21	0.00	48	7	10	0	0
South Africa	13,533	3.60	10,120	11,232	12,467	7,709	5,217
Total	224,026	59.62	215,722	216,059	270,260	303,817	330,664
Asia:							
China, Mainland	10,600	2.82	3,000	3,000	7,000	8,000	30,000
India	42,116	11.22	40,332	90,200	65,439	2,701	2,265
Indonesia	1,748	0.46	408	53	46	1,074	1,350
Israel	270	0.00	707	0	0	0	0
Malaysia	2,399	0.63	1,328	1,316	1,342	1,773	1,500
Thailand	981	0.26	2,284	731	344	698	1,400
Total	58,114	15.39	48,059	95,300	74,171	14,246	36,515
World Total	375,212		398,186	414,290	422,458	445,175	492,470

[a] Crude and refined oil combined as such.

[b] Export from a specified country as a percentage of the world total traded.

[c] Preliminary.

[d] Preliminary; partly estimated.

TABLE XXXVII (Continued)

^eLess than 0.5 tons.

Source: U. S. Department of Agriculture, <u>World Agricultural Production and Trade</u> (Washington: Foreign Agricultural Service), selected issues.

TABLE XXXVIII

PEANUT OIL:[a] IMPORTS INTO SPECIFIED COUNTRIES, AVERAGE 1960-64, ANNUAL 1962-66

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965[c]	1966[d]
	Short Tons				Short Tons		
North America:							
Canada	6,352	1.72	9,402	9,290	4,823	4,623	15,777
Dominican Republic	3,442	0.93	7,055	3,197	15,983	19,290	8,820
United States	561	0.15	2,138	0	1	1	2
Total	10,355	2.80	18,595	12,487	19,807	23,914	24,599
South America:							
Venezuela	3,330	0.90	3,630	5,018	3,134	5,687	1,987
Europe:							
Austria	9,240	2.51	8,878	9,901	8,634	8,561	7,559
Belgium-Luxembourg	10,824	2.94	6,439	11,303	6,778	9,921	15,807
Denmark	45	0.00	52	33	7	443	1,120
Finland	167	0.04	121	222	102	212	50
France	135,307	36.78	133,198	135,088	166,499	171,795	170,437
Germany	36,189	9.83	31,429	52,169	46,421	54,103	70,989
Ireland	1,227	0.33	252	1,370	2,017	911	2,210
Italy	652	0.17	85	1,742	348	239	1,975
Netherlands	8,114	2.20	6,588	12,681	6,842	10,990	12,826
Portugal	2,599	0.70	176	2,476	2,973	9,922	5,263
Spain	33,018	8.97	33,146	111,626	20,318	28,144	5,947
Sweden	1,755	0.47	1,578	1,761	1,572	1,593	6,124
Switzerland	3,910	1.06	2,836	6,603	2,429	n.a.	n.a.
United Kingdom	47,276	12.85	39,336	48,031	59,280	76.635	113,813
Total	290,323	78.85	264,114	395,006	324,220	373,469	414,120
Africa:							
Algeria	9,862	2.68	10,362	1,850	4,410	4,410	4,410
Angola	42	0.00	69	40	87	358	100

TABLE XXXVIII (Continued)

Continent and Country	Average 1960-64	Percent[b]	1962	1963	1964	1965[c]	1966[d]
	Short Tons				Short Tons		
Morocco	2,539	0.69	4,298	1	3,607	0	0
Tunisia	32	0.00	35	0	1	n.a.	n.a.
Total	12,475	3.37	14,764	1,891	8,105	4,768	4,510
Asia:							
Burma	22,458	6.10	4,064	1,565	83,937	1,984	1,100
Ceylon	35	0.00	11	128	0	11	25
Cyprus	3,205	0.87	3,479	5,635	2,809	3,076	3,805
Hong Kong	12,354	3.35	15,630	14,966	11,932	11,422	13,987
Malaysia	4,965	1.34	4,467	3,220	3,560	6,036	4,299
Total	43,017	11.66	28,191	25,514	102,238	21,529	23,216
Oceania:							
Australia	8,327	2.66	5,788	10,242	12,440	8,169	8,945
World Total	367,827		325,080	450,158	469,944	437,536	477,377

[a]Crude and refined as such.

[b]Import into a specified country as a percentage of the world total traded.

[c]Preliminary; partly estimated.

[d]Year ending June. Compiled from official and other sources.

Source: U. S. Department of Agriculture, World Agricultural Production and Trade (Washington: Foreign Agricultural Service), selected issues.

TABLE XXXIX

PEANUTS: MAJOR PRODUCING STATES, PRODUCTION, AVERAGE 1961-65,
AND ANNUAL 1950, 1955, 1960, 1965-67

State and Area	Average 1961-65	1950	1955	1960	1965	1966	1967
				1,000 Pounds			
Virginia	214,452	227,920	180,960	192,400	268,830	256,470	260,100
North Carolina	336,852	251,970	201,160	370,980	390,390	400,800	363,000
Va.-N.C. Area	551,304	483,090	384,970	500,380	659,220	657,270	623,100
South Carolina	13,797	15,200	9,350	12,075	17,325	18,060	18,900
Georgia	702,830	680,680	504,240	570,000	877,850	809,760	975,120
Florida	69,358	61,200	61,200	55,460	83,000	72,275	80,360
Alabama	220,879	324,950	209,620	211,310	258,020	226,920	234,960
Mississippi	2,122	4,250	2,700	2,250	2,100	1,500	1,625
Southeast Area	1,008,986	1,086,280	787,110	851,095	1,238,295	1,128,515	1,310,965
Oklahoma	162,848	125,080	128,640	151,800	195,000	204,350	210,800
Texas	221,994	330,750	239,235	204,240	275,520	403,200	349,200
New Mexico	15,192	5,740	6,496	10,496	15,936	17,056	14,800
Southwest Area	400,034	465,915	376,246	366,536	486,456	624,606	574,800
U. S. Total	1,960,324	2,035,285	1,548,326	1,718,011	2,383,971	2,410,391	2,508,865

Sources: For 1950-60: U. S. Department of Agriculture, Field and Seed Crops, Production, Farm Use, Sales Value, Statistical Bulletins 208 and 311 (Washington: Statistical Reporting Service).   For 1961-67: U. S. Department of Agriculture, Crop Production, 1967 Annual Summary, CrPr 2-1 (Washington: Statistical Reporting Service, 1967).

TABLE XL

PEANUTS: ACREAGE ALLOTMENTS, ACREAGE PLANTED, ACREAGE
HARVESTED, YIELD, AND TOTAL PRODUCTION, 1947-1967

Crop Year	Acreage			Yield Per Acre	Total Production
	Alloted[a]	Planted[b]	Harvested[c]		
	1,000 Acres			Pounds	1,000 Pounds
1947	[d]	4,094	3,377	646	2,182
1948	[d]	3,824	3,296	709	2,336
1949	2,629[d]	2,762	2,308	808	1,865
1950	2,200	2,633	2,262	900	2,035
1951	1,889	2,510	1,982	837	1,659
1952	1,706	1,838	1,443	940	1,356
1953	1,679	1,796	1,515	1,039	1,573
1954	1,610[e]	1,824	1,387	727	1,008
1955	1,731	1,882	1,669	928	1,548
1956	1,650	1,834	1,385	1,161	1,607
1957	1,611	1,746	1,481	969	1,436
1958	1,612	1,702	1,516	1,197	1,814
1959	1,612	1,598	1,453	1,092	1,523[f]
1960	1,612	1,542	1,410	1,266	1,718
1961	1,612	1,539	1,410	1,233	1,657
1962	1,613	1,531	1,412	1,282	1,719
1963	1,612	1,529	1,409	1,391	1,942
1964	1,613	1,521	1,397	1,502	2,099
1965	1,613	1,517	1,435	1,661	2,384
1966	1,613	1,488	1,418	1,700	2,411
1967	1,613	1,472	1,401	1,765	2,557

[a]Include additional acreage for types of peanuts in short supply and/or required by legislation passed subsequent to establishment of the allotment.

[b]Acreage planted to peanut alone and does not include peanut acreage interplanted with other crops.

[c]Harvested for nuts.

[d]The specified marketing quota for 1949 to be equal to the 1943-47 average production adjusted for trend and prospective demand conditions.

[e]Except for the minimum acreage required by law, the 1954 allotment would have been 1,546 thousand acres, based upon a marketing quota of 1,294 million pounds. The marketing quota was raised in order to obtain the minimum acreage allotment.

[f]Beginning with 1959 crop, production reported on a net weight basis. Prior years are gross weight.

Source: U. S. Department of Agriculture, Fats and Oils Situation (Washington: Economic Research Service), various issues.

TABLE XLI

PEANUT SUPPLY AND DISPOSITION, 1947-67

Year Begin-ning Aug. 1	Supply				Disposition					
					Exports and Ship-ments	Crushed for Oil	Seed, Feed & Residual	Domestic Food Use		
	Produc-tion	Imports	Stocks Aug. 1	Total Supply				Military	Civilian	Civilian Per Capita
	Million Pounds									
1947	2,182	a	244	2,426	482	477	297	3	932	6.5
1948	2,336	a	235	2,571	725	473	213	6	955	6.5
1949	1,865	a	199	2,064	172	610	232	7	856	5.7
1950	2,035	0	187	2,222	69	629	211	14	967	6.4
1951	1,659	0	332	1,991	8	432	120	10	1,005	6.6
1952	1,356	0	416	1,772	3	195	144	10	998	6.4
1953	1,574	a	422	1,996	239	303	151	10	1,007	6.4
1954	1,008	180	286	1,474	9	107	130	7	1,012	6.3
1955	1,548	5	209	1,762	6	257	157	1	954	5.8
1956	1,607	5	387	1,999	102	260	152	3	1,026	6.1
1957	1,436	2	456	1,894	48	239	162	3	1,081	6.4
1958	1,814	2	361	2,177	62	335	170	8	1,088	6.3
1959	1,523[b]	1	514	2,038	72	292	96	3	1,151	6.5
1960	1,718	a	424	2,142	81	362	87	8	1,236	6.9
1961	1,657	3	368	2,028	34	256	84	7	1,258	6.9
1962	1,719	2	389	2,110	43	302	75	8	1,285	6.9
1963	1,942	2	397	2,341	97	380	107	5	1,342	7.1
1964	2,099	2	410	2,511	179	473	75	8	1,403	7.4

TABLE XLI (Continued)

Year Beginning Aug. 1	Supply				Disposition					
	Production	Imports	Stocks Aug. 1	Total Supply	Exports and Shipments	Crushed for Oil	Seed, Feed & Residual	Domestic Food Use		
								Military	Civilian	Civilian Per Capita
					Million Pounds					
1965	2,384	1	373	2,758	247	517	77	14	1,491	7.7
1966	2,411	2	412	2,825	234	587	142	2	1,487	7.5
1967	2,473	1	372c	2,847	198	644	155	3	1,493	7.6

[a]Less than 500,000 pounds.

[b]Beginning with 1959 crop, production reported on a net weight basis. Prior years were gross weight.

[c]Net weight basis.

Source: U. S. Department of Agriculture, Fats and Oils Situation, FOS-245 (Washington: Economic Research Service, November, 1968), p. 27.

TABLE XLII

PEANUTS (FARMERS' STOCK): EDIBLE USES IN PRIMARY PRODUCTS, 1947-67

Crop Year[a]	Peanut Butter	Salted Peanuts	Peanut Candy	Peanut Butter Sandwiches	Peanuts Roasted[b]	Farm Uses[c]	Other	Total Domestic Food Use
				Million Pounds				
1947	356	166	174	--	68	82	89	935
1948	358	173	149	--	71	72	138	961
1949	355	165	175	--	67	63	38	863
1950	392	189	171	--	69	64	96	981
1951	396	202	173	--	81	53	110	1,015
1952	420	215	174	--	82	47	70	1,008
1953	432	216	173	--	79	46	71	1,017
1954	447	213	165	--	70	39	85	1,019
1955	460	206	168	--	66	49	6	955
1956	451	226	187	22	54	43	46	1,029
1957	506	242	194	23	74	40	5	1,084
1958	511	254	191	23	82	46	--	1,096
1959	508	264	196	25	84	44	33	1,154
1960	590	266	203	25	84	46	30	1,244
1961	610	264	208	25	86	44	28	1,265
1962	602	277	207	27	88	42	50	1,293
1963	654	282	211	30	88	57	25	1,347
1964	666	280	223	28	82	61	71	1,411
1965	691	295	249	30	96	66	78	1,505
1966	673	320	278	32	98	62	27	1,489
1967	684	310	287	28	98	62	26	1,496

TABLE XLII (Continued)

[a]Crop year starts August 1.

[b]Peanut roasted in the shell.

[c]Farm household use and local sales.

Sources: U. S. Department of Agriculture, U. S. Fats and Oils Statistics, 1905-64, Statistical Bulletin No. 376 (Washington: Economic Research Service), p. 54. 1964-67: Obtained by correspondence.

TABLE XLIII

PEANUT OIL: SUPPLY AND DISPOSITION, 1947-67

Crop Year[a]	Supply				Disposition		Price Per Pound[b]
	Production	Imports	Stocks Aug. 1	Total	Exports	Domestic Disappearance	
	Million Pounds						Cents
1947	139	c	40	179	1	155	26.6
1948	141	c	24	165	41	115	17.2
1949	184	--	7	191	61	107	14.3
1950	185	--	23	208	39	131	21.8
1951	130	--	38	168	42	108	19.0
1952	55	--	17	72	2	66	21.1
1953	83	2	5	90	9	62	18.2
1954	26	27	19	72	1	54	18.3
1955	75	11	16	102	2	68	16.8
1956	76	--	32	108	24	73	15.3
1957	67	3	12	82	4	68	16.3
1958	97	7	10	115	9	86	13.9
1959	86	--	21	107	12	81	14.2
1960	104	c	14	118	12[d]	84[e]	14.7
1961	70	5	24	99	8[d]	84[e]	17.4
1962	86	1	18	105	3	70[e]	13.5
1963	111	0	34	145	53	72	11.3
1964	141	c	20	161	87	55	14.4
1965	156	c	20	176	17	106	13.2
1966	169	0	52	221	4	170	12.9
1967	199	c	48	247	6	206	12.6

TABLE XLIII (Continued)

[a]Crop Year Starts on August 1.

[b]Crude peanut oil at Southeastern Mills.

[c]Less than 50,000 pounds.

[d]Includes estimates of foreign donations, not reported by Census.

[e]Factory consumption figures used for years in which reported factory consumption exceeds calculated domestic disappearance.

Sources: 1947-63: U. S. Department of Agriculture, U. S. Fats and Oils Statistics, 1905-64, Statistical Bulletin No. 376 (Washington: Economic Research Service), p. 59. 1964-67: Obtained by correspondence.

TABLE XLIV

PEANUT OIL: UTILIZATION, 1947-67

Crop Year[a]	Food Uses					Non-Food Uses				Total Domestic Food Consumption
	Short-ening	Marga-rine	Cooking Oil[b]	Other	Total	Soap	Loss[c]	Other	Total	
	Million Pounds									
1947	61	15	n.a.	64	140	d	10	4	15	155
1948	31	4	n.a.	64	99	d	8	8	16	115
1949	9	d	(50)[e]	83	92	--	7	8	15	107
1950	18	d	(54)[e]	99	117	--	7	7	14	131
1951	21	d	(46)[e]	75	96	--	5	6	12	108
1952	5	2	(30)[e]	51	58	--	4	4	8	66
1953	4	2	(15)[e]	49	55	d	4	4	8	62
1954	6	2	(18)[e]	40	48	d	4	2	6	54
1955	6	2	(15)[e]	52	60	d	3	5	8	68
1956	6	4	(23)[e]	56	66	--	4	3	7	73
1957	6	3	(25)[e]	51	60	--	5	2	7	68
1958	3	4	(22)[e]	73	80	--	4	2	6	86
1959	4	5	35	31	75	--	5	1	6	81
1960	3	3	58	12	76	--	5	4	9	82
1961	2	3	60	12	76	--	4	4	8	72
1962	2	5	48	8	64	--	4	3	6	68
1963	6	7	55	7	75	--	3	3	6	75
1964	3	6	44	8	61	--	3	3	6	55
1965	7	6	88	8	109	--	4	4	8	100
1966	22	5	125	9	161	--	10	4	14	170
1967	23	6	152	15	196	--	7	5	12	206

TABLE XLIV (Continued)

[a]Crop year starts August 1.

[b]Cooking and salad oils.

[c]Foots and loss.

[d]Less than 50,000 pounds.

[e]Bracket figures represent peanut oil deordorized which is included in the "other" category.

Source: 1947-63: U. S. Department of Agriculture, U. S. Fats and Oils Statistics, 1905-64, Statistical Bulletin No. 376 (Washington: Economic Research Service), p. 59. 1964-67: Obtained by correspondence.

TABLE XLV

PEANUT CAKE IN THE UNITED STATES: PEANUTS CRUSHED, PEANUT
CAKE YIELD, ANNUAL PRODUCTION 1947-67

Crop Year	Peanuts Crushed on the Basis of		Yield Per 100 Pounds		Peanut Cake Production
	Farmers' Stock	Shelled Peanuts[a]	Farmers' Stock	Shelled Peanuts[b]	
	Million Pounds		Pounds		Million Pounds
1947	477	132.607	50.7	n.a.	243.310
1948	473	218.820	47.6	n.a.	225.008
149	610	414.286	45.6	n.a.	278.338
1950	629	403.312	46.9	n.a.	294.895
1951	432	162.673	46.3	n.a.	200.356
1952	195	133.074	44.6	55.40	87.233
1953	303	208.589	41.9	58.86	127.269
1954	107	71.834	43.9	60.00	46.707
1955	257	182.534	42.4	64.48	108.894
1956	260	186.152	43.8	59.13	113.635
1957	239	168.451	42.7	59.01	102.365
1958	335	237.310	42.4	60.06	142.195
1959	292	210.813	43.2	59.13	126.561
1960	362	258.009	42.3	59.52	153.469
1961	256	182.308	43.4	61.54	111.296
1962	302	214.568	43.4	61.14	131.067
1963	380	286.376	40.8	58.52	155.000
1964	475	340.672	39.8	60.20	192.698
1965	521	373.547	42.4[d]	58.35	206.610
1966[c]	522	410.372	42.4[d]	59.68[d]	244.910
1967[c]	584	418.292	42.4[d]	59.68[d]	249.637

[a]Includes all peanuts crushed except for the 1947-51 crop years; totals for these years do not include ungraded or straight run peanuts produced from farmers' stock peanut reported as used for crushing only.

[b]Computed from peanut cake production by dividing with shelled peanut crushed. Some errors were unavoidable due to the statistical discrepancies of raw data.

[c]Farmers' stock peanuts crushed for oil and peanut cake were estimated on the basis of 1955-64 average conversion rates of 71.68 and 59.68 percent, respectively.

[d]1955-64 average conversion rate.

Sources: 1947-63: U. S. Department of Agriculture, Fats and Oils Situation, FOS-228 (Washington: Economic Research Service, May, 1965); Commercial Peanuts, Stocks, Millings, Processings, Statistical Bulletin No. 350 (Washington: Statistical Reporting Service, September, 1964). 1964-67: Peanut Stocks and Processing, GrLg 11-2-1 (65), GrLg 11-2 (6-68), GrLg 11-2 (12-67) (Washington: Statistical Reporting Service).

VITA

Inbum Song

Candidate for the Degree of

Doctor of Philosophy

Thesis: DEMAND CHARACTERISTICS FOR PEANUTS AND THE IMPACT OF A DIRECT
PRICE SUPPORT PROGRAM ON FARM INCOME, GOVERNMENT COST, AND
PEANUT CONSUMPTION

Major Field: Agricultural Economics

Biographical:

Personal Data: Born in Sangwon-Myun, Bongwha-Goon, Kyungbuk,
Korea, on October 1, 1931, the son of Mr. and Mrs. Hong-ie
Song.

Education: Attended grade school in Sangwon-Myun; graduated from
Kyung-Ki High School, Seoul, Korea, in 1951; attended the
University of Maryland, College Park, Maryland, and received
the Bachelor of Science degree from the University of Maryland,
with a major in agricultural economics, in June, 1962;
received the Master of Science degree from the University of
Maryland, with a major in agricultural economics, in June,
1965; completed requirements for the Doctor of Philosophy
degree in July, 1970.

Professional Experience: Served as a Captain with Ordnance Corps,
Republic of Korea Army, from 1950 to 1958; held position as
Research Assistant at the University of Maryland from 1962
to 1965; held position as Research Assistant at Oklahoma
State University from 1966 to 1969; currently, hold position
as Assistant Professor of Economics at the School of Business,
University of Louisville, Louisville, Kentucky, since August,
1969.