

**EGYPT'S FOOD SUBSIDY
AND RATIONING SYSTEM:
A DESCRIPTION**

Harold Alderman
Joachim von Braun
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FOREWORD

From the inception of the International Food Policy Research Institute, its staff has recognized the major role of food subsidies in enhancing the nutritional status of the poor, providing income transfers to low-income people (pending the long-term benefits of growth in national income and employment), and in ensuring markets for increased agricultural production. At the same time, it is recognized that the expenditure that food subsidies require is often immense and may come at the expense of investment in food production, which might in the long run provide the poor with even more food than the subsidies themselves. Thus IFPRI researchers have undertaken a series of studies of various food subsidy programs, of consumption patterns of low-income people, and of underlying nutritional relationships as a means of developing knowledge that may meet policy objectives more efficiently.

This study by Harold Alderman, Joachim von Braun, and Sakr Ahmed Sakr describes the food subsidy system in Egypt, a country where the overall system of consumer and producer subsidies is particularly large. The

intricacies of this system are important for understanding subsidy systems in general. Because of the growing importance of food subsidies, this descriptive study with its copious statistical tables and initial analysis is made available to assist other analysts and to provide the basis for extended research. It is essential background to an in-depth analysis of the effects and the cost of food subsidies in Egypt, which is being carried out by IFPRI with financial support from the U.S. Agency for International Development and in collaboration with the Institute of National Planning in Egypt. In addition, as a detailed example of a fairly evolved system of consumer subsidies, it gives policy planners not specializing in Egypt a perspective on the regulatory environment, which economic models—by necessity abstractions—seek to analyze.

John W. Mellor

Washington, D.C.
October 1982

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1

SUMMARY

The Egyptian food distribution system is a major component of an extensive and complex system of government market intervention. It has evolved from policies aimed at assuring general access by the population to basic foods and has become a major marketing channel.

Expenditures on food subsidies rose from less than 1 percent of total public outlays in 1970 to more than 10 percent in the second half of the decade. The subsidies have become a significant portion of the real income of many consumers. They have also helped moderate the strains accompanying rapid structural change as the economy has shifted to a greater degree of market orientation and increased international trade and investment.

As a first step in a larger study of the effects of the food distribution system, this report is intended as a guide for building models for in-depth analyses. It also provides examples of management details that seldom can be derived from the aggregated data of the national accounts. Both aggregate data and past studies are reviewed to determine the effects on welfare of implicit cash transfers from the central government.

Subsidized wheat flour and bread are available, in principle, to all consumers without restriction. Monthly quotas of rice, tea, cooking oil, and sugar are provided at low subsidized prices to about 90 percent of the population through ration cards. These quotas vary by regions with urban-rural differences. The goods are distributed through registered grocers.

A second tier of quotas is available at higher subsidized prices. These goods are also marketed through cooperatives and government retail stores, but availability is less assured. Beans and lentils are similarly marketed at two quota prices but are not available every month.

Frozen meat and poultry are distributed through government stores and cooperatives with monthly limits on purchases. Fish is distributed the same way but without limit. Although yellow maize is subsidized, it

mostly serves as an agricultural input rather than a final consumer good.

The growth in fiscal costs of the system during the last decade reflects high commodity prices in 1973 and 1974 and a gradual devaluation of the Egyptian pound between 1977 and 1979. The increase in quantities distributed is the result of increased population, rising income, and falling relative prices of subsidized items, which have varied little in nominal terms. Quantities per capita of rationed goods distributed at the first tier of prices have changed little, but those of the second tier have grown faster than the population, as have sales of frozen meat and chicken. Per capita consumption of wheat flour products has also risen.

Some of the increase in consumption is the result of numerous changes in regional quotas authorized by the Ministry of Supply and Home Trade (hereafter referred to as the Ministry of Supply). City and village needs are initially determined by local councils, which transmit them to the Ministry of Supply through the governorates (provincial governments). The local quotas set by the Ministry of Supply reflect regulatory guarantees and regional give and take. Responsibility for quantity decisions, including imports, is separate from the authority for setting prices. This reduces the short-run responsiveness of the system. Official prices do not rise when local demand exceeds the quotas, but waiting lines and other additional costs of food acquisition influence consumer purchases. There also is open market trading in scarce commodities. These distribution channels are described in a case study of greater Cairo.

Regional distribution patterns of rationed goods show clear differences between commodities. Rationed sugar appears to be evenly distributed among the governorates in per capita terms; higher priced subsidized sugar is less so. The regional and urban quotas for oil and rice are unevenly distributed. A cross-sectional regression for rice confirms the urban bias. A similar regression shows no urban bias for total cereal distribution by the Ministry of Supply, but it

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indicates that distribution partially offsets differences in local production. The lack of an urban bias for total cereals can be partially attributed to large sales of subsidized wheat flour in rural areas where the density of bakeries is low. Such sales parallel those of domestically produced grain.

Government intervention in agricultural production by area allotment and forced deliveries is particularly strong for regulated commodities. A case study illustrates utiliza-

tion of rationed and subsidized commodities in a rural region of the Nile Delta. It indicates that on the average one third of daily food energy requirements, according to the standards of the Food and Agriculture Organization of the United Nations (FAO), is provided by subsidized foods. Differences in access and prices were observed among farm families. Cereal consumption patterns and marketing in villages with bakeries differed from those without.

2

INTRODUCTION

Two sets of statistics illustrate the current pressures on the food system of Egypt. In the first set self-sufficiency ratios reveal that in 1980 only 24 percent of the wheat and flour consumed, 26 percent of the edible oil, 57 percent of the sugar, and 10 percent of the lentils were domestically produced. These figures reflect both rising demand due to population and income growth and the relatively slow growth of agriculture. The second set of statistics reveals that food subsidies cost 1.1 billion in Egyptian pounds (LE) in 1980/81 and are projected to be more than LE 1.5 billion for fiscal 1982.¹

The first set of statistics is widely viewed with alarm. Food security is a major topic of governmental and popular concern, engendering new committees and programs. The size of the subsidy reflects the government's concern with social welfare and its interest in protecting citizens from high food prices and major market fluctuations. Some believe this commitment may be distorting resource allocation, reducing economic growth, and hindering productive investment. The differing views stem, in part, from the fact that the fiscal costs of the food subsidy system can be much more easily measured than its social and economic costs or its social benefits.

The food subsidy system is part of a larger consumer welfare program that subsidizes energy, transportation, housing, and some consumer goods other than food, such as cloth and soap. Measures taken to

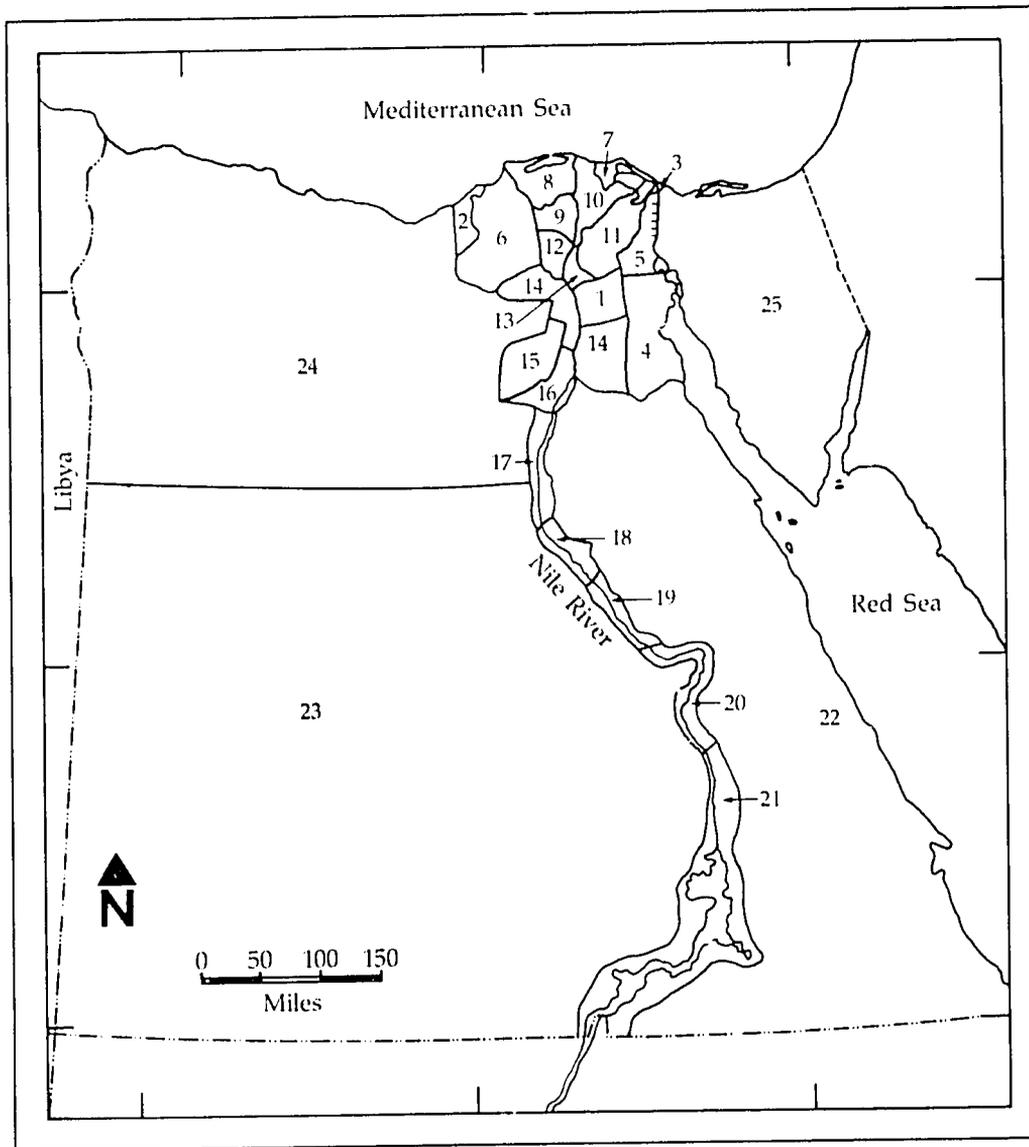
augment consumption include price wedges between purchase and selling prices and absorption of marketing or transport costs by the government. In addition, lost opportunities for exports because of government trade monopolies in rice, petroleum, and cotton may represent hidden subsidies. The government also influences marketing by placing price ceilings and marketing margins on privately traded goods and by fixing prices on goods produced by public-sector companies. Considering that half of the GNP originates in the public sector, these measures have considerable impact.²

Although this study was made to assist Egyptian planners and economists, it is hoped that it will provide useful background information for similar studies of other developing economies as well as for economists working on other food policy issues. It begins with a discussion of policy goals, which includes a brief historical background, followed by discussions of market outlets, decisionmaking and administration within the food subsidy network, regional variations, effects on nutrition, and linkages to the agricultural sector. (Egypt is divided into provincial governments called governorates, which are shown on the map below.) Two case studies are presented: one on marketing within Cairo and Giza, and the other on purchases of subsidized and nonsubsidized foods in nine delta villages. The report concludes with a discussion of modifications of the subsidy system currently being discussed.

¹ The Egyptian pound (LE) equals 100 piasters. In July 1982 U.S. \$1.22 equalled LE 1.00, although phasing in of official levels and open rates does occur. Between 1977 and August 1981 the Egyptian pound equalled U.S. \$1.43. Prior to devaluation in 1977 the Egyptian pound was valued at more than \$2.50.

² Khalid Ikram, *Egypt: Economic Management in a Period of Transition* (Baltimore: Johns Hopkins University Press, 1980).

Map of the Arab Republic of Egypt



Boundary representation not necessarily authoritative.

Urban Governorates

- 1. Cairo
- 2. Alexandria
- 3. Port-Said
- 4. Suez

Lower Egypt

- 5. Ismailia
- 6. Behera
- 7. Damietta
- 8. Kafr-El-Sheikh
- 9. Gharbia
- 10. Dakahlia
- 11. Sharkia
- 12. Munufia
- 13. Kalyubia

Upper Egypt

- 14. Giza
- 15. Fayum
- 16. Beni-Suef
- 17. Menia
- 18. Asyut
- 19. Suhag
- 20. Qena
- 21. Aswan

Frontier Governorates

- 22. Red Sea
- 23. New Valley
- 24. Matruh
- 25. North and South Sinai

3

THE SCOPE OF EGYPT'S FOOD SUBSIDY PROGRAM AND ITS GOALS

Origins of the System

The current subsidy system in Egypt does not represent a sharp break from the past. Attitudes and institutions formed during and even before the Nasser period were adapted to the economic conditions of the 1970s.

Rationing was introduced in 1941 to cope with wartime scarcities and restructured in 1965 in the face of rising domestic prices, a straining economy, and sharp drops in the availability of aid. In 1966 cards based on civil records were issued for four items: kerosene, oil, sugar, and tea. Other subsidized items were made available in 1967 without strict rations.³ Public companies for retailing and for importing were formed during this period.

During the 1950s and 1960s rations did not always involve subsidies, and the total budget outlay for the system remained small. Rationing may be looked upon as an allocative measure for social equity in an economy that relied on central planning rather than on market determination.

Although wheat is not rationed, government intervention in wheat marketing has occurred throughout Egyptian history.⁴ Open market operations using imported wheat to lower domestic prices were undertaken during periods of local shortages—for example, at the end of World War I. Subsidies on wheat were LE 13 million in both 1951/52 and 1952/53 but then declined until the mid-1960s. During this period the govern-

ment took over large-scale wheat storing and processing and established the General Organization for Mills, Silos, and Bakeries. The mills received subsidies, but the bakeries remained in private hands. Bread prices and flour extraction rates were controlled by the government.

The subsidies on wheat were an attempt to insulate the domestic economy from international shocks and short-term domestic shortfalls. During seven years of the 1960s consumer prices for wheat exceeded world prices.⁵ Thus, the small subsidies of the 1960s stemmed from the differences between domestic prices to producers and consumers and were as much a subsidy to producers as to consumers. If the government's main objective had been to obtain food cheaply, it could have increased purchases of inexpensive wheat on the world market. But this would have required use of foreign exchange.⁶

Expenditures on subsidies increased markedly in 1974 and in 1979 (see Table 1). Much of the increase in the early 1970s was due to sharp increases in world prices for wheat in 1973 and 1974. The volume of imports of wheat rose only 8 percent and flour imports only 30 percent from 1973 to 1974, but subsidy costs for wheat and flour were up 174 percent. The government could have transmitted some of the increase in world prices to consumers. However, this would have jeopardized the government's plan, introduced in 1973, for restructuring the economy and opening up trade and investment opportunities. Since then, the

³ M. Egan and Abdel M. Gawad, "The Egyptian Ration Card System and Its Relationship to Cooperatives and Government Grocery Store Subsidized Pricing," U.S. Department of Agriculture memorandum, Cairo, September 1977. See also Egypt, Ministry of Supply and Home Trade, *Decision #112*, 1966.

⁴ See F. Shalaby, "A Report on Wheat Consumption in Egypt," Program Economist's Office, U.S. Agency for International Development, Cairo, December 1978 (mimeographed); and Grant M. Scobie, *Government Policy and Food Imports. The Case of Wheat in Egypt*, Research Report 29 (Washington, D.C.: International Food Policy Research Institute, 1981).

⁵ Scobie, *Government Policy*.

⁶ Egypt's flexibility has been limited by foreign exchange constraints. For discussion of trade policies, see Scobie, *Government Policy*.

Table 1—Total public expenditure, 1970/71-1980/81

Expenditure	1970/71	1972	1973	1974	1975	1976	1977	1978	1979	1980 ^a	1980/81 ^b
	(LE million)										
Central and local government expenditure	661	730	765	899	1,298	1,670	1,628	2,012	2,375	1,754	3,738
Subsidies											
Food	3	11	89	329	491	322	313	450	880	472	1,108
Fertilizer, pesticides, and cotton ^c	...	...	...	...	81	34	35	36	150	73	143
Price adjustment ^d	...	...	...	...	...	...	228	190	140	...	...
Other	...	...	...	81	50	78	74	222	200	95	312
Subtotal	3	11	89	410	622	434	650	900	1,370	640	1,563
Public authorities' deficits	41	62	188	87	95	119	139	185	229	148	344
Emergency Fund deficit	127	211	135	36	284	303	256	370	...	...	...
Total current expenditure	832	1,014	1,177	1,432	2,297	2,526	2,673	3,467	3,974	2,542	5,643
Public gross fixed investment	358	414	451	791	1,373	1,431	1,839	2,463	2,857	1,350	3,325
Total public expenditure	1,190	1,428	1,628	2,223	3,670	3,957	4,512	5,930	6,831	3,892	8,970
GDP at market prices	3,203	3,390	3,808	4,339	5,218	6,727	8,283	9,671	12,409	...	...

Source: Egypt, Ministry of Finance, unpublished data.

^a 1980 figures are actual figures for the period January 1, 1980, to June 30, 1980.

These figures are estimates.

^c This is the Agricultural Stabilization Fund; it includes Treasury Fund payments.

^d This fund was established in 1977 to finance the cost of phasing in the domestic price impact of commodities imported at the parallel rate rather than the official exchange rate.

^e Since the fund for subsidies was established in 1975, earlier figures are budget estimates.

subsidy scheme has had the broader responsibility of insulating the consumer from inflation in the world economy while Egypt increases its international trade.

During the period 1977-79 Egypt gradually devalued the pound to 56 percent of its earlier value. This was accomplished by phasing in items to be imported at the new official exchange rate, with essential food imports remaining at the parallel rate until January 1979. As domestic prices of main food items did not change markedly, the increased import costs appeared as higher subsidy costs, despite declines of some world market prices. The effects of the devaluation are clearly indicated by the reduction of 15 percent in wheat imports and 4 percent in flour between 1978 and 1979. World prices of wheat rose approximately 40 percent in that period, while fiscal losses on imports rose 150 percent.

In 1977 LE 124 million of the price adjustment (in Table 1), a fund established to ease the effect on domestic prices of commodities imported at parallel rates, went to the General Authority for Supply Commodities (GASC) and thus can be considered an additional cost of food subsidies. (GASC is the government agency under the Ministry of Supply responsible for importing food commodities.) Furthermore, GASC received an additional LE 190 million in 1978 and 140 million in 1979, most of which should also be included in the overall cost of food subsidies (Tables 2 and 3).⁷

The commodities that showed a profit in Table 2 indicate that prior to devaluation the government's marketing of goods was not synonymous with subsidies. For example, although tea has been rationed since the inauguration of the current ration system, subsidies were not required before 1977. By means of a two-tier system of prices (see Chapter 4), the government has been able to use its monopoly or near-monopoly position on imports to gain profits from the sale of a

few restricted goods. Since the devaluation, however, most of these items have been sold at prices below import prices.

The "other" category under subsidies in Table 2 includes losses on meat and poultry. The increase of subsidies on such items is a major part of the strategy for stabilizing domestic prices.

Table 4 presents indexes of the volume of food distributed through the channels of the Ministry of Supply. Imports have, in general, grown more rapidly than domestic distribution. Given the price differences, this implies greater costs per ton of commodities distributed. The rapid growth of meat and poultry consumption and distribution indicates that the value of the average commodity bundle was higher in the late 1970s than in the early part of the decade. This was consistent with the evolving goals.

Current Policy Goals

The Five-Year Plan for 1978-82 emphasizes the provision of necessities at low cost and protection of the consumer from increases in the cost of living.⁸ That document, as well as a number of speeches and reports on social welfare by government officials, links wage increases to prices of major commodities.⁹ Although the government assures workers that it will not impose major price changes, it recognizes the need for adjustment to small price movements and to inflation in the private sector. It attempts to protect workers from such changes by increasing wages and pensions. Thus, food prices are a means by which the government can influence wage rates. The government views subsidies as a means of moderating pressure to raise wages of public-sector employees in addition to promoting social equity and price stabilization.

The subsidy system also is related to the

⁷ These calculations are based only on fiscal costs and underestimate the economic costs of the subsidies. For example, the provision of rice involves little direct government outlay, yet involves a significant opportunity cost not indicated here.

⁸ The other three duties of the government are listed as guaranteeing employment and earnings, providing public welfare through health, housing, education, and so forth, and providing public utilities. Although the Plan guides investment in public enterprises, it is by no means a blueprint for government allocation. Egypt, Ministry of Planning, *Arab Republic of Egypt Five Year Plan 1978-1982*, Vol. 5 (Cairo: Ministry of Planning, 1977).

⁹ Ministry of Planning, *Five Year Plan 1978-1982*, 1: 25. See also *Al-Akhbar El-Yom*, May 3, 1981, and *Egyptian Gazette*, May 31, 1981.

Table 2—Trading operations of the General Authority for Supply Commodities, 1970/71-1980/81

Item	1970/71	1972	1973	1974	1975	1976	1977	1978	1979	1980/81
	(L.E. million)									
Subsidies	41.8	41.9	136.2	393.2	423.7	281.4	343.2	452.4	996.8	1,094.3
Wheat and flour	20.9	15.1	79.0	216.4	260.9	171.6	149.1	222.8	588.3	511.0
Maize	0.8	0.4	4.4	16.5	31.1	23.1	40.6	53.8	38.5	63.7
Edible fats and oils (rationed)	10.4	15.8	16.8	55.3	72.2	43.2	54.6	137.4	200.2	125.4
Sugar (rationed)	8.0	6.0	19.0	68.9	20.8	6.1	...	...	...	97.3
Tea	...	...	...	...	...	...	18.5	12.8	54.6	42.0
Coffee	...	...	...	...	...	...	5.6	...	...	...
Other	1.7	4.6	17.0	36.1	38.7	37.4	75.0	25.6	115.2	254.4
Profits	38.6	30.5	47.2	63.1	15.0	31.2	12.6	29.5	44.5	...
Cottonseed	2.0	1.4	2.5	2.1	2.0	2.0	2.0	...	...	...
Edible oils (nonrationed)	4.2	2.7	5.0	8.0	...	...	...	...	...	...
Tea	12.6	17.9	14.4	14.0	11.5	13.2	...	...	...	...
Coffee	0.9	1.3	...	0.1	...	...	...	...	...	...
Sugar (nonrationed)	18.0	6.4	22.6	36.0	...	...	8.6	26.1	44.5	...
Other	0.9	0.9	2.7	3.0	1.4	16.0	2.0	3.2	...	...
Total net losses	3.2	11.3	89.0	330.1	408.7	250.2	330.6 ¹	423.1	952.3	1,094.3

Source: Egypt, Ministry of Supply and Home Trade, General Authority for Supply Commodities, unpublished data.

Notes: Total net losses are normally less than total subsidy payments from the special fund for subsidies and the Price Adjustment Fund, the difference representing various administrative costs and, in some years, settlement of arrears.

¹ Actual net losses are estimated to have been L.E. 455 million. The additional L.E. 124 million was paid out of the Price Adjustment Fund. The losses shown are based on the official exchange rate, whereas during 1977 all subsidized commodities apart from wheat, flour, edible oils, sugar, and tea were imported at the parallel exchange rate.

goal of food security. Egypt is facing a widening food gap between demand and domestic supply because the increase in demand from growth in population and real per capita income and from nominally stable prices has exceeded the growth of supply.

Domestic agriculture achieved only a modest annual growth rate of 2 percent in the 1970s.¹⁰ Aggregate food self-sufficiency was 72 percent in 1981 for wheat, rice, coarse grains, pulses, sugar, cooking oil, and meats, including poultry. The degree of self-suffi-

Table 3—Food subsidies as a share of government outlays and GDP, 1970/71-1980/81

	1970/71	1972	1973	1974	1975	1976	1977	1978	1979	1980/81
	(percent)									
Share of total current expenditures	0.4	1.1	7.6	23.3	23.9	14.0	17.6	20.8	27.0	19.6
Share of total public expenditures	0.2	0.7	5.5	16.5	16.9	9.8	10.9	11.9	16.2	12.3
Share of GDP	0.1	0.3	2.3	7.6	9.4	4.8	5.3	6.6	8.1	7.0

Source: Unpublished data from the Egyptian Ministry of Finance and the General Authority for Supply Commodities of the Ministry of Supply and Home Trade (see Tables 1 and 2).

Note: The subsidy outlay includes a price adjustment in 1977 and similar outlays in 1978 and 1979. However, net losses of the GASC are used. These underestimate the subsidy outlay, particularly in the early years.

¹⁰ Ahmed A. Gouchi, "Food Security Program in Egypt," *Food Security for Developing Countries*, ed. Alberto Valdés (Boulder, Colo.: Westview Press, 1981), pp. 143-157.

Table 4—Indexes of the volume of imports and the distribution of major food commodities by the Ministry of Supply, 1970-80

Year	Sugar		Cooking Oil		Beans		Lentils		Wheat		Refined Flour		Frozen Meat ^c	Frozen Chick-en ^a	Rice	
	Imports	Distribution	Imports	Distribution	Imports	Distribution	Imports	Distribution	Imports	Distribution	Imports	Distribution			Exports ^b	Distribution
1970		71	70	77		44	11	33	78	66	56	75	15	...	285	54
1971		75	65	77	51	18	18	41	71	66	89	86	19	...	236	56
1972		77	67	80	15	29	10	40	74	75	68	80	15	108	216	51
1975		81	67	88		45	19	48	90	82	72	80	17	48	154	64
1974	44	81	80	99	26	67	19	55	101	87	94	82	10	40	75	81
1975	96	95	117	104	155	107	78	76	104	62	110	95	44	40	44	79
1976	100	100	100	100	100	100	100	100	100	100	100	100	100	n.a.	100	100
1977	86	108	121	112	51	44	74	97	120	111	120	119	115	100	88	97
1978	140	119	145	124	22	86	75	124	141	119	179	145	127	75	68	100
1979	109	115	156	151	40	74	85	106	120	120	172	159	119	219	77	101
1980	218	157	140	140	46	88	90	97	154	151	141	145	160	500	44	111

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

Note: Where n.a. appears, the data were not available. 1976 = 100.

^a Imports of this food equal the amount distributed.

^b Rice is the only commodity that is exported.

ciency in calories in these commodities is 50 percent because wheat and oil have a higher caloric value relative to their monetary value and both account for high shares of total imports. The concern for food security mainly stems from an interest in keeping the national budget, as well as the consumer, insulated from price shocks stemming from good or bad harvests in Kansas or the Ukraine.

The food security goal aims to reduce or eliminate imports of selected commodities (for example, sugar and oil) and to improve the agricultural balance of trade by using comparative advantages to pay for necessary food imports.¹¹ Although production is crucial to any discussion of food security, subsidies mainly influence consumption patterns and, therefore, import requirements.

The long-run goal is to have food prices reflect scarcity costs as much as possible within the context of other welfare goals and trade-offs.

Food security policy also affects rural-urban linkages. The flow of imports from the ports through the cities into the countryside represents a restructuring of traditional trade patterns. However, various officials involved in planning and supply have expressed an interest in having rural areas provide for their own needs. Such an interest must be weighed against other policy goals.

The subsidy system also has nutritional concerns, which may influence the choice of commodities emphasized. For example, the stress on animal protein may partly reflect the viewpoint on nutrition.

¹¹ Ministry of Planning, *Five-Year Plan, 1978-1982*, vol. 5; and *Egyptian Gazette*, March 24, 1981.

4

STRUCTURE OF THE FOOD SUBSIDY AND DISTRIBUTION SYSTEM

Wheat, in the form of either flour or bread, is the only commodity that is, in principle, available to any consumer without restriction. No limits are set on the quantity or timing of purchases at the price fixed by the government, which is uniform throughout the country for each type of bread sold. For other subsidized commodities there are different prices and quotas at those prices.

Sugar, tea, cooking oil, and rice are provided at a low rationed price in fixed monthly quotas. Beans and lentils are rationed but the monthly delivery is less assured. Eligibility is nearly universal; 90 percent of the population is registered in the system. Only certain categories of landholders, families of emigrant workers, and stockholders in joint venture companies are restricted. For families of equal size within the same area, all holders of ration books receive the same rationed quantities regardless of income. However, official monthly quotas do vary from one governorate to another and from rural to urban areas. (See the Appendix, Table 18.)

Additional quantities of the commodities mentioned above are available at higher prices. This is, in effect, a second tier of rationing. Quotas of these commodities are sold through cooperatives and government retail stores. Because this distribution is less restricted and less assured, these sales are referred to as sales at the "free" (*hurr*) market price. This is a misnomer as the free price generally is below that prevailing in the so-called "black market." In subsequent discussions, the terms regulated market and open market will be used and not the pejorative term black market.

The quantities of sugar, oil, and tea distributed as rations have been fairly constant since 1975 (see the Appendix, Table 19). The peak year for each was 1978. On the other hand, quantities of sugar and oil distributed at regulated prices have increased. In 1980 rationed sugar made up one third of the total quantity distributed, and rationed oil made up 60 percent of the total, excluding

quantities used in manufacturing and food processing. Approximately 70 percent of the rice distributed is sold at the lower ration price.

There is only one subsidized price tier for frozen meat, poultry, and fish. Their distribution is restricted to outlets that have freezers. Fish is generally available on demand, but monthly purchases of meat and poultry are limited.

Although the bulk of the food commodities subsidized through the Ministry of Supply is marketed to consumers, some inputs of food processing are subsidized. One example is the flour used for bread, cakes, and pastas. The more refined flour used in cakes and pastas sells at a higher price than flour sold to bakers of popular breads or directly to consumers. Another subsidized good is the oil used in margarine and other processed foods. Certain groups of restaurants and peddlers receive some of their inputs through government channels at reduced prices. Yellow maize is imported by the Ministry of Supply for direct use as poultry feed and as an input of commercial feed concentrate and various other industrial processes.

The main growth in quantities distributed through the subsidy system in recent years has been either in these inputs or in regulated commodities (including meat) for which upper limits of purchases are regularly waived. Sales of goods at regulated prices appear to have been more effective in moderating price rises than in targeting and distributing consumption among the population. This component, therefore, could continue to expand to meet the strains of rapid economic growth.

Prices for major commodities showed little movement during the period 1971-81 (Table 5). Prices of meat and poultry, sugar, and oil have risen somewhat, but only chicken prices have kept pace with the rise in the consumer price index.

Except for rice, most subsidized commodities are imported through the GASC.

Table 5—Development of rationed prices, 1971-81

Commodity	1971	1972	1973	1974	1975	1976	1977	1978	1979	Nov. 1980	Nov. 1981
	(piasters kilogram)										
Rationed sugar	10	10	10	10	10	10	10	10	10	10	10
Regulated sugar	15	15	15	15	16	25	25	25	25	30	30
Rationed oil	n.a.	n.a.	n.a.	n.a.	10	n.a.	n.a.	10	n.a.	n.a.	10
Regulated oil	n.a.	n.a.	n.a.	n.a.	30	n.a.	n.a.	30	n.a.	n.a.	30
Rationed rice	5.5	5	5	5	5	5	5	5	5	5	5
Regulated rice	n.a.	n.a.	n.a.	n.a.	15	n.a.	n.a.	15	n.a.	n.a.	14 ^a
Beans	7	7	7	7	10	10	10	10	10	10	10
Lentils	9	10	10	10	10	10	10	10	10	10	11
Yellow maize	3	3	3	3	3	3	3	6	6	6	6
Flour (refined) ^b	5.5	5.5	7.5	7.5	7.2	7.2	7.2	7.2	7.2	9.12 ^c	65.12 ^d
Frozen beef	...	...	...	68	68	68	68	68	68	68	68
Frozen chicken	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	68	n.a.	n.a.	105
Urban consumer price index											
All items	113.6	116.3	122.4	135.7	148.9	171.2	191.1	122.6	233.5	278.9	311.5
Food	117.0	120.8	130.8	152.9	171.5	209.2	231.3	254.7	277.3	344.8	401.3
Rural consumer price index											
All items	117.9	117.6	131.2	149.6	167.9	195.9	220.7	238.4	265.8	325.8	373.7
Food	120.2	119.1	138.3	162.2	185.4	221.0	277.1	275.2	305.2	380.4	438.9

Sources: The consumer price indexes are from the Central Agency for Public Mobilization and Statistics (CAPMAS). The commodity prices are from unpublished information provided by the Egyptian Ministry of Supply and Home Trade, except for the prices of rationed oil, regulated oil, and frozen chicken. These prices are from Lance Taylor, "Food Subsidies—Macro and Micro Issues," Massachusetts Institute of Technology, Cambridge, Mass., May 1976 (mimeographed); U.S. Department of Agriculture, *Subsidy Pricing and Rationing of Basic Foods* (Cairo: USDA, October 1978 and April 1981). The most recent report was verified independently and minor errors in it were corrected. Earlier prices are presented as they were reported. As the prices of beans and lentils were reported as 12 piasters each in both 1978 and 1981, the 1978 prices are suspect by association. Also see Karima Koravem, "The Impact of the Elimination of Food Subsidy on the Cost of Living of the Urban Population of Egypt," paper presented to the International Labour Organisation, Income Distribution and International Employment Policies Branch, Employment and Development Department, Geneva, May 1980, for a slightly different presentation of similar data.

Note: Where n.a. appears the data were not available.

^a This is not directly comparable to the 15 piasters per kilogram price of previous years because the quality changed.

^b The extraction rate is 72 percent, except for some of the November 1981 figures (see footnote c).

The prices in November 1980 for 72 percent flour were 9 piasters per kilogram loose and 12 packed.

^c The prices in November 1981 were, for 82 percent flour, 6.5 piasters per kilogram loose and 8 packed, for 72 percent flour, 9 piasters per kilogram loose and 12 packed.

Figure 1 presents a simplified scheme of the marketing and procurement channels for subsidized commodities. Acting as an agent for the Ministry of Supply in the international market, the GASC makes purchases through international tenders and bilateral, long-term contracts. The responsibility of this company ends at the port. Deliveries to storage companies occur at subsidized prices. Most of the national food subsidy bill is absorbed in the budget of the GASC.

The Principal Bank for Development and Agricultural Credit (PBDAC) is the second largest purchaser of subsidized commodities. It receives rice quotas from producers, though weighing of deliveries may occur at milling companies. Lentils and beans are also delivered on quotas, whereas farmers can deliver wheat to the government at a price fixed in advance.¹² Such procurement is a minor part of the wheat handled by the Ministry of Supply—the equivalent of less than two weeks' imports. The PBDAC also receives maize and beans from the GASC. The beans are delivered to the wholesale companies and the maize is distributed to consumers and industrial users.

Two government companies are involved in wholesale packing and distribution of items to be rationed or sold at regulated prices. The final outlets are private grocers and cooperative stores.

Demand that is not satisfied by quotas is channeled into the open market. This includes the resale of items purchased at either of the two tiers of ration prices and local trade of agricultural products.

Principal Outlets for Supply Commodities

Private Grocers

The principal outlets for rationed commodities are private merchants who are licensed by the Ministry of Supply to receive rations from the wholesale companies and distribute them to consumers. The ration card (*betaka tamween*) is a passport-sized book with space for recording a decade's purchases. It is up to the card holder to

report changes in family size to the local supply bureau. As periodic registration is not required, the household is more likely to record additions to the household than deaths or migrations. But if a recently married member seeks a book, his name must be removed from his family's book.

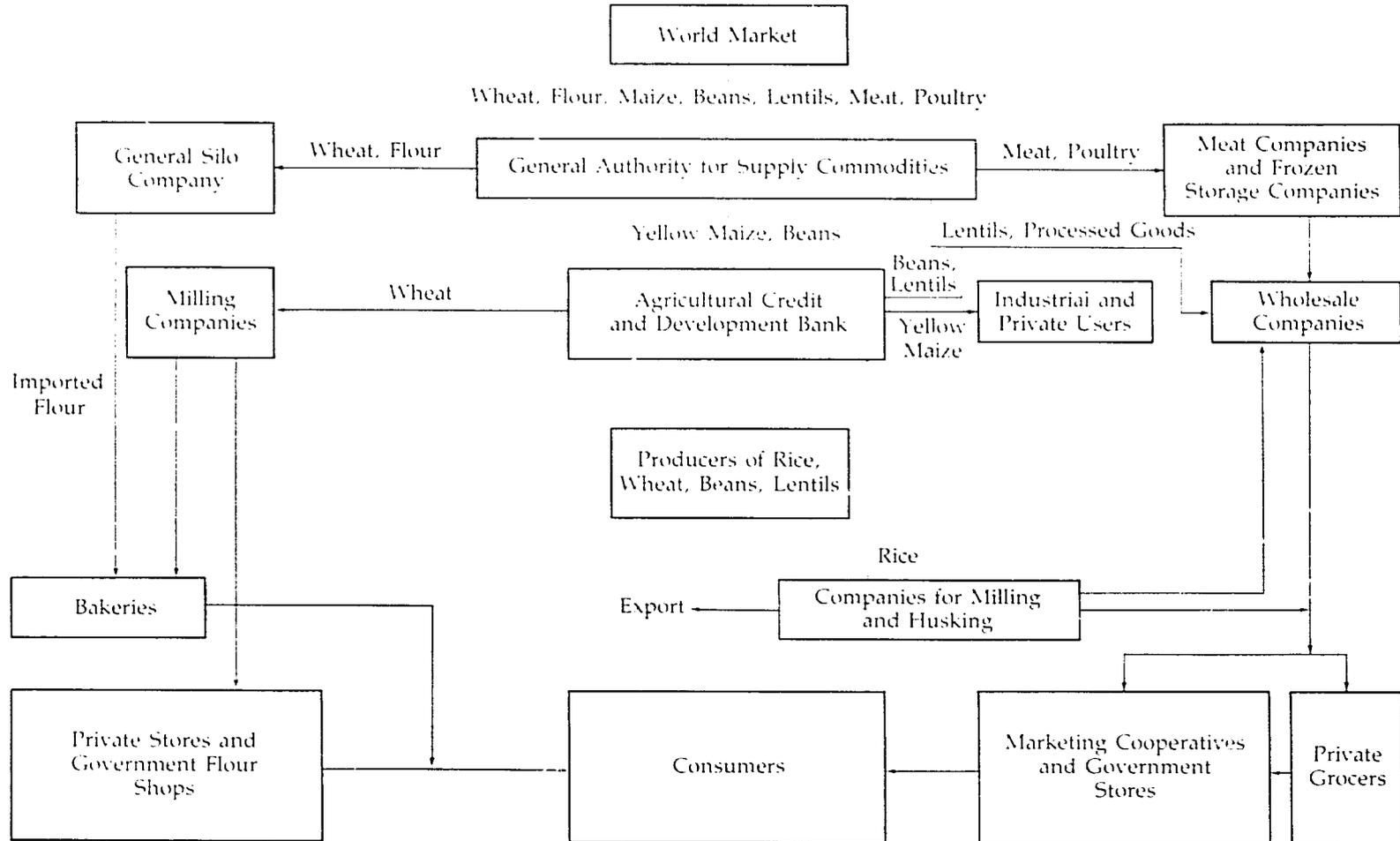
A holder of a ration book must register it with a grocer of his choice who records monthly purchases of rationed commodities in it. The grocers are required to pick up the monthly volume of rations from the wholesaler at fixed dates and to hold the ration of a registered household for the month.

Private grocers also sell non-subsidized consumer items, which are their primary source of income. They may also sell commodities at the regulated price, though many in Cairo and Giza report that there is little profit in doing so. For example, the regulated price of sugar is 30 piasters per kilogram and the grocer must pay 28 piasters a kilogram and bear transportation costs and handling losses as well. Grocers often consider the rationed goods they sell as loss leaders that ensure the regular patronage of customers who generally make other purchases when procuring their rations. The private groceries—called *tamween* (supply) shops—may make extra profits by providing unused rations to other consumers. However, this is risky as the grocers are policed by the Ministry of Supply. In addition, the information that the Ministry of Supply has on the volume of trade in supply commodities for each grocer reportedly serves as a basis for estimating tax obligations. Because of the policing, the taxation basis, and the low potential profits, grocers have little incentive to serve as *tamween* outlets. In a Cairo-Giza case study of food outlets conducted in April and May 1981, a few grocers reported that they had recently stopped supplying rationed commodities.

In this case study grocers, butchers, bakers, and peddlers were interviewed in four neighborhoods: Giza and Sayeda Zeinab (low income), North Maadi (middle income), and Heliopolis (high income). Repeated visits were made over a four-week period to observe lines and availability of goods. Twenty outlets for rationed or regulated food (grocers or cooperatives), 16 outlets

¹² Farmers who are members of cooperatives established for recipients of land in the 1962 land reform are still obligated to deliver a quota. The extent of this form of procurement could not be ascertained.

Figure 1—Marketing channels for subsidized commodities



for meat, 14 bakeries, and 9 peddlers were visited. No statistical properties are claimed for this case study.

As one would expect, *tamween* shops in the urban governorates have a greater volume of business per shop (see the Appendix, Table 20). This rural-urban pattern is also reflected within the governorates. For example, the Sharkia governorate had an average of 278 cards per shop in March 1981 compared to the average of 383 for its capital city, Zagazig.¹³ The number of *tamween* shops has increased 5 percent since 1979. In a few governorates the number has declined slightly.

Government Stores and Cooperatives

Most of the food sold at regulated prices is distributed through a network of consumer cooperatives and government-owned shops. Due to their urban locations and trademarks, the stores of Al-Ahram and El-Nil are the most visible of the three chains of government food stores. Though popularly referred to as cooperatives (*gamayya*), these stores and those under the Alexandria Company for Consumer Goods are public-sector companies that manage retail outlets. In addition, there are three types of true cooperatives with centralized coordination: governorate, neighborhood, and workplace.

Al-Ahram, for instance, receives a quota of commodities from the governorates in which it functions, mainly Cairo and Giza, but also the Canal governorates (Suez, Port-Said, and Ismailia) and Kalyubia, Red Sea, and Aswan. These goods are distributed by company trucks to the outlets in quantities based on the density of population and sales windows. In principle, purchases of sugar, lentils, rice, and beans are recorded in the consumer's book whereas purchases of meat are recorded only in the cooperative's register. There are no statutory limits on the quantities of staple commodities per consumer in Cairo. Meat and poultry are limited to 1 kilogram a month for a family of one or two members, 2 kilograms for a household of three or four, and 3 kilograms for larger families.

The central management of Al-Ahram also limits purchases of regulated sugar to 2 kilograms per visit, with the intention of curtailing resale to processors who should be obtaining sugar through private imports. Store managers are not authorized to impose sales restrictions, but that regulation is frequently waived.

The stores sell consumer items other than subsidized goods, such as imported cheeses, local and imported canned goods and juices, meat, chocolate, and fresh produce. These are sold at a cost-plus-profit margin of about 10 percent, though rigidity in resetting prices may lead to losses (de facto subsidies) during periods of rising prices. Prices of items sold at a profit are generally lower than those at private-sector stores because of economies of scale. Government regulations authorize a 6 percent margin for importers and 4 percent for wholesalers.¹⁴ Because Al-Ahram cooperatives can bypass the wholesaler, they can pass on some of this margin to consumers. In 1981 Al-Ahram made a profit, of which 75 percent was returned to the treasury. This is, in effect, a payment on the use of government capital. Of the remaining 25 percent of net profits, 10 percent goes to employees in the form of cash, 10 percent goes for housing, and 5 percent is spent on social schemes.

As with other forms of retailing, Al-Ahram seeks to expand sales, and individual managers are urged to exceed previous estimates of turnover. The company also seeks new low-rent outlets, including mobile units. It is not known how such policies affect sales of regulated subsidized commodities.

In most areas not covered by the three public-sector retail outlet chains, the main distribution channel is through cooperatives. Individuals obtain membership upon payment of dues of LE 1. Each member is entitled to one vote in the cooperative management and receives dividends according to his purchases. In practice, members are not usually active and there are seldom profits to distribute. The largest cooperatives are those established by the governorates. They have up to 10,000 members dispersed among

¹³ Supply manager, Sharkia, personal communication.

¹⁴ Egypt, Ministry of Supply and Home Trade, *Decree #119*, 1978.

a number of outlets. In the past, membership in such a cooperative has been linked to the issuing of ration cards, and, therefore, membership may exceed participation by a large percentage.

In any neighborhood individuals may join together to form a cooperative. Although there were more than 1,500 such units in 1979—and there are more today—a number of those registered are not active. To hold down the number of inactive cooperatives the government recently set a lower limit of 500 members for registration. Both governorate and neighborhood cooperatives serve as outlets for supply commodities at subsidized prices and receive goods from Ministry of Supply warehouses. Little, if any, profit is made on these sales. The cooperatives also sell a range of canned and packaged products that are procured through a common wholesale unit, which is separate from the channels used by the public-sector retail units. The cooperative union even has a unit for importation of nonsubsidized commodities that is distinct from the GASC. The wholesale union attempts to gain the benefits of economy of scale for its members. This is particularly important for the small neighborhood cooperatives. One need not be a member to purchase consumer goods from these stores.

Government employees and workers in factories may also belong to cooperatives at their workplaces. As of 1981, membership in such cooperatives was mandatory in places employing more than 200 workers. Members receive a red membership card in addition to their green ration book (see the Appendix, Table 20). The principal benefit is that regulations permit members to receive one more kilogram of meat and of poultry than a family of the same size would receive in other types of cooperatives. Butter oil at LE 1.45 per kilogram, which is scarce in the government stores, is supposedly available seasonally in these outlets. Commercial goods are also sold. Because of the inconvenience of transporting purchases to their homes, however, many workers restrict purchases from these cooperatives to subsidized goods or goods scarce outside the workplace.

Many workers with a red card do not have this fact stamped in their ration books, which would alert the cooperative that they have alternative sources of meat and sub-

sidized commodities. There also is no effective means of limiting purchases of meat by families in which more than one member is employed in a government office or large factory. Furthermore, the red cards do not record family size. Therefore, distribution of meat and poultry by household size is not enforceable.

Bakeries

Most subsidized wheat flour is sold to bakeries, which are regulated by the Ministry of Supply. Bakers pay LE 5.00 for a 100-kilogram sack of coarse flour (82 percent extraction) and either LE 6.95 or LE 7.07 for fine flour (72 percent extraction), depending on their final products.¹⁵ Bread weights, moisture content, and prices are fixed. Eleven types of bread are listed. The bakeries are generally privately run. A simple technology is used to make the bread; only the mixing of the dough is mechanized. A stone oven heated with kerosene is usually used for baking. Many of the bakeries specialize in producing just one of the three major types of bread, a moderately coarse loaf called *balady* or a whiter loaf called *shamy*. In addition to these flat breads a longer loaf resembling French bread called *fino* or *afrangi* is available (Table 6). Bakers are policed to ensure that their product is full weight and that they do not divert flour designated for *shamy* or *fino* to pastries, the flour for which should sell at 12 piasters per kilogram. Similarly, bakers are watched to prevent the sifting of 82 percent-extraction flour into the higher-priced 72 percent-extraction flour. Profits from such sifting would include sale of the bran for animal feed.

To gain a better picture of bread marketing, a number of bakers in the Cairo-Giza area were interviewed as part of the marketing case study described earlier. No bread was observed being sold at other than official prices. Indeed, few bakers received full price, as much of the bread was sold wholesale to other stores or to restaurants at reduced prices of 0.90–0.95 piasters per loaf. Peddlers receive a wage ranging from LE 1.25 for a 12-hour day for a young boy to LE 3.00 for an adult. Other sales are made directly from the bakery.

These local breads do not keep well, which accounts for some reports that bread

¹⁵ These prices include insurance at 0.295 piasters per bag.

Table 6—Major government bread specifications, July 1980

Type of Bread	Weight	Flour Extraction Rate	Consumer Price
	(grams)	(percent)	(L.E.)
Special balady	169	82.0	0.01
Shamy	122	72.0	0.01
Small shamy	50	72.0	0.005
Fino	125	72.0	0.01
Small fino	62	72.0	0.005
Large fino	375	72.0	0.03

Source: Susan Grier Buchanan, "Egypt: Government Consumption Planning Schemes for Wheat and Other Primary Foods" (M.S. thesis, Cornell University, 1981).

is fed to animals. Bakers sometimes have agreements with restaurants and other large customers to buy back old bread. In some cases they exchange new bread for old but, in general, repurchase is at half price. Old bread is sold to consumers, with 5.5 piasters a kilogram being the most commonly quoted price. Old bread may be consumed by humans or fed to poultry. Sales of this thrift bread, including damaged loaves, may make up as much as 10 percent of total sales in some shops.

Daily production of bread varies from as little as 400 loaves of *fino* bread in bakeries that concentrate on these more expensive specialty breads to 35,000 loaves of *balady* bread. The national average for bakeries is 10,000 loaves of *balady* bread per day. None of the bakeries observed baked both *fino* and *balady* breads. Bakeries with a daily volume of 20,000 loaves usually employ 22-28 workers.

It is obviously difficult for a brief case study to ascertain to what degree, if at all, bakers obtain extra profits by circumventing the regulations. A few bakers admitted that they sold excess flour at LE 6.50-8.00 for 100-kilogram sacks of 82 percent-extraction flour and charged LE 12.00 for the same amount of *fino* flour. These sales were often to other bakers, primarily those who produce *fateer* (a type of pastry), who were unable to get enough flour through government channels.

One baker claimed he produced 8,000 loaves of *balady* bread daily with flour purchased from his colleagues at LE 7.00 a bag. Although he was not authorized by the government, he was able to make a profit even at the higher flour price. During the month of the survey he increased his production, from 7,000 to 8,000 loaves a day whereas some smaller licensed bakers reported that their output was below capacity due to their difficulty in obtaining supplies.

The case study obtained information on wages, but the data on productivity is too sparse to estimate potential profits at current costs. Producers complain about having to deal with rising wages and shortages of workers when prices and volume of sales are fixed. Nevertheless, the number of registered bakeries increased from 3,011 *balady* bakeries and 1,462 others in 1977 to 3,411 *balady* bakeries, 1,317 *fino* bakeries, and 491 *shamy* bakeries in 1981. In 1962 the corresponding numbers were 2,000 *balady* and 986 other.¹⁶

The government's policy is to increase the capacity for mechanized production of bread, due in part to rising labor costs.¹⁷ In 1981 there were 24 mechanized *balady* lines compared to 15 a year earlier. In addition, there were 33 semiautomated bakeries for *fino* breads. Although the majority are in Cairo or Alexandria, mechanized bakeries are operating or under construction in various locations throughout Egypt.

¹⁶ Susan Grier Buchanan, "Egypt: Government Consumption Planning Schemes for Wheat and Other Primary Foods" (M.S. thesis, Cornell University, 1981). See also Egypt, Ministry of Supply and Home Trade, *Decree # 26*, 1980.

¹⁷ Black and Vetch International, *Master Plan for the Development of Egyptian Storage and Distribution System for Food Grains*, paper prepared for the government of the Arab Republic of Egypt, September 1978, discusses such plans as well as those for storage and milling capacity.

Search Costs

Consumers in Cairo are able to obtain bread from a number of outlets, including bakers, peddlers, restaurants, and retail stores. Time spent in lines is more moderate than for other supply commodities, which are available in fixed quotas and distributed to outlets in predetermined amounts. The official policy is to make regulated commodities available in Cairo upon demand. However, the opportunity costs of waiting in line and other search costs tend to moderate demand, thus relieving pressure on prices. In areas outside Cairo effective demand is reduced, in part, by official quotas on the purchase of regulated commodities. This is actually a ration at the higher price level.

The case study of the Cairo-Giza market gives some insight into restrictions on purchases at the regulated price. For example, during the survey period cooperative and private shops limited rice purchases to one bag (5 kilograms) per visit. One store that had sold rice on demand at one visit imposed a limit the following week. Despite such limits, rice was frequently unavailable. Although rice was generally in stock in private shops and cooperatives in the wealthier neighborhood of Heliopolis, it was never in the market in Giza, a low-income neighborhood, during the five-week interview period. However, the Giza visits were at midday and it is possible that supplies were delivered in the evenings and sold before noon the next day.

Stores had ample stocks of regulated cooking oil, except in Giza, where it was occasionally unavailable. Stores in Heliopolis imposed no restrictions, but elsewhere limits were usually either one bottle per visit (at 34 piasters) or 750 grams sold unpackaged. At the one workplace cooperative visited the limit was two bottles per customer. Sugar was generally available with limits on purchases ranging from 750 grams to 4 kilograms (Heliopolis). Limits on sugar varied according to household size and were not uniform within neighborhoods.

Although beans were sold in *tamween* shops, they were not available in cooperatives other than in Sayeda Zeinab. The neighborhoods of Sayeda and Maadi had lentils available at the regulated price of 35 piasters per kilogram, but in the other two neighborhoods lentils were only marketed at the ration price.

Fish was never limited. Given its low cost (32-90 piasters per kilogram depending on the variety), this may indicate a moderate local demand. Mutton was the frozen meat most widely available with purchases limited by regulation to 1-3 kilograms. Purchases, however, were not generally recorded in individual books. In one cooperative the limit dropped to 1 kilogram to any customer when supplies became scarce.

Restrictions on the purchase of beef resembled those on mutton, but beef was available less frequently. Liver was generally available in cooperatives at LE 1.25 per kilogram (LE 1.40 in Sayeda) and limited only in Giza. Various ground meats were also sold on demand.

Chicken, which was frequently unavailable, illustrates the irregularity of supplies. When it was available, restrictions ranged from the official 1-3 kilograms per card in most places to 3-5 kilograms in Heliopolis. In Sayeda chicken was sold in government stores and restricted only occasionally. It was not a rationed commodity but came from the Egyptian Company for Poultry at a higher price of LE 1.38 per kilogram.

Whenever poultry was available, it was reported to be possible to return to the line and receive another ration. Furthermore, peddlers frequently sold poultry and frozen meat at prices about 10-15 piasters higher than the official prices. These peddlers, usually boys, had generally obtained this meat earlier from the cooperative. They provided a customer service by making it possible for customers to avoid long waits in lines, which can range from 20 minutes to 5 hours. The lines were shorter when only mutton (not beef) was available. It must be assumed that the peddlers paid a commission to either the shopkeepers or middlemen and received a return on their labor. The markup, which appears moderate, may reflect ease of entry into the market or the availability of substitutes: for example, fresh chicken or meat. Most commonly, one could expect to wait about 90 minutes, but one could purchase a number of items at one time. Further, if one needed only an item in plentiful supply, it could be bought when other items were not in stock and lines were shorter. For example, lines for oil were only 10-20 minutes long when rice and sugar were not in stock.

Although resale of supply commodities was supposedly common, it did not seem to

be as common for other commodities as for poultry. Resales of tea and sugar observed during the study were by individuals who sold their ration quotas at slightly above the regulated price. Tea was resold at 20 piasters a packet and sugar at 35-40 piasters a kilogram. (The subsidized prices are given in Table 5.) The government tries to accommodate increased demand during festivals such as Ramadan. However, when increased demand for sugar in Sayeda Zeinab during a festival led to shortages in cooperatives, the resale price of sugar rose to 50 piasters and briefly to 60.

Resale of supply commodities in bulk provides a service for some consumers but diverts significant amounts of commodities from the cooperatives. Because most stores do not have surplus commodities, bulk sales may increase the periods of unavailability. This denies the consumer the option of choosing between a long wait with a low price and the higher street price. On the other hand, a consumer who sells a portion of his ration may prefer to use the few extra piasters to buy a more highly valued commodity. This is a classic equating of supply with demand within a ration environment. It is analogous to the enormous quantities of chocolate nonsmoking soldiers used to receive in exchange for their cigarette rations during World War II. Both reflect entrepreneurial response to opportunities created by irregular or restricted trade.

Diversion of supply or resale of rations does not reduce consumption. On the other hand, unavailability reduces consumption unless consumers can draw on supplies previously purchased.¹⁸ The existence of a market for commodities at prices higher than the regulated ones indicates that the inconvenience of waiting in lines or deferring consumption can be considered a cost that affects consumer demand in a way similar to higher prices. Such costs depend on the consumer's attitude toward waiting, as well as on such objective conditions as lost wage opportunities, the length of lines, and the probability of the nonavailability of goods. The effect of these costs on demand is greatest in areas where irregularity of

supply is greatest. Though flour may occasionally be unavailable in markets, the sale of bread by a large number of small outlets means that bread is substituted for rice and other food items beyond the level indicated by relative market prices. Similarly, other nonrestricted goods will be substituted according to the cross-price effects of basic consumer preferences.¹⁹

One further channel for subsidized commodities is open to urban consumers. Prices for such prepared foods as beans and *koshari* (a dish made of rice, macaroni, and lentils) are limited by regulations and can be kept low because the input prices are subsidized. Peddlers and small restaurants can usually obtain oil at 30 piasters per kilogram from the government, as well as lentils at 35 piasters, beans at 10-15 piasters, and rice at 5 piasters per kilogram. These peddlers become major purchasers of supply commodities on the open market because not all are registered and because authorized quantities of inputs seem to be insufficient even for small merchants. For example, *fateer* merchants interviewed claimed that their oil, sugar, and flour were from open market sources, the latter representing flour resilted from 82 percent-extraction flour. Open market prices were reported to be one third higher than the regulated prices. Similarly, a number of *koshari* merchants purchased rice and more than half the lentils they required at prices up to twice the official ones.

Other Market Channels

Other marketing channels will become more important if proposed changes are made in the distribution of rationed and subsidized commodities. In Egypt, as in many countries, middlemen frequently are blamed for rising prices; unlike many other countries, however, in Egypt wholesaling is not dominated by minority groups who are a target for resentment arising from racial, religious, or national prejudices. In keeping

¹⁸ Under these circumstances, consumers would probably increase the desired level of household stocks and the amount purchased at each visit to the store.

¹⁹ For a theoretical discussion of some aspects of consumption with rationing, see J. P. Neary and E. W. S. Roberts, "The Theory of Household Behavior Under Rationing," *European Economic Review* 13 (January 1980): 25-42.

with the view that middlemen take excessive profits—the validity of which this report cannot ascertain—the government has passed a number of laws that restrict and regulate trade in general, and food trade in particular.

Grain trade is largely in government hands. All rice exports are handled by the government and the flow of grains and pulses into urban areas is largely through the Ministry of Supply. Bulk transport of such staples by private traders is restricted by law. Consequently, trade in domestically produced grain and beans occurs either through government channels or in small village markets. Appendix Table 21 presents farm prices of main crops in different governorates. Although the averages mask seasonal patterns and local variation, they reveal a fair degree of price variation between governorates. The reported farmgate prices exceeded the government quota or procurement prices. In 1980 these support prices were LE 75 per ton of paddy, LE 73 per ton of wheat, LE 250 per ton of lentils, and LE 161 per ton of beans. The higher prices result from local demand by nonproducing households or from farmers whose retained production is less than household requirements. These farmgate prices—used here as proxies for village consumer prices—sometimes exceed prices at which commodities can be purchased through government channels.

The incentive for farmers to sell their wheat and buy subsidized flour is moderated by such factors as preference for local varieties, cultural values that act against market purchases by a producer, risk aversion, and imperfect market channels. Similar influences likely affect trade in rice and pulses. Nevertheless, the potential for an increased flow of food items from cities to farms makes greater understanding of rural markets important.

One consequence of the rural sector's reliance on markets different from those of the urban sector is that the rural sector has a higher rate of inflation for food than the cities. A continuation of this trend would probably moderate but not necessarily cancel out the increase in rural wages and product prices of recent years.²⁰

Prices are increasing not only in rural grain markets but also for a number of food items in cities and villages. The urban price index for meat rose from 371.0 in September 1979 to 539.3 a year later, whereas the fruit index jumped from 364.3 to 483.9, leading that year's food price increases. To moderate such inflationary pressures each governorate is allowed to set price ceilings for produce sold within its jurisdiction. This does not, of course, prevent higher back-room prices when demand increases during festivals or in off-seasons when supplies are short. Some price increases were observed following the announcement of wage increases in May 1981 but it is not possible to determine whether these resulted from inflationary pressures or profit taking. One attempt to reduce such price rises was the establishment of retail outlets under the Company for Food Security. These shops market privately traded goods, including poultry and produce, at low profit margins. This resembles the high volume, low markup trade of nonsubsidized goods by cooperatives.

Profit margins are established by law and restrict the markup a merchant can legally add to his purchase price. If, however, a supplier manages to obtain an additional percentage point from a retail unit, the final seller will lose that part of his margin if price ceilings are enforced.

Such restrictions have not driven private grocers from operation, but may have influenced their stock. Private grocers are exempt from recent government limits on shop hours and provide customer services not available at cooperatives. These stores frequently concentrate on imported goods, leaving domestically produced items to cooperatives.

Trade in fresh meat is heavily regulated. It can be sold only on Thursday through Saturday. Price ceilings ranging from 230-250 piasters per kilogram, depending on the type of meat, are enforced by special government investigators. Butchers surveyed in the greater Cairo area indicated that it was not difficult to exceed this limit by 10-20 piasters. Sales of better quality meat could easily be conducted over the phone at 300-

²⁰ For two different views on agricultural wages, see James Eitch and Sonia My, "Agricultural Wages in Egypt: Some Recent Findings and Implications for Future Data Needs," Institute of Agricultural Economic Research memorandum, Cairo, 1980, and Sami Radwan and Eddy Lee, "The Anatomy of Rural Poverty, Egypt 1977," World Employment Programme, International Labour Organisation, Geneva, 1980. (Mimeographed.)

325 piasters a kilogram. In general, however, prices hovered around the limits. Producers claim that the cost of producing mutton exceeds the ceiling price. The meat was not available in Giza in butcher shops, though it could be purchased at about 310 piasters a kilogram on the street. Mutton was occasionally available in Cairo. At times butchers limited the size of purchases. This type of rationing was also observed for camel meat and processed foods, including tomato paste. It is widely claimed that butchers add fat and inedible matter to meat sold at ceiling prices, but this was not observed.

Principal Commodities Subsidized

Wheat

Wheat is the largest commodity in the subsidy system in both volume and fiscal outlay. Recognizing that quantity restrictions are politically unacceptable, government policy allows unlimited purchases of flour or bread at a fixed price. In effect, this policy requires the government to make available an infinitely elastic supply of wheat and flour. Under such circumstances growth of total demand for wheat products would be expected to reflect rising incomes and the falling real price of wheat relative to other goods.

Consumption of wheat products in flour equivalents grew at an annual rate of 6 percent between 1972 and 1980 (Table 7 and the Appendix, Table 22). Twenty percent of the urban population spent more than 10 percent of their budgets on wheat or bread in 1975.²¹ Since domestic production has stagnated, growth in demand has resulted in increased imports. All 72 percent-extraction flour was imported. Three fourths of the wheat consumed in 1980 was imported compared with 55 percent in 1972. In Figure 2 annual percentage changes in wheat consumption are used to illustrate the growth of

Table 7—Percentage change in consumption and prices of wheat, 1970-80

Year	Flour Equivalent (1,000 metric tons)	Change	Change in Real Prices to Consumers (percent)
1970	3,645	...	...
1971	3,823	4.9	-2
1972	3,976	4.0	-3
1973	4,170	4.9	-1
1974	4,234	1.5	-10
1975	4,577	8.1	-15
1976	4,878	6.6	-6
1977	5,289	8.4	-9
1978	5,763	8.9	-26
1979	5,955	3.3	-9
1980	6,329	6.2	n.a.

Sources: Calculated from unpublished data from the Egyptian Ministry of Supply and Home Trade and the U.S. Wheat Association in Cairo (see Appendix 1, Tables 24 and 25). The prices used are from Grant M. Scobie, *Government Policy and Food Imports: The Case of Wheat in Egypt*, Research Report 29 (Washington, D.C.: International Food Policy Research Institute, 1981).

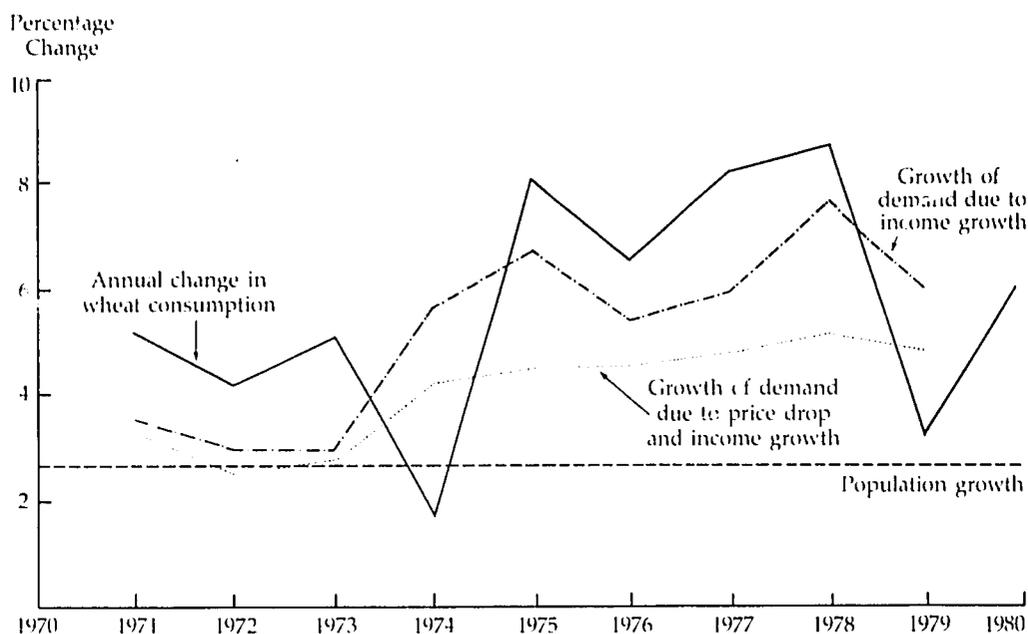
Notes: Flour equivalents are the edible portion of wheat based on the milling rates of the year. As the milling rates of village mills and the percentage of domestic production consumed as cracked wheat or other unmilled products were not available, an average extraction rate for domestic production of 90 percent was assumed. Where n.a. appears, the figure was not available.

domestic demand. In all years since 1971, except 1974, growth in wheat consumption exceeded population growth, which is assumed to be 2.5 percent. If an income elasticity of 0.3 is assumed, growth of wheat consumption exceeded that predicted by per capita GDP growth in all years except 1974 and 1979.²² This was partly due to the low cost of bread. A price elasticity of -0.15 explains quite well the annual fluctuations in demand. There is no compelling reason to assume that taste patterns were shifting.

²¹ Central Agency for Public Mobilization and Statistics (CAPMAS), *Family Budget Survey by Sample in the Arab Republic of Egypt, 1974-75* (Cairo: CAPMAS, 1978).

²² Shalaby presents a bewildering array of calculations of income elasticities for wheat (Shalaby, "Report on Wheat Consumption"). The figure used here is consistent with estimates in Karima Korayem, "The Impact of the Elimination of Food Subsidy on the Cost of Living of the Urban Population in Egypt," a paper presented to the International Labour Organisation, Income Distribution and International Employment Policies Branch, Geneva, May 1980; and W. Tams, "A Basic Needs Strategy for Egypt," Amsterdam 1978. (Mimeographed.)

Figure 2—Annual percentage changes in wheat consumption, 1971–80



Source: Table 7 in text.

However, the availability of prepared bread may have shifted the final form of wheat consumption.

The drop in per capita wheat consumption in 1974, a year of marked increase in imports and reported inventories, and the drop in the rate of growth in 1979 is puzzling. It is unlikely that demand leveled off, because it accelerated the following year. Data on physical infrastructure and breaks in supply channels, if available, might supply an explanation.

The Ministry of Supply bases annual import requirements on the previous year's consumption adjusted by trend growth of the past five years. Imports are planned to fill the gap between consumption and production; an approximate rule of thumb used in the GASC is a 5 percent growth of imports. The GASC is seeking to diversify sources of imports and to establish long-term contracts in lieu of tenders. For example, in addition to P.L. 480 loans from the United States—1.1 million tons in 1980—principal suppliers are France (flour and wheat) and Australia. Australia supplies grain under a five-year

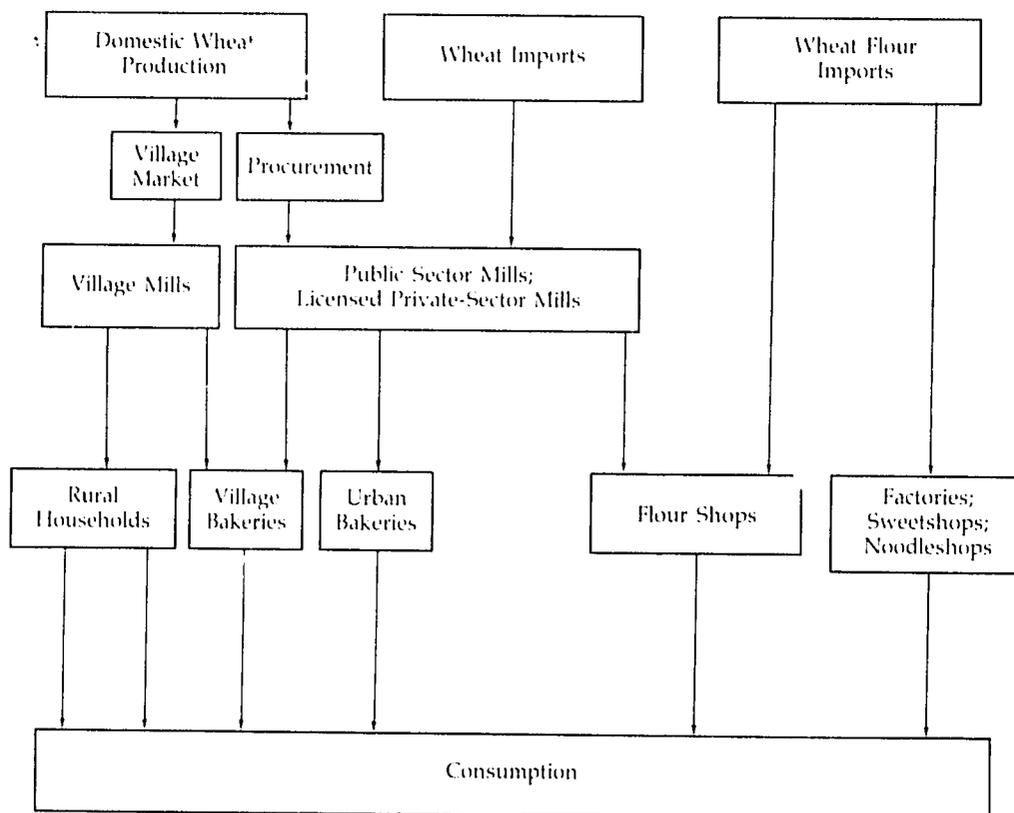
minimum purchase guarantee with no pre-determined price.

Storage is under the jurisdiction of the public General Silo Company and eight public milling companies. Each governorate attempts to have a 10-week supply of wheat and low-extraction flour, though *balady* flour is not stored for more than a week. Daily milling capacity for the public mills was 11,600 million tons in 1981: a 45 percent increase over that of 1978.²³ In addition, private-sector mills with a total daily capacity of 1,643 million tons are licensed to mill and distribute flour on behalf of the Ministry of Supply. A number of private mills in villages process domestic production for local use, but these are outside Ministry of Supply channels (Figure 3).

Approximately 60 percent of the wheat and flour imported is used for commercial bread making. Most of the remaining wheat is sold as flour through government channels. The 111 registered factories for pasta use about 25 percent of the flour (300 000 tons in 1981). The remainder is sold to individual consumers or used for other baked goods.

²³ Shalaby, "Report on Wheat Consumption."

Figure 3—Provision and distribution of wheat and wheat flour



Note: Public sector mills mill at an 82 percent extraction rate, most wheat flour imported is 72 percent-extraction flour.

Maize

Maize is second largest in volume of the subsidized commodities. Imports of yellow maize reached 473,000 tons in 1979, a drop from the previous four years, but jumped to 940,000 tons in 1980 and were projected to be 1.2 million tons in 1981. The 1980 purchase price was about LE 160 (c.i.f., Alexandria), which indicates a subsidy of more than LE 100 per ton. Though imported by the GASC, maize is distributed through the PBDAC. Maize imports are mainly inputs into food production, which accounts for the nature of their distribution.

Domestically produced maize is outside the jurisdiction of the Ministry of Supply.

Data on subsidized maize are sometimes recorded as human consumption, but there is little evidence that yellow maize is used in this manner. Maize recorded as human consumption generally refers to individual quotas procured by farmers from agricultural cooperatives. These accounted for 23 percent of maize deliveries in the first quarter of 1981. Like quotas for supply commodities, individual quotas vary according to locale, reportedly 10 kilograms a month in Upper Egypt and 5 kilograms in Lower Egypt.²⁴

Nineteen percent of the maize used in the first quarter of 1981 went to private poultry breeders and an equal percentage to public-sector poultry. The remainder was fed to cattle destined for slaughter or went

²⁴ Principal Bank for Development and Agricultural Credit, personal communication, June 1981.

to breeding flocks. Most of the maize distributed by governorates goes to a few Lower Egyptian districts with large poultry farms. Sharkia uses more than 36 percent of the total and Ismailia, 10 percent.

Commercial cattle feed is about 17 percent maize. The rest is cottonseed cake, wheat bran, rice bran, molasses, limestone, and salt. The mix differs for slaughter and dairy animals. Current regulations require only one head of insured cattle to qualify for a ration for fattening. The recipient gets a monthly quota of 140 kilograms of feed per head for cattle or 150 kilograms for buffalo.²⁵ After six months these animals are delivered to the government for slaughter. Dairy cattle quotas vary in different parts of the country. Some depend on the delivery of milk: 1 kilogram of feed to 1 kilogram of milk with a maximum of 5 kilograms daily in the summer and half that in the winter. In other areas the quota may vary between 60 and 90 kilograms a month depending on the season. In one Sharkia cooperative the quota is reportedly only 20 kilograms.

Yellow maize sells at 6 piasters a kilogram to cooperative members, less than half the open market price for white maize. Assuming that consumers strongly prefer white maize, the price difference has little direct effect on welfare. However, open market sales may be expected to lower maize prices. Roughly half of domestic production of maize goes to animal feed.²⁶ No yellow maize is produced locally. Imports would reduce the demand for domestic maize for this use, moderating upward pressures on prices. Imports might similarly affect sorghum. This potential effect would be due to the availability of imports and not to the degree of subsidy.

The subsidy may have a minor effect on meat prices. One study of two villages indicates that maize and government feed rations together supply only 10-15 percent of total cattle nutrients in the summer months when there is no *berseem* (Egyptian

clover) and 0-2 percent in the winter.²⁷ If these studies are typical, the effect of a maize subsidy on meat prices would be moderate. The effect would be even smaller if maize (or feed) is resold on the open market or if reduced cost is captured in increased profits rather than in reduced prices.

Maize makes up a higher percentage of the costs of poultry production than of meat output. Hence, the maize subsidy has greater potential as an indirect subsidy to consumers of poultry. Again, the distribution of benefits depends on marketing channels.

Rice

A little less than half the domestic rice production is marketed through Ministry of Supply channels, either domestically or abroad (see Figure 4 and the Appendix, Table 23). The remainder is retained for home consumption or local trade. Village rice consumption declined during the 1970s while the quantity marketed domestically through the Ministry of Supply increased at an average rate of 8 percent a year after 1972. Most of this increase came at the expense of exports, which are expected to disappear within the next year or two. Most of the increase in domestic marketings occurred in urban areas and Upper Egypt. Some of the rice marketed by the Ministry of Supply, however, is returned to the producing village through ration quotas and purchases at regulated prices.

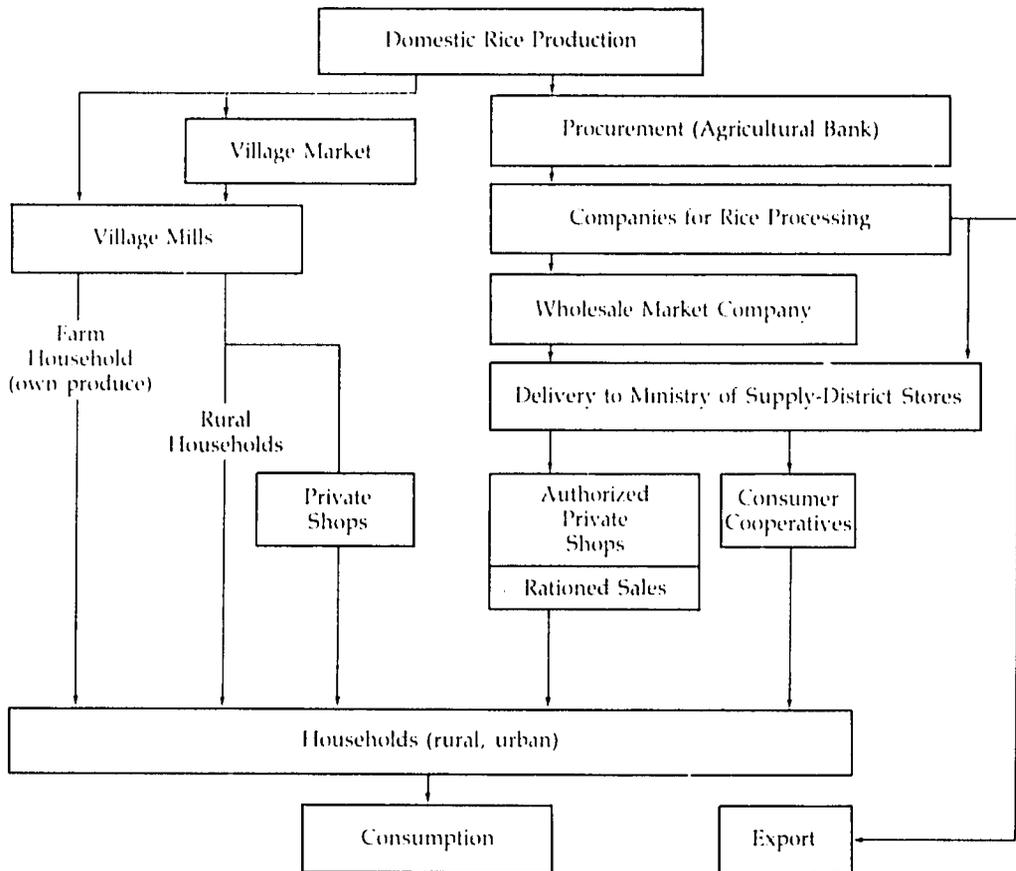
Total domestic rice consumption declined in per capita terms during the decade. As rice is not viewed as an inferior good, the explanation for this trend probably is to be found in patterns of open market (rural) prices and in the quantity restrictions of Ministry of Supply distribution. The Ministry of Supply obtains paddy through the agricultural credit banks, which act as receiving agents for the delivery quotas imposed on

²⁵ Egypt, Ministry of Agriculture, *Decision # 487*, October 11, 1980.

²⁶ This is calculated by taking consumption of maize and maize flour reported in the 1974-75 household budget survey (48 kilograms rural, 7 kilograms urban) and ignoring the downward trend over the last few years. This gives approximately 1.5 million tons for human consumption out of a production of 3.2 million tons.

²⁷ Winrock International, "Potential for On-Farm Feed Production and Utilization by the Egyptian Small Farm Sector," paper prepared for the Catholic Relief Service and the U.S. Agency for International Development, Cairo, June 1980. (Mimeographed.)

Figure 4—Provision and distribution of rice



rice producers. These quotas vary regionally according to productivity per feddan.²⁸

During harvest, when the Ministry of Supply is procuring rice, private trade and milling are prohibited. However, farmers frequently report making small sales during this period of trade prohibition.

Eight regional milling companies husk the rice and perform some of the marketing functions, although another company handles bulk sales. An Export Committee determines exports by calculating production minus the quantity to be used domestically. Thus, rice exports may be viewed as a residual, rather than as a response to prices.

Rice subsidies reflect an opportunity

cost loss rather than a fiscal outlay. With a milling rate of 65 percent, the 1981 quota price was equal to 13 piasters a kilogram. This is between the subsidy price and the regulated price, but far below the export price of about U.S. \$425 a ton for Egyptian rice in 1981. Leaving aside the issue of disincentives to farmers, the low price may be an obstacle to recognizing the costs to the economy of reducing potential export opportunities.

The small amount of rice that is imported is mostly used for processed specialty products. Some has been imported on concessional terms in the past.

²⁸ A feddan equals 1.038 acres.

Beans and Lentils

Both lentils and beans are procured domestically by means of quotas. The lentil quota is fixed at 320 kilograms per feddan and beans vary by producing regions. Both are imported (see the Appendix, Table 24). Per capita consumption of both has declined in the last decade. Given falling real prices, this indicates either negative income elasticities or that the ration system has checked growth of demand. The latter is more likely.²⁹ The rations are small with lentils discontinued in the summer. The volume of trade at regulated prices differs by district as do reported prices, which range from 15-35 piasters per kilogram for beans and 35-50 piasters for lentils. If, as is assumed, demand growth is limited by quotas, one would expect open market trade to exert upward pressure on prices. Procurement prices offered to farmers for lentils in 1981 were 2.4 times higher than those in 1977, whereas bean prices rose 2.3 times. Nevertheless, the procurement prices lag behind prices farmers may receive elsewhere, reflecting a demand at prices above regulated levels.

Despite price increases, production has been declining due to waterlogging and salinity, and imports have increased. The fiscal outlay for imports is still moderate, but there is concern that import requirements may exert strong upward pressures on world prices. Egyptian imports of fava beans in 1980 accounted for about half of the world trade, and lentils came from such nontraditional exporters as Nepal.

Cooking Oil and Sugar

Through quotas and various tiers of prices, the Ministry of Supply can moderate the growth in demand for oil, which has grown at an average annual rate of 6.5 percent since 1972. This average rate of growth, however, fails to indicate the erratic nature of the annual change in consumption during the decade.

Total consumption declined in 1973 and 1976, but grew in 1972, 1974, 1977, and 1978 at more than 11 percent per year. Such swings probably do not reflect income changes or official prices in the cooperatives. More likely, they indicate erratic sup-

plies and the kinds of demand modifiers discussed earlier. Recognizing that the government may be forced to make changes in imports due to world market conditions, instruments are needed to translate changes of supplies into changes in consumer demand. The government can use prices, quotas, or waiting lines to equate supply and demand. Data are not currently available that would allow modeling of the use of these instruments.

Cooking oil is both domestically produced and imported (see the Appendix, Table 25), though domestic production is distributed through the public sector. Ninety percent of domestic oil production is from cottonseed obtained through the cotton procurement monopoly. The remaining 10 percent is largely from soybeans. Imports are mostly of semirefined cottonseed oil or crude sunflower oil, which are refined locally. A small amount of refined soybean oil is imported in drums. At present, imports of oil by the GASC are not on concessional terms.

A portion of the oil is shipped in bulk to industrial users for food processing and manufacturing of margarine. Approximately 40 percent of oil is used in industry and another 20 percent goes to restaurants and public shops. The remainder goes to consumers, either as rations or on the regulated market. In addition, vegetable oil, olive oil, and maize oil are imported by private merchants, as well as cooperatives, and sold at open market prices reflecting the world market. In 1981 maize oil sold at LE0.55 per kilogram in cooperatives and up to twice that price privately.

Like oil, sugar is both produced locally and imported. Production has remained stagnant; therefore, imports have increased rapidly to meet the 7.1 percent annual growth of consumption since 1972. As with oil, the pace of growth in consumption has been uneven, with declines in 1974 and again in 1979, followed by large increases in 1980. These two years were periods when the world price climbed rapidly (the London price of sugar quadrupled in an 18 month period beginning in January 1979). Nevertheless, domestic prices failed to reflect the world market price. A full explanation of how local consumption was made to conform with aggregate supply is lacking.

²⁹ Korayem estimated positive income elasticities for both foods for urban areas. The rural rounds of the 1974-75 survey show no obvious patterns at first glance (Korayem, "Elimination of Food Subsidy").

Domestic manufacturers are legally entitled to import sugar, but they stopped doing so after mid-1979 due to rising world prices. They apparently have the option to purchase from the Ministry of Supply at 40 piasters per kilogram, which in effect places a ceiling on an input price. This is a fairly unique form of subsidy and may account for some of the changes in consumption.

Meat, Poultry, and Fish

Frozen meat has become a major item in the ration system in recent years. In 1978, a low point in the beef price cycle in international trade, frozen beef was priced at \$850 a ton. In 1980-81 the world price ranged between U.S. \$1,500 and U.S. \$2,300 depending on the cut of meat. Nevertheless, imports rose sharply from 5,000 tons in 1974 to 83,000 tons in 1980 and were projected to be 120,000 tons in 1981.

Growth in imports reflects an opinion widely held in Egypt that high levels of consumption of animal protein are important for good health. In addition, meat prices are considered the most visible barometer of prices influencing public expectations about inflation and wages. Dairy and meat products have a weight of 13 percent in the urban consumer price index. To protect the price ceilings on fresh meat the government has increased availability, mainly through the workplace cooperatives, and has increased imports of cattle through the Ministry of Agriculture. These imports for 1981-82 were projected at 150,000 head.³⁰ The government makes special efforts to increase availability of meat during Ramadan and festivals.

The Ministry of Supply handles only frozen meat, imported through the GASC. The meat is distributed by two companies in Alexandria to the cooperatives and wholesale companies. Most meat is imported through tenders, although the GASC has a long-term contract with Argentina for

32,000 tons of beef annually.

The rise in poultry imports has paralleled that of meat. Imports rose from 5,600 tons in 1978 to 38,400 in 1980 and were expected to be 85,000 tons in 1981. Although Brazilian chickens are more suited to local methods of preparation than American broilers, imports are by tenders and are determined by a price criterion. American chicken could be imported at U.S. \$1,400 a ton and Brazilian chicken at U.S. \$1,475 in 1981. Poultry imports go through the same market channels as meat and are sold to consumers at 105 piasters per kilogram in the cooperatives. At the 1981 exchange rate for government food purchases (i.e. U.S. \$1.43), the official price was above the world market price. The subsidy on chicken mainly represents transportation and handling costs. Domestically produced chicken sells at prices 30 percent higher.

Importers in the private sector may import meat and poultry, but few choose to do so. They are permitted a total markup of 30 percent above import costs, which are distributed among importers, wholesalers, and retailers. This margin may be insufficient to offset the risk of perishability; moreover, it is calculated at the official exchange rate, whereas importers obtain most of their foreign exchange on the open market.

Freezer capacity is still a major constraint to distribution of frozen meat, particularly outside Cairo and Alexandria. Many workplaces do not have freezers and must sell the product on the day of delivery. A delivery made after 2 p.m. may thaw before distribution.

Fish is also imported by the GASC. Imports of 63,000 tons were planned for the second half of 1981. Prices start at U.S. \$500 a ton for horse mackerel and sardines. Those purchased are sold at the subsidized price of 30 piasters a kilogram. In addition, the public Egyptian Fish Company imports fish for sale in cooperatives at nonsubsidized prices. Local Aswan fish is also sold by cooperatives.

³⁰ Not all of these cattle will be slaughtered for meat. Ministry of Agriculture officials state that up to half will be imported for breeding purposes. *Egyptian Gazette*, June 17, 1981.

5

FOOD POLICY DECISIONMAKING

There are two main types of decision-making within government: first, policy formation and the setting of priorities and, second, managerial decisions concerning routine government operations. Policy decisions usually are made in response to changing needs or pressure from support groups. Managerial decisions, on the other hand, usually involve legally defined areas of responsibility and accountability, are at least partly governed by precedents, and have a defined calendar of action.

Operation of Egypt's food subsidy system involves both types of decisionmaking. Annual planning generally follows precedents, and responsibilities have been established by past legislation. However, the subsidy system is an integral component of national economic policy and decisions concerning its management are of interest to many of the ministries and Parliament. A simplified illustration of this process is presented here.

Central Government Responsibilities

By law, the primary responsibility for management of food supplies falls to the Ministry of Supply. The ministry prepares an annual needs plan for approval by Parliament each July. It covers a 14-month period for main food commodities and is primarily based on extrapolations of consumption in the second half of the previous year. The Ministry of Supply utilizes information provided by each governorate, as illustrated in Figure 5.

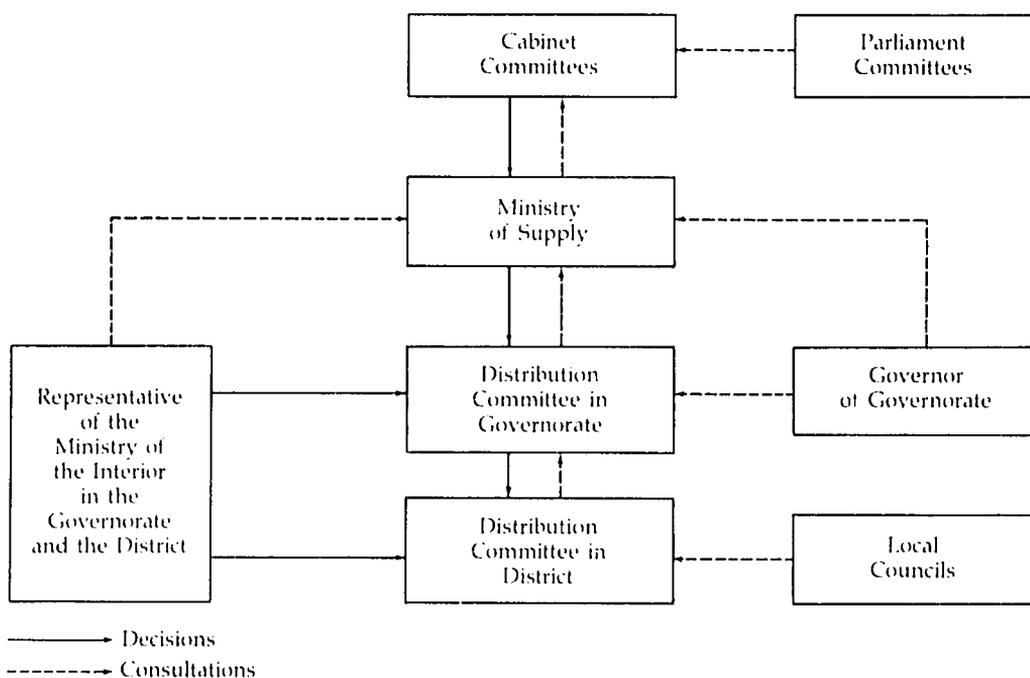
The needs plan is central to the calculation of the import requirements, which are basically needs minus domestic production and, at least in the short run, are not price sensitive. Whereas the Ministry of Supply disregards the relatively small amounts of wheat obtained by the floor price operations of the Agricultural Credit Bank, needs play a dominant role in determining the total quota for paddy and pulses. The Ministry of Agri-

culture is also consulted in determining total quotas and is largely responsible for distributing them among the governorates. The Ministries of Supply and Agriculture also interact in the allocation of area planted.

Although these two ministries are largely responsible for calculating quantities, they play only advisory roles on prices. For example, the interministerial Committee on Agricultural Pricing includes representatives from the Ministries of Agriculture, Supply, Economy, and Industry. The members make recommendations based, for example, on the incentive effects of producer prices and rural earnings, the estimated fiscal outlay for procurement, and the effect on manufactured goods. Similar discussions occur in the Committee on Consumer Prices. The final decision on both consumer and producer prices remains with the full cabinet. Ratification by the legislature, the People's Assembly, is no longer necessary. The partial separation of responsibility for prices and quantities makes price responsiveness difficult in the short term, although the inclusion of the cabinet in all major decisionmaking allows for long-term responsiveness.

The Ministry of Supply plans an annual budget based on import quantities and the prices on GASC contracts for the previous six months. The Ministry of Finance must then approve the subsidy allocation in total and the Ministry of Economy must authorize the foreign exchange component. There is only limited scope for revision of the subsidy request, which receives final approval when the rest of the budget is submitted to the assembly. If prices change during the year—requiring a change in the subsidy on an individual item—or if assumptions on the demand for wheat or other commodities need revision, the GASC as agent for the Ministry of Supply can make minor adjustments by reallocating the budget. The GASC can also accommodate short-term fluctuations in prices by minor adjustments of inventories. Major price adjustment requires increased financing by the Ministry of Economy, usually by deficit financing without an additional parliamentary discussion. This

Figure 5—Flows of decision and consultation in constructing the needs plan



procedure allows new items to be added to the list of subsidized commodities for short-term price stabilization.

The Ministry of Supply has a large role in the determination of quotas and distribution but must coordinate distribution of maize with the Agricultural Credit Bank and the Ministry of Industry. The Ministry of Supply also works with the Ministry of Agriculture in setting prices on fruits and vegetables, one of the few price categories that does not directly involve the cabinet. Coordination with the Ministry of Interior is necessary to control and distribute ration cards. Eligibility for these cards is determined by the cabinet and assembly.

Trade decisions are largely undertaken by the GASC in coordination with the Ministry of Supply and, as foreign exchange is included, with the Ministry of Economy. Trade partners are largely selected on cost criteria, although some effort is made to diversify sources. Long-term contracts are negotiated by either the Ministry of Supply or the Ministry of Economy. Some trade is

by barter with Eastern Bloc countries. Rice exports are determined in a manner similar to calculation of import needs; a rice exporting committee, which includes representatives of the Ministries of Supply and Economy, determines destinations. Because exports of rice are determined by the difference between production and domestic requirements, they are not likely to be responsive to the world price. Exports of other foods, largely vegetables and fruits, involve both the Ministry of Agriculture and the Ministry of Supply. The Ministry of Supply may introduce export bans or limits to control domestic prices of such foods. Again, exports are determined largely as a residual from production and domestic demand.

Another category of decisions concerns the allocation and distribution of aggregate food supplies. The Ministry of Supply determines the quantities to be distributed to each governorate and the quotas for consumers. It also registers and polices the consumer outlets.

The Deputy Prime Minister for Economic

and Financial Affairs, who oversees the Ministries of Economy, Finance, and Planning, holds the principal responsibility for long-run economic policy planning. The Ministries of Supply, Interior, and, to a lesser degree, Agriculture and Popular Development also influence food policy. There are separate interministerial committees for each major commodity. Agricultural policy is also affected by the Committee on Cotton, on which the Ministries of Industry and Economy play significant roles.

In addition to the annual needs plan, the Ministry of Supply prepares a five-year plan for use in planning food security.

Only some of the agencies within the Ministry of Supply are directly involved with subsidized food items. The ministry also handles nonfood items such as cloth, soap, and some other manufactured goods. The organizational structure of the Ministry of Supply is diagrammed in Figure 6.

The GASC, shown in the upper right-hand of the diagram, is a semiautonomous agency. It was empowered by a 1968 decree to import in behalf of the Ministry of Supply. Most of the annual subsidy costs are included in this agency's operating budget because it delivers imported commodities at the domestic (subsidized) prices determined by the government. The companies that receive these items are shown in the lower right-hand corner of the diagram. The PBDAC also receives subsidized commodities from the GASC and provides some food items to companies under the Ministry of Supply. This bank is affiliated with the Ministry of Agriculture though it is not directly under the minister's jurisdiction. The chairman of the board of the bank has the rank of deputy minister.

The 42 companies under the technical security section of the Ministry of Supply are divided into four groups. The nutritional commodities group includes the public-sector wholesale companies, the 3 public-sector retail companies popularly referred to as cooperatives, and the 6 companies for storage and refrigeration. The mills and bakeries group includes the General Silo Company and 8 companies for milling.⁵¹ These companies, along with another in Cairo, operate bakeries and noodle factories. The husking group includes 8 milling com-

panies for the storage and polishing of paddy rice and another for marketing, although other companies may sell directly to wholesale companies. These companies are regionally based and receive their supply of paddy according to decisions made by the central administration. They may receive paddy from neighboring governorates. The fourth group of companies, that of consumed commodities, is concerned with products such as clothing, shoes, paint, and other nonfood items.

The two ration provinces sections are concerned with distribution of the goods handled by the companies in the technical section. The division of the provinces into two sections is somewhat artificial. One contains Cairo, Alexandria, Giza, and the three largest Delta governorates. The other administers the remaining governorates.

Nearly 16,000 workers are employed in the distribution section of the ministry alone. When one considers that the physical handling and trade of the supply commodities is undertaken by the companies in the technical section, one gets an idea of the size of the administrative structure required to operate the subsidy system.

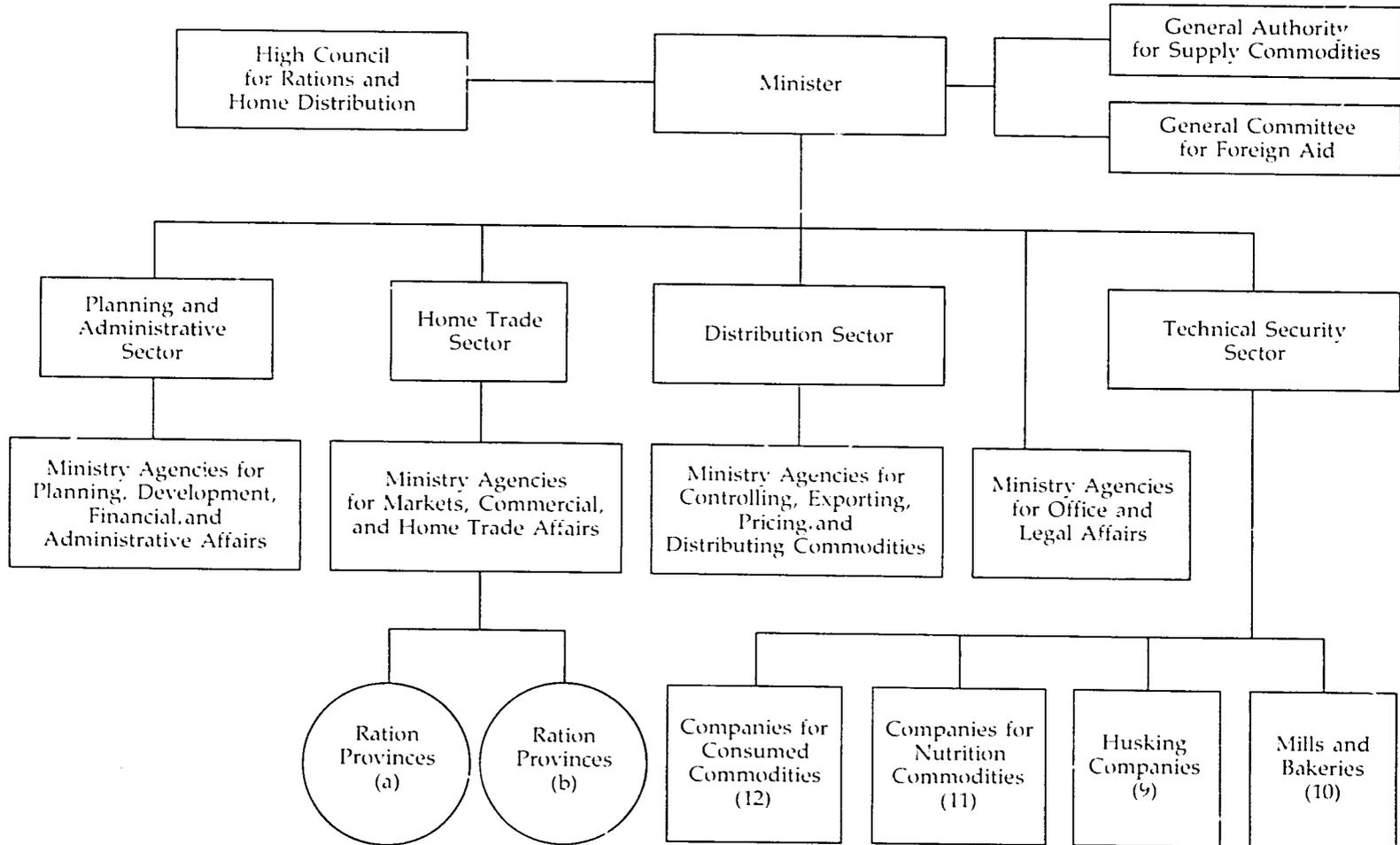
Within the ministry special committees discuss issues and make recommendations to the cabinet. One, for example, prepares recommendations on food prices for the central government. Another is comprised of officials from all ministerial agencies and the companies in the technical section. This committee, the High Council, is shown in the upper left of the diagram.

Regional Administration

Distribution committees in each governorate help prepare the annual needs plan, which is submitted to the governorate council and then to the Ministry of Supply. In addition, these committees, which are part of the governorate administration and not directly under the Ministry of Supply, are responsible for allocating quotas to the districts (*markazes*). They are authorized to set prices for vegetables, fruit, and prepared products such as *fuul* (cooked beans) and *koshari*. In the event of a temporary shortage

⁵¹ For further information, see Black and Vetch International, *Master Plan*.

Figure 6 — Organization of the Ministry of Supply and Home Trade



of basic food commodities, they would be responsible for emergency allocations.

Composition of such committees varies by governorate. Typically, membership would include the director general of the Ministry of Supply and representatives from the consumer cooperatives in the governorate, the Ministry of Interior, the police, and the local chamber of commerce. District officers from the *markazes* may also be members. In some governorates membership includes representatives from the milling and rice processing companies located within it as well as from the wholesale company under the Ministry of Supply. In at least one governorate a public weaving and spinning company is represented.

Similar committees in each *merhaz* have a limited authority to rule on the manner of distribution of supply commodities. Most significantly, a number of districts in both the Delta and Upper Egypt provide a monthly quota for flour distribution. This quota, which is not necessarily binding (it may provide a lower limit of guaranteed supply or an upper limit of purchases available from the government stores), depends on local rather than central decisionmaking. In 1981, in another example of local authority, some districts of the Qena governorate authorized rice rations of 2 kilograms a card in rural areas at the same time as the governorate was authorizing a ration of 0.5 kilogram per person.

Final authority for the size of the total quota for any governorate remains in Cairo. Almost universally, officials report that needs are calculated on straight extrapolations of past usage based on population growth. Such a mechanical rule of thumb requires little assessment of changing economic conditions. It does not permit accurate estimates of wheat demand and it perpetuates differences among and within governorates. Such differences usually can be attributed to authorized quotas for rationed and regulated commodities. However, this explanation fails to take into account the governorates' role. It may be that some of the differences between governorates and *markazes* can be attributed to the varying political strengths of members of distribution committees and local party organizations.

Basing per capita distribution of supply commodities on population growth does not give any insight into how the system develops. Between 1978 and 1980, for ex-

ample, nationwide total rationed sugar declined 5.5 percent despite an increase in the number of registered individuals (see the Appendix, Table 26). Nevertheless, ration quantities increased in the Behera, Aswan, and Canal region governorates. A similar decline occurred in rationed oil, yet Munufia and Suhag show small increases, whereas Behera and Ismailia do not. Although regulated sugar increased 30 percent nationwide, it declined in Giza and increased at widely divergent rates in other governorates. Regulated cooking oil use nearly doubled nationwide, tripled in Fayum and Suhag, and increased 16-fold in Asyut. These figures imply a fair amount of redistribution of the national total. They reflect give and take between governorates and a moderate redistribution to those nonurban governorates that had the greatest rates of increase. Unfortunately, the pattern does not indicate how some governorates obtain increases. However, because some of the distribution involves allocations from a shrinking source, it is likely that the reallocation was not without friction.

During the 1978-80 period wheat consumption increased 22 percent in Upper Egypt compared to 10 percent nationwide. Wheat consumption does not always reflect individual or family quotas but depends, in part, on the number of mills, shops, and bakeries. However, it is likely that the increased consumption in Upper Egypt reflects more than passive administrative response to population and income growth. It may, perhaps, indicate an element of regional planning.

Frozen meat and poultry were not available in Asyut until October 1980 and were available only in nominal amounts in Menia before the second half of that year. It is the central government that adopts a policy such as stabilizing meat prices, but whether the governorates take advantage of it depends on storage capacity and the ability of the distribution committee to press for allotments.

Although the distribution committees play an important role in planning needs and in allocation of supplies, the actual administration of the system is under the governorate offices of the Ministry of Supply. Staffs vary considerably, ranging from about 400 persons in Qena and Ismailia to 1,050 persons in Sharkia. Using the organizational

structure of Sharkia as an example, most of the personnel are located in the governorate capital. Four offices cover three or four *markazes* each. In addition, there is an office in each *markaz*. A similar pattern was observed in the Cairo urban governorate, which was divided into seven sections and 29 bureaus. These offices have a purely administrative function, including registering cards, monitoring shops and bakeries, and reporting on stocks of principal commodities.

Monitoring stocks is a major function of the local offices of the ministry. Inventories are reported daily to the governorate and weekly to the center. In the event of a temporary shortage, a local director general will personally deal with the Cairo office or directly with the GASC. In such a situation the Delta governorates have a slight advantage because they are located near Cairo and the storage depots in Alexandria. Although approval from Cairo is required, supplies may

be shipped directly from the port to a governorate.

Shortages in governorates are infrequent. Although in recent years stocks of sugar and 72 percent-extraction flour have been drawn down due to import bottlenecks, government policy is designed to provide sufficient storage to prevent most disruption of distribution. The GASC has a policy of keeping at least 10 weeks' supply of wheat and 8 weeks' supply of 72 percent-extraction flour on hand. Most governorates (except those close to Alexandria) also follow this policy. Storage in governorates, however, may be in open air depots liable to wastage.

Whereas actual ration quotas are carefully monitored, the cooperatives have some scope for administrative decisions in the distribution to final consumers. For example, in Cairo the governorate distribution committee determines the monthly quotas to the Al-Ahram and El-Nil companies, which have the authority to determine distribution among the shops.

6

EFFECTS OF THE FOOD SUBSIDY AND RATIONING SYSTEM

Distributional Implications

At the simplest level the welfare implications of a subsidy system can be presented as implicit income transfers from public revenues to individuals or groups of individuals. As a first approximation, one may assume such revenues to be exogenous, but a more detailed analysis would recognize that the level of subsidies may influence the form and level of taxation, and this would affect welfare. With more information on the consumer's budget preferences, specifically own- and cross-price parameters, one could estimate welfare effects of consumer surplus. Alternatively, if specific consumption patterns are targeted (for example, if attaining minimum calorie intakes is desired), the system can be assessed for such goals. Each approach requires some knowledge of the percentage of total subsidies going to each consumer group. One needs to know how much of a given commodity is purchased at ration prices, how much at regulated prices, and how much at open market prices. To analyze direct subsidies, these prices could then be compared with government purchase prices; to analyze implicit subsidies one needs to estimate the border prices and cost of the internal transport of traded goods as well.

Without this information, existing studies of the effects of the rationing system have been forced to make simplifying assumptions about the physical distribution of supply commodities.

Access to subsidized and rationed commodities varies by location and degree of urbanization, reflecting either the rations authorized per individual or the location of outlets, including bakeries. Within an area, outlets may be located so as to favor certain neighborhoods, and deliveries to some outlets may be more frequent than to others. Long lines and low probability of supply favor households with a low opportunity cost of time. This does not necessarily mean

low-income families. Higher-income families may be able to send servants to market. Also, a low-income family may not have sufficient cash to take advantage of gluts in normally scarce commodities. Where policing is weak, shopkeepers may give preference to influential persons or to those willing to pay *baksheesh* (gratuities). Even for unrationed goods, benefits vary according to the income elasticity of the product. If measured as implicit income transfers, for example, total benefits tend to be proportional to quantities purchased. Finally, those in certain occupations gain special access to supplies. And, where quotas are set for households rather than individuals, there is a bias in favor of smaller families.

Two examples illustrate these last two potential biases. In the Cairo governorate meat and chicken allotments obtained from workplace cooperatives are officially 1 kilogram higher regardless of family size. However, laxity in enforcing controls reduces this bias. Quotas at workplace cooperatives in other governorates are also higher. In the city of Asyut an additional kilogram of rice per family is available at regulated prices, but the number of beneficiaries is small.

Some regional disparities have already been mentioned. The Canal area derives special benefits from the rationing system. Rations are larger in Cairo and Alexandria than elsewhere. Up to 1 kilogram of sugar per person is available in Aswan, but the quota is 0.750 grams per person for the rest of the country. Urban dwellers receive more rice and oil than rural residents.

Frequently, regional differences in quotas are explained by consumption habits in a particular area: for example, the use of oil to cook fish in coastal regions. Because the government recognizes that rationing and subsidies can influence consumption patterns, it tries to apply these instruments in ways that are congruent with past consumption patterns in a region. Such a policy helps to decrease the political risks inherent in any reallocation of goods.

That regional differences in quotas can cause sizable differences in benefits is shown by the following example. Suppose a rural resident of Qena supplements rations with purchases on the regulated market so that his consumption equals the ration of a cousin in a city in Qena. Based only on the difference between regulated and rationed prices for rice and oil, the annual income transfer to the rural cousin will be LE 1.02 smaller than that to the urban cousin. The urban Qena resident receives LE 0.36 less than a resident of Cairo, whose consumption pattern is similar. The total annual expenditure on the rationed quotas of rice and oil for a Cairo resident is LE 1.14. No differences in rationed levels of tea or sugar exist in these governorates. The potential bias would

be greater if the Qena consumers could not purchase enough oil or rice at the regulated price to bring consumption up to the Cairo ration quota and had to buy on the open market. Given reported limits on regulated market sales of oil in rural governorates, this may be the situation.

Table 8 (and Appendix Table 27) show the distribution of major commodities, including some that are subsidized but not rationed. Variation in the national average in the amount of rationed sugar available by governorates is relatively small. As mentioned earlier, however, Aswan receives a larger allotment, which accounts for the larger average amount distributed. No explanation for the low consumption in Kalyubia or Sharkia is apparent. Distribution of regulated

Table 8—Distribution of major supply commodities to registered consumers by governorate, 1980

Governorate	Lentils	Rationed Sugar	Regulated Sugar	Rationed Oil	Regulated Oil	Rationed Rice	Flour Milled Domestically ^a	Imported Flour ^b
(kilograms capita)								
Cairo	2.4	9.2	30.6	5.2	1.5	20.4	144.1 ^b	35.4 ^b
Alexandria	2.0	9.4	35.1	6.8	1.7	18.5	162.7	73.7
Port-Said	1.7	9.1	17.7	7.0	4.3	39.3	47.5	60.5
Ismailia	2.3	8.8	28.4	5.2	4.7	24.4	88.9	51.1
Suez	3.3	9.0	28.8	6.9	3.1	25.5	104.8	56.1
Damietta	1.5	9.3	17.3	5.0	5.6	18.3	64.1	36.9
Kalyubia	0.8	7.0	10.5	2.9	1.4	8.7	133.5	12.8
Munufia	1.1	8.7	14.1	2.1	1.8	9.2	72.8	20.9
Gharbia	0.8	8.5	17.3	2.4	1.5	6.2	67.2	25.8
Kafr-El-Sheikh	0.5	8.6	11.2	3.3	1.6	6.0	50.1	25.9
Behera	0.5	8.9	9.8	2.6	1.0	4.6	68.4	20.5
Sharkia	0.7	7.6	7.9	1.9	0.9	4.0	61.2	19.5
Dakahlia	0.6	9.8	11.4	3.1	1.6	7.8	33.0	28.8
Giza	0.7	8.9	18.1	3.6	1.6	15.4	144.1 ^b	35.4 ^b
Fayum	1.1	9.3	16.5	2.2	1.1	7.2	138.9	7.6
Beni-Suef	1.1	9.2	15.7	2.5	1.2	8.4	104.4	15.6
Menia	1.2	9.5	14.4	2.3	1.3	8.1	103.6	16.7
Ayut	1.4	8.4	14.7	2.1	1.0	7.2	141.6	4.5
Suhag	1.0	9.4	15.7	2.3	0.6	6.1	193.0	3.2
Qena	1.1	9.1	21.1	2.2	1.2	7.3	237.4	21.2
Aswan	1.2	14.2	22.3	3.5	1.6	12.9	237.2	6.6
Red-Sea	2.1	9.0	34.4	6.6	2.9	28.8	190.1	
New Valley	3.9	9.1	10.8	2.4	0.6	12.4	90.8	7.2
Matruh	7.2	8.7	23.0	5.1	4.2	44.0	240.4	26.5
Sinai	17.9	10.6	23.4	6.4	2.4	23.5		
Weighted average	1.2	8.7	18.3	3.4	1.5	11.2	114.9	26.0

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

^a This includes flour delivered to bakeries.

^b Cairo and Giza are included together.

sugar reflects the relatively privileged position of urban governorates and the Suez Canal region where there are few limits on purchases at the regulated price.

A similar pattern can be observed for rationed oil, although Damietta, a fishing region, has higher than average per capita distribution. Quotas on regulated oil are usually 100-150 grams per person per month, and the national distribution average of 1.5 kilograms a year is in accord with these quotas. Similarly, given the higher quotas in the Canal region, it is not surprising that people in this region consume far more than the national average. Even though regulated oil is reported to be available without limit in Cairo and Alexandria, per capita consumption is low — less than two tablespoons a day in Cairo and only a little higher in Alexandria. This may be less than the oil demanded at a marginal price of 30 piasters per kilogram and may indicate other restraints on demand.

Because the included data lists only rationed rice distributed through the Ministry of Supply, one would expect the distribution to be lower in the rice-growing regions than in the cities or Upper Egypt. This is consistent with the low quotas reported for Sharkia and Behera but not with the principle of having distribution reflect consumption habits. The policy for rice appears to allow for selective open market trade. Government intervention is used less as a welfare or income transfer (where it would be equally effective in helping the landless in rice-growing areas) and more as a means to control prices in nonproducing areas. This, however, does not explain the high distribution in Damietta.

No clear patterns emerge for wheat. Indeed, the great variability leads one to suspect that the data are unreliable, although cross-checking with governorate officials and data from other years yields no apparent discrepancies. Furthermore, given the regular flows of wheat to consumers, one would expect data from the Ministry of Supply to be fairly consistent.³² Thus it is difficult to explain why Qena should consume 237 kilograms of wheat per capita and Asyut only 142, or why Kalyubia uses 134 kilograms compared to 64 for Damietta.

The most apparent explanation would

be retained household production (Table 9). Per capita cereal consumption varies less than Ministry of Supply distribution. This reflects a strong negative correlation ($r = -0.71$) between local production (net rice procurement) and governmental distribution. This indicates that Ministry of Supply distribution tends to equalize grain consumption.

Because most of the grain distributed by the Ministry of Supply is wheat or wheat flour, the correlation helps to explain the distribution of wheat, but it still leaves a few unanswered questions. A more complete analysis is needed to explain why grain availability is higher in Upper Egypt and Kafr-El-Sheikh than in neighboring regions.

A cross-sectional regression analysis based on 1980 data is undertaken to evaluate

Table 9 — Per capita availability of cereals by selected governorate, 1980

Governorate	Net Production	From Ministry of Supply ^a	Total
(kilograms/capita)			
Alexandria	49	295.3	300.2
Behera	149.9	111.2	261.1
Gharbia	109.3	118.8	228.1
Kafr-El-Sheikh	249.1	99.2	348.3
Dakahlia	155.5	85.5	241.0
Damietta	94.4	145.8	240.2
Sharkia	173.2	101.0	274.2
Ismailia	48.8	196.4	245.2
Suez	10.4	214.9	225.3
Matruh	102.6	121.4	224.0
Kalyubia	50.6	179.0	229.6
Cairo	0.4	232.8	233.2
Giza	31.7	229.3	261.0
Beni-Suef	110.7	149.4	260.1
Fayum	117.1	142.2	259.3
Menia	111.4	149.7	261.1
Asyut	126.2	174.6	300.8
Sohag	134.0	231.1	365.1
Qena	85.5	308.0	393.5
Aswan	40.7	292.1	332.8

Sources: Calculated from unpublished data provided by the Egyptian Ministry of Supply and Home Trade (see Table 9 and the Appendix, Table 30), and Central Agency for Public Mobilization and Statistics.

^a These figures are the total of wheat equivalents and rationed rice.

³² This source of data gives the number of sacks of flour distributed within the governorates and, therefore, is net of interregional transport.

determinants of distribution of procured and imported cereals to the governorates. The variables included are: CERD, cereals distributed by the government per capita in a governorate; CERP, per capita cereal production less procurement; UPOP, degree of urbanization in a governorate; WAGE, distribution of wages; and GOVE, share of government employees. The policy variable (CERD) is assumed to depend on the CERP and the UPOP. The model tests whether more cereal is available in richer than in poorer regions and whether government employees receive special benefits.

Thus,

$$\text{CERD} = f(\text{CERP}, \text{UPOP}, \text{WAGE}, \text{GOVE}).$$

Regression results are given in Table 10. They include separate estimates for wheat, rice, and total cereals. Although much of the

variance remains unexplained, which could be due partly to stock changes, some conclusions can be drawn.

The major determinant of regional distribution is the availability of cereals from local production. But some per capita production differences still seem not to be completely leveled out. According to the estimated parameters, an additional kilogram of per capita cereal production may decrease distribution by 0.56 kilograms.

The degree of urbanization of a governorate (UPOP) does not imply a significant increase in total cereals distributed by the Ministry of Supply. Although the variable does little to explain differences in regional distribution of wheat and total cereals, it always shows the expected positive sign.³³ However, there is a significant targeting of government rice distribution to urban areas.

A 10 percent increase in urbanization would mean 3.2 kilograms more rice per

Table 10—Determinants of regional cereal distribution by the national government, 1980

Dependent Variable	Independent Variable, Parameter Estimates					Absolute Value	R ²	F-value
TOTD	= -0.5557 ^a (-1.70)	+ 0.3695 (0.43)	- 0.0727 (-0.24)	+ 1.776 ^a (1.35)	GOVE	93.30	0.570	5.1
WHED	= -0.6084 ^b (-1.80)	+ 0.1715 (0.21)	- 0.0036 (-0.12)	+ 1.615 (1.20)	GOVE	102.9	0.520	4.2
RICD	= -0.0394 ^a (-2.98)	+ 0.2216 ^c (6.41)	- 0.0652 (-3.85)	+ 0.2889 ^c (3.92)	GOVE	10.7	0.854	22.0

Sources: Calculated from unpublished data provided by the Egyptian Ministry of Supply and Home Trade, Ministry of Agriculture, and Central Agency for Public Mobilization and Statistics.

Notes: T-values are in parentheses. The number of observations is 20.

TOTD = total cereals distributed to governorates per capita in 1980, in kilograms of wheat equivalent.

WHED = wheat and flour distributed to governorates per capita in 1980, in kilograms of wheat equivalent.

RICD = rice distributed to governorates per capita in 1980, in kilograms.

TOTP = total cereal production available for human consumption per capita in 1980, production of wheat, rice, maize, and sorghum, less rice procurement, less animal feed use from maize and sorghum (estimated according to household survey).

WRMS = production of wheat, rice, maize, and sorghum available for human consumption (calculated as TOTP) plus rice distribution; in kilograms per capita in 1980.

RWMS = production of wheat, rice, maize, and sorghum available for human consumption (calculated as TOTP) plus wheat distribution; in kilograms per capita in 1980.

UPOP = urban population as percent of the total in the governorates in 1976.

WAGE = average wage per worker in the governorate in piasters in 1976.

GOVE = employees in government enterprises as a percent of the total governorate in 1976.

^a This rejects the 0-hypothesis at the 90 percent level according to the t-distribution.

^b This rejects the 0-hypothesis at the 95 percent level according to the t-distribution.

^c This rejects the 0-hypothesis at the 99 percent level according to the t-distribution.

³³ There is a fairly high intercorrelation between the urbanization variable (UPOP) and the variable representing regional cereal production (TOTP): $r = 0.8$. Nevertheless, the parameters are not too distorted.

capita, an amount that is about 10 percent of average consumption. Income differences seem to be taken care of in a socially equitable way: the lower the regional wages, the higher the quantity of cereals, particularly rice, distributed to the region. The parameter estimates of the variable GOVE indicate that the government does use the cereal distribution system to help support its employees, but many government employees fall in the lower income groups anyway. Comparison of actual and estimated aggregate cereal distribution shows that the model overestimates distribution to some regions in Lower Egypt and underestimates distribution to generally poorer Upper Egypt, whereas the urban areas of Cairo and Giza are fairly well covered. Political priorities as well as regional differences in taste might be major reasons for the unexplained deviation from the distribution pattern predicted by the model.

In general, this regression indicates some regional targeting of food distribution. But allocation of grain to urban areas by the government system is not highly disproportionate. Lack of data precludes a similar analysis for other periods. Therefore, government food distribution during periods when supplies were scarce, such as 1968-73 when the per capita cereal supply declined markedly, are not examined.

Differences in the number of bakeries in different regions have led to a common belief that there is a regional bias in flour distribution. Alexandria has 27 bakeries per 100,000 population; Qena only 4.3 (see the Appendix, Table 28). There is, however, no strong correlation between the number of bakeries and distribution of subsidized flour per capita. Excluding the frontier governorates, the correlation from cross-sectional 1980 data yielded a correlation coefficient of 0.24, mainly because the three Upper Egyptian governorates of Suhag, Qena, and Aswan have the highest per capita flour distribution but few bakeries. (Excluding these governorates gives a simple correlation coefficient of 0.75.) The unexplained differences in distribution probably reflect the large volume of distribution through government flour shops and cooperatives, much of which is rural. This largely offsets the differences in the number of bakeries.

Distribution may also be influenced by regional quotas of flour if they are binding on a consumer and shift demand to locally produced grain. Such limits on household purchases would be influenced by the amount of wheat delivered from the central allocation as well as by village or district administrations involved in flour distribution.

Table 11 supplements the discussion of regional distribution patterns with basic data from four governorates. Although the data are not strictly comparable, they indicate the wide diversity of channels of distribution.³⁴ For example, in March 1981 only 12 percent of the government wheat distribution in Sharkia was obtained through flour shops, whereas 86 percent of wheat from the Ministry of Supply went to individual consumers in Qena. Forty percent of the flour used in Kafr-El-Sheikh was 72 percent-extraction flour compared with only 22 percent in Sharkia. (Similar observations can be made from Table 8 using the 1980 data. For example, compare the ratio of imported flour to wheat distribution in the Upper Egyptian governorates or Kalyubia with some of the other governorates.) The volume of bread sold in villages ranges from 7 percent of the amount used in Qena to 52 percent in Menia. Two thirds of the 337 villages in Menia have at least one bakery and many have more.

Daily volume per bakery appears higher in urban areas than in rural areas, as would be expected from population densities. Only Kafr-El-Sheikh provides data on sales from flour stores in rural and urban areas. In this governorate there are more sales per store of 82 percent-extraction flour in cities than in villages, but the opposite is true for 72 percent-extraction flour. There is no equivalent for 72 percent-extraction flour available from local mills. If one assumes that more villagers bake their own bread than urban dwellers and that they probably use a combination of domestic (82 percent-extraction) and imported (72 percent-extraction) flours, and perhaps maize, the pattern is not surprising. To fully understand the consumption pattern for wheat and imported flour will require data on household characteristics and on the local marketing outlets for flour and bread.³⁵

³⁴ The number of *balady* bakeries reported for Qena in Table 11 differs from that in Table 27, though the tonnage does not.

³⁵ For example, it is not unlikely that some of the high wheat consumption in Upper Egypt comes from flour diverted to Sudan. Documentation of the extent of such trade is, of course, impossible.

Table 11—Distribution of flour by selected governorate, March 1981

Governorate	Bakeries				Flour shops			
	72 Percent Flour		82 Percent Flour		72 Percent Flour		82 Percent Flour	
	Villages	Cities	Villages	Cities	Villages	Cities	Villages	Cities
Sharkia								
Number of shops	32	91	57	95	127		364	
Tons sold per month	400 ^a	2,542 ^b	2,000 ^a	1,184 ^b	407		1,459	
Kafr-El-Sheikh								
Number of shops	16	48		13	180	131	532	226
Tons sold per month	285	1,402		629	1,398	693	2,476	2,524
Qena								
Number of shops		17	9	14	n.a.			n.a.
Tons sold per month		930	280	2,780		24,070		
Menna								
Number of shops	3	34	324	138	n.a.			n.a.
Tons sold per month	82	1,199	9,741	7,052				

Source: Conversations with governorate officials.

Note: Where n.a. appears, the figure was not available.

^a This figure is an estimate.

^b This was calculated by subtracting estimated sales of village shops from total sales.

There also is a potential for diversity within governorates, especially between rural and urban regions. An assumption of zero utilization in rural areas is unfounded for any of the commodities in Table 8, although a number of studies imply a strong urban bias. A study by the U.S. Agency for International Development assumes no food subsidies in rural areas. Eckaus and Mohie El-Din claim it is "strikingly clear" from their results that 81 percent of subsidies go to urban areas, but this result may have been built into their social accounting matrix. Buchanan, though not venturing an estimate, asserts a strong urban bias for wheat and bread as well as rationed goods. Korayem sidesteps the issue by addressing only the subsidies to the urban population. On the other hand, Taylor claims that declines in malnutrition and pellagra in rural areas indicate changing diets. He conducts some of his studies with an assumption of equal percentages of subsidized foods for individuals in rural and urban areas.³⁶

Distribution of rationed sugar conforms with the nearly standard quota of 0.750 kilograms and is most likely evenly distributed. There is little information on distribution of regulated sugar, but rough calculations indicate that a fair amount reaches rural areas. Most rural governorates are 20-30 percent "urban." If it is assumed that urban dwellers in predominantly rural governorates receive as much regulated sugar as their counterparts in Cairo (a generous assumption), the per capita averages for the governorates indicate rural consumers received on average approximately 0.750 kilograms a month of regulated sugar. Oil quotas are larger for urban dwellers, but regional variations are as great as the urban-rural differences. Although some rationed rice appears to be allocated to rural areas, these quotas are smaller than for urban areas, and consistent with the above regression. It is likely that the rationed quantities of tea, lentils, and beans reach rural areas but the situation with regulated sales is less clear.

³⁶ U.S. Agency for International Development, "Egypt's Food and Energy Subsidies," Cairo, 1981 (mimeographed); Richard S. Eckaus and A. Mohie-El-Din, "Consequences of the Changes in Subsidy Policies in Egypt," Working Paper No. 265, Department of Economics, Massachusetts Institute of Technology, Cambridge, Mass., April 1980, p. 4; Buchanan, "Government Consumption Planning Schemes"; Korayem, "Elimination of Food Subsidy"; and Lance Taylor, "Food Subsidies in Egypt," Massachusetts Institute of Technology, Cambridge, Mass., 1979. (Mimeographed.)

The availability of freezers is a prerequisite for the distribution of frozen meats and poultry, and it may be valid to assume that only negligible quantities reach the rural population. Given the large subsidy per kilogram on meat, the welfare gains to consumers in cities are likely to be a relatively large portion of total gains in either consumer surplus or income transfer. These might dominate the moderate differences in the other rationed commodities, especially if distribution of meat increases without expanding the area covered. To illustrate, if it is assumed that meat is available to urban consumers at an average of 0.5 kilograms a month at prices prevailing in 1981, the transfer from the treasury to the consumer would approximately equal the total transfer a consumer would receive by obtaining rations of rice, sugar, and oil at subsidized prices.³⁷

Because the wheat subsidy is the largest component of the national subsidy bill, unequal distribution of flour also has the potential for exceeding the relative gains of food subsidies. Here again, note that regional variations may be larger than rural-urban differences. A rural dweller in Suhag may receive less subsidized flour than the average urban dweller in the governorate yet still consume far more than an inhabitant of Zagazig or Tanta. For instance, wheat consumption in villages in Kafr-El-Sheikh is reported to be 44 percent of the total. Because the governorate is nearly 80 percent rural, this implies that per capita consumption in the cities is roughly five times that in the villages. This would translate to urban consumption of 175 kilograms of 82 percent-extraction flour and rural consumption of 35 kilograms. A five-to-one ratio, however, cannot be assumed for Qena, because that would indicate an annual urban consumption of close to 700 kilograms—much too high. Even if one assumes that urban consumption in Qena is a high 350 kilograms, rural consumption must be 220 kilograms, which is even higher than the figure for Kafr-El-Sheikh city dwellers. One can only conclude that regional variations in flour consumption are as important as urban biases.

The distribution of benefits of the subsidy among income groups has been the subject of a number of studies. The AID study assumes that the total quantities of supply commodities for 1979 were distributed to consumers in patterns based on the 1974/75 household budget survey.³⁸ The study is flawed by the counterfactual assumption that no subsidized commodities were distributed in rural areas. Consequently, the absolute value of the gains calculated for urban areas is too high. On a relative basis, however, the distribution among income groups is more likely to be accurate. For example, the study concluded that the per capita value of the subsidy on wheat does not vary appreciably by income group whereas the benefits from the subsidy on meat accrue mainly to the highest expenditure groups. But the benefits these groups received from the meat subsidy were less pronounced than those from the subsidy on energy, particularly gasoline and butane gas (butagas).

The detailed study by Korayem on the effect of changes in the mode of food distribution uses the 1974-75 household budget survey for urban areas only.³⁹ Although price elasticities are commonly used to estimate consumption changes following a price change, such estimates are difficult to obtain because econometric methods require more variation in prices than are generally observed in Egypt. Therefore, Korayem makes a simplifying assumption that is based on only the real income effect of a price change (the income elasticity times the budget share to the item being considered). This assumes the compensated price effect is zero. Because, by microeconomic theory, the own-price effect is zero or negative, Korayem's estimates are a lower bound of the absolute value of the own-price effect for normal goods. Actual price responsiveness will probably be greater than Korayem estimates.

The main question she addresses is whether the wage increase is necessary to offset the total removal of the subsidy on foods. For example, she found that an urban family with an annual expenditure of LE40-

³⁷ This is based on 0.750 kilograms of sugar, 1 kilogram of rice, 0.450 kilograms of oil, with the transfer equal to the difference in the ration price and the C.E. price (July 1981, except for rice where the procurement price is used).

³⁸ U.S. Agency for International Development, "Egypt's Food."

³⁹ Korayem, "Elimination of Food Subsidy."

49 (2nd decile in 1979) would need an additional LE 30 a year to maintain food consumption if subsidies were removed. If wheat subsidies remained, then the family would require LE 11.62 to maintain consumption. Such calculations do not employ the price parameters Korayem estimated and assume no reallocation of purchases following a price change. She is concerned with maintaining a specific amount of food consumption rather than a specific amount of consumer welfare or utility.

Nutritional Implications

Nutrition is only one of the criteria on which consumers base their purchases. There is no assurance that any food policy designed to increase consumer welfare will affect the nutritional status of the population. In the case of Egypt the absence of targeting and the nature of some of the commodities subsidized (for example, tea) indicate that nutrition is not a major goal. Nevertheless, the system may benefit nutrition as a side effect of its welfare orientation.

One part of the study by Lance Taylor estimates how much calorie intake would be reduced if subsidies were removed.⁴⁰ His method allows for more substitution of nonfood items (larger absolute value of price elasticities) than Korayem's. Taylor assumes that consumption of subsidized food in rural areas is the same percentage of total consumption as in urban areas. Because of these assumptions, he estimates that the effect on rural consumers would be large if subsidies were reduced. The reduction would be 269 kilocalories a day for the low-income rural expenditure group and 96 kilocalories for the same group in cities. The changes in calories are only slightly different in other scenarios with compensating wage increases or, in Taylor's study, with increased government investment.

Not enough information is obtained in

this study to determine the nutritional consequences of an average change in consumption of this size. However, valuable insights are provided by Table 12, which gives the estimated calories per capita per day in rural and urban populations derived from family budget surveys in three years, 1958/59, 1964/65, and 1974/75. The implied total for Egypt in 1974/75 is somewhat below that calculated by FAO from food balance tables. Quite frequently, estimates based on food balance sheets exceed those from family budget surveys. Table 12 also differs from Table 9, in part because grain availability has increased nearly 35 kilograms per capita since 1974.

During the 16 years between 1958/59 and 1974/75 average calorie intake in rural areas decreased, whereas it increased in urban areas. In rural areas consumption of maize and sorghum declined markedly and of wheat, moderately. This was somewhat offset by the increased consumption of bread and wheat flour. In the cities consumption of bread increased rapidly and of rice, moderately. Consumption of meat, fish, and eggs remained virtually constant in both areas as did consumption of dairy products, except for a shift from milk to cheese in rural areas between 1958/59 and 1964/65.

The figures in Table 12 indicate that food consumption in 1974/75 was fairly close to the daily requirements determined by FAO: 2,540 kilocalories per capita per day. Furthermore, calculations from aggregated data of the Ministry of Supply show that food availability has increased about 450 kilocalories per person per day since 1974/75. Nevertheless, the declines in food intake in rural areas warrant concern, considering that the data available are not sufficient to estimate how much of the increased food availability goes to rural areas. It is possible to have high average calorie intake and a fair amount of malnutrition in a population.⁴¹

In presenting the calorie intake by ex-

⁴⁰ Lance Taylor, "Food Subsidies: Macro and Micro Issues," Massachusetts Institute of Technology, Cambridge, Mass., 1976 (Mimeographed). See especially Appendix D.

⁴¹ For a discussion of the difficulty of using aggregate levels of consumption see Shlomo Reutlinger and Marcelo Selowsky, *Malnutrition and Poverty* (World Bank Staff Occasional Paper No. 23 (Baltimore: Johns Hopkins University Press, 1976)). For two views on the use of average calorie requirements see Shlomo Reutlinger and Harold Alderman, *The Prevalence of Calorie Deficient Diets in Developing Countries* (World Bank Staff Working Paper No. 374 (Washington, D.C.: International Bank for Reconstruction and Development, 1977)), and T. N. Srinivasan, *Malnutrition: Some Measurement and Policy Issues* (World Bank Staff Working Paper No. 373 (Washington, D.C.: International Bank for Reconstruction and Development, 1981)).

Table 12— Per capita food consumption in urban and rural areas, 1958/59, 1964/65, and 1974/75

Food	Rural Areas			Urban Areas		
	1958/59	1964/65	1974/75	1958/59	1964/65	1974/75
	(kilograms capita)					
Wheat	69.7	69.9	59.5	13.1	12.3	7.7
Maize	75.1	66.8	45.2	12.5	13.5	5.8
Sorghum	34.6	30.4	11.4	5.3	4.1	1.8
Rice	23.8	24.6	21.1	19.5	21.2	25.0
Wheat flour	16.1	22.5	40.7	33.4	8.0	25.4
Bread	6.0	14.6	18.8	96.7	115.8	137.9
Noodles	0.8	2.0	2.7	4.5	5.6	6.7
Beans	5.3	6.9	4.5	4.0	4.6	4.3
Lentils	3.2	4.5	3.1	3.3	4.2	4.1
Meat and poultry	9.7	9.5	9.1	13.5	12.6	13.0
Fish	2.8	3.7	4.5	5.9	7.5	6.0
Eggs	0.9	1.4	1.4	1.7	1.4	1.6
Vegetable oils, fats	2.7	5.0	7.8	6.6	8.7	8.1
Butter, butter oil	2.3	2.6	3.1	3.2	2.2	2.1
Milk	24.6	8.7	8.8	18.3	17.5	18.7
Cheese	0.8	8.8	7.5	4.2	5.0	4.9
Potatoes	6.6	10.4	8.7	9.9	13.4	11.1
Onions	8.4	7.6	8.0	9.1	7.9	8.9
Tomatoes	10.2	11.3	14.0	17.1	18.9	24.0
Citrus	3.6	5.0	7.1	9.7	10.3	12.0
Dates	5.0	4.8	2.5	4.1	4.2	2.1
Sugar	10.0	11.6	13.4	11.4	12.2	13.0
Syrup	2.2	2.9	...	1.4	1.8	...
Honey	0.5	0.2	0.2	1.3	0.4	0.4
Sesame	...	0.7	0.5	...	1.3	1.2
Calories per capita per day	2,729	2,898	2,590	2,252	2,227	2,433

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), *Family Budget Survey 1958/59* (Cairo: CAPMAS, 1961); CAPMAS, *Family Budget Survey 1964/65* (Cairo: CAPMAS, 1972); and CAPMAS, *Family Budget Survey 1974/75* (Cairo: CAPMAS, 1978).

penditure groups, regressions of the form

$$\text{kcal} = a + b(\text{Ln exp})$$

are estimated from the data in the 1974/75 survey. The estimate of b is 394.3 for urban areas, with an average income elasticity of 0.16 and 970.7 for rural areas, with an average income elasticity of 0.37, calculated at average calorie intake. The elasticities for the poorest 25 percent of each group are approximately 0.20 and 0.45 respectively. These elasticities are typical of income elasticities for calories and indicate that calorie consumption is skewed, with more skew in the rural areas than in the cities.

Although there has been rapid income growth in Egypt since 1974, causing the population line to shift up and to the right along the curves, there is no evidence that the slope of the curves has changed. Similarly, without data on income distribution the number of individuals remaining in the lower expenditure groups cannot be determined. However, because of the distribution system, it is possible that fewer families have low food intakes than in other countries with similar income structures.

Similar conclusions can be drawn from a survey conducted in 1978/79 by the Nutrition Institute in Egypt.⁴² Relatively few cases of severe malnutrition were found throughout Egypt. Only 0.8 percent of the children

⁴² Nutrition Institute, Ministry of Health, *Arab Republic of Egypt National Nutrition Survey, 1978* (Washington, D.C.: U.S. Agency for International Development, 1978).

observed had severe undernutrition (third degree by the Gomez classification, that is, less than 60 percent of the standard weight for age). On the other hand, a rural survey undertaken jointly by the Massachusetts Institute of Technology (MIT) and Cairo University only a few months after the Nutrition Institute study found more undernutrition. After correcting for a sample bias, 3.1 percent of rural children could be designated as severely undernourished by the Gomez classification.⁴³ This is more consistent with the high infant and child mortality observed in Egypt. A second round of the survey conducted by the Nutrition Institute during the summer of 1980 found more malnutrition than the first round but less than the MIT/Cairo University study (although the two studies are not strictly comparable).⁴⁴ Diarrheal diseases, which often lead to malnutrition, are common in the summer and may be major contributors to much of the malnutrition observed in Egypt.

The pattern of protein consumption in Egypt is similar to that of calories. Strotmann calculated 64 grams of protein a day per person for rural low-income groups and 56 for low-income city dwellers; the corresponding figures for middle-income groups were 94 and 63.⁴⁵ On the average, these levels are adequate. There is no evidence that adults who are able to meet their calorie requirements on a typical Egyptian diet do not also meet their protein needs. The only group that may be at risk is children being weaned. The food subsidy system is not currently targeted toward this group.

Egypt does have a large program to provide supplementary feeding through the health care system.⁴⁶ The Ministry of Education, in conjunction with private voluntary agencies and the World Food Program, provides school lunches. Other programs are targeted toward itinerant workers in a food-for-work program and toward families reclaiming new lands.

Production and Procurement Policies

The additional market supplies of food from commercial imports and food aid may stabilize and lower consumer prices, but they also depress producer prices of comparable commodities, reduce farm incomes, and induce reallocation of crops. When imports are subsidized below both the purchase price and the prevailing domestic market price, they distort agricultural incentives.

Lower domestic prices increase demand as they depress production, contributing to declines in the self-sufficiency ratio. The government attempts to increase self-sufficiency by controlling farm production—for example, by acreage allotment plans. These plans are set up by the Ministry of Agriculture in consultation with the Ministry of Supply and the Ministry of the Economy to determine the areas to be cultivated. The regional and local administrations distribute these area allotments among farms. This prevents full supply adjustments to distorted price ratios.

Lowering consumer prices by subsidizing commodities implicitly transfers real income to consumers, leading to rising demand for other goods, including nonrationed goods such as livestock products. The increased demand will result in upward pressures on other commodities on the open market. If such pressures are transmitted to the producers, farm incomes will be positively affected. Producers with marketable surpluses may gain, but subsistence farmers and the landless rural population will be largely unaffected, unless additional employment is generated.

In addition to shifting the supply curve, the government attempts to check the rise in prices of some commodities by setting price ceilings. The net effect on farm incomes cannot now be assessed. Real farm incomes

⁴³ M. El Lozy, J. Field, G. Ropes, and R. Burkhardt, *Childhood Malnutrition in Rural Egypt: Results of the Ministry of Health's Weighing Exercise* (Health Care Delivery System Project Monograph 4) (Cambridge, Mass.: Massachusetts Institute of Technology, 1980).

⁴⁴ Hekma' Ali, director of the Nutrition Institute, personal communication, May 1981.

⁴⁵ H. Strotmann, "Die Nachfrage nach Nahrungsmitteln in Ägypten" [The Demand for Food in Egypt] (Diploma thesis, University of Göttingen, Institute for Agricultural Economics, 1980).

⁴⁶ R. Burkhardt, J. Field, and G. Ropes, *Supplementary Feeding in Rural Egypt: A Survey Profile of the Health System in Action* (Health Care Delivery System Project Monograph 5) (Cambridge, Mass.: Massachusetts Institute of Technology, 1980).

are also directly affected by the subsidized foods made available to farm households, although farm families may receive less than city dwellers.

Until the mid-1970s, subsidies were financed by agriculture mainly through effective taxation on export crops such as cotton and rice. Since then, increased government revenues and foreign exchange from oil earnings, the Suez Canal, and other sources have decreased the pressure on agriculture to provide government revenue. Nevertheless, implicit taxation still affects incomes and allocative efficiency in agriculture.

Implicit taxation takes the form of compulsory delivery quotas at prices fixed below market prices for crops in the food subsidy system such as rice, beans, lentils, and sugarcane. Such quotas help to reduce the government's budgetary costs for the subsidy system. Quotas also exist for some crops that are primarily exported, such as onions and cotton, and these also provide earnings for the government.

The long-run growth of agriculture may be affected if the increasing cost of subsidies forces the government to decrease its spending elsewhere. Public investment, input subsidies, or productivity-oriented research in agriculture might be reduced. Finally, higher subsidies in urban areas may accelerate rural-urban migration and thus result in rising agricultural wage rates.

The main instruments applied to control domestic production and to provide food for subsidized distribution are acreage planning (area allotment plan); price policy; input subsidies (on fuel, fertilizer, water, pesticides, and animal feed), and investment programs (irrigation, drainage, land reclamation, and so forth). Price policies include delivery quotas at fixed prices, foreign trade regulations such as import planning, export stops, and so forth; and domestic trade regulations, including interregional trade barriers.

Although input subsidies and investment programs are important, the two other instruments, especially price policy, are emphasized in this report. When input costs

are taken into account, all basic food commodities are effectively taxed.⁴⁷ Only meat and milk are protected. The protection of meat increases the demand for feed and roughage, which results in rising relative feed prices and expanded *berseem* area. It means an income transfer from the mainly high-income consumers of fresh meat to livestock producers, which somewhat offsets consumer gains from subsidized meats.

In recent years there has been an attempt to increase agricultural income by raising producer prices. For example, producer prices announced in February 1981 include increases of 50 percent for lentils, 40 percent for beans, 23 percent for sugarcane, 22-30 percent for unginned cotton, and 13 percent for rice.

Delivery quotas at prices fixed below market levels are enforced for rice, pulses, sugarcane, cotton, and onions. Furthermore, farmers provided with subsidized feed are in principle required to sell their animals to slaughterhouses at a fixed price.

Area allotment is used for various purposes: to assure sufficient domestic production of commodities that are affected by distorted price incentives; to further foreign exchange objectives; and to assure more effective water management, pesticide application, and crop rotation. Control is most strict on cotton, rice, pulses, sugarcane, and onions grown for export. For wheat, maize, and berseem, the area allotments are merely indicative, not compulsory (Table 13 and the Appendix, Tables 29 and 30).

In general, production controls are most severe on those commodities that are strictly rationed at fixed prices. For example, wheat is highly subsidized but is not rationed, and production is not strongly controlled. Wheat has only an indicative area allotment, with delivery quotas reported only as a special case in some land reform cooperatives.⁴⁸ Delivery quotas have not been enforced since 1977. Rice, on the other hand, is rationed for consumers; production is controlled by area allotment and compulsory delivery quotas at a price fixed below the market. The area allotment for rice, however,

⁴⁷ William Cuddihy, *Agricultural Price Management in Egypt* (World Bank Staff Working Paper No. 388 (Washington, D.C.: International Bank for Reconstruction and Development, 1980)).

⁴⁸ This may be part of the payment for land, though no continuation of this is currently available.

Table 13—Food policy instruments applied to specific commodities, 1979/80

Commodity	Price Policy and Procurement			Government Distribution	
	Nominal Protection Coefficient	Delivery Quota with Fixed Prices	Area Allotment	At Fixed Subsidized Price	Rationed
Wheat (flour, bread)	0.48	N	L	S	N
Rice	0.49	S	S	S, L ^a	S, L ^a
Maize	0.69	N	L	L, N ^b	N
Sorghum	0.70	N	N	N	N
Beans	0.71	S	S	S	L
Lentils	0.68	S	S	S	L
Sugar	0.36	S	S	S, L ^a	S, L ^a
Oil	0.62	...	...	S, L ^a	S, L ^a
Meat, poultry	1.43	S	...	L, N ^b	L, N ^b

Sources: Derived from unpublished data of the Ministry of Agriculture and the Ministry of Supply and Home Trade.

Notes: S means that the controls are strictly enforced, L that they are loosely enforced, and N that they are not enforced at all.

^a The government distributes a strictly rationed basic quantity of this food. An additional quantity is sometimes provided at higher prices, if supplies allow.

^b A fixed price ration is sometimes provided but is not assured; the food is also sold without restrictions on prices or quantities.

... The quota is for farmers who fatten their cattle solely with subsidized feed provided by the Ministry of Agriculture.

does allow for elastic supply adjustments.⁴⁹

Quotas for the delivery of rice allow the government a savings over the cost of procurement on an open market. The quota is assessed per feddan and can be viewed as a lump sum tax equal to the quota times the difference between the government purchase price and the open market price. It is a fixed cost of production for the paddy grown on the government-allotted areas. Once the farmer makes the decision to produce rice, the open market price determines the intensity of inputs and the marketing of production at the margin.

The delivery quota (as distinct from the acreage quota) can be viewed as a means of saving the Ministry of Supply costs of procurement but may not be necessary to guarantee the flow of rice from the villages to the cities.⁵⁰ Nevertheless, apart from the

tax revenues that would be lost, the elimination of delivery quotas for rice would entail an additional difficulty, as handling domestic procurement through price policy entails some risks with which the government has little experience. A miscalculation of the proper floor price for rice, or bureaucratic inflexibility, could leave the Ministry of Supply without stocks to distribute to non-producing areas. This concern differs from negotiating imports of wheat when Egypt's purchases may be too small a percentage of world trade to influence the world price.

Wheat procurement at the time enforcement of delivery quotas was ended in 1977 contributed only a relatively small amount to budgetary and foreign exchange savings, and it constituted only a small portion of domestically distributed supplies. For wheat production to be large enough for procure-

⁴⁹ The acreage response elasticity to own-price change of rice is estimated to be 0.53. The delivery quotas are defined by the Ministry of Agriculture according to regional yield levels. They are set at about 50 percent of the average yield. Joachim von Braun, "Agricultural Sector Analysis and Food Supply in Egypt," draft report of the Joint Project of the Institute of Agricultural Economics, University of Göttingen, Institute for Agricultural Economics, and the Institute of National Planning, Cairo, 1980. (Mimeographed.)

⁵⁰ de Janvry estimates that the positive effect on income that would result if procurement were done voluntarily at open market prices would not reduce the marketed surplus of rice sufficiently to result in urban shortfalls (A. de Janvry, personal communication, June 1981).

ment to make a major contribution, cotton and clover acreage would have had to be reduced. Controls of wheat acreage were not necessary to maintain production in part because the high price of wheat straw for fodder allowed for a competitive net revenue for the crop. Furthermore, as wheat is still a major subsistence crop in the winter season, its supply is relatively inelastic.

The release of wheat supply control became feasible for Egyptian policymakers when food aid, concessional imports, and international prices became more favorable in the second half of the 1970s. At this time, too, new sources of foreign exchange made reliance on the world market less of a burden.

Subsidized Food in a Rural Setting

In recent years the subsidy system has gradually expanded in rural areas, and there are plans to increase subsidized food supplies in villages, especially by extending the network of registered bakeries selling subsidized bread. A case study of subsidized food consumption in rural areas addresses the following questions: How is subsidized food distribution organized on the local level? Do differences in subsidized food supply exist between social and economic groups within villages and between villages of the same region? What are the effects of the system on local food marketing? What is the importance of these goods in the rural consumer market? Does the subsidized food supply affect resource allocation on farms?

The study site is part of the Sharkia governorate in the eastern Nile Delta. Interviews were carried out in nine villages in five districts. The study was part of a second round of a survey on supply behavior of farmers in an environment of government planning and intervention in agriculture.⁵¹ To a basic questionnaire dealing with farm resources, production patterns, yields, prices, stocks of produce, marketing, livestock,

farm management, and so forth, questions were added dealing with food consumption and purchasing, especially: quantities, prices, and sources of basic food items bought during March 1981, the month of the survey, as well as during the preceding year, 1980; availability of subsidized and rationed food and buying conditions (rations and prices); and basic data on food supply facilities in the villages (bakeries, shops, merchants, and so forth).

Only farm households were included, though there were some nearly landless households in the sample; that is, farms of less than 1.5 feddan. The farm-size structure in the study is representative of that of the country.

Farm Size (feddan)	Number of Households
Up to 2	13
2-3	10
3-5	3
More than 5	3

Only five of the villages had bakeries, two of the smallest had no shops selling rationed food, and five had consumer co-operatives. These differences were due to the size of a village, its location, distance to urban centers, and individual characteristics (Table 14).

Each household was asked about current ration regulations. Surprisingly, there were large differences between villages and even within villages (see the Appendix, Tables 31 and 32). Differences between villages in different districts may stem from distribution decisions of the regional distribution committee, whereas differences between villages in the same district may result from decisions of the district (*markaz*) distribution committee. Differences within the villages might arise because households do not know their ration rights or do not care for single items of the ration, or because shopkeepers treat customers unequally so that households pay different prices and receive different quantities.

⁵¹ The survey was conducted as an adjunct to the Ph.D. research of Mamdouh M. Naji of the Institute of Agricultural Economics, University of Göttingen. The sampling procedures are outlined in his forthcoming thesis. Detailed survey results are listed in Joachim von Braun, "The Role of Subsidized and Rationed Food for Food Supply and Consumption in Egyptian Farm Households—Indicators from a Survey in Sharkia Governorate," University of Göttingen, Institute for Agricultural Economics, July 1981. (Mimeographed.)

Table 14—Subsidized food outlets in the survey villages, Sharkia governorate, March 1981

Village	District (Markaz)	Estimated Population	Bakeries	Tamween Shops	Consumer Cooperatives
Telhana	Minyet el Qamh	2,000	1	3	1
Saadana	Minyet el Qamh	700	0	0	0
Menshea	Minyet el Qamh	800	0	0	0
El Wrom	Laqus	5,000	4	3	1
Al Chayashin	Bilbers	8,000	0	1	1
Al Dahaaomou	Abou Kebir	6,000	1	5	1
Shobak Basta	Zagazig	6,500	0	5	1
Shiba	Zagazig	15,000	2	5	0
Nakarea	Zagazig	8,000	2	5	0

Source: Data gathered in a survey of villages, March 1981.

All of these factors might overlap in a particular village. When villagers purchase their ration at the beginning of each month, they are thinking of the basket of food as a whole and not of the individual items. They know the cost of the whole ration better than quantities and prices of the components.

The importance of a particular rationed item in the consumer basket also plays a role. Reported ration regulations for oil and sugar vary much less than those for rice and pulses. Rice is a marginal addition to a farm household's total, and pulses are not strictly rationed (see the Appendix, Table 33). The market price of flour generally exceeds the price charged by the Ministry of Supply in their licensed, subsidized flour shops.

All 29 farm households surveyed reported that a high share of their cereal consumption came from their own produce. Table 15 shows that marketing patterns differ according to the item and the farm size. There are a number of reasons for these variations. Compulsory delivery quotas generally exist for rice and wheat on agricultural reform farms. Larger farms, worked under sharecropping arrangements, leave parts of the crops to the sharecroppers. This appears as marketing. Cash needs on small farms force farmers to sell after harvest and buy again later in the year. Price differentials may make it attractive to sell wheat and buy flour. The purchasing price for flour is far above the fixed price of government-subsidized imported flour because of the perceived

difference in quality. Thus households may exchange part of their own preferred wheat for cheaper flour.

Farmers' decisions on how much land to allocate to wheat depend mainly on the profitability of the whole crop, including straw, which is valued nearly as highly as grain because of the shortage of forage for cattle in the summer.

Small farm households bake more of their own bread than larger ones. A registered bakery in a village increases bread consumption considerably, especially in middle-size and larger farm households. In the five survey villages having a bakery, average per capita bread consumption was 102 kilograms per year. In villages without a bakery, it was 23 kilograms, most of which was bought during occasional visits to an urban center. In the villages with a bakery, families on small farms (less than 2 feddans) consumed 54 kilograms per person annually, compared with 143 kilograms per capita for the households with more than two feddans.

Total cereals available for consumption are calculated to average about 302 kilograms per capita in small farm households and even more on larger farms. Although the figure seems high, it is in line with those of other surveys. According to the 1974/75 family budget survey, per capita consumption ranged from about 215 kilograms for rural low-income groups to 250-340 kilograms for the highest income groups.³²

The larger the farm, the greater the social

³² CAPMAS, *Family Budget Survey 1974-75*. Radwan and Lee reported a median consumption of 259 kilograms per capita (Radwan and Lee, "Anatomy of Rural Poverty").

Table 15—Average production, marketing, and availability of cereals and cereal products in farm households, Sharkia governorate, March 1981

Farm Size	Production			Selling and Buying					
				Wheat		Flour	Rice		
	Wheat	Rice	Maize	Sold	Bought	Bought	Sold	Bought (Rationed)	Bought (Marketed)
	(kilograms)								
Less than 2 feddans	969	2,808	1,147	531	517	176	1,085	16	352
2-4 feddans	1,858	5,539	1,475	727	385	202	2,723	17	2
More than 4 feddans	3,450	9,667	2,753	1,450	...	60	4,333	13	4

Farm Size	Selling and Buying			Total Available Cereals		Degree of Self-Sufficiency
	Maize		Bread	Total	Per Capita	
	Sold	Bought	Bought			(percent)
	(kilograms)			(kilograms of wheat equivalent)		
Less than 2 feddans	54	439	192	2,578	302	96
2-4 feddans	205	82	771	3,315	420	133
More than 4 feddans	233	667 ^b	750	4,936	592	139

Purchases of rationed and subsidized food other than cereals, Sharkia governorate

Farm Size	Rationed Goods				Bought Extra			Calories	
	Lentils	Beans	Oil	Sugar	Lentils	Beans	Oil	Ration	Bought Extra
	(kilograms/household/year)							(1,000)	
Less than 2 feddans	9.5	12.1	24.5	74.8	40.2	191.9	22.2	568.4	803.6
2-4 feddans	8.3	12.9	18.8	62.0	37.9	125.1	24.9	466.3	283.7
More than 4 feddans	12.0	12.0	31.6	75.0	29.0	90.0	16.0	638.3	344.6
Total	9.2	12.4	22.7	69.1	38.0	151.4	22.7	529.9	522.6

Source: Data gathered in a survey of villages, March 1981.

Notes: The average selling prices in the sample were: for wheat, 9.2 piasters per kilogram; for rice (paddy), 8.1; and for maize, 13.7. The average buying prices were: for wheat, 9.7 piasters per kilogram; for flour, 10.3; for rice (paddy), 15.8 (this is the market price), and for maize, 12.0. The prices for maize were derived from a small sample; 11 farms bought maize, 5 sold it.

^a One household bought 200 kilograms.

^b This was used mainly as feed.

responsibilities of the farm family. For example, large farm households may supply family members in urban areas and hold big feasts. As stock changes are not taken into consideration, individual household figures may be distorted somewhat, though this should average out in the aggregation. Feeding animals with the inexpensive flour and bread, as mentioned by some farmers, may be an additional reason for excessive cereal disappearance.

Only 9 of the 29 households (mostly in Zagazig) received their flour from flour shops. The others bought it from village markets or merchants. The price was probably determined by the subsidized flour price at the urban shops, transportation costs, and quality differences. Flour, rationed rice, and bread from bakers accounted for 13 percent of the total cereal consumption of small farm households (less than 2 feddans), 23 percent of medium (2-4 feddans), and 13 percent of large farms.

The rice ration was an almost negligible part of total grain consumption in these households. Some respondents reported that the rationed rice was used as chicken feed due to its poor quality.

A number of farmers expressed the opinion that "one must have one's own wheat and rice." Thus, their production decisions depend on their attitudes toward risk and uncertainty as well as on the competitiveness of crops. These attitudes may be rooted in the historic fluctuations in food supply in Egypt.

The rationed supply of pulses filled only a small share of the demand. On the average, the rationed lentil supply is one quarter and the rationed beans one tenth of the quantities

purchased. Because the survey did not include the farmers' own production, the quantity consumed was higher. Cooking oil from the ration met half the demand of the average household. Sugar was usually obtained only through the ration. Open market prices for sugar were reported to be 30-40 piasters per kilogram. In none of the surveyed villages did consumers have access to subsidized meat or poultry.

About one third of the calorie requirements of farm households were met with rationed and subsidized food (Table 16). The share was smaller for small farm households because they consumed less bakery bread. A larger share of the cereals they consumed was purchased on the open market. The case study suggests that the food subsidy program is not very effective in alleviating poverty in rural Egypt. Although only a part of flour consumption is from Ministry of Supply shops, it is assumed that local flour prices greatly depend on the availability of subsidized flour in urban centers. The figures for flour in Table 16 include flour from all sources.

On the average, the expenditure on these rationed and subsidized foods covers about 13 percent of total household expenditure on food. Differences between farm size groups are large. The share of subsidized and rationed food in total expenditure is smaller for the smallest farms because this group spends more on basic foods on the open market and consumes less subsidized bread. The share is also smaller for the largest farms due to high expenditures on meat and poultry.

The expenditure on rationed and subsi-

Table 16—Total calories from subsidized foods in case study households, Sharkia governorate, 1981

Farm Size	Flour	Rice, Bread	Rationed Pulses, Oil, Sugar	Total	Total Share of FAO Calorie Requirements
					(percent)
		(kilocalories person day)			
Less than 2 feddans	178	166	183	527	21
2-4 feddans	258	673	175	1086	43
4 feddans	63	609	211	883	34
Total	500	1448	569	2517	32

source: Data gathered in a survey of villages, March 1981.

dized food is estimated to be about 7 percent of total income of farm households as calculated from deflated figures by farm size from an International Labour Organisation survey.⁵³

This case study indicates that the food subsidy and rationing system directly affects rural Egypt. This is shown by the importance to farm households of subsidized and rationed food for calorie value, share in food

expenditures, and household income. In addition, there may be indirect effects on price relationships of non-rationed and subsidized food, labor mobility, and agricultural taxation and regulation. The high degree of marketing activity in subsidized foods and their competitors (wheat, flour, bread) found even among the very small farms indicates allocation effects that may have distributional implications as well.

⁵³ Radwan and Lee, "Anatomy of Rural Poverty."

CURRENT FOOD POLICY OPTIONS

Current food policy is still influenced by recollections of the January 1977 riots that followed announcement of price increases for regulated sugar, all rice, *shamy* and other breads from 72 percent-extraction flour, and pasta (Table 17). Prices of *balady* bread and rationed sugar were not affected. The government also announced increased prices for butagas, gasoline, cigarettes, and domestically produced appliances and raised custom fees for imported cars and household goods. At the same time, increases in wages and pensions were reported and the intention to raise public investment, mainly for housing, was announced. The intention of the policy change was to save LE 227 million, or 35 percent of the 1977 subsidy budget. All price rises were rescinded following the disturbances.

This incident and a similar one in Peru are frequently presented as examples of the difficulty a government faces in attempting to modify a long-standing policy of subsidizing basic commodities. The risks were recognized in Egypt in 1977. What prompted the government to confront those risks at that time? In fact, in 1976 a number of economic indicators seemed to point toward reduced pressures on the subsidy system. World prices of food had been declining and domestic production of oil had begun to approach exportable levels. The government deficit had declined from the previous year. Even the sizable trade imbalance had declined slightly. Tourism, workers' remittances, and canal receipts had increased, making for a substantial decline in the current accounts deficit. Trends, however, do not pay bills. Because foreign reserves were limited, aid, investments, or loans were needed to fill the gap. Egypt's foreign debt at the beginning of 1977 was LE 4.824 billion (72 percent of GDP of 1976), and further lines of credit were restricted.⁵⁴ Some of this debt came

from rolling over the short-term loans that were required to finance food imports prior to 1974 when food aid increased.⁵⁵ The debt outstanding in 1977 included LE 834 million of these short-term loans, repayable within a year at interest rates of 15-18 percent.

Though the Gulf Organization for the Development of Egypt, a consortium of leaders from Arab states, refused to grant a loan of U.S. \$1 billion to fund the balance-of-payments deficit in late 1976, it granted a loan of \$1.5 billion within a month following the riots. Similarly, International Monetary Fund credits, bilateral loans, and credits from commercial banks were obtained in

Table 17—Price increases announced and rescinded after riots in January 1977

Subsidized Items with No Price Increase	Items with Price Increase	Increase (percent)
Balady bread	Eimo bread	50
Beans	Refined flour (72 percent extraction)	67
Lentils	Regulated sugar	4
Rationed sugar	Rationed rice	20
Cooking oil	Tea	Subsidy can- celled
Imported meat	Yellow maize	Subsidy can- celled
Fertilizer	Butagas	46
Insecticide	Gasoline	26-31
	Cigarettes	Various amounts

Source: *Al-Ahram*, January 18-21, 1977.

⁵⁴ *Quarterly Economic Review of Egypt*, 1st Quarter, 1977.

⁵⁵ Ahmed A. Gough, "Food Security in Africa: With Special Reference to Egypt," paper presented to Food Security in a Hungry World: An International Food Security Conference, San Francisco, Cal., March 4-6, 1981.

the first quarter of 1977. These actions enabled Egypt to pay off short-term obligations and relieved the pressures that helped influence the decision to increase food prices.⁵⁶

Although the price rises were rescinded, the government continued to state publicly that it intended to reduce and eventually eliminate all subsidies except those on bread.⁵⁷ An interministerial committee was established in 1979 to investigate means of achieving this goal, recognizing that the improved fiscal position of the government allowed for a gradualist approach. Two such modifications were introduced in early 1980: ration books were reissued with a slight reduction in eligibility, and nominal market prices for bread and flour were raised.

Records for eligible households were updated when the ration books were reissued. Members who had died, emigrated, or registered elsewhere were removed. Amnesties were granted from fines for misrepresentation. At the same time, families with holdings greater than 10 feddans, factory owners, people with more than LE 3,000 in bank accounts, Egyptians who had been abroad for more than five years, and owners of stock in joint venture companies were prohibited from obtaining books.⁵⁸ The restrictions proved somewhat modest: Ministry of Supply records indicate 300,000 fewer families had ration books in 1980 than in 1979 (a reduction of 3.7 percent).

In February 1980, after the price increases for bread and flour, *balady* bread was still available at a half piaster but it was baked with 93.3 percent-extraction flour instead of 87.5 percent. A special *balady* loaf made from 82 percent-extraction flour was introduced at 1 piaster. This loaf was 25 percent larger than the old *balady* loaf. *Shamy* and *fino* breads remained the same price and size but were made from domestically milled, 82 percent-extraction flour instead of imported 72 percent. As this imported flour was no longer to be used for bread, the official price was raised to 12 piasters a kilogram. This policy was designed to increase the value added in local milling as well as to reduce the subsidy.

The major challenge to this policy came from bakers rather than from consumers. Although the price bakers paid for flour to make *balady* bread declined slightly, the cost of flour per loaf of special *balady* increased more than the selling price. Bakers perceived that the new regulations, which also were designed to give them more profit per loaf on *fino* and *shamy* breads, did not allow them sufficient profit margins, especially in the face of rising labor costs. For three days in February 1980 they stopped or slowed production in Cairo and Alexandria, and consumers were frequently unable to purchase bread.

In July the regulations concerning bread were modified again. The coarse *balady* bread was removed from the market, leaving only the special *balady* bread plus two sizes of *shamy* bread and three of *fino*. All but the *balady* bread were to be produced from 72 percent-extraction flour as they had been prior to February. However, the loaves of *shamy* and *fino* bread, at 1 piaster, were smaller than those baked before the new regulations. Other loaves of these breads were priced in proportion to their size. The price bakers paid for 82 percent-extraction flour was reduced from LE 6.20 per 100 kilogram sack to LE 5.00. The price to bakers for imported flour increased slightly, but product prices to consumers increased more, allowing greater profit.⁵⁹

The two regulations on bread prices and sizes were steps in the elimination of the half piaster loaf. Consumers were first given the choice between a cheap *balady* bread of slightly reduced quality and a more expensive loaf of somewhat higher quality. Eventually the lower-quality bread was removed from the market. The strategy of adjusting prices by making small changes in a product is also a means used by public-sector companies to raise prices of manufactured goods.

Rising prices in the world market and local shortages pushed Egypt into announcing a price increase for sugar in late 1980 when the London price of sugar was four times that of January 1979. A request by the Ministry of Supply in conjunction with the Ministry of Economy to increase the price of

⁵⁶ *Quarterly Economic Review of Egypt*, various issues.

⁵⁷ *Arab Report and Record*, citing a speech by the Minister of Economy, February 25, 1977.

⁵⁸ *Egyptian Gazette*, February 1, 1980.

⁵⁹ *Egyptian Gazette*, September 10, 1980.

sugar purchased above the rationed quantities was signed by the vice president. When warning strikes occurred in Helwan and Alexandria, however, the order was cancelled the following day.

One other incident in 1980 illustrates the role of the government in price stabilization. Recognizing that the nearly 50 percent increase in the wholesale price index for meat in 1980 was leading to domestic inflation and that the Bairam feast would add demand pressures, the government banned slaughter of livestock during September. Transport of cattle was also prohibited during the first half of the month, but relaxed during the second so that shipments could anticipate the need following the lifting of the ban. During the month extra quantities of frozen meat, fish, poultry, and eggs were provided by the government, but open market prices of the latter three rose during this period. The local press, probably reflecting public opinion, charged that these price increases resulted from "greedy merchants" exploiting the ban. Similarly, middlemen were blamed for the upward pressure on meat prices.⁶⁰

After the market glut that occurred when the ban was lifted had subsided, the government issued price ceilings for meat. Sales were prohibited on four days per week as they had been prior to the ban. Recognizing that rising urban demand would continue to place pressure on prices, the Ministry of Supply stepped up imports of both meat and poultry, despite rising world prices. Similarly, efforts were made to increase the availability of fresh meat, either from domestic production or imports. These policy moves were more an attempt to stabilize prices than to achieve consumption targets.

Options Under Discussion

The modifications of the subsidy system in 1980 were minor, but they may have been preliminary steps toward wide-ranging re-

forms. During the first months of 1982 the role of subsidies in the economy was widely discussed in the press and in conferences of economists and administrators.⁶¹ It is recognized that without a clearly expressed national mandate, such as occurred in Jamaica and Sri Lanka, any departure from historic commitments to provide basic necessities at low prices carries political risks. It is also widely held that gradual changes undertaken at the beginning of a decade in anticipation of the probable economic situation in the middle may prevent the need for more abrupt changes later.

The incidents related here demonstrate the difficulty in reducing the total subsidy bill by simply raising either the ration price or the regulated price. In recognition of these difficulties, discussion has centered on which items should be changed and how to make such changes more palatable. One suggestion proposes a gradual elimination of subsidies: say, an annual reduction of 20 percent over five years. Other approaches recognize that wheat flour and bread have a central role in food purchases and may require a different rate and degree of subsidy elimination. A different policy for domestically produced commodities than for imported goods has also been proposed.

In lieu of an arbitrary timetable, some economists seek to link elimination of subsidies to growth in GNP or in wage earnings. Productivity growth would probably be included in such a plan. Another proposal is that the government place a ceiling on the growth of the system rather than reduce subsidies. Subsidies would make up a smaller percentage of the national account as the economy grows. It also has been proposed that the subsidy bill be reduced by targeting the program. This could be achieved by limiting the number of recipients or the foods that are subsidized.

Recognizing that subsidies supplement wage incomes, especially in the public sector, proposals to compensate workers are frequently offered. To prevent a decline in real incomes, the government could raise

⁶⁰ *Egyptian Gazette*, October 12, 1980.

⁶¹ The options under discussion here are collected from papers and statements from the Economic Conference, Cairo, February 13-15, 1982, and personal communications with experts on the subsidy issue during January-April 1982, in particular, Ismail Badawy, deputy minister of the Ministry of Economy, Ahmed Abdel Ghaffar, first undersecretary of the Ministry of Supply and Home Trade, Mostafa El Saad Ibrahim, vice dean and professor of economics, Cairo University, Saad Bayghout, undersecretary of the Ministry of Economy, and Ibrahim Helmi Abdel Rahman, economic advisor to the government and chairman of the Economic Conference.

wages for public employees and increase minimum wage rates. Private-sector earnings would also need to be considered under such a program, and therefore the government would require appropriate instruments for influencing the earnings of artisans and self-employed merchants. Alternatively, the government could achieve this end by allowing the market to determine wages in all sectors and by indexing lump-sum transfers from the treasury to prices. Unlike the proposal using wages and prices to determine subsidies, this strategy allows for a more exogenous determination of subsidies. However, it is argued, this linkage is potentially inflationary. A more indirect means of moderating the burden of subsidies is a proposed program of investment in housing, which would reallocate some of the previous subsidy budget.

These reforms do not require any substantial change in the method by which foods are distributed or their prices determined. Other suggested reforms are designed to increase the flexibility of the food system and to allow for market-determined prices. These proposals include agricultural pricing policy. The food subsidies include not only the import costs of subsidized items but also the opportunity cost of items such as rice.

Food stamps have been discussed as a means of retaining benefits currently attributed to the subsidy system while shifting to a market determination of food prices. The stamps would be for specific commodities but would be freely negotiable—that is, they could be traded or redeemed for cash. In effect, then, they could be a variation of the earnings indexing described above, but a food stamp program could be designed to closely resemble the current distribution system. Various means of phasing in the transition to market-determined prices with food stamps are being considered. The possibility of limiting the coupons to a subset of the population is also being discussed.

The effects of these and other proposals on the Egyptian consumer can be fully assessed only within the context of the current marketing and production system, including the ration system. In addition to its primary function as an income transfer system, the food subsidy system is a major component of the government trading system and a means of coping with underdeveloped marketing channels. An alternative proposal for reducing government expenditures for subsidies would improve the efficiency of the system by cutting handling and waste costs and by improving management and technology.

There is almost no disagreement among leading Egyptian government officials and economists that the food subsidy and rationing system needs modification. The arguments concern timing, phasing, and selection of instruments. Political considerations make a gradual adjustment of the current system more likely than a fundamental change.

Research Needs

The first question that needs to be addressed in any comprehensive study of food subsidies in Egypt is, "What, if anything, is the problem?" To be sure, Egypt's economy, like most others in the world, is experiencing a number of strains, but the extent to which current food policies contribute to the problem is not fully known.

Questions at the Macro Level

Research on the following questions offers potentially high returns.⁶²

What is the effect of subsidies on inflation? Macroeconomic modeling could elucidate the effects of subsidies on domestic money creation, taking into account both domestic borrowing to meet the deficit and the draw-

⁶² A number of macro models for Egypt exist. As in any complex model, the ones on Egypt include a number of assumptions that are subject to discussion. For example, in Taylor's Keynesian model, the results appear to be a consequence of the assumption that government investment and consumption are fixed. To a large degree, this assumption determines the deficit and hence the national income. See Taylor, "Food Subsidies," Lance Taylor, *Macro Models for Developing Countries* (New York: McGraw-Hill, 1979); R. Eckaus, J. McCarthy, and A. Mohie El Din, "Multi-Sector General Equilibrium Policy Model for Egypt," Development Research and Technological Planning Center, Cairo University, no date; Eckaus and Mohie El Din, "Consequences of Changes," and Y. Bontros Ghali and Lance Taylor, "Basic Needs: Macroeconomics Is It Manageable in the Case of Egypt?" *Journal for Policy Modeling* 2 (September 1980): 409-436.

down of foreign exchange. Related issues are the effects of subsidies on wages and the potential effects of wage subsidy linkages.

What is the marginal impact of subsidies on government spending? In macromodels that take government spending as exogenous, the marginal effect of the subsidy bill may be buried in assumptions of alternative spending. The short-run impact on aggregate income will be influenced by the degree to which savings in subsidies translate into smaller deficits. In the longer run national economic growth will be influenced by the marginal propensity to invest rather than to consume out of the subsidy savings retained in the government sector. Such questions are policy oriented and do not lend themselves to neat estimates, but narrowing down the range of uncertainty will help in modeling effects.

The investigation of the trade-off between current public consumption and capital expenditures may include the economic costs of raising revenues. If the ability to raise revenues is moderately costless or if the marginal returns on investment are low due to bottlenecks, the competition of investment and consumption claims on the government's budget will have fewer consequences than otherwise.

What are the effects of foreign exchange requirements on exchange rates? This issue has been addressed by Grant Scobie.⁶³ One question is whether consumption goods, investment goods, or inputs are crowded out by the imports of subsidized food.

Questions on the Agricultural Sector

To what degree does subsidy policy establish constraints that determine agricultural policies? The effects of agricultural policies have been, and are being, thoroughly studied, but, given the complexity of government objectives, investigating the linkages of policies may reveal options not obvious when each policy is viewed in isolation.

What are the effects of the subsidy bill on investment in agriculture, both in government and in the private sector?

What are the resource allocation costs resulting from a food policy that applies different instruments for regulating and directing production

and marketing of various commodities? Similarly, if the product mix varies by farm size, one needs to know the distributional effects of these instruments. One would want to model the indirect effect of the subsidy system on producers' allocative decisions.

Allocative Efficiency Questions

What are the allocative efficiencies of the implicit and explicit subsidies? Consumers, of course, maximize according to the prices they face. This may be within the consumption frontier of the society in general because the economy must bear the scarcity costs of the consumption bundle. As an illustration, one such issue is the allocative costs inherent in a wheat-rice price ratio that differs from the opportunity cost on the world market.

What costs are inherent in nonprice allocation mechanisms? Because no marketing system is without friction, there are search costs—both in time spent in obtaining information and in waiting in lines when commodities are scarce—that reduce the net utility of a purchase to a consumer. This may be a dead-weight loss to society that results in reallocation of purchases in a manner not directly predictable by price and income information. Such a model would require observations on the actual marketing behavior of consumers, including the channels of purchase as well as the commodities chosen.

Welfare and Distribution Questions

What are the welfare effects of the quotas? Are the authorized quotas a regressive or progressive system of resource transfer, compared to other market mechanisms with or without programs of income transfer? Is there any systematic pattern of deviations from regulations that hinders a group of consumers from obtaining regular access to authorized deliveries of subsidized goods? Similarly, is there equity in access to bread and flour as well as to commodities at regulated price levels? Such equity transfers can be approached as absolute values of implicit transfers, transfers as a percentage of income or consumer surplus, as well as other indicators. A greater degree of disaggregation

⁶³ Scobie, *Government Policy*

of data on purchases than is currently available must be obtained for any detailed analysis.

What are the nutritional implications of any change in subsidy policy? Reallocations of household budgets and government spending may mitigate the welfare loss from rising food prices, a process in accord with allocative efficiency. But the nutritional consequences of the reduction in food intake depend, in part, on the size of the reduction.

What are the effects on equity of alternative inflation scenarios? The fact that the current system holds certain prices nearly constant in nominal terms may indicate a shifting of the burden of inflation to specific groups of consumers. Disaggregation of price indexes is the obvious starting point for such analysis but, again, this requires new data.

What are the effects on equity of raising revenue to support the subsidy bill? This issue

is related both to the effects on national savings as well as to agricultural policy. To be complete, a study of the net welfare effects should ask whether the source of spending is neutral or is borne disproportionately by a subset of the population. A related equity issue is the trade-off between generations. What burden is being placed on future generations—in forgone growth as well as in national debt—for current benefits?

Obviously, the political issues are far more complex than the issue of food subsidies alone. However, a deeper understanding of the issues involved in the management and planning of subsidies may allow modifications that achieve the goals of the system with less sacrifice of other goals of the economy. In order to improve such understanding, IFPRI is currently analyzing some of the questions raised above.

APPENDIX: SUPPLEMENTARY TABLES

Table 18—Monthly quotas of rationed food commodities by selected governorate, March 1981

Governorate	Rice ^d		Rationed Oil		Regulated Oil		Beans Rural and Urban	Lentils		Sugar	
	Urban	Rural	Urban	Rural	Urban	Rural		Urban	Rural	Rationed Sugar	Regulated Sugar
	(kilograms)		(grams)		(grams)			(kilograms)		(grams)	
Kafr-El-Sheikh	5 card	2 card	500 person	150-600 person ^e	100 person	150 person	1 card	No regular supply	No regular supply	750 person	750 person
Sharkia	1 person	No regular supply	500 person	150 person	100 person	150 person	1 card	1 card	No regular supply	750 person	750 person
Mena	6 card	4 card	500 person	150 person	n.a.	150 person	1 card	1 card	1 card	750 person	750 person
Asyut	4 card	2 card	n.a.	150 person	n.a.	150 person	1 card	1 card	1 card	750 person	750 person
Qena	1 person	0.5 person	500 person	150 person	150 person	150 person	1 card	1 card	1 card	750 person	750 person
Cairo	1 person	1 person	450 person	450 person	No limit	No limit	1 card	1 card	1 card	750 person	No limit person
Ismailia Suez Port-Said	1.5 person	1.5 person	700 person	700 person	700 person	700 person	2 card	1.5 card	1.5 card	750 person	750 person

Source: Conversations with staff of regional offices of the Egyptian Ministry of Supply and Home Trade.

Notes: The prices of these commodities were: for rice, 5 piasters per kilogram; for rationed oil, 10 piasters per gram; for regulated oil, 50 piasters per gram; for beans, 10 piasters per kilogram; for lentils, 11 piasters per kilogram; for rationed sugar, 10 piasters per gram; for regulated sugar, 50 piasters per gram. Where n.a. appears, the figure was not available.

^e The ration for those in coastal areas was 450-600 grams per person; in other rural areas it was 150 grams per person.

Table 19—Quantities of rationed and regulated sugar, tea, and oil, 1975-80

Year	Sugar				Oil				Tea			
	Rationed	Regulated	Total	Percent Rationed	Rationed	Regulated ^a	Total ^b	Percent Rationed	Rationed	Regulated	Total	Percent Rationed
	(1,000 metric tons)			(percent)	(1,000 metric tons)			(percent)	(1,000 metric tons)			(percent)
1975	528.1	565.5	695.6	47	127.7	17.9	168.8	76	16.9	18.6	55.5	48
1976	542.1	408.2	750.5	46	129.5	15.4	172.6	75	17.5	20.1	57.6	47
1977	552.1	457.5	809.4	45	132.6	21.2	182.4	75	17.8	19.4	57.2	48
1978	558.1	550.7	888.8	40	155.2	50.5	192.4	70	18.5	18.6	56.9	50
1979	556.8	488.9	845.7	42	155.2	57.5	196.4	68	18.1	18.2	56.5	50
1980	558.8	690.2	1,029.0	55	129.5	54.9	214.0	61	17.4	17.4	54.8	50

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

^a This is first quality oil.

^b This includes rationed and regulated oil and first- and third-quality oil for shops. Third-quality oil can be converted to a first-quality equivalent by dividing by 1.14.

Table 20—Tamween shops, cooperatives, and registered ration books by governorate

Governorate	Tamween Shops 1981	Cooperative Outlets 1979	Average Number of Ration Books per Tamween Shop	Number of Ration Books 1981	Number of Individuals	Households Registered at Their Workplace
					(1,000)	
Cairo	1,762	750	672	1,183	5,537	69
Alexandria	1,196	190	451	539	2,476	58
Port-Said	130	80	555	72	316	3
Ismailia	251	62	339	86	438	1
Suez	92	23	500	46	231	3
Damietta	524	80	238	125	622	10
Kalyubia	1,069	132	318	340	1,652	44
Mumofia	1,539	137	249	383	1,817	10
Gharbia	3,433	388	151	517	2,426	19
Kafr-El-Sheikh	1,283	185	215	275	1,451	8
Behera	2,617	192	186	487	2,595	20
Sharkia	2,498	112	218	545	2,628	13
Dakahlia	2,738	418	225	615	2,957	3
Giza	2,171	375	223	485	2,413	11
Fayum	1,051	211	227	239	1,154	6
Beni-Suet	1,038	121	224	233	1,111	
Memi	2,962	186	151	447	2,017	12
Asyut	1,864	119	186	346	1,711	39
Suhag	1,894	120	180	340	1,767	39
Qena	1,261	152	269	339	1,637	29
Aswan	553	240	243	135	647	
Red Sea	30	10	426	13	64	1
New Valley	65	13	1,411	92	19	0
Matruh	67	15	315	21	137	1
Sinar	85	3	1,251	136	78	11
Total	32,167	4,314	9,423	7,844	37,976	501

Sources: Unpublished data from the Egyptian Ministry of Supply and Home Trade and Central Union for Consumers Cooperatives.

Table 21—Producer prices of selected crops, 1980

Governorate	Wheat	Paddy	Maize	Sorghum	Beans	Lentils
				(E.E. ton)		
Behera	76.7	81.3	127.1	n.a.	180.6	n.a.
Gharbia	87.3	81.5	131.4	n.a.	187.1	n.a.
Kafr-El-Sheikh	81.3	81.4	110.7	n.a.	181.9	n.a.
Dakahlia	84.0	81.3	113.6	n.a.	193.5	n.a.
Damietta	81.3	83.8	127.8	n.a.	208.4	n.a.
Sharkia	77.3	81.3	117.9	n.a.	190.3	n.a.
Ismailia	86.7		117.9	n.a.	187.1	n.a.
Mumofia	86.7	81.8	117.1	n.a.	193.5	n.a.
Kalyubia	82.0	76.7	125.7	n.a.	193.5	n.a.
Giza	80.0	80.3	127.9	101.4	208.4	n.a.
Beni-Suet	80.7		120.7	97.1	220.6	n.a.
Fayum	80.0	78.3	124.3	100.7	219.4	n.a.
Memi	98.7	81.6	124.3	95.4	193.5	312.5
Asyut	100.9		150.0	111.4	205.2	285.9
Suhag	106.7		135.7	125.0	212.9	312.5
Qena	108.7		138.0	127.8	193.5	306.3
Aswan	100.0		135.7	125.0	193.5	316.3
General average	88.0	81.3	119.4	118.6	199.3	294.4

Source: Egypt, Ministry of Agriculture, unpublished data.

Note: Where n.a. appears, the figure was not available.

Table 22—Wheat and flour production, imports, and consumption, 1970-80

Year	Wheat			Imported Flour	
	Production	Imports	Consumption	Imports	Consumption
(1,000 metric tons)					
1970-71	1,516	2,207	3,338	260	581
1971-72	1,729	1,992	3,566	569	553
1972 ^b	1,616	2,082	3,739	432	541
1973	1,857	2,534	4,060	459	546
1974	1,884	2,739	4,300	600	557 ^a
1975	2,033	2,939	4,473	702	646
1976	1,960	2,822	4,743	639	679
1977	1,697	3,392	5,069	764	811
1978	1,933	3,974	5,425	1,145	967
1979	1,856	3,382	5,519	1,097	1,079
1980	1,796	4,351	5,829	899	1,142

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

^a Imports and consumption of imported flour in 1974 included 145,000 tons of 82 percent-extraction flour. In 1975, 58,000 tons of this flour were imported. All other flour imports were 72 percent-extraction flour.

^b The fiscal year did not coincide with the calendar year before 1972.

Table 23—Production, consumption, and exports of rice, 1970-80

Year	Paddy Production	Rice		
		Disbursement Through the Ministry of Supply	Village Rice Consumption	Exports
(1,000 metric tons)				
1970-71	2,604	187	819	646
1971-72	2,534	199	912	539
1972 ^a	2,505	282	926	493
1973	2,507	354	976	306
1974	2,272	447	887	172
1975	2,239	436	900	100
1976	2,418	553	787	228
1977	2,352	537	815	200
1978	2,272	524	795	154
1979	2,350	523	819	175
1980	2,511	616	836	100

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

Notes: The Ministry of Supply treats the December rice harvest as part of the following year's production. This is consistent with its interest in consumption, but differs from the agricultural year used by the Ministry of Agriculture. For example, the Ministry of Agriculture reports the 1980 harvest as the 1980 crop year, whereas the Ministry of Supply reports it as 1981.

^a The fiscal year did not coincide with the calendar year before 1972.

Table 24—Production, imports, and consumption of lentils and beans, 1970-80

Year	Lentils			Beans		
	Production	Imports	Consumption	Production	Imports	Consumption
(1,000 metric tons)						
1970/71	33	7	58	277		267
1971/72	50	12	61	256	26	206
1972 ^a	54	7	61	361	11	243
1973	62	13	65	273	...	201
1974	51	13	62	234	22	294
1975	39	53	82	234	110	312
1976	38	68	89	254	82	296
1977	23	50	75	270	26	239
1978	16	49	87	221	18	285
1979	9	58	72	226	33	251
1980	7	61	63	213	37	247

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

^a The fiscal year did not coincide with the calendar year before 1972.

Table 25—Production, imports, and consumption of sugar and cooking oil, 1970-80

Year	Cooking Oil			Sugar		
	Production	Imports	Consumption	Production	Imports	Consumption
(1,000 metric tons)						
1970/71	121	132	226	576	...	526
1971/72	115	118	236	578	...	566
1972 ^a	136	125	263	577	...	577
1973	135	126	260	572	...	608
1974	138	151	291	530	103	604
1975	95	219	205	502	222	694
1976	85	188	294	580	246	750
1977	90	227	328	618	202	809
1978	86	273	366	573	330	889
1979	96	292	384	602	258	846
1980	106	264	411	585	515	1,029

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

^a The fiscal year did not coincide with the calendar year before 1972.

Table 26—Ratio of the distribution of selected commodities in 1980 to their distribution in 1978 by governorate

Governorate	Wheat	Imported Flour	Rice	Rationed Sugar	Rationed Oil	Regulated Sugar	Regulated Cooking Oil
Cairo	1.043 ^a	1.011 ^a	0.734	0.894	0.919	1.084	1.341
Alexandria	1.004	0.920	0.790	0.920	0.978	1.252	2.049
Port Said	0.900	0.786	0.895	1.044	1.090	1.853	1.281
Ismailia	...	0.881	0.861	1.014	0.930	1.365	2.723
Suez	...	0.724	0.682	1.133	1.080	1.283	1.758
Damietta	0.943	1.282	0.726	0.934	0.898	1.390	1.276
Kalyubia	0.969	0.850	1.089	1.007	1.002	1.424	2.079
Munufia	0.984	1.143	1.009	0.970	1.019	1.670	2.912
Gharbia	1.200	1.027	0.993	0.896	0.961	1.435	1.420
Kafr-El-Sheikh	1.170	1.203	1.031	0.898	1.006	1.487	1.921
Behera	1.069	1.139	1.000	1.177	0.966	1.663	1.959
Sharkia	1.020	1.194	1.012	0.881	0.909	1.395	2.006
Dakahlia	0.913	1.383	0.926	0.920	0.988	1.349	1.718
Giza	...	...	0.863	1.002	0.975	0.934	2.279
Fayum	1.327	1.026	0.991	0.991	0.866	1.720	3.051
Beni-Suef	1.198	1.195	0.972	0.951	0.940	1.430	2.427
Menia	1.052	1.023	0.968	0.940	0.842	1.580	1.871
Asyut	1.143	0.724	0.991	0.907	0.884	1.457	16.805
Suhag	1.294	0.739	1.033	0.897	1.026	1.711	3.049
Qena	1.262	1.009	0.972	0.870	0.920	1.591	2.179
Aswan	1.323	0.592	1.057	1.162	1.015	1.444	1.004
Matruh	...	0.525	1.030	0.917	0.963	1.376	2.219
Sinai	...	...	3.530	8.019	5.811	9.020	6.571
Red Sea	...	0.767	0.743	1.016	0.963	1.078	1.250
New Valley	5.450	0.684	0.961	1.024	0.956	1.451	1.545
Total	1.097	1.017	0.861	0.945	0.958	1.301	1.802

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

Note: The data used for this table include wheat transported between governorates.

^a The figures for wheat and imported flour for Giza are included in the figures for Cairo.

Table 27—Availability of cereals by governorate, 1980

Governorate	Production 1980				Procured Paddy 1980/81	Animal Feed ^a		Cereals Available Net of Procured Rice ^b
	Wheat	Rice (Paddy)	Maize	Sorghum		Maize	Sorghum	
	(metric tons)							
Alexandria	4,731	12,991	15,507	...	6,975	12,018	...	12,251
Behera	181,959	439,954	324,625	...	240,133	251,584	...	388,880
Gharbia	128,319	239,393	276,379	...	127,978	214,194	...	264,152
Kafr-El-Sheikh	134,689	514,560	152,468	...	227,450	118,163	...	361,358
Dakahlia	194,904	646,160	185,659	...	312,996	143,886	...	459,897
Damietta	13,447	122,035	16,063	...	59,873	12,449	...	58,709
Sharkia	236,106	357,183	421,591	...	171,538	326,733	...	455,346
Ismailia	10,815	6,382	40,496	...	4,221	31,384	...	21,375
Suez	1,424	380	3,229	...	...	2,502	...	2,406
Munufia	104,736	616	361,116	...	328	279,865	...	186,399
Kalyubia	46,078	7,951	159,603	...	5,808	123,692	...	83,425
Cairo	715	323	4,505	...	...	3,491	...	1,945
Giza	28,096	766	209,072	6,399	751	162,031	4,940	76,606
Beni-Suef	66,270	164	241,853	9,099	115	187,436	7,024	122,795
Fayum	86,639	35,038	122,758	59,231	23,193	95,137	45,726	135,699
Menta	133,349	206	397,582	7,802	156	308,126	6,023	224,618
Asyut	145,164	...	99,403	212,723	...	77,037	164,222	216,031
Suhag	153,196	...	105,411	263,006	...	81,694	203,041	236,878
Qena	106,814	...	77,846	67,692	...	60,331	52,258	139,763
Aswan	18,986	...	15,909	16,569	...	12,329	12,791	26,344

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), unpublished data.

^a These figures were calculated as follows: figures for human consumption of maize and sorghum were taken from the CAPMAS family budget survey for 1964/65 and 1974/75 and the decline in consumption during the period 1964/65-1974/75 was extrapolated to 1980. A ratio of human consumption to total production is calculated for the whole country and used to estimate the share of animal feed in total sorghum and maize.

^b These figures were calculated by adding the figures for wheat, maize, and sorghum to two-thirds of the figures for procured paddy, and then subtracting the sum of feed maize and feed sorghum.

Table 28—Number of bakeries by governorate, 1981

Governorate	Balady Bakeries		Afrangi Bakeries		Shamy Bakeries		Number per 100,000 of population
	Number	Production (metric tons/day)	Number	Production (metric tons/day)	Number	Production (metric tons/day)	
Cairo	519	1,527	411	366	40	45	17.5
Giza	290	633	143	149	...	...	17.9
Alexandria	447	652	164	178	57	68	27.0
Matruh	19	16	2	3	11	9	23.4
Gharbia	123	244	124	58	...	...	10.1
Behera	100	116	24	26	80	112	8.2
Kafr-El-Sheikh	13	19	5	3	61	49	5.4
Munufia	143	229	41	34	...	...	10.1
Kalyubia	198	409	66	61	...	...	16.0
Sharkia	157	350	106	99	16	17	10.6
Dakahlia	80	109	27	24	94	156	6.8
Damietta	22	22	...	...	53	77	12.1
Port-Said	3	4	15	37	46	104	20.2
Ismailia	39	73	26	33	11	16	17.3
Suez	31	75	29	32	2	3	26.8
Fayum	97	149	17	11	...	...	9.8
Beni-Suef	159	262	16	15	...	...	15.7
Menia	461	560	32	38	4	5	24.6
Asyut	225	262	19	...	...	...	14.3
New Valley	6	10	3	1	...	...	47.4
Suhag	167	228	19	17	...	...	10.5
Qena	54	91	14	22	3	5	4.3
Aswan	55	86	14	14	...	...	10.7
Red Sea	3	5	...	...	7	6	15.6
Sinai	...	...	...	...	6	12	7.7
Total	3,411	6,131	1,317	1,221	491	684	13.7

Source: Egypt, Ministry of Supply and Home Trade, unpublished data.

Table 29—Area, domestic production, trade, consumption, and degree of self-sufficiency, major crops, 1979-80

Crop	Area	Domestic Production	Trade	Consumption	Degree of Self-sufficiency
	(1,000 feddans)		(1,000 metric tons)		(percent)
Wheat	1,359	1,826	+5,165 ^a	6,991 ^b	26
Rice (milled)	1,006	1,640	145	1,495	110
Maize	1,896	3,085	+709	3,794	81
Sorghum	409	639	...	639	100
Beans	282	250	+32	282	89
Lentils	19	8	+67	75	11
Sugar	249	665	+355	1,020	65
Vegetable oil	-	125	+274	399	31
Meat and poultry	-	454	+149	603	75
Cotton ^c	1,145	507	150	357	142
Temporary	1,010	-	-	-	-
Permanent	1,734	-	-	-	-

Sources: Unpublished data from the Egyptian Ministries of Agriculture and Supply and Home Trade and from the Institute of Agricultural Economic Research in Cairo, U.S. Department of Agriculture, Office of the Agricultural Attache, Cairo, *Annual Agricultural Situation Report* (Cairo: U.S. Embassy, Office of the Agricultural Attache, 1981), and William Cuddihy, *Agricultural Price Management in Egypt* (World Bank Staff Working Paper No. 388 (Washington, D.C.: International Bank for Reconstruction and Development, April 1980).

Notes: The figures in this table are two-year averages. The trade figures are net exports if negative, net imports if positive.

^a These figures include flour in grain equivalent.

^b These quantities refer to cotton lint.

Table 30—Agricultural policies, prices, and distribution, major crops, 1979-80

Crop	Agricultural Policy			Price			Government Distribution
	Procurement	Quota	Acreage Plan	Fixed Price	Market Price	World Price at Farm Gate	
	(1,000 metric tons)	(percent of yield)	(feddan)		(LE/metric ton)		(1,000 metric tons)
Wheat	208	11 ^{a,b}	1,380 ^b	70	76	157	5,570 ^c
Rice (milled)	779	50 ^d	1,100	106	117 ^e	238	581
Maize	...	...	1,761 ^b	...	98	142	...
Sorghum	...	...	...	...	94	134	...
Beans	75	25 ^c	300	145	172 ^f	243	95
Lentils	3	33 ^c	40	243	301 ^g	441	64
Sugar	665	100	290	11.5 ^h	13.5 ⁱ	483 ^j	938
Vegetable oil	...	...	...	...	...	481	398
Meat and poultry	...	...	...	1,988 ^k	2,209 ^l	1,548 ^m	518
Cotton ⁿ	507	100	1,301	330 ^o	...	638 ^p	...
Berseem	...	...	...	...	...	...	...
Temporary	...	...	1,100 ^b	...	9	...	...
Permanent	...	...	1,700 ^b	...	9	...	...

Sources: Unpublished data from the Egyptian Ministries of Agriculture and Supply and Home Trade and from the Institute of Agricultural Economic Research in Cairo, U.S. Department of Agriculture, Office of the Agricultural Attache, Cairo, *Annual Agricultural Situation Report* (Cairo: U.S. Embassy, Office of the Agricultural Attache, 1981); and W. Cuddihy, *Agricultural Price Management in Egypt*, World Bank Staff Working Paper No. 388 (Washington, D.C.: International Bank for Reconstruction and Development, April 1980).

Notes: The figures in this table are two-year averages.

^a A delivery quota exists only for the 1962 reform farms.

^b This crop was not planned strictly.

^c This figure includes flour in grain equivalent.

^d The quota differs by region. It is an absolute amount per feddan (which is about 50 percent of the yield) only in old lands.

^e This figure is estimated from the quantity procured.

^f This price is for sugarcane.

^g This price corresponds to 1.08 LE per kilogram live weight at the slaughterhouse (fixed price 1980).

^h This is the price for seed cotton (an average for all varieties).

ⁱ This is the farm gate price without the fixed price for the quantity procured under the quota.

^j This is the estimated beef price, which is the price of buffalo and cattle at their dressed weight.

^k This is the price of frozen beef at the farm gate equivalent.

^l This is the price for all cotton, converted to seed cotton equivalents.

Table 31—Market prices of rationed and subsidized food in the survey villages, Sharkia governorate, March 1981

Village	Flour	Rice	Oil	Sugar	Beans	Lentils
	(piasters/kilogram)					
Telhana	8-10	20	40-70	33	30	30-40
Saadana	6-8, 5	15-20	30-70	30-40	25-40	25-35
Mensheh	8, 5-9	15-20	60-70	35	25-30	25-35
El Byrom	12	18	35-70	30	30	70
Al Chayashin	10	20	30	35	30	...
Al Dahtaamoun	10	25	40	30	45	60
Shobai, Basta	10	15	30	40	30	30
Shiba	12-15	15	60-70	...	30	65-70
Nakarea	8-15	15-20	40-60	30	30-40	60-70

Source: Data gathered in a survey of villages, March 1981.

Table 32—Regulations for the distribution of rationed food in the survey villages, Sharkia governorate, March 1981

Village	Rice		Oil		Sugar		Beans		Lentils	
	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
	(kg/ family)	(piasters/ kg)	(g/ person)	(piasters/ kg)	(g/ person)	(piasters/ kg)	(kg/ family)	(piasters/ kg)	(kg/ family)	(piasters/ kg)
Telbana	1	5.5	150	12	750	10	1	12	0.5	12
Saadana	1	5.6	150-300	7-16	750	10	1	8.5-12	0.5	12
Menshea	1	5.6	150-200	10-16	750	10	1	10-12	0.5-1	10-12
El Byrom	1.5	5.5	150	10	750	7	1	12	1	13
Al Chavashin	1	5.5	150	12	750	10	1	12	0.5	12
Al Dahtaamoun	750 ^a	5	150	12	750	7	1	10	1	12
Shobak Basta	2	6	150	12	500	7	2	10	1	12
Shiba	1.5	6	150	10	750	10	1	12	1	11
Nakarea	1.5	5.9	150	10	750	7-10	1	12-15	1	11-15

Source: Data gathered in a survey of villages, March 1981.

^a This figure is in grams per person.

Table 33—Expenditure of farm households on rationed and subsidized food and purchases on the open market, Sharkia governorate, March 1981

Farm Size	Rationed and Subsidized Food											Total Food Expend- iture ^b	Rationed and Subsidized Food		
	Rationed Food				Subsidized Food			Purchases on Market					Share of Total ^c	Share of Household Income ^d	
	Pulses	Rice	Oil	Sugar	Flour	Bread	Total	Cereals	Pulses	Oil	Meat ^d				Total
	(LE/year/household)												(percent)		
Less than 2 feddans	2.6	1.1	3.6	7.9	18.7	12.1	46.0	157.2	79.3	12.6	180.9	430.0	476.0	9.7	7.0
2-4 feddans	2.4	0.9	2.1	6.1	19.3	36.0	66.8	46.1	58.2	15.7	141.9	261.9	328.7	20.3	7.3
More than 4 feddans	3.1	0.7	3.1	5.3	6.9	25.0	44.1	117.4	53.1	6.6	323.9	501.0	545.1	8.1	2.9
Average	2.6	1.0	2.9	6.8	17.7	24.1	55.1	103.3	67.1	13.4	178.2	362.0	417.1	13.2	6.7

Sources: Data gathered in a survey of villages, March 1981; S. Radwan and E. Lee, "The Anatomy of Rural Poverty, Egypt, 1977," World Employment Programme, International Labour Organisation, Geneva, 1977. (Mimeographed.)

^a This includes poultry.

^b These include the rationed and subsidized food and purchases on the market included in this table. Milk products are not included.

^c The produce of a farm was not included in this total.

^d The income figures are taken from Radwan and Lee, "Anatomy of Rural Poverty," pp. 3-7. They were deflated by the rural cost of living index for 1977-80. They are, for a farm of less than 2 feddans, LE 659; for a farm of 2-4 feddans, LE 918; and for a farm of more than 4 feddans, LE 1,519.

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EGYPT'S FOOD SUBSIDY AND RATIONING SYSTEM: A DESCRIPTION

Harold Alderman, Joachim von Braun, and Sakr Ahmed Sakr

Many countries subsidize prices and ration food to promote consumer welfare and to reduce market price fluctuations. *Egypt's Food Subsidy and Rationing System: A Description*, Research Report 34, by Harold Alderman, Joachim von Braun, and Sakr Ahmed Sakr, presents a structural description of one such consumer program. Comparatively large and complex, costing 7 percent of GDP and 12 percent of the government's total expenditure in 1980/81, Egypt's subsidy system illustrates both the distributive pressures relieved by and the economic pressures created by extensive market interventions.

To ascertain the extent of the benefits and the economic costs of such a system, both micro and macro studies are required. This analysis is the beginning of a series of such studies. Its major objective is to describe how the system now operates and how it evolved during the 1960s and 1970s. In providing a detailed description the study helps improve current analytical work on subsidy systems, particularly for the Egyptian system, where models and analyses so far have had to rely substantially on simplifying assumptions as a substitute for facts. Moreover, the study pinpoints distributional and nutritional implications of the system and focuses on the actual regional planning of the food system and its policy problems. In the past this dimension of food policy has been ignored or treated as an artificial urban-rural dichotomy. The report provides an understanding of the goals of the subsidy scheme and their origins in the political and economic system and of the administrative organization and regulatory environment under which the system operates.

GOALS OF RATIONING POLICY

The range of food subsidies grew markedly in the 1970s, but the administrative foundations were established in previous decades. Rationing of both food and nonfood commodities was introduced during the Second World War. Similarly, an assortment of open market sales, cultivation controls, price ceilings, and price subsidies have been introduced in Egypt regularly. To a large extent, such measures were viewed as instruments to stabilize domestic prices when local food supplies were short and to insulate the domestic market from large fluctuations on the world market.

In 1973 Egypt began to open its economy, seeking greater exposure to the world market and increased foreign investment. At the same time the world prices of basic food commodities rose. As its population and reliance on imports increased, Egypt needed to increase its subsidy outlays substantially to continue to insulate its consumers from world market prices. Although the commodity price rise proved temporary, pressures on Egypt's foreign exchange led to a staged devaluation from 1977 to 1979 and again in 1981. This increased the domestic cost of imports so that subsidies took on an additional goal of moderating the effects of inflation in a rapidly growing and increasingly import-reliant economy. Egypt's efforts to stabilize the real earnings of its public-sector workers who were on relatively fixed incomes evolved to become a major cornerstone of its welfare policy. Not only did the outlay increase due to fiscal causes, but rising incomes, declining relative prices, a growing population, and improved marketing in rural regions all increased

the volume of subsidized goods consumed (see Figure 1). For example, the volume of government distribution of wheat flour and sugar increased 100 percent between 1971 and 1980.

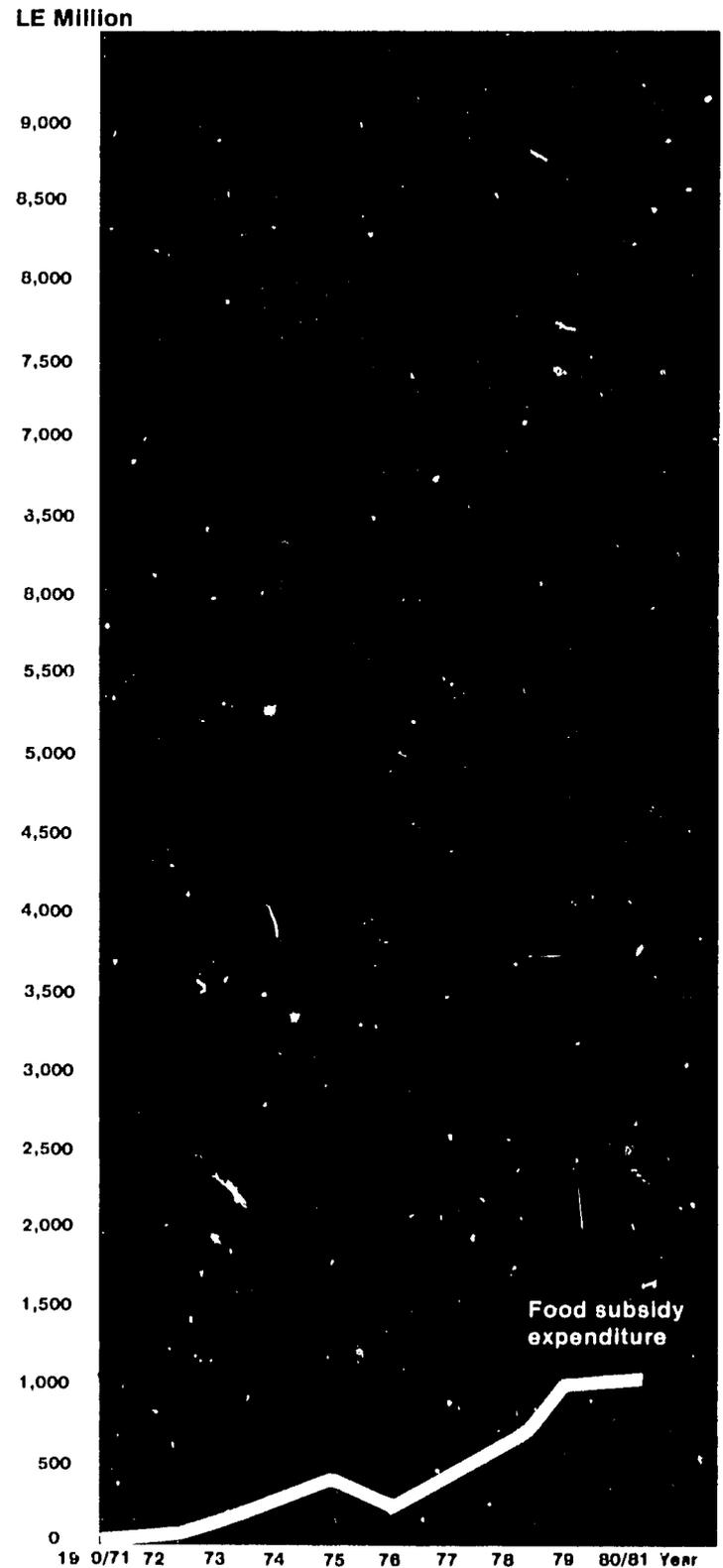
THE GOVERNMENT-CONTROLLED FOOD DISTRIBUTION SYSTEM

Imports and exports of most food commodities are largely determined by administrative policy in Egypt. Government agencies have sole authority over imports and exports of all major food commodities. Food trade is not highly sensitive to international prices, as empirical evidence in this report and Grant Scobie's *Government Policy and Food Imports: The Case of Wheat in Egypt*, Research Report 29, shows. The major determinant of food trends is a government plan defining food needs, which is set up annually in a complex administrative procedure coordinated by the Ministry of Supply and Home Trade. Social and regional administrations, and major ministries as well, are involved in this process.

Imports and the part of domestic procurement not exported are allocated to regions and districts on a quota system. A consumer holding a ration card is assured monthly rations of sugar, tea, cooking oil, and rice at subsidized prices. In addition, further quotas are provided at a second set of higher prices, which are usually but not always below world prices. For example, 750 grams of sugar per person per month were authorized at the equivalent of U.S. \$0.14 per kilogram and an additional 750 grams were provided at U.S. \$0.43 in 1982. These prices did not change at either the peak or trough of the price cycle. Beans and lentils are also provided to card holders but not necessarily in each month. Although there are some restrictions on eligibility, 90 percent of the population is registered in the ration system.

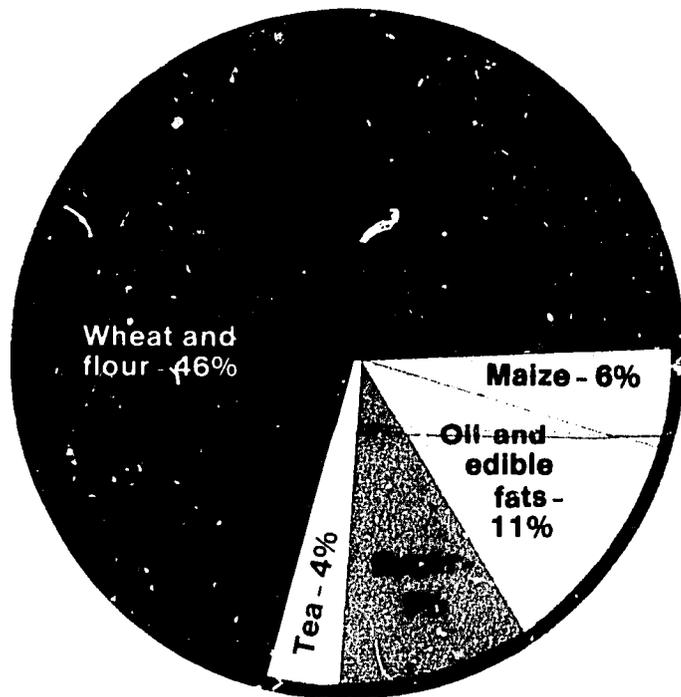
In addition to what is provided through these quotas, further amounts of these commodities are distributed at the second tier of prices through cooperatives. Allocation to districts are by quotas, but individuals are neither guaranteed nor limited to regular amounts. Because prices at the government-controlled food outlets are rigid, price mechanisms on rather small open markets have to adjust supply to excess demand. Moreover, waiting lines and other search costs do influence the final distribution of goods among consumer groups and represent net social loss. A case study for greater Cairo highlights the importance of these factors. The government's policy of limiting the number of outlets and regulating their location, which is important for bakeries and cooperative shops in particular, may also be considered as an instrument of nonprice market intervention. A case study for nine villages in the Nile Delta pinpoints its effects for rural areas.

Figure 1—Costs of food subsidies and the total government budget, 1970/71-1980/81



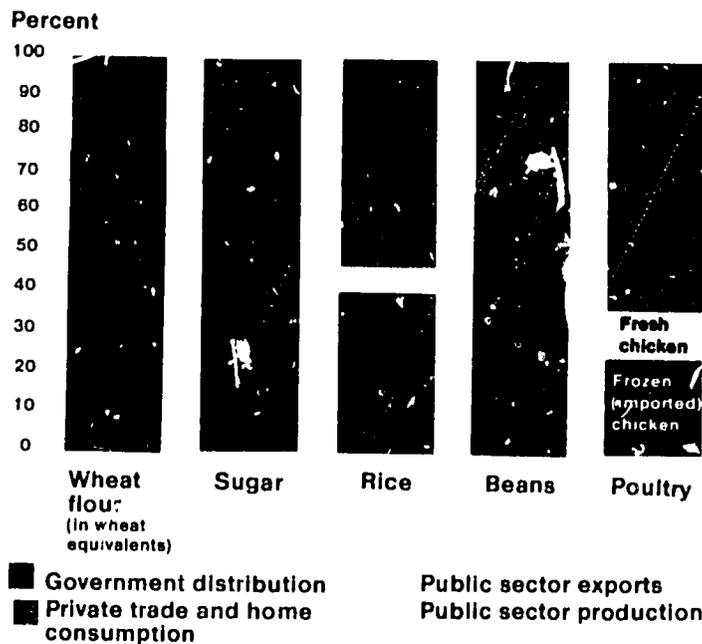
Expenditures on food subsidies increased markedly in 1974 with major shifts in world prices and again in 1979 as devaluation of the Egyptian pound was phased in for food imports.

Figure 2—Shares of total food subsidy expenditure by commodity group, 1980/81



Subsidies on wheat and flour, which are not rationed, are the main components of the total subsidy bill. Sugar costs were particularly high in 1980/81. In some years the multitiered sales of sugar, tea, and oil have netted small profits to the government.

Figure 3—Percentage of total consumption of major commodities distributed by the government, 1980



The government markets most of the volume of trade, both wholesale and retail, in many major food items. It does this for imports as well as for locally procured products.

Frozen meats and poultry are also sold through cooperatives with monthly quotas. These quotas are not strictly enforced and a resale market exists.

The main commodity in the ration system in fiscal terms is wheat (see Figure 2), which is provided to consumers either as subsidized bread or as flour. Purchasing wheat in the form of bread is more prevalent in urban areas, whereas it is more commonly purchased as flour in rural areas. There are no quotas on bread, but district or village councils are authorized to institute limits on monthly flour purchases from government stores as they see fit. Maize is also provided to farm households and industry at rationed prices. However, yellow maize can be considered an input subsidy because it is rarely consumed by people in Egypt.

In recent years the subsidy bill has grown largely because of increases in the quantities distributed of frozen meat and poultry, and in sales of nonrationed commodities, including wheat. Meat sales are restricted to outlets with freezers and are predominantly urban. In addition, price ceilings are imposed on sales of unsubsidized fresh meat, particularly in cities. The shifting position of meat in government food distribution reflects, in part, a recognition that meat prices have risen faster than the general price index, and this may be a marker consumers use to gauge their expectations of inflation. Consequently, the government hopes to use subsidized meat sales in cities as a component of a program to moderate upward pressure on prices.

There exists a legal open market for agricultural produce, but domestic trade in agricultural commodities is highly restricted. Farmers are obligated to sell all of their cotton and sugarcane to the government as well as a portion of their rice, beans, lentils, and some other crops. Prices for local trade in these commodities generally exceed both government procurement prices and consumer prices at the cooperatives. Market channels for private trade are rudimentary and prices vary among villages. For many commodities, the majority of the volume of trade goes through government distribution channels (see Figure 3).

One of the goals of the government's distribution system is to cope with the underdeveloped private market channels. This goal reinforces distributional objectives and has contributed to a recent pattern in which much of the food consumed in rural areas is either imported or transported from other regions in Egypt. Secondary data and a case study indicate that per capita consumption of imported flour in rural areas approaches and may exceed that of the cities. Although ration quotas for oil and rice are frequently smaller in rural areas than in cities, they are regularly provided. Regression analysis indicates that the government distribution of grains supplements local production in a manner that tends to smooth regional per capita grain consumption.

The regional marketing and distribution patterns of the government-controlled food system and its commodity-specific features do not fit the simplifying hypothesis of a general urban-biased system.

CONSIDERATIONS FOR CHANGING THE SUBSIDY SYSTEM

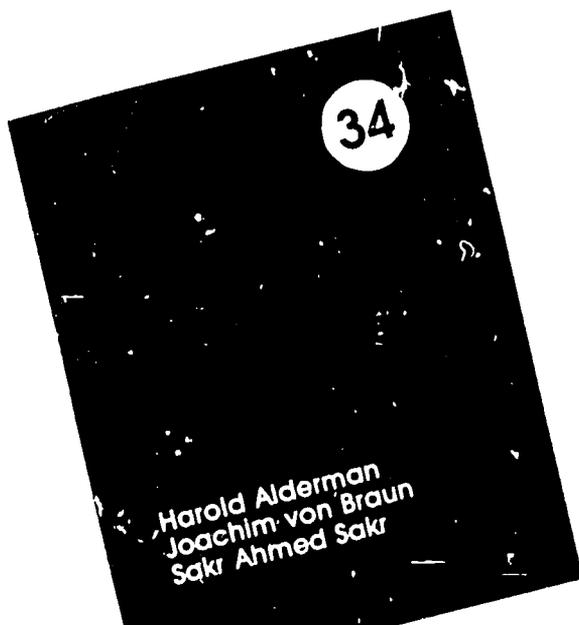
Data indicate that the approximate U.S. \$37 per capita spent in 1980/81 on food subsidies, though not always evenly distributed, is not greatly skewed and that little of the government's revenue comes from direct taxation. Low prices for procurement of some basic food commodities effectively tax agriculture, but a number of factors and goals motivate this policy, which was enacted before fiscal food subsidies became an important government outlay. However, observing government intervention in the distribution and consumption of food commodities on the one hand and in their production and procurement on the other reveals that those products whose consumption is intensively controlled also have their production and marketing on farms strictly guided.

The economic costs, including the costs of missed export opportunities and of the macroeconomic linkages, are less straightforward. The view is widely held in Egypt that the costs are burdensome to the national economy and could be reduced with only moderate reductions in the benefits if the system were more efficient.

SUBSIDIES AND INCOME GROWTH

A number of proposals linking the subsidies to income growth or wages have been put forward. The subsidies could be targeted either by limiting the amount of commodities available or by tightening the eligibility requirements for recipients. Or, open market pricing could be coupled with income transfers to selected population groups. Although the relative merits of these proposals are not analyzed in this report, the central position the government now takes in marketing is described and the institutional constraints on policy options are made apparent. On the one hand, private market channels in the short run could not bear a burden the size of the present volume of trade without friction in the regional distribution system of goods now subsidized and rationed. On the other hand, although the government has had years of experience in administering the massive quota system, it lacks the experience necessary to gauge price signals correctly. Furthermore, as Egypt's income tax system is rudimentary, the government has no existing infrastructure for reliably targeting recipients by income. Consequently, the loss of administrative experience must be considered as a cost of changing the current food distribution system. There are risks of reducing the welfare of certain segments of the society during the transition period following a major change of the system.

The detailed description of the complexities of the subsidy system is necessary for formulating policy recommendations. This also provides realistic information that can be applied to other analyses currently under way at IFPRI.



Please send me a copy of *Egypt's Food Subsidy and Rationing System: A Description* by Harold Alderman, Joachim von Braun, and Sakr Ahmed Sakr.

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