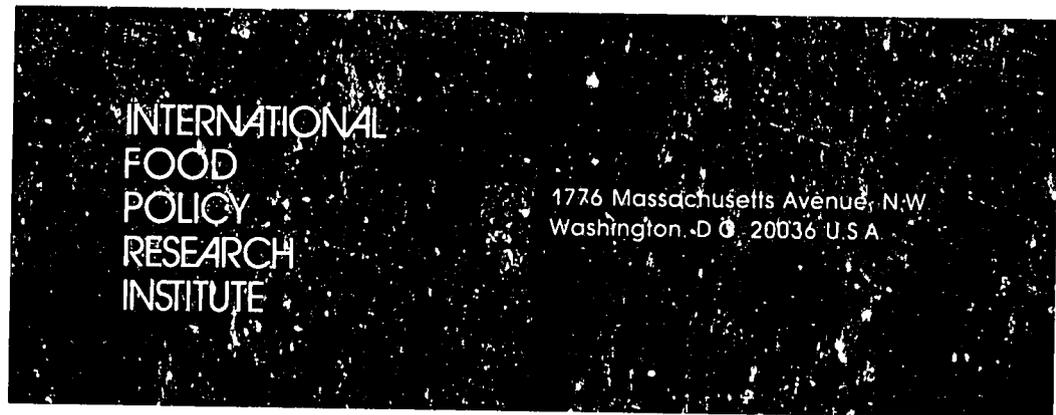


FN-PAU-751
ISN-46872
7361062
017641114

Egypt's Food Subsidy Policy: Lessons and Options

Harold Alderman
Joachim von Braun

Reprinted from
Food Policy
Vol. 11, No. 3, August 1986



Reprint No. 88

Egypt's food subsidy policy

Lessons and options

Harold Alderman and Joachim von Braun

Government intervention in Egypt's food subsidy policy is highly complex. An evaluation of the economic effects of the system and their impact on various factors has been undertaken by IFPRI in a series of studies in collaboration with Egyptian institutes. This article reports the major generalized conclusions from these studies. Emphasis is given to summarizing results of a quantitative analytical framework which was built upon these studies and used for the evaluation of alternative scenarios for the food subsidy system in the 1980s.

The authors can be contacted at International Food Policy Research Institute, 1776 Massachusetts Avenue, NW, Washington, DC, 20036, USA.

¹IFPRI's collaborating institutions in Egypt were the Institute of National Planning, the Ministry of Economy, the Ministry of Supply and Home Trade and the Ministry of Agriculture.

²Grant M. Scobie, *Food Subsidies in Egypt: Their Impact on Foreign Exchange and Trade*, Research Report 40, IFPRI, Washington, DC, USA, 1983.

³Joachim von Braun and Hartwig de Haen, *The Effects of Food Price and Subsidy Policies on Egyptian Agriculture*, Research Report 42, IFPRI, Washington, DC, 1983.

⁴Harold Alderman and Joachim von Braun, *The Effects on the Egyptian Food Ration and Subsidy System on Income Distribution and Consumption*, Research Report 45, IFPRI, Washington, DC, USA, 1984.

⁵Harold Alderman, Joachim von Braun and Sakr Ahmed Sakr, *Egypt's Food Subsidy* continued on page 224

Egypt's food subsidy policy has attracted attention because of the extent of related government interventions, both in agriculture and food distribution and consumption. The complex nature of these interventions requires a highly disaggregated approach for any quantitative assessment of the policy effects. Such an approach has been used in a series of studies that form a comprehensive research project undertaken by the International Food Policy Research Institute (IFPRI) in collaboration with Egyptian institutions.¹ These studies comprise an evaluation of the fiscal, foreign exchange and related macroeconomic effects of the system,² and their impact on the agricultural sector,³ food consumption and income distribution.⁴ They were preceded by a descriptive account of the systems operation and management at the national and regional level.⁵

This paper attempts to report major generalized conclusions from these studies. Beyond that, emphasis is given to summarizing results of a quantitative analytical framework which was built upon the above-mentioned studies and used for the evaluation of alternative scenarios for the food subsidy system in the 1980s.

Egyptian food policy includes both policies aimed primarily at raising and stabilizing consumption of basic food commodities, and policies which are designed to manage agriculture and taxes or subsidize different subsectors of agriculture. Food policies in Egypt are hardly interventions at the margin – fiscal costs for consumer subsidies accounted for 10–15% of total public expenditures in the second half of the 1970s and early 1980s, while agricultural taxation was about 17% of sector output during that period. Food policies bear on the country's foreign exchange position, its ability to invest and its domestic inflation. There is, then, a continual tension between the economic costs of the policies and their distributional benefits.

To illustrate such potential tradeoffs, a number of scenarios which measure the impact of options for the subsidy system on macroeconomic indicators and measures of income distribution and food consumption

are presented and discussed. The remainder of the paper reports the major conclusions from all aspects of the project.

Distributional effects

The principal government expenditure on food subsidies comes from the subsidy on coarse and refined flour and bread. By 1980, imports of wheat and flour were three times the quantity produced locally. Domestic consumption of wheat and wheat products exceeded 180 kg per capita in 1981/82 in flour equivalents, with rural consumers *purchasing* 184 kg (60% of that through directly subsidized government channels). While rural consumers purchase more subsidized flour, urban residents buy more bread.

Consumers also obtain subsidized commodities through a ration system. Virtually the entire population – over 92% of all households – have a ration card which guarantees a monthly quota of sugar, tea, oil and rice at low subsidized prices. In addition, beans and lentils are seasonally available in the ration shop. Rations are not new; they were distributed during the second world war and were reintroduced during the acute foreign exchange crisis of 1966. However, originally they did not involve a general subsidy. In fact, with government monopolies on the import of many foods, rations on various commodities earned profits for the government in the early 1970s. This reflects the initial goal of the system, which was to provide regular and equitable access to scarce commodities, with quantity rather than price mechanisms determining distribution. While licensed private grocers are the ultimate link to consumers, the government serves as a wholesaler of principal staple commodities.

In addition to using the ration system, consumers can purchase goods from a network of cooperatives and state-owned retail outlets which are also termed cooperatives. Membership is not required for purchase and there are no fixed quotas. Supplies are limited, however, and willingness to queue serves as the principal distribution mechanism.

For most families, the quantity of goods available through the ration system is less than what they would buy anyway; the majority of families make additional purchases at the cooperatives or the higher priced open market. The entire subsidy system can be viewed mainly as an income-transfer system. The implicit income transfer can be calculated as the difference between a reference opportunity cost – in this study the respective *cif* or *job* prices of the various commodities evaluated at the official exchange rate – and the various rations and cooperative prices. These transfers are slightly skewed to the urban sector; relative to income, however, the transfers are higher for the poor and highest for the rural poor (see Table 1). Table 1 also indicates a sizeable inherent transfer to consumers from open market sales of cereals. Over half of this is from the purchase of flour sold at subsidized prices in rural areas which is resold in another village without a flour shop. While there is a small – and legal – mark up for transportation and for scale, the government incurs a fiscal cost from these sales which accrues to the final consumer. The remainder of the transfer in open market cereal sales is due to the difference between border prices and low domestic prices, which are opportunity costs to the producers but not costs to the exchequer. Similarly, a negative transfer from other open market sales indicated in Table 1 represent losses to consumers – particularly urban

continued from page 223

and Rationing System: a Description, Research Report 34, IFPRI, Washington, DC, USA, 1982.

⁶Harold Alderman and Joachim von Braun, 'Egypt: implications of alternative food subsidy policies in the 1980s', unpublished final report to the Ford Foundation, IFPRI, Washington, DC, USA, 1985.

2

Table 1. Income transfers due to food subsidies and distorted prices, 1981-82 (LE/capita/year).

Transfer from:	Urban			Rural		
	Lowest expenditure quartile	25-75%	Highest expenditure quartile	Lowest expenditure quartile	25-75%	Highest expenditure quartile
Ration system	8.85 (5.0)	8.83 (2.3)	8.48 (0.9)	6.37 (5.7)	6.59 (2.7)	7.11 (1.3)
Other government channels	18.70 (10.6)	20.98 (5.5)	22.81 (2.4)	12.39 (11.1)	11.62 (4.8)	16.55 (3.0)
Subtotal	27.55 (15.6)	29.81 (7.8)	31.22 (3.3)	18.76 (16.8)	18.21 (7.5)	25.66 (4.3)
Open market cereals	0.71 (0.4)	2.62 (0.7)	1.34 (0.1)	6.58 (5.9)	11.62 (4.8)	19.30 (3.5)
Other open market	-5.91 (-3.3)	-14.85 (-3.8)	-36.57 (-3.8)	-5.26 (-4.8)	-8.65 (-3.5)	-17.59 (-3.2)
Total	22.34 (12.9)	17.58 (4.17)	-4.01 (-0.4)	20.08 (17.9)	21.18 (8.8)	25.37 (4.6)

Note: Figures in parentheses indicate % total annual expenditures.

Source: Calculated from H. Alderman and J. von Braun, *The Effects of the Egyptian Food Ration and Subsidy System on Income Distribution and Consumption*, Research Report 45, IFPRI, Washington, DC, USA, 1984.

upper classes – from the purchase of meat and other commodities which have protected domestic prices.

Implications for agriculture and the farm population

The distributional implications of food policy cannot, however, be determined by looking at consumption figures alone. The net transfer effects of a subsidy programme depend on the manner in which the latter is financed. Financing for subsidies is seldom distinguished from the overall budget. Even cross-subsidization policies or agricultural taxation policies do not inherently finance consumer subsidies, as the revenue could just as well be used to cover other government costs.

Discussions about the subsidy system often include reference to Egypt's policy of taxing agriculture through forced procurement at prices well below international parity prices.⁷ While this taxation does allow the government to carry some subsidies as implicit costs rather than explicit outlays, there is no logical reason why these two policies are necessarily linked. Indeed, the total net tax burden on agriculture declined during the 1970s while the subsidy bill increased. This reflects increased subsidies on agricultural inputs during the period as well as a tendency to shift from indirect taxation to direct financing of food subsidies.

The total burden on agriculture peaked in 1974 (see Table 2). One of the interesting features of Table 2 is the gain to producers of meat and milk since 1976. This comes from policies which restrict imports and allow domestic prices to exceed the import parity prices. Producers of berseem (clover), the price of which is determined by demand for meat, have also benefited from the protection of the livestock sector.

Similarly, as vegetables and fruit crops are not taxed as much as other crops, their prices have risen relative to grains and cotton. These distortions of relative prices have contributed to resource allocation in the agricultural sector. While the supply of a single crop may be substantially affected by pricing policies, it is less obvious that the sector as a whole – with a relatively fixed land base – is greatly depressed by price distortions. Von Braun and de Haen consider the cross-price effects on various crops along with constraints on inputs – particularly water-cropping calendar and planting quotas. They estimate that price distortions lead to reductions in agricultural output equivalent to 1.5% of national income – 7.5% of agricultural production in 1979/80.⁸

⁷W. Cuddihy, *Agricultural Price Management in Egypt*, Staff Working Paper 388, The World Bank, Washington, DC, USA, 1980.

⁸Similarly, H. Estahani (*Agricultural Supply Response in Egypt: a System Wide Differential Approach*, Working Paper No 263, Department of Agricultural Economics, University of California at Berkeley, CA, USA, 1983) also finds only moderate system-wide response to prices.

Table 2. Aggregate gains and losses of producers on agricultural commodity markets, 1965-80 (1975 LE million).

	Cereals pulses and sugar	Meat and milk	Feed ^a	Cotton	Total burden
1965	-432.20	-152.17	163.83	-528.79	-949.34
1966	-326.70	-131.55	145.10	-390.78	-703.94
1967	-278.16	-72.38	125.32	-311.79	-537.01
1968	-337.13	-131.66	112.37	-357.28	-713.70
1969	-414.40	-175.56	149.15	-608.81	-1 041.62
1970	-346.71	-127.76	161.09	-550.49	-863.87
1971	-184.97	-142.66	122.55	-473.76	-678.84
1972	-205.70	-165.10	135.08	-448.49	-684.21
1973	609.26	-217.37	186.10	-505.04	-1 145.56
1974	-1 407.61	-75.71	225.03	-805.50	-2 063.78
1975	-1 082.17	-13.03	172.95	-606.46	-1 528.72
1976	-558.03	30.91	162.25	-473.44	-838.31
1977	-190.88	54.98	104.19	-605.01	-636.72
1978	-190.32	97.74	107.74	-369.25	-354.09
1979	-286.62	46.56	147.79	-266.15	-358.62
1980	-327.76	128.74	144.46	-319.18	-373.74

Note: ^aThis excludes berseem. It should be noted that the producer losses computed for the maize market are compensated for by the implicit producer gains from depressed feed maize prices to the extent that domestically produced maize is fed to animals.

Source: J. von Braun and H. de Haen, *The Effects of Food Price and Subsidy Policies on Egyptian Agriculture*, Research Report 42, IFPRI, Washington, DC, USA, 1983.

Pricing policies, then, are only a partial explanation for slow agricultural growth in Egypt. Investments, or the lack of them, clearly affect the sector's performance. The state plays a major role in agricultural investment. In part, this is because of the importance of distributing the flow of the Nile as well as preventing waterlogging. Investment in research and extension is also essential. The share of total government spending devoted to agriculture reached a low point in 1973 and 1974; years in which consumer subsidies were especially high. Since then, total spending on agriculture has grown faster than the total budget, mainly as input subsidies have increased. Agricultural investment has also grown in this period. There is, however, a negative correlation of the shares to agricultural investment and food subsidies.⁹ Causality cannot be implied, though, and it is difficult to say what the level of investment would have been in the absence of a consumer food subsidy programme.

⁹Von Braun and de Haen, *op cit*, Ref 3. Shares to non-agricultural investment is positively correlated with shares to food subsidies.

¹⁰This cropping pattern is discussed in detail by I. Soliman, J. Fitch and A. Aziz, *The Role of Livestock Production in the Egyptian Farm*, Economic Working Paper No 585, Agriculture Systems Project, Ministry of Agriculture, Cairo and the University of California, CA, USA, 1982.

Since levels of implicit taxation due to depressed prices are different for various crops, the distribution of the burden on agriculture will vary as cropping patterns differ by farm size. This is evident in Table 3. Small farms, with a relatively high component of family labour, concentrate on meat and dairy, as well as berseem, and benefit from the protection of these commodities.¹⁰ Table 3 also indicates that implicit taxation on cereals and pulses is only 25-33% as large as taxation on cotton and cane, for which there is virtually no home consumption.

Table 3. Income transfers due to food subsidies and distorted prices in farm households in 1981-82^a (LE/capita/year).

	Landless farm labour	Farm size classes (Feddan) ^b		
		0-1	1-5	Above 5
Total expenditure	189.9	238.7	274.5	388.4
Gains and () losses in production and input use:				
Cereals and pulses	-	-1.4	-9.4	-30.9
Meat and milk	0.8	6.8	17.3	15.6
Cotton and sugar cane	-	-6.0	-29.7	-95.9
Input (subsidies)	1.5	6.7	12.9	30.6
Subtotal	2.4	6.1	-8.9	-80.6

Note: ^aClassified by main occupation of the head of household; ^b1 Feddan = 1 038 acres.

Source: Derived from 1981/82 IFPRI-INP survey reported in H. Alderman and J. von Braun, *The Effects of the Egyptian Food Ration and Subsidy System on Income Distribution and Consumption*, Research Report 45, IFPRI, Washington, DC, USA, 1984.

Food subsidy policy and the macroeconomy

Studies of food policies generally deal with microlevel questions such as, how do pricing policies affect consumer budgets or cropping patterns? Clearly, however, interventions on the scale which occur in Egypt have an impact on the entire economy.

The issue of food security in Egypt is not so much a question for the agricultural sector – farm incomes are far more stable in Egypt than in most developing countries due to relatively reliable irrigation – as it is an issue of trade stability. While current world market conditions make the likelihood of physical unavailability of imports low, Egypt's reliance on food imports means that its foreign exchange position is sensitive to fluctuations in world food prices. Furthermore, attempts to stabilize food imports transmit instability to other imports, particularly to investment goods but also to industrial inputs. Scobie found that a 10% rise in the cost of imported foods will result in a fall of 1–2% of industrial output due to such a crowding-out effect.¹¹

Policy interventions used to achieve this stabilization of food imports are not limited to food subsidies, though such price wedges prevent the transmission of fluctuations in international prices to domestic consumers. Subsidies also influence the macroeconomy through the deficit. Any decrease in government spending or increase in revenue can reduce the deficit. If such a change in the deficit is achieved by a 10% decrease in the subsidy bill, the net impact on the free market exchange rate would be a 3% increase in the value of the Egyptian pound. Such a change in subsidies would also reduce the inflation rate by 5% of its original rate.

It is, however, a mistake to view food subsidies as either wholly responsible for the deficit or as a zero-sum proposition with government investment. The subsidy bill grew at a time when total resources available to the economy were expanding. Only one-seventh of the *growth* of such resources between 1970 and 1981 were devoted to increasing subsidies. Moreover, public investment – including human capital investment, i.e. education – grew faster than subsidies did in that period, while expenditures on defence were substantially reduced.

Implications of alternative food subsidy policies in the 1980s

As discussed above, food subsidies have an impact on the deficit at the margin which, in turn, affects the rate of inflation and the value of the Egyptian pound. From this standpoint, subsidies are *fiscal costs* and also contribute to a number of *economic costs* at the macrolevel. On the other hand, these costs are not incurred in a vacuum. By means of such expenditures, the government is able to lower the price of a number of goods and, in so doing, transfer resources back to the populace as well as increase consumption of a number of food items. It is, however, insufficient to compare the value of the fiscal costs with the value of the transfer. In general, there is no reason to directly or indirectly tax a population in order to return such revenues via a subsidy unless the government envisions some externalities not captured by consumers when purchasing foods according to their individual preferences, or if the government seeks to redistribute resources. Accordingly, the distribution of the benefits, along with the total level of benefits, is an important factor when evaluating transfer programmes. Also, if the government seeks to increase consumption of certain goods over that

¹¹Scobie, *op cit*, Ref 2.

5

expected in the absence of a specific intervention, then the level of that consumption as well as the value is relevant.

The approach used here does not presume knowledge of the priorities of the Egyptian government, nor does it presume the value of tradeoffs between economic efficiency and social distribution goals. Rather, it presents a variety of indicators from a set of *scenarios* which serve to illustrate social choices. More specifically, the indicators used here serve to evaluate the effects of changes of food subsidy policies for:

- ④ the food subsidy budget;
- ④ the foreign exchange situation;
- ④ inflation;
- ④ the exchange rate;
- ④ food consumption and nutrition;
- ④ income distribution.

The scenarios presented comprise a small menu – a representative listing which can be adapted to a richer array of options. Planners can choose from this list according to their collective notion of national objectives, even if such a weighting cannot be explicitly stated.

The model projects the impact of policy options, using trend rates of income growth and estimated demand parameters applied to the data base collected by the 1981/82 household consumption survey conducted by IFPRI and the Egyptian Institute of National Planning.¹² Care is taken to distinguish price changes which are marginal changes for consumers from those which change the value of the income transfer but are not marginal changes. Household demand is aggregated to national demand and to import requirements using population and supply projections, respectively. This allows for estimation of the impact on foreign exchange requirements which, along with the estimated changes in the deficit,¹³ leads to estimation of the impacts on the exchange rate, inflation and industrial output.

The scenarios explored are indicated in Table 4. The first option is the baseline, representing the situation in 1981/82. Scenario two represents

¹²Details and discussion of the limitations of the approach are discussed in Alderman and von Braun, *op cit*, Ref 6.

¹³The elasticity of government revenue with respect to GNP was obtained from S.Ahmed, *Public Finance in Egypt: Its Structure and Trends*, World Bank Staff Working Paper No 639, World Bank, Washington, DC, USA, 1984.

Table 4. Main features of scenarios (%).

	Scenario 2	Scenario 3	Scenario 4	Scenario 4a	Scenario 5	Scenario 6
Changes relative to baseline (Scenario 1)	Constant nominal prices for subsidized food commodities	Constant real prices for subsidized food commodities	Subsidized food prices to international level: bread and flour (50%)	As Scenario 4 plus wage increase in public sector	Targeting of subsidies	Change in structure of subsidies
Population growth rate	2.5 annual	2.5 annual	2.5 annual	2.5 annual	2.5 annual	2.5 annual
Real income growth rate (per capita)	4.5 annual	4.5 annual	4.5 annual	4.5 annual plus wage increase of 12.5 LE/month in public sector	4.5 annual	4.5 annual
Real change of fino flour/bread prices	-50	0	+50	+50	+50	-14 urban -22 rural
Real change of balady flour/bread prices	-50	0	+50	+50	+50 general population 0 urban poor neighbourhoods	-18 urban 0 rural
Change of first tier (basic) ration prices	-50	0	0	0	To border price general population No change poorest 25%	-50
Change in second tier ration prices	-50	0	To border price	To border price	To border price general population No change poorest 25%	-50
Change of cooperative prices	-50	0	To border price	To border price	To border price general population	-50 ^a
Change in open market prices	0	0	To border price (including pasta)	To border price (including pasta)	To border price (including pasta)	0

Note:^a Prices of frozen meat and frozen chicken decline 42% in real terms.

6

constant *nominal* prices for subsidized food. In effect, it operates under the axiom that not to decide is to have made a decision; in this case, allowing subsidized prices to fall in *real* terms.

The third scenario investigates the case of constant *real* prices of foods. This 'no-price change' option actually assumes that the government takes measures to change prices of subsidized goods at a rate in keeping with the 15% inflation rate used in these experiments.

The fourth scenario represents a number of major price changes. A number of prices move to import parity, which involves decreases for some open market prices in some regions as well as increases for the majority. Bread and flour prices increase, but not to border prices. The model also explores a variation of Scenario 4 in which wages for public sector employees are raised in partial compensation for the reduced subsidies.

The fifth scenario considers one of many possible targeting schemes. The price environment for the general population is similar to that in Scenario 4, except that the basic ration is discontinued for all but the poorest 25% of the population. These families are also assumed to receive a coarse flour ration of 2 kg/capita a month in the urban areas and 6 kg in the rural areas. Because the subsidy on open market flour is reduced in this scenario, this ration serves much as an income transfer equivalent to the value of the flour.

Bread, however, is not rationed in this scenario. It is assumed to be available without quota. However, only in the poorest 20% of the urban neighbourhoods is bread available at the baseline price. Thus, targeting of subsidized bread is geographical with average income in the census tract determining where the subsidized bread will be available.

The sixth scenario includes the changes in subsidy policies implemented between June 1982 and December 1984. Most notable are the changes in flour prices and bread prices (including changes in loaf sizes and extraction rates) announced in 1984. The price changes in Table 4 indicate the weighted effect of these various changes after considering the inflation rate for the general economy. Note that although these price changes were appreciable, the nominal price change for flour more or less paralleled the assumed inflation rate and the change for bread was slightly less than that rate. Consequently, the real price actually fell relative to the baseline. The impact of lower rates of income growth were investigated by rerunning Scenarios 4 and 6 with an assumed 2% per capita annual growth of income.

While the major conclusions from the study of food policy options are included in the final section, some of the features of the calculations should be highlighted.

Only with major increases in the price of bread and flour are reductions in the subsidy bill possible (see Table 5). In Scenario 6, which represents policies being implemented in 1984/85, the subsidy bill grows in real terms. Even in the constant real price scenario, income and population growth lead to subsidies becoming an increased share of the total budgets relative to the baseline. As indicated, these changes in subsidy expenditures lead to changes in inflation – up to 18.5% in the constant nominal price scenario and down to 12.8% in the targeted scheme – as well as similar changes in the open market exchange rate.

It is noteworthy, however, that under all scenarios the foreign exchange required for food imports in 1986/87 would be substantially higher than in 1981/82. This reflects both income growth and low

Table 5. Scenario analyses for food subsidy policies: fiscal and macroeffects (1986/87).

	(1)	(2)	(3)	(4)	(4a)	(5)	(6)
	Baseline (1981/82)	Constant nominal prices for subsidized food commodities	Constant real prices for subsidized food commodities	Subsidized food prices to international level: bread and flour (50%)	As Scenario 4, plus wage increase in public sector	Targeting of subsidies	Change in structure of subsidies (for details see Table 3)
Food subsidy budget real (constant) LE in nominal LE	1 299 ^d 1 299 ^d	1 871 4 372 ^e	1 573 3 405 ^e	969 1 785 ^e	1 226 ^f 2 258 ^e	936 1 724	1 675 3 720 ^e
Food subsidy budget in % of projected: total budget fiscal deficit	10.1 27.9	12.2 32.5	10.6 28.9	6.8 20.0	7.5 21.8	5.8 17.6	11.2 30.2
Foreign exchange for basic food imports (million US\$) ^g	2 525	4 009	3 756	3 552	3 573	3 572	3 820
Change in overall inflation rate due to food subsidies ^h	-	+3.5	+1.7	-2.0	-0.4	-2.2	+2.3
Open market exchange rate (index) ⁱ	1.00	1.15	1.07	0.92	0.98	0.90	1.10

Notes: ^aThis includes basic food items (as mentioned in the previous section) handled by the government. The US dollar is valued at official exchange rate (US \$1 = 0.84 LE).

^bAssumed base level of inflation is 15%; the number 3.5 for Scenario 2 thus means that inflation would increase from 15% to 18.5%.

^cThe index shows the value of the US\$ in terms of LE, eg if 1 LE = US\$ in 1981/82 on the open market, it was 1.15 LE for 1 US\$, according to Scenario 2 in 1986/87.

^dThe officially reported food subsidy budget for 1981/82 is 1473.1 million LE (Ministry of Finance). The deviation from the computed figure here may be due to some underestimation of operating costs of the system.

^eThe nominal food subsidy budget (at current prices) is computed with an assumed basic inflation rate of 15% per annum, plus the scenario-specific change in the rate of inflation. This gives, eg for Scenario 2, an inflator of 18.5% per annum.

^fNote that increases in public sector wages are counted as 'subsidies' as they affect the fiscal cost of the package.

domestic food price elasticities. Policies do have an impact, though. For example, while imports of wheat in grain equivalents was 6.2 million tonnes in the baseline, it would be 9.1 under Scenario 2 compared to 6.3 under Scenario 4. Due to cross-price effects, however, one would see rice exports of 37 000 tonnes under Scenario 2 compared to *imports* of 479 000 tonnes in Scenario 4.

Industrial output would increase under all scenarios relative to the 'no-action' scenario (Scenario 2). For Scenario 4, this additional output – which measures short-run effects only – adds 1.8% to total output. The corresponding figures for Scenarios 5 and 6 are 1.5 and 0.7, respectively.

Looking at Table 6, differences can be seen between scenarios with regard to both transfers to consumers and the relative share going to the poor.¹⁴ The per capita transfer to rural consumers was 74% of that to urban consumers in the base year. It rises to 81% in the second and third scenarios and to 92% in Scenario 4. In Scenarios 2 and 3, this is attributable to the greater price and income responsiveness in rural areas. Scenario 4 eliminates subsidies which were originally skewed to the urban community. In Scenario 5, the rural transfer actually exceeds the urban transfer due to the value of the wheat flour ration. However, this is partially offset by higher prices in the rural areas. While Scenario 6 has average transfers midway between the second and third scenario, the share of transfers to the rural sector is similar to the first scenario. This is due to the greater increase in rural flour prices, which is not offset by other changes as it is in the fourth scenario.

Since the wage policy assumed in Scenario 4a is only a benefit to the urban population, it is not surprising that 4a presents a decline in the

¹⁴The cutoff points represent 250 Egyptian pounds (LE) per capita expenditure in 1982 value for urban consumers and 150 LE for rural. While any cutoff is arbitrary, the definition is constant, hence comparisons are still instructive.

Table 6. Some indicators of distribution in alternative scenarios (1986/87).

	(1)	(2)	(3)	(4)	(4a)	(5)	(6)
	Baseline (1981/82)	Constant nominal prices for subsidized food commodities	Constant real prices for subsidized food commodities	Subsidized food prices to international level: bread and flour (50%)	As Scenario 4, plus wage increase in public sector	Targeting of subsidies	Change in structure of subsidies (for details see Table 3)
Annual per capita transfer from government							
to consumers (LE)	27.18	35.05	28.65	15.88	21.30 ^a	15.20	30.95
Transfer to urban poor	27.54	33.05	28.93	15.34	22.12 ^a	27.41	30.65
Transfer to rural poor	19.57	25.16	22.43	13.05	13.05	28.95	20.44
Transfer as % of expenditure of urban poor	19.0	18.24	16.0	8.5	11.8	15.1	16.9
Transfer as % of expenditure of rural poor	22.0	22.8	20.2	11.8	11.8	26.1	18.4
Daily calorie intake of urban poor	2 270	2 466	2 356	2 244	2 268	2 313	2 430
Daily calorie intake of rural poor	2 028	2 587	2 256	1 956	1 956	2 095	2 288
Index of calorie-deficient population (urban poor)	100	68	88	100	96	91	75
Index of calorie-deficient population (rural poor)	100	62	79	104	104	88	73

Note: ^aCounts pay raise as transfer

relative position of rural transfers. They are only 56% of urban transfers in this scenario.

The transfers to the poor vary between scenarios. Consequently, there are differences in the index of underconsumption, which measures the proportion of families with calorie intakes less than 85% of WHO requirements based on family age and sex distribution. Due to income growth – the effect of which is indicated in Scenario 3 – food consumption, in general, increases. Note that, due to substitution effects, an expenditure on subsidies in Scenario 6 which is roughly equal to Scenario 3 achieves a greater reduction in underconsumption. Similarly, while Scenario 4 results in a slight increase in underconsumption, the same average expenditure targeted as in Scenario 5 leads to a reduction.

While the assumption of slower income growth affects the aggregate figure only slightly, the impacts on nutrition are appreciable. For example, with per capita income growth at 2.0%, the index of urban underconsumption in Scenario 6 would be 80 while the rural would be 87. Given population growth, this implies that the total number of at-risk families remains virtually unchanged in the two periods. Similarly, under low growth, the indices of urban and rural underconsumption in Scenario 4 would be 111 and 116, respectively. Given population growth, this implies an increase of more than 28% over the number of families at risk in 1981/82. Similar results would be generated if average per capita income growth exceeded 2.0% but was skewed to upper income groups.

Policy conclusions

1) Egypt's current food subsidy system did not spring from one decision made in the early 1970s, even though it was then that the characteristically large fiscal outlays began. While the rise in world food prices in 1973 and 1974 contributed to a sharp rise in the cost of subsidies in Egypt, the system evolved from agricultural and consumer

price policies that were in place prior to the opening of the economy. These policies included export taxes to finance industrial growth and implicit transfers of income from producers to consumers – implicit food subsidies to finance the cheap food prices. Given this background, it is not surprising that Egypt moved to an explicit food subsidy scheme, as the self-sufficiency of major commodities that were implicitly subsidized (such as wheat) decreased rapidly. Indeed, a major change in consumer price policy would have had to occur for Egypt not to have drifted toward an explicit subsidy system in the 1970s.

2) The full cost of the food subsidies has been met in two ways. The accounts of central government have included part of the cost through allocations to the General Authority for Supply Commodities (GASC), whose responsibility is to arrange the purchase and delivery of imported foodstuffs. The government, through the Foreign Exchange Committee, authorizes the Central Bank to provide foreign exchange to GASC. The cost in Egyptian pounds incurred by GASC in acquiring imports depends on the exchange rate set for food. This rate (in LE per \$US) has often been below that for other commodity transactions, and has always been substantially below the free exchange rate. As a consequence, the full social opportunity cost of the foreign exchange used in acquiring imported foods has not been reflected in the reported costs of the subsidy.

3) The rapid rise in the costs of food subsidies to central government has contributed to the budget deficits. Undoubtedly, the set of food subsidies is only one of many items contributing to these deficits. These have been met by both foreign and domestic borrowing. A large part of the domestic borrowing has been in the form of net addition to the stock of domestic credits, through the creation of government liabilities to the Central Bank. The concomitant expansion of the money stock has led to an excess supply of money balances and an excess demand for goods, both foreign and domestic. Furthermore, this excess demand includes claims on foreign goods and services through foreign currency and banks. Eliminating the pressures associated with these imbalances in the money, goods and foreign currency markets has involved changes in prices and stocks. The rate of domestic inflation has been higher than it would have been without the deficits. The excess demand for foreign currency has driven up its price on the free market. Some of the excess demand was relieved by a decline in the stock of net foreign assets. The exchange market pressure has closely reflected the expansion of the monetary base, which accompanied the rise in budget deficits. Clearly, any policy that reduces the pressure associated with these deficits and their consequences for the monetary base would lessen the inflation rate, the devaluation of the Egyptian pound and the decline in net foreign assets. As food subsidies are only one item contributing to the deficits, however, the effects of food price policy on inflation, devaluation and the balance of payments is either augmented or mitigated by changes in other government expenditures.

4) The political commitment to a system of food subsidies has made it difficult to change the level of food imports from year to year. If the price of imported food rises, or if the supply of foreign exchange falls, little (if any) adjustment takes place in the quantity of food imported. One of the effects of a food subsidy scheme is to transmit much of the instability in the foreign exchange sector to the import of other goods. It is true that foreign borrowing and the use of reserves can and have

contributed to the process of adjustment. However, there are limits to their capacity to absorb the instability; unanticipated swings in other imports have been a crucial mechanism of adjustment.

5) These other imports largely comprise industrial raw materials and capital goods. Any decline in the supply of foreign exchange is met first by postponing the import of capital goods, then by reducing raw materials and finally, and only in a minor way, by reducing the quantity of imported food. Food consumption is maintained at the expense of output and employment in the non-farm sector and of growth in the capital stock. This transmission of instability to capacity utilization and industrial growth is a hidden cost of a food subsidy scheme that depends heavily on imported foods. Neither the existence nor the size of this cost have received much attention. National and international policies that reduce instability in the cost of importing foods, or that offer improved mechanisms for adjustment, would lessen the impact on industrial output, employment and investment.

6) The course that Egypt's food policies have taken provides an important lesson for countries keeping producer prices low to support consumers. Supply and demand projections show that many of these countries are going to become net importers of food in the years ahead. If they have rather plentiful non-agricultural resources – as Egypt had, mainly because of its rapidly developed oil reserves, the Suez Canal and foreign assistance – it is plausible that some of these countries are going to drift from implicit to explicit food subsidy schemes as Egypt did. But if this happens, the implication of pricing policies will be more apparent in the budget. This may change the nature of internal distribution, as conflicts over allocation arise. These countries will then have to know more about how to revise their food pricing systems and still ensure nutritional well-being.

7) In spite of rising budget outlays for food subsidies, the tax burden on farm production was steadily reduced. This reduction was the result of several factors, including changes in procurement policies, adjustments of prices and price ratios, and variations in interventions in agricultural trade. Rising prices in domestic open food markets have been a principal factor contributing to this trend. In the course of the 1970s, agriculture financed low consumer prices less than the general taxpayer. This shift from implicit to explicit subsidies was only possible because government revenues increased. Foreign assistance also played a part in that increase. Hence, it should not be concluded that consumer subsidies always burden agricultural production. The slow growth in Egypt's agriculture parallels, but is not a direct result of, consumer pricing policies.

8) It has been shown that in the early years of exploding food subsidy outlays, public investment in agriculture, already disproportionately low, was reduced further. However, in recent years more funds have been allocated to promote production of those crops whose output has lagged the most behind demand.

9) The reduction of the burden on Egypt's farm producers was not achieved by streamlining price distortions in agriculture. Policy changes included increased subsidies on inputs, so that implicit taxation of basic food commodities was reduced. In addition, livestock production was increasingly protected. The major inefficiencies in allocation were inherent in Egyptian agricultural policy before the budget outlays for food subsidies began to expand in the 1970s. The net social loss in the

production and consumption of all the commodities considered in this study accounted for 1.5% of national income in 1979/80. The bulk of the social costs result from the protection of livestock production, the taxation of cotton and depressed cereal prices, with only the latter being partly a result of explicit and implicit food subsidies.

10) A removal of price distortions might be needed if agriculture is to grow more rapidly. But, as the analysis of supply response has indicated, it may not be enough. The rigid constraints on resources, deficits of public water and input supply management, and the inefficiency of the agricultural extension service tend to offset the incentives price adjustments give for growth. Price policy should not be viewed as a panacea for Egypt's rural development and national food problems.

11) Food subsidies provide widespread benefits to consumers, be it directly or indirectly. The various elements of the food distribution system – rationing, subsidized bread system, subsidized flour system, public sector cooperative shops – have different equity effects. Most households (93%) had ration cards and the four rationed commodities – sugar, oil, tea and rice – were obtained regularly (by 95% of the households). Households purchase additional quantities of these commodities on the open market. For instance, about 80% of the households buy sugar from other sources to supplement the rationed quantities. Thus the ration system mainly transfers income. Analysis shows that income transfers through the ration component of the food subsidy system have a clearly progressive effect on income distribution, but favour the urban population and the population in the Nile Delta.

12) The availability of subsidized bread from licensed bakeries and fixed-price flour – the two most important commodities in the system – differs throughout the country. Bread is usually available in the cities and flour is available in most rural regions. As quotas are only occasionally placed on bread or flour purchases and as the income elasticities for some types of bread and flour are positive, the income transfers incorporated in these commodities increase as income does. Households in Upper Egypt, and in urban areas in general, benefit from this part of the system more than other households. However, it should be noted that rural households, as consumers, benefit significantly from depressed grain prices on the open market. These prices are low, in part because of import subsidies (wheat, maize) and export taxes (rice). For many rural households, the gains as consumers offset their losses as producers from the pricing of cereal. Furthermore, small producers concentrate on livestock activities which are protected and lose relatively less on taxed agricultural commodities such as cotton.

13) Although the system of subsidies and consumer prices in total – including both government outlets and open markets – favours the poorer groups of the population more than the upper income groups, there are components of the system that favour the rich. These include the subsidies of commodities sold by cooperatives and the subsidies on fino flour and fino bread (72% extraction rate). Similarly, subsidies on yellow maize and animal feed seldom reach small farmers and landless producers of meat and dairy producers. The poor benefit mainly from the subsidy on balady flour and the ration system.

14) Food subsidies contribute to inflation to the extent that they increase the fiscal deficit. Because the prices for those food commodities that the poor spend a large share of their budget on are kept nominally

12

stable through subsidies, a reduction of subsidies might reduce inflation overall but it would shift more of the burden of inflation to the poor.

15) When the demand for food at a given price exceeds the supply at that price, either the price rises or a local disequilibrium occurs. With many prices fixed in Egypt, goods are distributed at the margin either by fixed rations or through a willingness to wait. Rations entail little allocative inefficiency. In effect, they serve as an income transfer from government revenues to virtually all consumers. However, queues at cooperatives, which indicate shortages of certain commodities, have resource costs that are not captured by any segment of the economy; opportunity costs from waiting are not revenues for anyone. Thus, the resource cost of searching and waiting should be subtracted from the transfer of more than LE 100 million to individuals through the cooperative system. The net benefits were probably much smaller than the income transfer. Similarly, a smaller resource cost should be subtracted from the transfer inherent in bread and flour because shortages of bakeries and flour outlets reduced the average net gain to consumers from the subsidies on those items. Since it can be shown that willingness to wait did not increase the proportion of goods going to the poor, such resource costs do not serve as a way of targeting commodities.

16) There is some concern in Egypt that subsidized food is wasted. A careful assessment of the use of bread and flour for animal consumption shows that in 1982 about 6% of wheat supplies appeared to be used as livestock feed. The costs to the economy from that are less than the subsidy on this quantity because this use of bread and flour does have an output effect. However, the resources that go into processing and distributing those commodities are wasted.

17) Egyptian households acquire more food than households in most developing countries do, although malnutrition is moderate and child mortality remains high. It appears, then, that policies aimed at increasing purchases of food by households are not the most effective tools for eliminating the malnutrition that still exists. This is especially true for policies aimed at promoting expensive animal products. On the other hand, income transfers from the subsidy system are an appreciable portion of the real purchasing power of many families. For example, more than half the families in Upper Egypt received transfers from government-distributed food that made up more than 10% of their expenditures. The figure in Greater Cairo was nearly 40%. As elasticities for calories for the poorest rural and urban quartiles were 0.40 and 0.30, respectively, the loss of this transferred income would have reduced daily calorie consumption by 100–200 kilocalories per capita for these families. In addition, if marginal prices for breads, flours and grain were changed, consumption would be reduced in amounts greater than the income effect alone. Depending on the form of the reduction in subsidy expenditures, such policy changes could appreciably affect nutrition.

18) Egypt's economy is moving towards a situation of difficult policy choices. The core of these discussions involves the appropriate allocations of resources for present consumption versus investment to create long-term employment and growth. In terms of present consumption, the principal issues are pricing of energy and basic foods. Food subsidy policies are only one sub-element of the policy choice problem. Food subsidies are neither the sole cause of the Egyptian economic

2

problem nor would their abolition provide *the* remedy for the fiscal, foreign exchange and employment problems the country is now facing.

Conclusions from a model built on the basis of the in-depth partial analyses reported above provide the basis for policy guidance for answers to the following question: *if a decision on food subsidy policies is to be made, what are the effects of alternative options on macrovariables as well as on the various segments of the population and the poor, in particular?* Accounting for fiscal and economic costs of food subsidies only makes sense if those outlays are related to the benefits of food subsidies. A 'costly' food subsidy programme may be efficient if its policy objectives are reached at a lower cost than alternative means of reaching the objectives. Therefore, the policy options should be simultaneously evaluated for their costs and for the distribution and magnitude of their benefits.

19) If no action were taken over the period 1981/82 to 1986/87 – ie if subsidized food prices stay at nominal constant levels, as several did through the 1970s – the food subsidy budget would increase by 44% in *real* terms. By 1986/87, it might cover 12% of the total government budget, or one-third of the fiscal deficit. Foreign exchange required for basic food imports at a *constant* exchange rate would rise by about 60%. These fiscal and foreign exchange effects would further increase domestic inflation and the devaluation of the Egyptian pound.

A contrasting scenario, in which it is assumed that *real* prices of bread and flour increase by 50% and all other subsidized food prices (apart from the ration) increase to the international level, yields a reduction in subsidies of about one-half as compared to the 'no-action' scenario. However, the effects for foreign exchange savings are less impressive than the fiscal effects. A saving of only 11% is expected compared to the 'no-action' scenario. This is a result of high substitution effects between commodities if their price ratios change. However, the potential revaluating effect of reduced subsidies on the exchange rate might still be substantial due to the relationship of subsidies and the deficit.

20) A scenario roughly designed along the lines of policy changes currently being considered reveals that only minor fiscal savings might be achieved in *real* terms (-10% of food subsidies versus 'no-action'). This scenario also indicates a major administrative difficulty in the price structure; since major food prices are set by the government, the mechanism to alter them is cumbersome and price changes may only keep pace with inflation rather than outstrip it. The analysis shows that major fiscal savings may be obtained only by substantial modifications of the bread and flour price subsidy and the subsidies paid to customers of the cooperative shops (eg for meat and poultry, macaroni), or by targeting. The latter can both reduce the costs of the system and under-consumption. A degree of leakage must be expected, for administrative reasons and because the cut-off point of a poverty line is subjective.

21) Food self-sufficiency objectives, especially for cereals, are a major driving force behind demands for corrections in food price policy. Solving the perceived problem of increased import dependence by promotion of domestic food supply has only been partly successful in the past. Yet, an attempt to solve the problem by curtailing effective demand via respective consumer price policy measures would not by itself provide a feasible method for meeting self-sufficiency goals. As compared to the 'no-action' scenario, substantially cutting subsidized grain prices in other scenarios would result in a maximum reduction in

cereals consumption of about 11%. This would increase self-sufficiency in cereals from about 44 to 49% by 1986/87.

22) Food policy makers should be prepared for the surprising side effects of changes in subsidy policies. A case in point is the likely response of the rice market to changes in the wheat, bread and flour subsidies. A substantial cut in wheat subsidies would certainly induce a rapid increase in rice consumption, even if rice were not subsidized. In one scenario, rice would be a major import crop with about a half million tonnes imported annually. Of course, rice trade may be constrained by government policy. Yet, it is evident that under such a policy – restriction of rice imports and reduced wheat price subsidies – rice might end up as a protected subsector in agriculture, since open market consumer prices for rice tend to translate into equivalent farmgate prices for producers. Such a further distortion of farm prices would adversely effect resource allocation in agriculture in the long run (eg land for cotton, the major competing summer crop).

23) Nutritional status seems to be either constant or generally improved under an optimistic assumption of high-income growth. The effects of income growth are either reinforced by reductions in food prices or they roughly counterbalance the impact of substitution away from grains when prices rise. Only under a scenario with pronounced real price changes, and then only for the rural poor, is the proportion of malnourished expected to increase. The absolute number of families consuming less than the calorie requirements decreases for both sectors in most scenarios. It remains roughly constant in the urban sector in the no-price-change scenario. Conversely, when income growth is low, a noticeable decline in adequacy of calorie intake can be anticipated following major real price changes. Furthermore, when real wheat prices decline slightly, the decreasing proportion of families at risk of underconsumption is nearly offset by population growth, so the absolute number does not change. This possibility should also be considered when the national income increases at a high rate but distribution is unequal. If the economic possibilities of the coming years are not evenly distributed to the urban and rural poor, then the nutritional impacts of subsidy changes should resemble those of the low-growth scenario.

24) It is clear that the distribution of total benefits from the subsidy system varies among the scenarios. The relative responsiveness of the rural sector in general, and the poor in particular, to changes in prices and income account for greater gains by that sector from unrationed commodities when prices fall or incomes increase. Similarly, with larger budget shares to flour and bread, the rural poor see a greater decline in their real income when prices rise. In addition, since the current system contains many components, some of which benefit the urban sector more than the rural and others which are relatively distributed in favour of the rural regions, the selection of which programmes to modify alters the distribution of benefits.

25) Compensating wage hikes for the public sector may make subsidy cuts politically more palatable, but they reduce the fiscal savings with little nutritional benefit. Furthermore, they are not targeted appreciably to the poor and increase urban-rural income disparities.

Finally, it should be recalled that food subsidies are only one of many instruments utilized by the government to meet its diverse goals. Changes in other arenas – eg in energy pricing – will also have major impacts on the general economy and indirectly on food consumption.

15