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RED MEAT IMPORTS POLICY AND CONSUMER BEHAVIOUR IN EGYPT

BY

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INTRODUCTION

During the last ten years consumption of livestock products in Egypt has risen sharply and production has not expanded in equal measure. The result has been a gap,which has been filled by ever increasing amounts of imports which, in turn, have placed added burden on the government budget and balance of payments. However, all the studies which pointed out the meat gap have not shown the consumer behaviour towards imported meat as a proposed substitute for domestic meat to fill such gap.

Furthermore, Soliman (1982) showed that domestic meat costs are much higher than the cost of imported meat and there is effective protection. Imported red meat in form of frozen carcass and frozen cuts are the cheapest type of meat as indicated by the same study. Soliman's paper (1982) assumed that higher prices of domestic red meat persist because of higher costs of production and despite of government efforts to stabilize them at lower level. Eventhough, that study did not explain why sufficient imports did not enter to derive down the domestic price level.

The unexplained issues of previous related studies are the objectives of the present study.

Role of Red Meat Imports in Meat Consumption:

Since 1975 imports have been increased sharply (Table 1). The share of red meat imports of total meat consumption was the lowest, 3.72% in 1964. Overall during the period of 1967 to 1973 because of the problems related to Middle East War and government policy, imports were to some extent restricted.

The consistant upward trend in quantity of red meat imports started after 1973 and continued through 1981, with the only exception in 1978. The red meat imports share of total consumption was highest in 1981 at about 27% (Table 1).

The share of live animal imports has declined from 71% in 1964 to 10% in 1980. However, the share of live animals increased to 22% in 1981 (table 2), because of the new policy of the government to import live oxen in order to finish them locally within 2 months and then they deliver them to the market for slaughter.

Per capita consumption fluctuated over the period 1964-1981, because of the fluctuations in both domestic production and imports. Minimum consumption of domestic meat was 6.3 kgs per capita in 1965 and the maximum level was 9.6 kgs per capita in 1979. Minimum and maximum per capita consumption of imported red meat was 0.5 kgs and 3 kgs in 1968 and 1981, respectively (Table 3).

Distribution Pattern of Imported Red Meat:

Data from Ministry of Supply and household budget surveys in Egypt indicate that 98 percent of imported red meat is delivered to urban market.

The majority of the urban quota of imported red meat is consumed in Cairo and Alexandria. There is also irrigular supply of the imported red meat during a year. Much is delivered during religious occasions and sometimes irrigularity is due to the frequent delay in exporters delivery, shortage of cold storage space, difficulties in shipping and trasnportation. For example data of 1974/75 household budget survey showed the following quarterly per capita consumption of imported red meat: 0.35 kg in July-Sept.1974, 0.78 kg in Oct.-Dec. 1974, 1.11 kg in Jan.-March 1975 and 0.75 kg in May-July 1975.

Red Meat Imports Policy:

Until 1957, meat imports were almost entirely in the hands of private traders. The public secotr dominated imports in 1960's. Private sector importers were permitted to operate again in the latter part of the 1970's. More often than operating on their own account, however, private traders now serve as commission agents for the government in securing imports. Of the total L.E. 130 million as red meat imports for 1980, only 15 percent was imported by the private sector on its own account. Most of the latter was meat imported

for the hotel and tourist trade.

The decision to import meats is taken as follows:

(a) The Ministry of Supply (MOS) determines requirements, based upon their estimates of consumption and production.

(b) The Ministries of Planning and Treasury determine the required funds. Often, the funds provided are less than those requested by MOS.

Even if the full amount of funds which was originally requested is provided, the price of the imported products often rises above what had been projected, and available funds do not suffice to meet the import requirement. Table 4 shows that the amounts of meats imported during 1979-81 fell 10 to 20 percent below what the Ministry of Supply had planned.

Studies show that it should be possible to import meats at lower costs than the market prices which have prevailed in Egypt in recent years(Soliman,1982). The question is, why are more meats not imported ? On the government side, this could presumably be due to budget limitations, particularly since the government is committed to sell its imports at subsidized low prices. Private traders are under no such restriction, however, why don't they import more meat ?

There are certain factors which constrain the public and private sector alike from importing more meats. The following factors were reported in interviews with government officials:

(1) Port handling facilities are limited.
(2) Cold storage capacity is less than required
(3) Transportation facilities for handling frozen meat are inadequate
(4) For live animals, there are limitations in veterinary quarantine facilities and in rail shipment capactiy.
(5) Distribution channels and marketing facilities are poor.

Most of the same limitations were reported in conversations with private traders. In addition, they pointed out:

(1) They do not have their own marketing and handling facilities

(2) They cannot compete with the government's subsidized imports which are sold at L.E. 0.68 per kg. Even if they import a better quality than the government does, the consumer will still identify imported meat with low quality and will not pay a higher price for it.

(3) They can only obtain 40 percent of their foreign currency requirements at the official exchange rate and they must purchase the rest at the higher free market rate.

(4) The margins permitted for importers are not attractive. The Ministry of Supply specifies a 9 percent margin for wolesale trade of all food imports, including meats and 12 percent for retailer, that they can do better acting as commission agents for the Ministry, rather than importing on their own account at what they consider to be a low margin in addition to risk taking.

Storage Capacity Limiations:

The contention that storage facilities for freezing are limited also merits attention. In 1979/80 Egypt is reported to have had 15,124.5 tons with public sector and of around 67,930.5 tons with the private sector i.e. it reached 83,055 tons as freezing storage capacity (Ministry of Supply, 1982). Assuming a storage period of one month per lot, then the avaialble capacity was 6,921 tons per month. However, the total imported meat (red meat, poultry and fish) have reached 180,000 tons in the same year, i.e. at a monthly rate of about 15,000 tons, rather than the domestic supply. This assumed current shortage in storage facilities with expected expansion in imported meat.

It is reported that average investment costs per ton of cold storage range from L.E. 30,000 to 40,000. Even if the life for such a storage facility is a full 30 years and assuming that meat remains in storage only one month, on average, the amortization costs alone would be L.E. 97 per ton of meat stored. The costs of expanded storage and handling facilities merit further investigation.

Estimated Engle's Curve of Imported Red-Meat

With cross-section data, prices are, usually, considered fixed and thus the income effect can be measured best by using this kind of data, choice of the best fitted model for the individual income-consumption rleationship depended here on the closeness of fit (coefficient of determination "R^2"),economic logic and statistical inferences. The effects of induced "heteroskadasticity" can be eliminated by using a weighted regression procedure of the ordinary least square estimator. Therefore, a weighted regression method was applied. Data of the two household budget surveys of Egypt, conducted in 1964/65 and 1974/75 were used to fit two models representing the individual consumption-expenditure relationship in both years.

Four proposed models were estimated for each year. They are: Linear, Logarithmic, Log-Log, Log-inverse and the double log-inverse function. The best fitted model was the double Log inverse function (equation 1)

$$\ln \hat{q} = bo - \frac{b1}{x} - b2 \ln X \text{----- (1)}$$

Where, $\hat{q}$ denotes estimated per capita consumption of imported frozen red meat (Kg).

x is the annual per capita expenditure (L.E.)

bo, b1 and b2 denote estimated parameters of the Model.

This function has a saturation level after which consumption declines as income increases further. Its shape describes the consumption of imported frozen red meat as a luxury good in the lower range of income (elasticity coefficient > 1), where its consumption increases at a higher rate than income. In the middle range of income it becomes a necessity with a rate of increase, decreasing continuously until a maximum level of consumption is reached. From this point, it becomes an infereior good with a negative elasticity coefficient and its consumption decreases as income goes on rising.

Equations (2) & (3) present the estimated models for imported frozen red meat consumption in relation to income (expenditure) in 1964/65 and 1974/75, respectively. Table (5) shows the standard errors of the regression coefficient and the coefficient of determination R^2 and the adjusted of determination R^2.

$$\ln \hat{q}_i = 10.0265 - \frac{122.4623}{X_i} - 1.8309 \ln X_i \text{ --- (2)}$$

$$\ln \hat{q}_i = 7.2826 - \frac{144.017}{X_i} - 1.3692 \ln X_i \text{ ---(3)}$$

The weighted aggregate average per capita expenditure in 1964/65 was about L.E. 53 and in 1974/75 was about L.E. 80.5. Accordingly, the average derived expenditure elasticity of imported frozen red meat was around 0.2920 in 1964/65 and 0.4190 in 1974/75.

In 1974/75 about 41.5% of the population considered imported frozen meat as a luxury good (income elasticity ≥ 1), 43-8% of the population considered imported frozen meat as a necessary good ($0 \leq$ income elasticity < 1) and 14.7% consider frozen meat as an inferior good (income elasticity < 0). After 10 years, i.e. in 1974/75 such pattern had not changed, significantly (Table 6).

However, the relatively , higher magnitude of the imported red meat expenditure elasticity in 1974/75 in comparison with 1964/65 was due to: (a) a decrease in real annual per capita expenditure between the two years (average annual rate was estimated as (-0.75%);[1] (b) a raise in imported frozen red meat to fresh meat price ratio from 0-60 in 1964/65 to 0.72 in 1974/75. Actually fresh meat is an aggregate average of low, medium and high quality fresh red meat; (c) less availability of imported frozen red meat in 1974/ 75 than in 1964/65, whereas the per capita consumption in 1964/65 was 0.94 kgs and in 1974/75 was 0.74 kgs, while per capita consumption of fresh red meat raised from 6.8 kg in 1964/65 to 9.1 kg in 1974/75.

(1) On base of consumer price index in 1966/67 = 100

Source: Central Agency for public Mobilization and Statistics Statistical Year Book in 1967 and 1977.

Although the final detail data of the recent household budget survey has not been published yet the priliminary data was used to predict the situation of the consumer demand for imported red meat. This prediction assumes that the income consumption "Engle's curve" function of 1975/75 would have not changed in 1980/81. It should be mentioned that the preliminary data of 1980/81 household budget survey did not show the expenditure distribution by family expenditure class as the case in previous surveys. The only available data was the expenditure among geographical regions and by governorates within each region. However, annual per capita expenditure was defleted using a base consumer price index (1974/75 = 100) for urban and rural (1). The corresponding population percentage of the total for each defleted per capita expenditure was used to predict the proportion of the consumers who consider imported frozen red meat income (expenditure) elasticity equal to or less than zero inferior good). This percentage was 56.2 percent in 1980/81, i.e. much higher than the corresponding proportion in 1964/65 and 1975/75. Almost nill of the population consider imported frozen meat of an income elasticity equal to or greater than one (Table 6). This is due to a real increase in per capita total expenditure from L.E. 80 in 1974/75 to L.E. 114.4 in 1980/81 . Average elasticitiy of such commodity in 1980/81 was (-0.115).

Consumption - Income Relationships of Fresh Red Meat

Following the same procedure used for estimation of the engle's curve for imported frozen red meat, the engle's curve function for fresh red meat and poultry was estimated from the household budget surveys. Table 7 shows the estimated functions and the average elasticity. It is clear from Table 7 that the income elasticity of fresh red meat and poultry is one or greater than one without significant change overtime. As shown earlier, only 40% of the population shows income elasticity of magnitude one or greater than one for imported frozen red meat.

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(1) Central Agency for Public Mobilization and Statistics (Egypt): Statistical Year Book in 1977 and 1982.

Impact of Consumer Behaviour on Imported Red Meat Policy

The retail supply of frozen meat is limited and not always available, specially in small cities and rural areas. Accordingly, the income elasticity derived from reported consumption data is baised downwards. If adequate frozen meat was available to consumers, then the income elasticity would probably be higher.

The low income elasticity of imported frozen red meat for the majority of the population is also, probably, somewhat a reflection of the fact that handling facilities for imported meat have been poor until now, and as a result the quality of the meat has suffered before it was delivered to the consumer. This situation could be changed with improved handling and efficient distribution facilities.

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Table (1): Production and Consumption of Red Meat

Year	Domestic Production	Imports	Total consumption	Imports share of consumption %
1964	211.44	29.01	240.45	12.06
1965	199.12	33.65	232.77	14.46
1966	236.53	27.62	264.15	10.46
1967	299.77	17.42	317.19	5.49
1968	301.87	15.13	317.00	4.77
1969	288.75	15.23	303.98	5.01
1970	263.75	23.24	286.99	4.30
1971	260.21	32.1	292.31	10.98
1972	277.70	24.47	302.17	8.10
1973	301.93	21.52	323.45	6.65
1974	336.42	30.38	366.80	8.28
1975	317.83	53.04	370.87	14.30
1976	288.62	67.61	356.23	18.98
1977	303.52	88.19	391.71	22.51
1978	361.24	74.02	435.26	17.00
1979	411.01	83.34	494.35	16.86
1980	355.95	87.40	443.35	19.71
1981	343.00	129.20	472.2	27.36

Source: Calculated from:

(1) Ministry of Agriculture(Egypt) Agricultural Economics Research Institute:
Production and Consumption of Food Commodities; Several Issues.

(2) Ministry of Supply (Egypt) Department of Meats: Unpublished Records.

(3) Central Agency for Public Mobilization and Statistics: Bulletin of Livestock Statistics in Egypt; several issues.

Table (2): Imports of Red Meat (tons)

Year	Live animals (carcass weight)			Frozen Meat	Total Imports
	Oxen	Sheep goat	Camel		
1964	8058.6	686.9	11850	8410	29005.5
1965	4046.7	72.9	11033	18493	33645.6
1966	3299.7	0	11566	12754	27619.7
1967	1384.9	0	10629	5403	17416.9
1968	337.5	0	11276	3513	15126.5
1969	266.6	0	12483	2479	15228.6
1970	1905.1	462.6	13613	7264	23244.7
1971	4693	245.4	16841	10316	32095.7
1972	1827.3	205.1	14421	8013	24466.4
1973	2520	105.8	13194	5700	21519.8
1974	888.8	457.9	16036	13000	30382.7
1975	5.8	408.8	12622	40000	53036.6
1976	0	52.8	12844	54713	67609.8
1977	0	59.9	14135	74000	88194.9
1978	662.1	77.1	13084	65202	74025.2
1979	135.6	4.8	11209	71986	83335.4
1980	0	0	8834	78562	87396.-
1981	29475.-	0	11800	87925	129200.-

Calculated from:

(1) Ministry of Supply + Department of Meat: Unpublished Records .

Table (3) : Per capita consumption of domestic production and imports of red meat

Year	Total population million	Per capita consumption (Kgs)		
		Domestic Production	Imports	Total
1964	28.1	17.52	1.03	8.55
1965	29.4	6.77	1.14	7.91
1966	30.2	7.83	0.91	8.74
1967	30.8	9.73	0.56	10.29
1968	31.5	9.58	0.48	10.06
1969	32.3	8.93	0.47	9.41
1970	33.0	7.99	0.70	8.69
1971	33.8	7.69	0.95	8.64
1972	34.6	8.02	0.71	8.73
1973	35.4	8.52	0.61	9.13
1974	36.2	9.29	0.84	10.13
1975	37.0	8.59	1.43	10.02
1976	37.9	7.61	1.78	9.92
1977	38.9	7.8	2.27	10.07
1978	39.9	9.05	1.86	12.05
1980	42.2	0.43	2.07	10.50
1981	43.3	7.92	2.98	0.90

Source Calculated from:

(1) Table (1)

(2) Central Agency for Public Mobilization (Egypt: Statistical Year Book, 1982).

Table (4): Planned and Delivered Quantities of imported Red Meat in Egypt.

Year	Planned Quantity Tons	Delivered Quantity Tons
1979	83	72.5
1980	93	78.-
1981	104	83.-

Source: Ministry of Supply (Egypt): Unpublished Records

Table (5): Estimated standard Errors and cofficient of determination for equations 2 and 3.

Equation No.	SE (b_1)	SE (b_2)	R^2	
2	12.4145	0.2080	0.9425	0.90
3	23.4162	0.2965	0.8136	0.784

Source: Equations (2) and (3) in the Study

Table (6) Population Distribution according to income elasticity of imported frozen meat in Egypt.

Income elasticity	1964/65	1974/75	1980/81
E ≥ 1	41,5%	39.1%	0.00
0 < E < 1	43.8%	45.1%	43.8
E < 0	14.7%	15.8%	56.2

Table (7) Estimate of income-consumption Relationships of fresh Red-Meat

Year and Commodity	Constant	Income Coefficient	(t) value of income coeff	R^2
Red meat				
1964/65	1.7	1.02	14.80	.94
1974/75	-2.27	.97	16.76	.95
Poultry meat				
1964/65	5.13	1.54	11.17	.89
1974/75	-4.89	1.32	15.57	.94

Source : Estimated from :

Central Agency for public Mobilization and Statistics (Egypt): Household Budget Survey of Egypt (1974-1975) Published in 1978.