SOME ECONOMIC ASPECTS AFFECTING SMALL RUMINANTS DEVELOPMENT IN NEAR EAST COUNTRIES

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INTRODUCTION

Sheep have many advantages over other livestock and are, particularly, well adapted to many regions, (Singh, 1969 and Singh, and Moore, 1978). Sheep produce more than one kind of products each year, milk, wool and lambs, bringing the flock owner an income more than once a year. Since the crops are entirely different (have different markets), the price of one will not necessarily have a bearing on the other. Wool may be stored and held for higher prices or sold at shearing time, whichever seems advisable. A crop of lambs may be marketed from 5-6 months after they are born, bringing in rather quick return or to be kept for older age (one year or older). Sheep have the ability to produce prime carcasses on roughages alone, they are especially well adapted to many areas unable to produce crops profitably.

Sheep eat varied kinds of feeds or plants than other livestocks, these make them special class of livestock that can wastes to profits for the farmers.

Sheep do not require expensive buildings and equipment. In cold weather, only worm housing at lambing time, and a dry place to lie down are needed. Natural protection furnished by hills or trees is all that many range flocks have.

DEMAND FOR SHEEP AND GOATS MEAT

The demand at the producer level is derived from the demand at the consumer level. Therefore, the share of small ruminants (SR) in the meat market and farm output is determined by the size of the demand for such type of meat.

The consumer's preference and taste are the major structural variables that determine the demand for SR meat. It seems that a comparative analysis of the demand for SR

meat among Arab countries is a representive case study.

On the average mutton and goat, the meat represent about 59% of the total red meat consumption in Arab countries (table 1). However, in five countries such type of meat represents more than 70% of the total red meat consumption. In 11 countries this type of meat represents between 40% to 60% of the total red meat consumption. Only, in three countries SR meat is of minor importance. These countries are Iraq (36%), Morocco (30%) and Egypt (17%).

TABLE 1

Per capita gross domestic product and red meat consumption in Arab Countries *

Country	Per capita gross domestic product ($)	Per capita consumption : Beef (kg)	Sheep & goats (kg)	Total red meat (kg)	(%) of SR of total red meat
Jordan	1642	3.4	9.3	12.70	73.1
Syria	2051	3.5	13.0	16.51	78.8
Iraq	3117	6.8	3.9	10.71	36.5
Lebanon	1281	8.9	8.5	17.42	49.0
Yemen Dem.	478	1.8	2.6	4.44	58.9
U.A. Emirates	22952	6.8	7.5	14.32	52.3
Bahrin	12923	14.1	10.5	24.67	42.7
S. Arabia	13005	8.4	20.6	28.92	71.1
Qatar	8115	3.8	32.5	36.26	89.6
Kuwait	12764	17.1	26.9	44.00	61.1
Tunisia	1180	5.2	4.8	10.02	48.0
Algeria	390	3.9	5.5	9.43	58.8
Libya	7234	6.3	9.7	16.02	60.4
Egypt	678	8.2	1.7	9.89	16.8
Morocco	632	4.9	4.1	8.95	45.7
Djibouti	1633	6.6	8.9	15.50	57.3
Sudan	314	14.0	5.9	14.94	29.8
Somalia	336	9.1	11.5	20.55	56.0
Mauritania	462	3.6	8.8	12.35	70.9

* Source : Arab Organization for Agricultural Development, (1985).

Therefore, SR meat has the first periority with respect to the consumer's preference in most Arab countries. The consumer preference for SR meat (mainly mutton and lambs

meat) limits, significantly, the income-response with respect to the red meat demand. The income-demand relationship (Engle's Curve) for SR meat in the Middle East (Arab countries) showed a highly significant positive response (equation 1.), while this relation was not significant with respect to beef consumption (equation 2.)

$$\text{Ln (QMUTT)} = -0.1706 + 0.2970^{**} \text{ Ln (CPTGDP)} \quad \ldots\ldots\ldots [1]$$

with, $R^2 = 0.3230$ and $F = 8.1^{**}$ (significant at $p < .01$)

$$\text{Ln (QBEEF)} = 0.8500 + 0.1283 \text{ Ln (CPTGDP)} \quad \ldots\ldots\ldots\ldots [2]$$

with, $R^2 = 0.1028$ and $F = 1.9^{ns}$ (non significant at $p < .05$)

Where, (QMUTN) is the annual consumption per capita of SR meat in kilograms, CPTGDP is the annual per capita and QBEEF is the annual per capita consumption of beef in kilograms. The data used is a cross-section data of the year 1983 (Arab Organization for Agricultural Development, 1985).

From equation 1, the estimated income elasticity for SR meat is 0.297, i.e. an increase in per capita income by 10% is associated with an expansion in SR meat by approximately 3.0 kg. The expected annual population growth of the area, estimated from the statistics published by Arab Organization for Agricultural Development (1985), is around 3.2%. These considerations might suggest that the Middle East SR meat market is, eventually, likely to expand most rapidly, except in three countries. However, these three countries (Egypt, Morocco and Iraq) have about 44.8% of the Arab countries population.

PRODUCTION AND CONSUMPTION OF SMALL RUMINANTS MEAT IN EGYPT

CONSUMPTION PATTERN & DEMAND FOR RED MEAT

Meat consumption, demand and production of sheep and goats in Egypt are investigated in the following sections. Table 2. shows the red meat consumption pattern in Egypt in 1986, as a target country of the present workshop. The per capita consumption of total red meat was 9.9 kg, of which only 15% was SR meat. Beef was the major proportion, i.e. more than 55%.

Given the nature of meat production and Egypt's limited supply flexibilities in the short term, time-series analysis was used to estimate the reduction of the normal demand from different red-meat types (Shapouri and Soliman, 1985). From these models the income-elasticity for red-meat types was

estimated (table 2) and compared with the estimates of other countries.

From table 2, 10% growth in the per capita real income in Egypt will raise the demand for SR meat by 4% , while it will raise the demand for beef by 13.5% and veal by 7.8%. Only, aged (culled) cattle and buffalo cows meat and imported frozen meat have less income-demand response than SR meat in Egypt. This result shows that the economic growth in Egypt will raise the demand for cattle and buffalo meat at much higher rate than sheep and goat meat. Sheep and goat meat consumption has a distinguished seasonal pattern. The males are consumed mostly during religious occasions.

TABLE 2

Red meat consumption pattern in Egypt.

Type of Red Meat	Capita Consumption kg / year[1]	% of Total	Estimated average income demand elasticity coefficient[2]
Total Red Meat	9.9	100	0.91[a]
Buffalo-Veal	0.6	6.1	0.78[a]
Beef	5.5	55.5	1.35[a]
Sheep & Goats	1.5	15.1	0.40[a]
Aged Cattle & Buffalo	1.0	10.1	0.08[a]
Imported Live Animals	0.6	6.1	----
Imported Frozen Meat	0.7	7.1	.10[b]

1) from : Organization of Veterinary Services, Ministry of Agriculture official Slaughter hours data , present of off-slaughter hours animals were added.

2) Shapouri and Soliman, (1958). and Soliman, (1983).

It seems that a sociological behaviour in the national community limits the demand for SR meat. In United Kingdom, USA, Italy and France, the income-demand elasticity for mutton and lambs is higher than Egypt, i.e. 0.45 (Oxford University, 1975), 0.6 (Butz and Baker, 1960), 0.5 (FAO, 1962) and 0.6 (FAO, 1962), respectively. In German Fedral Republic, Belgium and the Netherlands, the income demand elasticity is less than Egypt, i.e. 0.24, .17, and 0.24, respectively (FAO, 1962).

Small Ruminant Production on Egyptian Farm

The study of Soliman and Ragab (1982) showed that the income generated from sheep and goats holding per feddan decreases, gradually as the farm size increases. It decreases from about L.E. 36 on the farm of less than one feddan to L.E. 2 on the farm larger than 10 feddans (table 3). They showed also that the relative share of the sheep and goats in the total livestock income per feddan decreases from about 4.2% on the smallest farm size to approximately, 9% on the farm size class 3 to 5 feddans. Above 5 feddans, the importance of the income from the sheep and goats has very little share in the farm income.

Soliman and Nawar (1986), investigated the patterns for livestock on the Egyptian farm using an extensive sample survey. They found that the average herd size per farm is 5.28 sheep animal units, of which females represent 4.2% and males represent 3.4%.

TABLE 3

Contribution of sheep and goats in livestock income per feddan by farm size class in 1982.

Farm size class	Income from sheep and goats		Total livestock income (1.E.)
	value (L.E.)	% of total livestock income	
Less than 1 Feddan	35.7	4.2	848
1-3 Feddans	20.3	4.8	422
3-5 Feddans	25.2	8.9	282
5-10 Feddans	5.5	2.6	210
Above 10 Feddans	1.3	1.5	83

Source ; Soliman and Ragab (1982).

Female goat represent 4.6% and male goat represent 2% of the total herd per farm. Therefore, sheep and goats on the farm represent, on the average, about 7.6% and 6.6%, respectively, of the total livestock holdings. Accordingly, sheep and goats have little importance on the conventional Egyptian farm either in investment pattern or income pattern of livestock.

SMALL RUMINANTS SUPPLY UNDER RAIN-FED AGRICULTURAL PATTERN IN NEAR EAST

Sheep and goat production under rain-fed agriculture in

Near East, is a type of production under extensive, risky and uncertain conditions. The total agricultural area of the Arab countries (22 countries) is 130,963 thousand hectares, of which only less than 30% is cultivated. Seventy-three percent of the cultivated area rain fed is agriculture. In addition to that, there are 265969 thousand hectares range land (Arab Organization for Agricultural Economics, 1983). Most of the range land is under very low and fluctuating rain fall, i.e. less than 200 mm^3. Under rain fed agriculture, production is highly, unstable. The instability in grain production of the Arab countries is very high. Among 15 concerned countries, the instability coefficient for grain production was above 40% in 13 countries, i.e. after the omission of the time trend, there are more than 40% deviations above or below the annual production of grains in Arab countries (Arab Organization for Agricultural Development, 1983).

Sheep and goat supply is highly affected by such unstable feed supply. Soliman and Rountree (1986) compared the time series analysis of meat supply versus feed grain supply among three representive Arab countries (Syria, Egypt and Morocco). They found that the higher the rate of instability in feed grain supply, the higher the instability in meat supply and meat price. It seems that sheep are drastically affected by poor years and drought. In poor years the percent of the herd died is very high. In Morocco, 40 % of the sheep flocks were lost due to successive frequent drought periods occurring over the last 15 years (Arab Organization for Agricultural Development, 1983). In poor years, the off-take rate for slaughter increases. Therefore, the supply in the market raises and the price decreases. Even if some poor years are followed by good years, the herd size and structure can not be rebuilt to reach its original level.

In a recent report by the National Council for Research in Sudan (1988), sheep are raised in very low rain fall areas. Over grazing is a common feature because sheep flocks unlike cattle and camels are not able to travel for vast distance. Therefore, they are left with very little chance for survival during drought.

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