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Impacts of Economic Liberalization on Scio-Economic Factors Affecting Investment in Livestock on Traditional Farms

By

Prof. Dr. Ibrahim Soliman & Dr. Ahmed Fouad Mashhour

Dept. of Agric. Economics, Faculty of Agriculture, Zagazig University

INTRODUCTION

Traditional mixed farms produce crops and livestock for both home consumption and sales. Most livestock is relatively intensive and concentrated on smaller, subsistence-oriented farms in the irrigated cropping region. These intensive village-based systems predominate for cattle, buffalo and small ruminants and produce 80 % of all beef, 90% of all milk and dairy products, and 70% of all mutton (Soliman, 1994). Then, the success or failure of Egypt's livestock development programs depends upon their ability to influence traditional smaller farmer's decisions on investment in livestock.

Conventionally, farmer's investment decisions in agriculture are influenced by economic factors. Among those factors are profitability, equipment requirements, and length of investment period, crop rotation, subjective time preference factors (Nadal, 1972; Kahlor, and Karajkar 1972; and Soliman, and Zaki 1982), and to increase the farm household income or to provide opportunities for the family labors, particularly women (Soliman, 1985). However, the traditional farm households May hold the cattle and buffalo, also for social objectives. The social factors, include the prestige associated with large herds, are also identified as possible influences on farmer's choices (Soliman and Zaki 1982; and Soliman 1985).

Investment in livestock enterprise is defined in this study as holdings in heads of cattle and buffalo. The holding size of these two types of animals represents the bulk of dairy and fattening activities within the traditional farming household.

The economic liberalization policies were onset earlier in agricultural sector, than other sectors, i.e. in 1986/1987. The policy instruments were exemption of cropland allotment, phasing out of feed prices, to give allowance for importation of inputs and final products by the private sector, and gradually the crop prices have been free (Soliman, 1994). Liberalization of prices, trade, and production in the heavily controlled and subsidized animal-origin food system impacted

differentially upon the livestock, but it worsened profitability in all sub-sectors. Increases of market prices following the reforms were very low compared with increases in feed costs following removal of subsidies. The initial fall in real personal incomes following reforms also reduced demand for these products, which have relatively high-income elasticity of demand.

OBJECTIVES

Since most previous studies, up to mid of eighties, showed that the social factors are more significant than economic ones in deciding the investment in livestock on traditional farm, this study objective is to verify this hypothesis after the implementation of the economic liberalization policies in the Egyptian market.

Investment in livestock enterprise is defined in this study as holdings in heads of cattle and buffalo. The holding size of these two types of animals represents the bulk of dairy and fattening activities within the traditional farming household.

METHODOLOGY

The study will attempt to relate investment in cattle and buffalo with the following factors: (1) size of land holding, (2) size of farm machinery holding, (3) availability of family labor, (5) education of the family head, (6) age of the family head, and (7) occupation of the family head.

While household size and number of children in the household reflect the nutrition requirements for animal products, they also with household members sharing in farming work, number of adult males and females, represent availability of labor. The latter variable is introduced to test the hypothesis that women provide most of the labor serving livestock.

Farm size reflects a scale of investment funds, as well as the potentiality to adopt new technology such as mechanization. A hypothesis to be tested is that the smaller the operated area the stronger the desire to invest in livestock as a form of vertical expansion.

Once the probability distribution of the investigated variables are not fully understood the Chi-square test, is applied: While, null hypothesis is that the concerned social and economic variables are independent of the decision to invest in livestock, the alternative hypothesis, is that they are not independent. Observed and expected joint frequencies of the farmers under each tested relation are calculated (Earl and Starr 1983). Two-way contingency tables are presented for each relation (Tables 1-9). A

contingency coefficient was derived for each relation to indicate the magnitude of the relation between livestock investment and each economic and social factor. Comparison of the expected value of each investigated factor with corresponding livestock holding size class is used to show the trend of the relation.

FIELD SAMPLE AND SAMPLING TECHNIQUE

The data were collected and processed from a questionnaire implemented in lower and Upper Egypt in summer of 1994 to cover the agriculture season 1993/1994. It was a cross-section sample survey of livestock activities on traditional farm. A stratified random sampling technique was applied to deal with the livestock investment decision-making of 95 and 76 households from three villages within Belbais District in Sharkia Governorate and another three villages from Samalot District in Minia Governorates, respectively.

It is a purposive sampling procedure based upon several considerations. The three villages should come from areas at varying distances from the major city of each district. The sample should include villages with high density of livestock and others with low density. The selected farms in each village should represent different farm size classes, including landless household with livestock holdings. The farm strata, also, include Land reform and regular type of farmers.

While 5% of the sample's households are landless but with livestock holdings, 51% of the households are with less than 3 feddans. Cattle and buffalo distribution of the sample is 10% with one Head; 16% with two heads; 18% with three heads; 16% with four heads; 40% with five heads and above.

RESULTS AND DISCUSSIONS

Results are presented according to the concerned socio-economic and demographic factors that may affect the household decision on investment in cattle and buffalo. The entire sample size was 171 households; however, in the table's households with no cattle and buffalo were excluded.

Effect of education level of the head of household:

49% of the farmers are illiterates. The average education score of the head of the household's included in the study was 0.77 and 1.11 in Lower and Upper Egypt respectively (table 1). This implies that the average education level of the farmers within the sample was less than primary school. Table 2, shows that from 2 heads class and above, the holding size

Table (1): Distribution of farmers according to education level and livestock holding size in both Sharkia and Minia Governorates.

Number of cattle and buffalo (head)	Number of farmers with education level												Average Education level Score ^a	
	Illiterate		Primary		Middle		High		Collegian		Total		Sharkia	Minia
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia
1	11	3	6	2	1	7	0	1	6	27	12	1.30	2.33	
2	19	7	9	0	3	0	1	1	0	29	16	0.45	0.88	
3-4	14	13	7	8	4	0	2	0	0	23	27	0.48	0.81	
5-9	7	9	1	3	3	2	0	0	0	10	15	0.70	0.60	
10 &	2	1	3	2	1	0	1	1	1	6	6	1.17	1.83	
Total	53	33	26	20	4	9	4	3	7	95	76	0.77	1.11	
Percentage in Category (%)	55.7	43.4	27.4	26.3	4.2	9.5	5.3	3.2	9.2	100	100	-	-	

a: Based on: 0 for illiterate, 1 for primary school, 2 for middle school, 3 for high school, 4 for collegian.
Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

increases with the holder's education level in either Lower or Upper Egypt regions. This indicates that, the farmers with higher education level tend to keep larger number of livestock. The associated, relatively, high education level with 1 head holding size reflects the holders of a bull or exotic breed dairy Cow. The Chi-square analysis (table 10) indicates that the education level of the head of household and the number of cattle and buffalo are significantly related. The estimated Contingency coefficient is relatively high, i.e. 0.447. This result shows that development of livestock on farm as intensive capital technology or biotechnology requires a considerable level of the manager's education. This statement is obviously valid either before or after economic liberalization (table 11). Therefore the same relation sustained over the last decades (Soliman, and Zaki 1982).

Effect of household size:

70% of the households are of six persons or more. The average household size was about 7.36 and 7.32 members in Lower and Upper Egypt, respectively (table 2). Tracing the trend of household size with livestock holding size on farm does not show any considerable direction of the relationship, either in lower or upper Egypt. Chi-square test, Table 10, shows that family size as an aggregate variable represents family labor availability or the volume of animal products food requirements does not appear to be in relationship to household size in both districts (table 10). This result shows a significant change in investment incentives due to economic liberalization (table 11). Keeping cattle and buffalo as opportunities for family labor employment, regardless their opportunity income (Soliman, and Zaki 1982; and Soliman 1985) has been no longer valid.

Effect of the age of the head of household:

50% of the farmers are between 40 to 60 years old The average age of household head was about 52.35 and 51.36 in Lower and Upper Egypt respectively, (table 3). Frequency distributions in table 3, do not provide an apparent evidence that the holder's age is associated with the number of livestock. The Chi-square test (table 10) provided evidence that the age of household's head was independent of the number of cattle and buffalo on farm, the same result found earlier (Soliman, and Zaki 1982).

Effect of the occupation of the household's head:

Whereas 80% and 82.4% of the family heads have farming as their sole source of income in Lower and Upper Egypt, respectively; 0.8% and 1.1% of the household members were employees in both districts respectively; and the rest of farmers were with other non-agricultural jobs

Table (2): Distribution of farmers according to size of household and livestock holding size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of households with members												Average size of household			
	Less than 5			5 - 7			8 - 10			Above 10			Total		Sharkia	Minia
	Sharkia	Minia	Total	Sharkia	Minia	Total	Sharkia	Minia	Total	Sharkia	Minia	Total				
1	3	15	18	5	11	16	4	0	4	0	4	27	12	7.22	7.50	
2	3	14	17	7	11	18	4	1	5	2	7	29	16	7.21	7.38	
3-4	0	9	9	11	13	24	8	1	9	3	12	23	27	7.61	7.26	
5-9	0	5	5	9	4	13	6	1	7	0	7	10	15	7.60	7.40	
10 & above	0	2	2	4	4	8	2	0	2	0	2	6	6	7.50	6.83	
Total	4	45	49	36	43	79	24	3	27	5	32	95	76	7.36	7.32	

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (3): Distribution of farmers according to age of the head of the household and livestock size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Age of the head of the household in years												Average age (years)		
	20 - 39			40 - 59			60 & above			Total		Sharkia	Minia	Sharkia	Minia
	Sharkia	Minia	Total	Sharkia	Minia	Total	Sharkia	Minia	Total						
1	7	2	9	11	9	20	9	1	10	27	12	50.53	50.31		
2	4	4	8	13	7	20	12	5	17	29	16	54.79	50.81		
3-4	4	2	6	10	18	28	9	7	16	23	27	53.57	53.67		
5-9	2	1	3	4	12	16	4	2	6	10	15	52.20	51.87		
10 & above	1	0	1	5	5	10	0	1	1	6	6	45.83	47.50		
Total	18	9	27	43	51	94	34	16	50	95	76	52.35	51.36		

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (4): Distribution of farmers according to occupation of the household head and livestock size in Sharkia and Minia Governorates.

Number of cattle and buffalo (head)	Number of farmers according to occupation										Percent with some non-agricultural Activity	
	Agriculture		Agriculture & non-agriculture				Total		Sharkia		Minia	
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia
1	15	6	12	6	27	12	6	27	12	44.9	50.0	
2	13	9	16	7	29	16	7	29	16	55.2	43.8	
3-4	7	8	16	19	23	27	19	23	27	69.6	70.4	
5-9	2	3	8	12	10	15	12	10	15	80.0	80.0	
10 & above	1	5	5	1	6	6	1	6	6	83.3	16.7	
Total	38	31	57	45	95	76	45	95	76	60.0	59.2	

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (5): Distribution of farmers according to number of children and livestock size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of households with children										Average number of children per household			
	1-2		3-5				6 & Above		Total		Sharkia		Minia	
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia
1	3	4	17	5	7	3	27	12	4.22	4.17				
2	10	3	11	6	8	7	29	16	3.83	4.19				
3-4	5	6	15	17	3	4	23	27	3.56	4.48				
5-9	4	4	4	4	2	7	10	15	3.50	4.47				
10 & above	1	2	5	3	0	1	6	6	3.83	4.76				
Total	23	19	52	35	20	22	95	76	3.84	4.38				

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

(table 4). From this table it is clear that there is a positive relationship between households head members with other non-agricultural jobs, and animal holding size in Sharkia Governorate (Lower Egypt), and in Minia Governorate (Upper Egypt), there is also observed trend of such relation. There is a possible association between the distribution of cattle and buffalo and that of the occupation of the household head in Lower Egypt region at confidence level of about 93%. A highly significant relationship between the number of animals and the occupation of the household head in Upper Egypt region at confidence level 97%, (table 10). However, before economic liberalization such relation was absent, (Soliman, and Zaki 1982). Assuming that this variable is an indicator to off farm income, it could be concluded that, after free market system application, the higher the household income, the higher is the potentiality to save and consequently to invest in more dairy or fattening animals.

Effect of the number of children of the household:

57% of the households have 3-4 children and above. The number of children is a direct indicator of the dependency ratio within the household. The average number of children in a household was about 3.84 and 4.38 in Lower and Upper Egypt respectively, (Table, 5). The range of expected number of children did not show any observed trend with the number of cattle and buffalo (table 5). Whereas the study before economic liberalization has shown a relatively significant relation with the number of children of the household, (Soliman, and Zaki 1982). The Chi-square test (table 10) provided evidence that the number of children of the household was independent of the number of household cattle and buffalo, after the free economy policy implementation (table 11). This mean that milk and meat production activities on traditional farm has become a market oriented enterprise rather than subsistence one.

Effect of the number of adult females of the household:

While 91% of the households have 1-3 adult females, the sample average was about 0.22 and 0.07 in the sample of Sharkia and Minia Governorates, respectively, (table, 6). Studies made in eighties (Soliman and Zaki 1982; and Soliman 1985) showed that the adult females of the household serve most of the labor required for livestock activities on farm. This is because their opportunity to work off farm was very little. Therefore, the farmer's decision to invest in cattle and buffalo was associated with the number of adult females of the household. According to the results of Chi-square test (at 0.05 level of significance), for Lower Egypt region, as presented in Table 10, it dose not appear that there is a relationship between number of animals and the number of the

Table (6): Distribution of farmers according to number of adult females and livestock size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of Households With Adult Females										Average number of adult females per household	
	Non		1-2		3 & Above		Total		Sharkia	Minia	Sharkia	Minia
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia				
1	24	8	2	2	1	2	27	12	0.22	0.00		
2	26	14	3	2	0	0	29	16	0.10	0.13		
3-4	17	25	6	2	0	0	23	27	0.44	0.11		
5-9	9	15	1	0	0	0	10	15	0.20	0.00		
10 & above	6	6	0	0	0	0	6	6	0.00	0.00		
Total	82	68	12	6	1	2	95	76	0.22	0.07		

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (7): Distribution of farmers according to number of family members sharing in farm operations and livestock size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of persons who share in farm work										Average number of persons sharing in farm operations	
	Non		1-2		3 & Above		Total		Sharkia	Minia	Sharkia	Minia
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia				
1	14	9	11	3	2	0	27	12	0.85	0.42		
2	11	8	17	7	1	1	29	16	1.35	1.25		
3-4	5	16	16	10	2	1	23	27	1.65	0.70		
5-9	2	9	7	6	1	0	10	15	1.90	0.87		
10 & above	2	5	3	1	1	0	6	6	1.67	0.17		
Total	34	47	54	27	7	2	95	76	1.36	0.74		

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (8): Distribution of farmers according to landholding size and livestock holding size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of farms according to landholding size												Average farm size in feddans	
	Landless		Less than 3 feddans		3 - 5 feddans		More than 5 feddans		Total		Average farm size in feddans			
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia		
1	3	1	23	8	1	2	0	1	27	12	1.88	2.34		
2	3	2	19	10	7	3	0	1	29	16	2.45	2.35		
3-4	1	3	10	13	11	5	2	6	24	27	3.25	4.31		
5-9	0	0	0	5	4	5	5	5	9	15	5.43	4.21		
10 & above	0	0	0	0	0	0	6	6	6	6	5.91	12.28		
Total	7	6	52	36	23	15	13	19	95	76	3.03	4.20		

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (9): Distribution of farmers according to volume of machinery holding and livestock holding size in Sharkia and Minia Governorates.

Number of Cattle and buffalo (head)	Number of farms according to volume of machinery holding												Average machinery holding in number	
	Non		1 machine		2 machines		3 machines & above		Total		Average machinery holding in number			
	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia	Sharkia	Minia		
1	22	4	5	8	0	0	0	0	27	12	1.00	0.91		
2	17	5	9	9	2	0	1	2	29	16	1.33	1.00		
3-4	7	5	13	16	3	0	0	6	23	27	1.19	1.33		
5-9	5	1	4	7	1	3	0	4	10	15	1.20	1.93		
10 & above	0	0	2	0	1	0	3	6	6	6	0.00	4.33		
Total	51	15	33	40	7	3	4	18	95	76	1.41	1.55		

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

adult females. However, such relation exists in Upper Egypt at confidence level about 94%. Therefore, we could not reject the null hypothesis that the distribution of cattle and buffalo is independent of the number of adult females of the household in the Lower Egypt but we could reject it in Lower Egypt, (table 10). It seems that the structural economic changes in labor market in Egypt, particularly in rural areas have changed this relation in Lower Egypt, because the rapid increase in women education and opportunities of their off farm work. However, the traditions in Upper Egypt has not fully changed, therefore cattle and buffalo herd management is still a major women activity on farm.

Effect of the number of family members sharing in farm operations:

Aside from the farmer, whereas 42% of the sample households have 1-2 members that share in farm work, 49% of the households have no members sharing in farm work, (Table, 7). The number of persons of household that share in farm work (in addition to the head of household) is a direct indicator of on farm permanent labor availability. The average number of persons of a household that share in farm operations was about 1.36 and 0.74 persons in Lower and Upper Egypt, respectively (table, 7). The Chi-square test (table 10) provided evidence that the number of persons of household that share in farm work was also independent of the number of household cattle and buffalo.

Effect of the landholding size:

The average operating area of the sample was 3.03 and 4.20 feddans in Sharkia and Minia Governorates, respectively, (table 8). There was a significant difference between the average operating area in both districts. A strong positive relation was found between landholding size and livestock holdings. That is investment in livestock increases with the average size of landholding. The average landholding of farmers with one head of cattle and buffalo was 1.88 and 2.34 feddans in Lower and Upper Egypt, respectively. However, it reaches 10 or more heads with landholding of 5.91 in Sharkia and 12.28 feddans in Minia, (table 8). The Chi-square test supports the hypothesis that landholding and livestock holding are dependent at significance level less than 1% (table 10). This result coincides with the conclusion of the studies before economic liberalization era, (Soliman and Zaki 1982; and Soliman 1985). Landholding size is a good indicator of farm endowment level, as well as, the potentiality of expansion in fodder cropped area on farm as well as the farm income level, which, integrally, determine the availability of funds and resources required for investment in livestock on farm.

Table (10): Chi-square test statistics for a null hypothesis of independency between socio-economic variables and investment in livestock

Variables	Governorate	Sharkia					Minia					
		Calculated Chi-Square	Degrees of freedom	Significance level	Contingency coefficient	Conclusion	Calculated Chi-Square	Degrees of freedom	Significance level	Contingency coefficient	Conclusion	
Social	Null Hypothesis : Independency between the distribution of cattle and buffalo holding size (head) & :											
	1- Education level of the head of the household	10.51	16	0.033	0.412	Not independent	15.59	16	0.002	0.447	Not independent	
	2- Size of the household.	2.12	12	0.715	0.231	Independent	2.38	12	0.667	0.288	Independent	
	3- Age of the head of the household.	2.39	8	0.665	0.266	Independent	4.21	8	0.378	0.309	Independent	
Economic	4- Occupation of the head of the household.	6.50	4	0.075	0.356	Doughtful	10.58	4	0.032	0.394	Not independent	
	5- Number of the children members of the household.	5.86	8	0.210	0.328	Independent	4.61	8	0.331	0.311	Independent	
	6- Number of adult females of the household.	3.76	8	0.438	0.269	Independent	9.02	8	0.061	0.348	Doughtful	
	7- Number of family members sharing in farm operations.	3.58	8	0.466	0.302	Independent	1.51	8	0.824	0.251	Independent	
	8- Land holding size.	57.15	12	0.000	0.672	Not independent	13.57	12	0.004	0.413	Not independent	
	9- Volume of farm machinery holding.	33.71	12	0.000	0.512	Not independent	23.73	12	0.000	0.503	Not independent	

Source: Calculated from a stratified random sample of a purposive survey in both Sharkia and Minia Governorates.

Table (11): Impacts of economic reform on traditional smaller farmer's investment decisions in livestock.

Variables	Era	Before economic liberalization		Impacts of economic reform
		Conclusion	Conclusion	
	Null Hypothesis : Independency between the distribution of cattle and buffalo holding size (head) & :			
Social	1- Education level of the head of the household	Not independent	Not independent	Not changed
	2- Size of the household.	Not independent	Independent	Changed
	3- Age of the head of the household.	Not independent	Independent	Changed
	4- Occupation of the head of the household.	Independent	Doughtful	Changed
Economic	5- Number of the children members of the household.	Doughtful	Independent	Changed
	6- Number of adult females of the household.	Independent	Independent	Not changed
	7- Number of family members sharing in farm operations.	Not independent	Independent	Changed
	8- Land holding size.	Not independent	Not independent	Not changed
	9- Volume of farm machinery holding.	---	Not independent	---
	10- % of area occupied by fodder crops.	Independent	---	---

Source: (1) Table 10 in this study.

(2) Soliman, I., et al: "Socio-Economic Factors Affecting on Decisions of Traditional Farmer on Investment in Livestock in Sharkia Governorate," Seventh International Congress for Statistics. Computer Science. Social and Demographic Research, Ain Shams University, 1982.

Effect of the volume of farm machinery holding:

This variable reflects the level of mechanization in farm operations, on one hand, and also a measure of endowment of the farmer (Wealth), on the other. The average number of agricultural machines holding that share in farm operations was about 1.41 and 1.55 machines in Lower and Upper Egypt respectively (table 9). A strongly positive relation was found between machinery holding size and livestock holdings, especially in Upper Egypt (Minia Governorate). Chi-square test and contingency coefficients, shown in table 10 indicate that the distributions of machinery holding size and cattle and buffalo holding size were not independent. More Machinery owned on farm, means richer farmer. Accordingly, he is able to invest more in cattle and buffalo.

SUMMARY AND CONCLUSION

Most livestock is relatively intensive and concentrated on smaller, subsistence-oriented farms in the irrigated cropping region. These intensive village-based systems predominate for cattle, buffalo and small ruminants and produce 80 % of all beef, 90% of all milk and dairy products, and 70% of all mutton. The objective of the study is to compare the changes in the traditional small farmer's decisions on investment in livestock, before and after the implementation of the market mechanism system. To reach this objective, the Study identified and tested the effect of a set of the factors affecting the farmers' investment decisions in livestock on traditional farms. Some of these variables were of social nature and others were of economic nature. The empirical analysis of this study is based on a sample of 171 farmers, from Sharkia and Minia Governorates. These farmers belonged to six villages and were selected from each village on base of a stratified random sampling procedure, using a purposive sampling survey. Results of this study are compared with other studies made before the application of market mechanism system in Egypt.

The comparative study results concluded that after the implementation of free market system the economic variables have become more effective on investment decisions in livestock on small farm than those of social nature have. The households that have larger landholding size and farm machinery holding size, as well as more off farm income had more livestock. Other variables, which were effective in such kind of investment decisions, before adoption of the economic liberalization have not being effective after the adoption of such policy. These variables include the availability of household labor, size of the household, number of adult females' members of the household.

Under market oriented farming system, expansion in dairy and fattening enterprising on farm associates positively with the manager's

level of education. Therefore, the number of cattle and buffalo owned by farmers has stayed not independent of the education level of the farmer, either before or after the implementation of the market mechanism system. Only Upper Egypt sample the livestock holding size was significantly not independent of the number of adult females' members of the household. This result reflects the rigid traditions surpassing the Upper Egypt, which keep serving the livestock on farm a major activity of the women.

Contingency coefficient reflects the magnitude of the statistically significant relationship influences of the concerned variables on farmer's decisions on investment in livestock. This estimate was from Sharkia Governorate sample as follows: operating farm area (67%), farm machinery size (51%), farmer's education level (41%), and occupation of the head of the household (36%). From Minia Governorate sample as follows: farm machinery size (50%), education level (45%), operating area (41%), occupation of the head of the household (39%), number of adult females of household (35%).

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آثار التحرر الإقتصادي على العوامل الإجتماعية والإقتصادية المؤثرة على الإستثمار فى الإنتاج الحيوانى بالمزارع التقليدية

أ. د. إبراهيم سليمان د. أحمد فؤاد محمد مشهور

قسم الإقتصاد الزراعى - كلية الزراعة - جامعة الزقازيق

يعتمد النمط المزرعى الحيوانى المصرى بصفة أساسية على الأبقار والجاموس. ويضم هذا القطاع النشاط التقليدى غير المتخصص، الذى يمثل النمط الرئيسى فى الزراعة المصرية، وهو يتسم بالإنتاج الإستكفائى العائلى مع تخصيص جزء محدود للتسويق وتأمين جانب من السيولة لتغطية بعض الإحتياجات المعيشية للأسرة. ويوفر هذا النمط نحو ٨٠% من اللحوم الحمراء، ونحو ٩٠% من اللبن ومنتجاته، ونحو ٧٠% من لحوم الضأن.

وتستهدف الدراسة مقارنة التغيرات فى قرارات الإستثمار فى الإنتاج الحيوانى بالمزارع التقليدية قبل وبعد إتجاه الإقتصاد المصرى نحو تطبيق نظام آليات السوق. ولتحقيق هذا الهدف حاولت الدراسة إختبار أثر مجموعة من العوامل الإجتماعية والإقتصادية التى يمكن أن تؤثر على قرارات المزارع التقليدى تجاه الإستثمار فى الإنتاج الحيوانى معبرا عنه بعدد الرؤوس من الجاموس والأبقار. وإعتمدت الدراسة على بيانات عينة قطاعية ميدانية من المزارعين فى محافظتى الشرقية و المنيا خلال الموسم الزراعى ١٩٩٤/٩٣. وإستناداً إلى أسلوب المعاينة الطبقيّة العشوائية تم ١٧١ مزارعا من ست قرى موزعة على مركزين إداريين (مركز بلبيس من محافظة الشرقية، ومركز سمالوط من محافظة المنيا). ومن ناحية أخرى، فقد تم مقارنة نتائج هذه الدراسة بنتائج دراسات سابقة تعكس الظروف المحيطة بالمزارع التقليدية قبل التحول فى توجهات السياسة الإقتصادية المصرية نحو التحرر.

أوضحت المقارنة أنه بعد تطبيق نظام آليات السوق أصبحت المتغيرات الإقتصادية أكثر تأثيراً على قرارات الإستثمار فى الإنتاج الحيوانى بالمزارع التقليدية مقارنة بنظيرتها ذات الصبغة الإجتماعية، حيث تبين أن الأسر ذات السعة الإقتصادية الكلية الكبيرة معبرا عنها بحجم الحيازة الأرضية والآلات الزراعية تميل لحيازة عدد أكبر من الرؤوس الحيوانية. فى حين أن بعض المتغيرات التى كان لها تأثير معنوى على حجم الحيازة الحيوانية قبل سياسة التحرر الإقتصادى لم تتأكد معنوية تأثيرها بعد تطبيق هذه السياسة، وتشمل هذه المتغيرات كل من حجم العمل العائلى المتاح، وحجم الأسرة، وعدد الإناث البالغات بالأسرة (الوحدة المعيشية).

كما إتضح أيضا أن التوسع فى حجم الحيازة الحيوانية يصاحب الحالة التعليمية وعمق الخبرة لرب الأسرة، ومن ثم فقد ظلت عدم الإستقلالية الإحصائية بين عدد الرؤوس المملوكة من الأبقار والجاموس والمستوى التعليمى للمزارع قبل وبعد تطبيق نظام آليات السوق فى الزراعة المصرية. ولم تتأكد المعنوية الإحصائية فى عينة الوجه القبلى لعدم الإستقلالية بين حجم الحيازة الحيوانية وعدد الإناث البالغات بالأسرة، وربما يشير ذلك إلى طبيعة الظروف الإجتماعية بالوجه القبلى التى قد لاتسمح للمرأة فى معظم الأحيان للخروج إلى أعمال خارج إطار المنزل والمزرعة.