Analytical study for the relationship of population and cultivated area in Egypt

Ezzat, A. Z.[1]; Mahmoud, A. M[1]; Naira, Y. S[1]. and Gamal, A. M.[2]
[1]Agricultural Economics Dept., National Research Centre, Dokki, Cairo, Egypt.
[2]Economic Research Unit, Fayoum, Egypt

Abstract: The study aims to identify the rates of growth in both population and agricultural land in Egypt during the period 1979-2008. In addition to the extent of the discrepancy between population and the average area cultivated and examine the impact of the improving area planted on the cultivated areas, total production of food crops and its relationship to population growth. Hence, the impact on imports and exports of wheat, cotton, rice, and also the impact on total production of livestock. Moreover the outcome of this effect in the study of the food gap between production and consumption. The study was achieved by some statistical analysis methods of general trend and some descriptive statistical methods. Finally, analysis of variance between the variables studied during the study periods (1979 - 1993) and (1994-2008). The study adopted in the compilation of data on all the bulletins from the Central Agency for Public Mobilization and Statistics and Ministry of Agriculture. The most important findings of the study compared with the general trend during the two study increased some of the variables during the initial period compared to the second period, including the acreage, the area of wheat, wheat production, productivity, imports of wheat, meat, red meat consumption, per capita red meat consumption, the gap of the dairy, poultry consumption, the per capita consumption of poultry, the gap of poultry. Also reflect an increasing number of variables during the second period, including a number of the population, the crop area, the area of rice exports of cotton, the average per capita production of wheat, the gap of red meat, dairy production, milk consumption, per capita milk consumption, per capita consumption of milk and, finally, poultry production compared to the first period. In addition, show some of the variables decreased during the first period compared to the second period, including the area of cotton, cotton production, the average per capita production of cotton. Finally, show declining average per capita cultivated area at a steady rate in both periods. As it was the most important findings of the study to compare the averages of some economic variables and the rates of growth and change them between the two study a rise in the rate of growth and rate of change between the averages of some variables such as population, cultivated area, the area of wheat, rice cultivation area, the productivity of wheat, rice productivity, exports of cotton, rice exports, the average per capita production of wheat, the average per capita rice production, production of red meat, red meat consumption, per capita consumption of red meat, milk production, milk consumption. Also show a reduction in both growth rate and the rate of change between the averages of some variables, including the crop area, the area of cotton, cotton production, imports of wheat, the average per capita cultivated area, the average per capita crop area, the average per capita share of cotton production, and the gap red meat. The study found the gap between population and cultivated area and land area in Egypt increased the gap resulting from the continued increase in population during the years of the study it was found that the number of people equivalent to about 7.11, 10.7 and 9.024 of total land area. And then was the most important recommendations of the study are: 1 - Work to reduce and decrease the number of population through family planning programs, or developing new laws to limit the number of children, two kids/ family and who wants a third child or more depending on the economic, the viability of expenses the full education, treatment, and care, and so on. 2 - follow the ways and means of modern technology that lead to greater land area cultivated (horizontal extension) through the cultivation and reclamation of land, as well as developing and enacting laws that contribute to the reduction of construction and the attack on the agricultural land for other purposes. 3 - The application of genetic engineering to increase the output unit of cultivated area to improve seeds and seedlings, devising new types of high-yield and short staying and resistance to adverse conditions and some others, and also use some of the methods of modern agriculture with the use of fertilizer extension courses, and others. [Journal of American Science 2010; 6(9):621-630]. (ISSN: 1545-1003).

Introduction:

According to the theory of Malthus, the world population is increasing in a geometric progression while, resources are increasing in an arithmetic progression. This are reflected on the increase in hunger and poverty for many people, particularly in developing countries.

Most of developing countries, including Egypt, the population increase significantly, as the number of the population increase from 49.34 to

66.45 million for the period 1979 to 1993 and for the period 1994 to 2008 respectively, an increase of about 34.7% between the two periods .

Despite efforts by the state was starting in 1954 to increase the cultivated area (horizontal extension), the acreage between the two periods mentioned increased only about 31.1%, and then the average per capita share of this area of about 0.123 fedden to 0.12 fedden, down about 2.4% between these two periods. As a result of that, the outcome appeared in the food gap of most food crops, especially grain crops, oil crops, which necessitated the increase in imports of these crops.

Problem of the study

The main reasons for decreasing the agricultural land are the non-implementation of schemes prepared by the national land reclamation (horizontal expansion), and use some of this land diverted agricultural hand, and the continued population growth and urban encroachment on agricultural land on the other hand. Due to that, the per capita agricultural land through the study period declining, and does not suit the production of some strategic crops with the consumption of the population, which reflected the steady increase in imports.

It also highlights the problem of the lack of production for export, and be the export is not to identify the conditions of the importers of both quantity and quality and also the residual effect of pesticide or the use of bio-agriculture, which reflected the weakness of the quantities exported, and even re-many of them after export.

Aim of the study

The study aims to identify the rates of growth in both population and agricultural land in Egypt during the period 1979-2008. In addition to the extent of the discrepancy between population and the average area cultivated and examine the impact of the improving area planted on the cultivated areas, total production of food crops and its relationship to population growth. Hence, the impact on imports and exports of wheat, cotton, rice, and also the impact on total production of livestock. Moreover the outcome of this effect in the study of the food gap between production and consumption.

Data sources and Methods

The period studied (1979-2008) was divided into two periods are, (1979-1993) and (1994 – 2008) and then use some methods of statistical analysis of the general trend of the variables studied. Moreover use some descriptive statistical methods to estimate

the averages of these variables, estimating rates of growth and change for each of the periods.

Finally, analysis of variance between the variables studied for each period of the two periods. The study data were collected from the Statistical Yearbook issued by the Central Agency for Public Mobilization and Statistics, Department of Statistics of Economic Affairs Sector, Ministry of Agriculture and Land Reclamation for the period studied.

Results

I. A comparison of the general trend during the study

Table (1) illustrated the Increasing of some variables during the first period compared to the second period, which include the cultivated area by about 21 200 fedden (4200m2, 1.05 acre), an area of wheat by about 17 200 fedden, wheat production at about 0.03 ardebs, the productivity of rice by 0.01 tones, wheat imports by 42.2 thousand ardebs, red meat production at about 27.9 thousand kilograms, red meat consumption by about 30 700 kg per capita consumption of red meat by 1.1 kilograms, the gap of milk about 130 800 tons, the consumption of poultry by 18.5 thousand tons, per capita consumption of poultry around 0.41 kilograms, the gap of poultry by 35.5 thousand tons.

Also reflect an increasing number of variables during the second period, including the number of population was estimated at 0.06 million people, the crop area by about 31 700 fedden, the rice cultivation area by about 7700 fedden, cotton exports by about 43 200 quintals, the average per capita wheat production by about 0.2 ardebs, the gap of meat red by about 6380 tons, the production of milk by about 222.4 thousand tons, milk consumption by about 96 600 tons, per capita consumption of milk by about 96 600 tons, per capita milk consumption by about 0.6 kilograms, and finally the poultry production by about 17 100 tones compared to preliminary. As seen from the same table diminished some of the variables during the first period compared to the second period, including the cotton area by about 1300 fedden, productivity quintal of cotton by about 0.01 quintals, the average per capita share of cotton production by about 5 quintals and, finally, shows decreasing average per capita cultivated area at a steady rate during the periods 0.001 fedden, has proved to be significant relationships statistically estimated at level significance 0.05 as illustrated in table (1). While did not demonstrate significant relations estimated for some variables in the first period, including acreage, production of cotton, wheat imports, the average per capita acreage, the gap

of red meat, per capita consumption of dairy products. Moreover, it did not demonstrate significant relations estimated for some variables in the second period in each of the cotton production and cotton exports and imports of wheat, the average per capita production of wheat, rice and red meat, per capita consumption of red meat, poultry, poultry consumption, and the gap of red meat and chicken.

Table (1): Time trend in the year during the two periods (1979-1993) (1994-2008)

Period Statement	First period (1979-1993)					Second period (1994-2008)				
	A	B	T	R^{-2}	F	A	B	T	R^{-2}	F
Population\ million people	40.13	1.15	35.9	0.99	1285.9	56.8	1.21	21.5	0.97	461.9
Agricultural area/1000 fedden	5220	103.3	1.9	0.15	3.57	7287.7	82.1	7	0.77	48.8
Crop area/1000 fedden	1063.4	111.6	5.1	0.61	26.5	13124	143.3	12	0.9	145
Cotton area/1000 fedden	1236.1	25.7-	6.9-	0.77	47.2	855.5	24.4-	3.5-	0.45	12.6
Wheat area/1000 fedden	1023.1	63.5	4	0.51	15.8	2188.1	46.3	4.7	0.6	21.9
Rice area/1000 fedden	918.7	13	2.3	0.23	0.4	1336	20.7	3.3	5.2	10.7
Cotton productivity / quintal	7.1	0.06-	1.3-	0.05	1.7	6.5	0.05-	0.1-	0.004-	0.93
The productivity of wheat /Ardebs	1.2	0.07	13.8	0.93	191.8	2.3	0.04	5.2	0.64	26.8
Rice /ton	2.1	0.07	5.9	0.74	34.3	3.4	0.06	8.3	0.83	69.4
Cotton Exports / quintal	228.8	14.2-	7.6	0.8	57.6	29.5	29-	1.9	0.16	3.7
Wheat imports/1000 ardebs	5793.4	32.6	0.8	0.03-	0.6	5683.1	9.7-	0.14-	0.07-	0.02
Cotton Exports /1000 ardebs	36.6	5.1	1.9	0.16	3.6	107	44.5	2.7	0.32	7.5
Rice exports/1000 ardebs	0.13	0.001-	0.9-	0.02-	0.75	0.13	0.001-	4.8-	0.61	23.1
The average per capita cultivated area/fedden	0.3	0.003-	7.8-	0.81	60.8	0.23	0.002-	10.4-	0.88	108
The average per capita crop area/fedden	209.6	8.5-	8-	.820	63.5	91.1	-3.5	5.2-	0.51	15.4
Average per capita production of cotton/quintal	5.8	0.03-	1-	0.002-	1	7.3	0.17	2.2	0.22	4.9
Average per capita production of wheat/ardebs	5.9	0.17-	3.4-	0.44	11.8	5.7	0.09	2.1	0.21	4.6
Average per capita production of rice/ardebs	156.4	43.7	8.8	0.8	78.2	729.1	6.8	1.1	0.02	1.2
Red meat production/1000kg.	281.7	44.5	9.7	0.9	93.2	804.6	13.8	2.3	0.23	5.2
Per capita consumption of red meat/kg	7.9	0.6	7.3	0.8	53.2	14.2	0.05-	0.61-	0.05-	0.4
The gap of red meat/1000tons	125.3	0.8	0.2	0.07-	0.06	75.5	6.98	1.9	0.17	3.8
Dairy/tons	1761.1	40.5	6.2	0.7	38.3	2137.7	267.9	17.3	0.95	289.4
Consumption of milk/ 1000 tons	1190.3	114.8	3.3	0.4	10.7	3692.2	211.4	10.7	0.89	114.7
Per capita consumption of milk/kg	33	1.1	1.8	0.1	3.1	66.6	1.7	5.6	0.69	31.8
Gap Dairy/1000tons	570.8	74.3	2.3	0.2	5.5	1554.5	56.6-	5.6-	0.69	31.6
Poultry production/1000tons	149.8	11.5	4.1	0.5	17.3	514.1	28.6	3.9	0.5	15.2
Poultry consumption/1000tons	104.7	30	8.7	0.8	76.7	497.1	11.5	1.1	0.01	1.1
Per capita consumption of poultry/kg	3.2	0.4	6.3	0.7	39.4	9	0.01-	1.0-	0.07-	0.01
Gap poultry/tons	45.1-	18.4	5.1	0.6	25.6	16.9-	17.1-	1.2-	0.03	1.5

Source: Compiled and calculated from Table (1) with the extension.

II. The averages of some economically variables in addition to rates of economic growth and change them between the two study periods; the rates of growth and change for the averages of the variables studied between the two periods in accordance with the following equations:

Growth rate = [(average variable second period/average variable to the first period)$^{(1/length)}$-1]*100

$$\text{Rate of change} = \left(\frac{\text{average variable of the second period} - \text{average variable of the first period}}{\text{Average variable of the first period}}\right) * 100$$

Table (2) illustrates, the rising of the growth rate and rate of change between the averages of some variables, which reflects the following:-

1. Population: increasing the birth rate significantly and lower mortality rate as a result of the progress of health.
2. The cultivated area: increasing the area cultivated, as a result of the efforts in land reclamation.
3. Wheat area: - Yield increasing in cultivated areas, as a result of higher prices supplied on one hand, and high-yielding varieties on the other.
4. Rice cultivation area: increased crop cultivated areas, as a result of high prices on the domestic market, export, and the development of high productivity and short staying.
5. Wheat production: increasing crop productivity, as a result of the development of new varieties with a high average productivity.
6. Rice productivity: increasing crop productivity, as a result of the development of new varieties with a high average productivity.
7. Cotton exports: the development of non-cotton exports mainly intended to shift from long-staple plant varieties to short-staple varieties, and lower average production per feddan in the second period from the first.
8. Rice exports: exports as a result of increased production for consumption and high export prices.
9. Average per capita wheat production: increase the average per capita production, a result of increased cultivated areas of the crop next to a higher average production per feddan, though Egypt imports about 50% of the total consumption of the population.
10. The average per capita rice production: increase the average per capita production, due to increased area under cultivation, increasing the average yield per fedden of new strains. And then start the trend of export crop in recent years.
11. Red meat production: increased production by increasing the numbers of livestock and production of the unit.
12. Red meat consumption: increased consumption as a result of the large population increase, and then cover the deficit import from abroad.
13. Per capita consumption of red meat: increase this share as a result of the abundance of red meat, whether locally produced or imported.
14. Milk production: increasing numbers of dairy cattle, increasing the average production unit.
15. Consumption of milk: growing each of the rates, as a result of the multiplicity of uses of milk and the presence of import.
16. Per capita consumption of milk: reflecting the increased consumption of milk in several diverse products.
17. Milk gaps': increasing population at a greater rate than the increasing production of milk, which met the needs from import.
18. Poultry production: the large increase in the number of poultry and increase the average unit weight produced.
19. Consumption of poultry: a high population increase and the emergence of several methods for the preparation and packaging of poultry contribute to increased consumption.
20. Per capita consumption of poultry: the large population increase and the availability of poultry from local production and import.
21. Gap poultry: It reflects the high population increase at a greater rate than the rate of increase in production, causing import.

As shown in Table (2) a reduction in both growth and change rate between averages of some variables, which reflects the following: -
1. Crop area: increase the cultivated area of fruit, and low the area under cultivation of Nile season.
2. Cotton area: the deflection of cotton cultivation to the lower prices, and the lack of support after the economic liberalization and losses to farmers.
3. Cotton production on the dramatic decline in average productivity per feddan, the failure of the processes of fertilization and the resistance is true to the high cost of fertilizers, pesticides and labor.
4. Imports of wheat: a decline in imports due to increased wheat plantings, and increase the average production per feddan.
5- Average per capita cultivated area: the large population increase, which is not matched by the increase in arable land in the same population increase as a result of urban encroachment on the old land and poor rates of reclamation in addition to a few grown ones.
6- Average per capita crop area: the large population increase, which eat up the new land added, in addition to increasing the area of fruit in the new lands, and non-agriculture Nile season by most farmers.
7- Average per capita production of cotton: large population increase, with no increase production at the same rate of population increase.
8- The gap of red meat: the large population increase, which is not accompanied by increased production of red meat.

Table (2) averages of some variables and rates of economic growth and change them between the two studied periods.

Series	Statement	Average		growth Rates	Change rates
		1979-1993	1994-2008		
1	Population\ million people	49.34	66.45	1.83	31.39
2	Agricultural area/1000 fedden	6046.8	7944.8	1.43	23.80
3	Crop area/1000 fedden	11527.1	14270.8	3.48	67.15
4	Cotton area/1000 fedden	1030.7	660.5	2.92-	35.92 -
5	Wheat area/1000 fedden	1530.8	2558.7	2.59	46.71
6	Rice area/1000 fedden	1023	1500.9	2.48	44.44
7	Cotton productivity / quintal	6.6	6.1	0.52-	7.58 -
8	The productivity of wheat /Ardebs	1.8	2.6	2.56	46.15
9	Rice /ton	2.6	3.8	1.84	31.39
10	Cotton Exports / quintal	115	203	3.86	76.5
11	Wheat imports/1000 ardebs	6054	5606	0.51-	7.4-
12	Cotton Exports /1000 ardebs	77.3	462.7	12.67	498.6
13	Rice exports/1000 ardebs	0.123	0.120	0.16-	2.44 -
14	The average per capita cultivated area/fedden	0.23	0.21	0.6-	8.7 -
15	The average per capita crop area/fedden	141.7	62.6	5.3-	55.8-
16	Average per capita production of cotton/quintal	5.6	8.6	2.9	53.6
17	Average per capita production of wheat/ardebs	4.5	6.3	2.3	40
18	Average per capita production of rice/ardebs	506.3	783.7	2.95	54.79
19	Red meat production/1000ton.	638.1	914.9	2.43	43.38
20	Per capita consumption of red meat/kg	12.7	13.8	0.55	8.66
21	The gap of red meat/1000tons	131.7	131.3	0.02-	0.30 -
22	Dairy/tons	2084.8	4280.8	4.91	105.33
23	Consumption of milk/1000 tons	2108.9	5383.5	6.45	155.27
24	Per capita consumption of milk/kg	42.2	80.4	4.39	90.52
25	Gap Dairy/1000tons	24.1	1102.7	29.0	4475.52
26	Poultry production/1000tons	242	743	7.76	207.02
27	Poultry consumption/1000tons	344.5	589.4	3.64	71.09
28	Per capita consumption of poultry/kg	6.8	8.9	1.81	30.88
29	Gap poultry/1000tons	102.5	153.5	202.73	249.76

Source: Compiled and calculated from data Table (1) with annex.

III: The value of "F" calculated from the analysis of variance:

Analysis of variance was conducted to determine significant differences between the values of the variables studied between the two study periods, by calculating the value of F and compared with F from tables with degrees of freedom (1.28).

This was demonstrated moral statistical value of the "F" are computed on the significance level (0.05) for all studied variables except for cotton production, exports of cotton, wheat imports, the average per capita cultivated area, the average per capita consumption of red meat, the food gap of red meat.

Table (3): The analysis of variance for the economic variables between the two study periods.

Statement	Between periods				Within the periods			
	Sum square of variance	df	Mean square of variance	Calculated F	Sum square of variance	df	Mean square of variance	Calculated F
Population\ million people	2196.5	1	2196.5	77.5	793.9	28	28.3	-
Agricultural area/ 1000 fedden	27018030	1	27018030	46.5	16267037	28	580965.6	-

Crop area/1000 fedden	56457801	1	56457801	137.9	11466276	28	409509.9	-
Cotton area/1000 fedden	1027490	1	1027490	50.2	572667.1	28	20452.4	
Wheat area/1000 fedden	7923824	1	7923824	73.6	3012854	28	107601.9	-
Rice area/1000 fedden	1712674	1	1712674	111.5	430099.7	28	15360.7	-
Cotton productivity/quintal	1.81	1	1.81	2.4	20.7	28	0.74	-
The productivity of wheat /Ardebs	4.9	1	4.9	62	2.2	28	0.08	-
Rice /ton	10.9	1	10.9	103.1	2.9	28	0.1	-
Cotton Exports / quintal	57640.8	1	57640.8	1.42	1137025	28	40608	-
Wheat imports/ 1000 ardebs	1509763	1	1509763	1.84	22958769	28	819956.1	-
Cotton Exports / 1000 ardebs	1113613	1	1113613	20.2	1542429	28	.55086	-
Rice exports/ 1000 ardebs	0.0001	1	0.0001	0.04	0.005	28	0.0002	-
The average per capita cultivated area/fedden	0.003	1	0.003	17.3	0.005	28	0.0002	-
The average per capita crop area/fedden	0.001	1	0.001	59.6	0.0004	28	0.00002	-
Average per capita production of cotton/quintal	0.0004	1	0.0004	26.7	0.0004	28	0.00002	-
Average per capita production of wheat/ardebs	0.00002	1	0.00002	7	0.0001	28	0.000003	-
Average per capita production of rice/ardebs	576825.6	1	576825.6	20.8	775277.8	28	27688.5	-
Red meat production/ 1000kg.	5749996.7	1	576825.6	19.6	820025.4	28	29286.6	-
Per capita consumption of red meat/kg	9.3	1	9.3	1.7	154	28	5.5	-
The gap of red meat/1000tons	1.4	1	1.4	0.0004	100796	28	3599.8	-
Dairy/tons	36168120	1	36168120	46.9	21582943	28	770819.4	-
Consumption of milk/1000 tons	36168120	1	36168120	46.9	22095337	28	789119.2	-
Per capita consumption of milk/kg	10970.7	1	10970.7	100.2	3063.9	28	109.4	-
Gap Dairy/1000tons	8726413	1	8726413	37.9	6450746	28	230384.8	-
Poultry production/1000tons	1881781	1	1881781	107.4	490393.2	28	17514	-
Poultry consumption/ 1000tons	449811.9	1	449811.9	16.6	756920.4	28	27032.9	-
Per capita consumption of poultry/kg	32	1	32	5.7	157.9	28	5.6	-
Gap poultry/tons	491541.3	1	491541.3	14.8	.931491	28	33267.5	-

Source: Compiled and calculated from data Table (1) Annex

IV: the gap between population and cultivated area in Egypt:

The results obtained show that the gap between population and all of the cultivated area have

been increasing as shown in Figure (1) and Table (4), Where the total population of 42 million people in 1979, while the crop area of about 11. 24 Million feddens, which means that the population equivalent of 3. 73 of the total crop area. While in 2008 the population reached 77.5 million people and15.6 million square crop acres, which is equivalent to five times the size. By studying the relationship between population and land area it is clear that the population continues to increase during the years of study as was about 42, 58.9 77.5 million people (years 1979,1994 and 2008), while the land areas of approximately 5.9, 7 and 8,4 million acres respectively, thus the number of people equivalent to about 7.11, 10.7 and 9.024 of land area.

Table (4): Population in million inhabitants and a total floor area and the Egyptian crop area in thousand acres

year	Population /million	Total land area/1000fedden	Total crop area/1000fedden	year	Population	Total land area/1000fedden	Total crop area/1000fedden
1979	42.0	5855	11235	1994	58.9	7173	13003
1980	42.8	5862	11130	1995	60.2	7813	13815
1981	43.3	5878	11260	1996	60.8	7563	13710
1982	44.6	5832	10970	1997	61.5	7726	13829
1983	45.9	5850	11140	1998	62.4	7761	13859
1984	47.5	5828	11027	1999	63.3	7280	13939
1985	47.8	5921	11175	2000	64.5	7719	13922
1986	48.2	5979	11137	2001	65.9	7946	14028
1987	49.8	6004	11127	2002	67.3	8148	14350
1988	51.3	6183	11325	2003	68.6	8113	14474
1989	52.8	6270	11525	2004	69.9	8279	14551
1990	54.4	6918	12181	2005	70.5	8385	14905
1991	55.8	7023	12406	2006	71.9	8411	14921
1992	56.4	7120	12489	2007	73.6	8423	15176
1993	57.5	7179	12780	2008	77.5	8432	15580

1- Central Bank - Statistical Bulletin - the number of different

2- Ministry of Agriculture - Agricultural Economics Research Institute - Statistical Bulletin - Preparing sporadic.
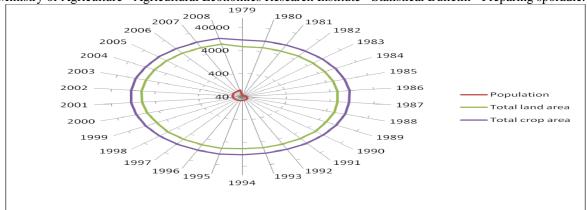

Figure (1) population and land area and crop

Annexes

Table (1): population and gross floor area and cropping the Egyptian

year	Population (million)	Area (1000 fedden)				
		Total land area	Total crop area	Cotton area	Wheat area	Rice area
1979	42.0	5855	11235	1286	1391	1036
1980	42.8	5862	11130	1245	1326	970
1981	43.3	5878	11260	1178	1400	954
1982	44.6	5832	10970	1066	1374	1024
1983	45.9	5850	11140	998	1320	1011
1984	47.5	5828	11027	984	1178	984
1985	47.8	5921	11175	1081	1186	924
1986	48.2	5979	11137	1055	1026	1008
1987	49.8	6004	11127	980	1373	981
1988	51.3	6183	11325	1014	1422	837
1989	52.8	6270	11525	1005	1533	983
1990	54.4	6918	12181	993	1955	1036
1991	55.8	7023	12406	851	2215	1100
1992	56.4	7120	12489	840	2092	1215
1993	57.5	7179	12780	884	2171	1282
1994	58.9	7173	13003	721	2111	1378
1995	60.2	7813	13815	710	2512	1400

1996	60.8	7563	13710	921	2421	1405
1997	61.5	7726	13829	859	2486	1550
1998	62.4	7761	13859	789	2384	1225
1999	63.3	7280	13939	646	2482	1559
2000	64.5	7719	13922	518	2288	1569
2001	65.9	7946	14028	731	2450	1340
2002	67.3	8148	14350	706	2450	1547
2003	68.6	8113	14474	535	2506	1508
2004	69.9	8279	14551	714	2605	1537
2005	70.5	8385	14905	657	2985	1459
2006	71.9	8411	14921	538	3064	1593
2007	73.6	8423	15176	575	2716	1673
2008	77.5	8432	15580	288	2920	1770

Source:

1- Central Bank - Statistical Bulletin - the number of sporadic

2- Ministry of Agriculture - Agricultural Economics Research Institute - Statistical Bulletin - the number of different

Table (2): productivity, exports and imports of cotton, rice and wheat

Year	Cotton production (quintal)	Wheat production (ton)	Rice production (ton)	Quantity (1000 tones)		
				Cotton export	Rice export	Wheat import
1979	0.207	1.33	2.42	158	95	5127
1980	7.180	1.35	2.46	164	89	5302
1981	7.140	1.38	2.34	176	87	5643
1982	7.210	1.47	2.38	200	20	5308
1983	6.800	1.51	2.42	209	19	6305
1984	6.770	1.54	2.27	174	71	6728
1985	6.790	1.58	2.50	144	16	6695
1986	6.540	1.88	2.43	146	40	6089
1987	6.160	1.98	2.45	130	92	6846
1988	5.880	2.00	2.55	80	71	7008
1989	5.020	2.08	2.72	58	31	6748
1990	5.210	2.18	3.06	39	70	6325
1991	5.910	2.02	3.13	13	142	6122
1992	7.180	2.21	3.22	16	181	5640
1993	7.870	2.23	3.25	18	136	4926
1994	6.00	2.10	3.33	113	248	7064
1995	5.720	2.28	3.42	67	157	5474
1996	6.260	2.36	3.48	23	329	6078
1997	6.260	2.35	3.55	42	203	6981
1998	6.800	2.67	3.63	66	429	5602
1999	5.07	2.66	3.73	112	377	4332
2000	6.70	2.70	3.83	63	362	4935
2001	6.78	2.67	3.90	87	508	4444
2002	7.23	2.7	3.95	161	480	5590
2003	6.85	2.73	4.20	197	461	4063
2004	7.04	2.76	4.20	184	833	4364
2005	4.67	2.73	4.2	968	111	5688
2006	5.33	2.70	4.11	761	165	5817
2007	5.14	2.72	4.00	68	1123	5900
2008	5.00	2.73	4.09	128	1154	7750

Source:

1 - Ministry of Agriculture - Agricultural Economics Research Institute - Statistical Bulletin - the number of different

2 - Central Agency for Public Mobilization and Statistics - Statistical Bulletin - the number of different

Table (3): Number of population per acre of land area and cropping

Year	Area (million feddens)			
	Population/land area	Land area/population	Population/crop area	Crop area/population
1979	7.12	0.1405	3.74	0.268
1980	7.25	0.1379	3.85	0.260
1981	7.34	0.1363	3.84	0.260
1982	7.69	0.1300	4.07	0.246
1983	7.78	0.1285	4.12	0.243
1984	8.19	0.1221	4.31	0.232
1985	8.10	0.1234	4.28	0.234
1986	8.03	0.1245	4.33	0.231
1987	8.30	0.1205	4.48	0.223
1988	8.27	0.1209	4.53	0.221
1989	8.38	0.1193	4.58	0.218
1990	7.88	0.1268	4.24	0.224
1991	7.97	0.1254	4.50	0.222
1992	7.94	0.1259	4.52	0.221
1993	7.99	0.1252	4.50	0.222
1994	8.18	0.1222	4.53	0.221
1995	7.72	0.1296	4.36	0.229
1996	8.00	0.1250	4.43	0.225
1997	7.99	0.1252	4.45	0.225
1998	8.00	0.1250	5.50	0.222
1999	8.67	0.1153	4.54	0.220
2000	8.16	0.1194	4.63	0.216
2001	8.34	0.1199	4.70	0.213
2002	8.31	0.1204	4.69	0.213
2003	8.47	0.1181	4.74	0.211
2004	8.42	0.1187	4.80	0.208
2005	8.39	0.1191	4.73	0.211
2006	8.56	0.1168	4.82	0.208
2007	8.76	0.1141	4.85	0.206
2008	9.23	0.1084	4.97	0.201

Source: - calculated and collected in Table (1)

Table (4): the number of population and per capita per acre yield of cotton, wheat, and rice

Years	Population/cotton area	cotton area/Population	Population/wheat area	wheat area/Population	Population/rice area	rice area/Population
1979	40.54	0.025	30.19	0.033	32.66	0.031
1980	44.12	0.023	32.28	0.031	34.38	0.029
1981	45.39	0.022	30.93	0.032	36.76	0.027
1982	43.56	0.023	32.46	0.031	41.84	0.024
1983	45.40	0.022	43.77	0.028	45.99	0.022
1984	48.27	0.021	40.32	0.025	48.27	0.021
1985	51.73	0.019	40.30	0.025	44.22	0.023
1986	47.82	0.021	46.98	0.021	45.69	0.022
1987	50.77	0.020	36.27	0.028	50.82	0.020
1988	61.29	0.016	36.08	0.028	50.59	0.020
1989	53.71	0.019	34.44	0.029	52.54	0.019
1990	52.51	0.019	27.83	0.036	54.78	0.018
1991	50.73	0.020	25.19	0.040	65.57	0.015
1992	46.42	0.022	26.96	0.037	67.14	0.015

1993	44.85	0.022	26.49	0.038	65.05	0.015
1994	42.74	0.023	27.90	0.036	81.69	0.012
1995	43.00	0.023	23.97	0.042	84.79	0.012
1996	43.27	0.023	25.11	0.040	66.02	0.015
1997	39.68	0.025	24.74	0.040	71.60	0.014
1998	50.94	0.020	26.17	0.038	79.09	0.013
1999	40.60	0.025	25.50	0.039	97.99	0.010
2000	41.11	0.024	28.19	0.035	124.52	0.008
2001	49.18	0.020	26.90	0.037	90.15	0.011
2002	43.50	0.023	27.45	0.036	95.33	0.010
2003	45.49	0.022	27.37	0.037	128.22	0.008
2004	45.48	0.022	26.83	0.037	97.90	0.010
2005	48.32	0.021	23.62	0.042	107.31	0.009
2006	45.14	0.022	23.47	0.043	133.89	0.007
2007	43.99	0.023	27.10	0.037	128.00	0.008
2008	43.79	0.023	26.54	0.038	269.10	0.004

Where area /million feddens
Source: - calculated and collected in Table (1)

Corresponding author
Ezzat, A. Z
Agricultural Economics Dept., National Research Centre, Dokki, Cairo, Egypt.

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