

Market Balance of the most Important Egyptian Agricultural Commodities under the Economic Reform Policy

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Abstract: The implementation of economic reform policy has negative effects on market balance. Balance has been achieved in various commodities during the period of study by 4.2%. The comparison of the supplied quantity to the actual consumed quantity shows that balance does not actually exist. The study has shown the surplus of certain supplied commodities such as rice, sugar cane, sugar, beef, white poultry meat and fish. It has shown as well deficit of certain supplied commodities such as wheat, maize, lentil, sugar beet, cotton oil and sunflower oil. The comparison of the balance quantity to the consumed one, whenever the balance rate is equal to the actual rate, shows the imbalance except to the case of sunflower. Therefore, the most important recommendations of the study are represented in the necessity of government interference to amend the implemented agricultural policies in order to achieve market balance of agricultural commodities being studied through providing different-form subsidy for farmers. This will help increase production size particularly for the deficit-supplied quantity commodities. [Nature and Science 2010;8(12):51-60] (ISSN: 1545-0740).

Key words: Market balance- agricultural commodities- Egyptian economic reform.

1. Introduction

The economic reform policy is one of the most important challenges facing the Egyptian economy. This is attributed to its inclusion within a package of policies and mechanisms that affect the structural adaptation programs which depends on curbing the state's interference role in productive activities. The formal implementation of the economic reform and structural adaptation program started in March 1990. Just like other sectors, the agricultural sector was naturally affected by such policies. The economic reform process of the agricultural sector includes a number of procedures such as moving from the compulsory marketing to the voluntary one in respect to certain crops such as wheat, sorghum and bean nut. It includes as well subsidy cancellation on all agricultural production equipments, interest of granted agricultural loans, and restrictions cancellation of crops structure and determination of farmers' decision in relation to the agricultural cycle. In the mid 1990s, the state tended to liberalize the marketing and trading of Egyptian cotton; and the lease relationship of agricultural lands. That is, the determination of lease value is based on supply and demand mechanisms after the end of the transitional period (1992-1997). It includes, finally, the product price determination in accordance to the market mechanisms, a matter that fully diminishes the government's role in productive activity and the private sector dominance in turn. In light of that the

negative effects of the economic reform include the prices rising of the most important agricultural commodities during the period (1985-2008).

The thesis statement handles in the sudden rise of the food commodities' prices in the Egyptian consumer markets such as wheat, maize, beans, lentil, sugar, cotton oil, sunflower oil, wheat flour, beef, white poultry meats and fish. The maximum increase reaches 131.1% for cotton oil, whereas the minimum increase reaches 60.2% for sugar (Central Agency 1985-2008). Therefore, the study aims to assess the economic reform policy through studying the market balance of the commodities being investigated in order to determine the balanced price and quantity of these commodities and the extent of conformity with their quantity and price during the period of study (1985-2008).

2. Research method and data collection:

The study has relied on published data in several statistical news letters to achieve its objectives. For instance, the data published in the general central agency for statistics and mobilization, ministry of agriculture, Arab organization for agricultural development and agricultural news letters (1985-2008). The study has relied as well on some field-related decisions and finally on certain electronic web sites.

Studying the status quo requires investigating

two main axes: the first axis is represented by studying the supplied quantity and the agricultural price of commodities being investigated. Whereas the second axis is concerned with studying the demanded quantity and the consumption price of the commodities being investigated.

First: the supplied quantity and the agricultural price of the commodities being investigated during the period (1985-2008) (Ministry of Agriculture, 1985-2008):

The maximum production of wheat reached about 8.3 million tons in 2006. It was, then, reduced to reach 7.9 million tons in 2008 by a reduction ratio estimated by 0.4 million tons and represented about 4.8% of its production in 2006. The agricultural price has been increasing to reach its maximum by L.E. 2553.3 per ton in 2008. As for the crop of rice, its production and agricultural price have increased to reach 7.3 million tons and L.E. 1465 per ton in 2008. However, the production of bean crop has been vibrating to reach its maximum in 1990 by 31.3 thousand tons. It was, then, reduced to 14 thousand tons in 1994 with a reduction ratio estimated 55.3%. It was increased once again to reach 96.4 thousand tons in 2008 with an increasing ratio estimated 588.6%. The agricultural price of bean has been increasing to reach L.E. 1058 per ton in 1992. It was, then, reduced to L.E. 1019.4 per ton in 1995. In 2008, it increased once again to reach L.E. 3748.4 per ton with an increase estimated 267.7% compared to 1995. As for sorghum, its production and agricultural price increased to reach 6.5 million tons and L.E. 1414.3 per ton respectively in 2008. The produced quantities of lentil were reduced to 1.2 thousand tons in 2008. The reduction ratio estimated 16.8 thousand tons representing about 93.3% compared to its production in 1997. The agricultural price of lentil has been increasing to reach L.E. 6268.8 per ton in 2008. The production of sugar cane and sugar beet has increased to reach 16.5 million tons and 5.1 million tons in 2008. The agricultural price of both crops has been increasing to reach L.E. 200 per ton and L.E. 231 per ton respectively in 2008. As for cotton's crop, its production was reduced in 2008 to reach 560 thousand tons with a reduction of 630 thousand tons represented 53% of its production in 1985. The agricultural price of cotton has been vibrated between increase and decrease to reach its maximum in 2008 by L.E. 17000 per ton. The production of sunflower seeds had increased and reached 65.5 thousand tons in 1995. It was, then, reduced to 44 thousand tons in 2008 and represented 67.2% of its production in 1995. The agricultural price of sunflower seeds had increased in 1999 by L.E. 1100 per ton. It was, then, reduced in the years 2000 and 2001 by L.E. 200 per ton with a reduction ratio estimated 18.2%. The price

was increased once again and reached L.E. 2118 per ton in 2008. As for meat, the production of beef, white poultry meat and fish has increased to reach 1.03 million tons, 1.04 million tons and 1.02 million tons. Their agricultural price increased to reach its maximum by L.E. 29656 per ton, L.E. 15224 per ton and L.E. 11485 per ton successively in 2008.

Second: the demanded quantity and the consumption price of the commodities being investigated during the period (1985-2008) (Ministry of Agriculture-1985-2008):

There was an increase consumed quantity of wheat crop estimated 10.5 million tons in 1989. The consumption was, then, reduced by 20.5% in 1993. It witnessed an increase once again and reached its maximum by 15.5 million tons in 2006. However, there was a reduction once again estimated by 8.1% in 2008. On the other hand, the consumption price has been increased and reached about L.E. 780 per ton in 1992 then reduced to 19.6% in 1993. It is bounced once again and reached its maximum by L.E. 3053 per ton in 2008. As for sorghum and rice, their consumed quantities and consumption prices increased and reached their maximum by 11.7 million tons and 2.4 million tons and about L.E. 2147 per ton and L.E. 3189 per ton respectively in 2008. The consumed quantity of bean increased in 1994 and reached 588 thousand tons. It was, then, reduced in 2000. The reduction ratio estimated 58%. It bounced once again in 2008 and reached its maximum by 490 thousand tons. The consumption price of bean reached its maximum by L.E. 5515 per ton in 2008. As for the crop of lentil, its consumed quantity ranged between fall and rise and reached its maximum in 1992 by 183 thousand tons. It was, then, reduced by 98 thousand tons in 2008. The reduction ratio estimated 53.6%. However, the consumption price has been increasing and reached its maximum in 2008 by L.E. 10280 per ton. As for sugar, its consumed quantity and consumption price had increased and reached 2.6 million tons in 2008 by L.E. 3030 per ton in 2007 which was reduced in 2008 by L.E. 220 per ton.

As for the consumed quantity of cotton seed oil, it was reduced in 2008 by 75 thousand tons with a reduced ratio estimated 429 thousand tons representing about 85.1% of its size in 1985. Its consumption price reached its maximum in by L.E. 9030 per ton in 2008. The consumed quantity of sunflower oil reached its maximum by 339 thousand tons in 1997, while the ton's price reached in the same year about L.E. 3800. The consumed quantity were, then, reduced and reached their maximum in 2008 by 175 thousand tons. The reduction ratio estimated 48.4%. However, the consumption price increased and reached its maximum by L.E. 11220

per ton during the same year. As for wheat flour, its consumption reached in 2008 about 10.2 million tons with an increase estimated 5.4 million tons representing about 112.5% of its consumption in 1995 estimated 4.8 million tons. On the contrary, the consumption price has been increased to reach L.E. 3560 per ton in 2008. Finally, the quantities and prices of meat have been increased and reached in 2008 about 1.04 million tons, 0.768 million tons and 1.4 million tons and the prices reached almost L.E. 35770 per ton, 17380 per ton and 17890 per ton for beef, white poultry and fish successively.

The effects of the economic reform policies on the produced and consumed quantities of the commodities being investigated during the period (1985-2008): Table 1 shows the increase of supplied quantities of the commodities being investigated during the average period (1993-2008); the period of policy implementation compared to the average period (1985-1992); the pre- implementation period by 101.2% for wheat, 39.4% for maize, 102.4% for rice, 90.5% for bean, 42.8% for sugar cane, 260.7% for sugar beet, 57.7% for sunflower seeds, 83.3% for beef, 152.4% for white poultry meat and finally 137.1% for fish. Meanwhile, the implementation led to reduce the supplied quantities of certain commodities such as lentil by 64.3% and cotton by 26.1%.

In addition, the policy implementation had affected the increase of certain demanded

commodities such as wheat, wheat flour by 46.1%, maize by 61.3%, rice by 50.1%, bean by 32.2%, sugar by 39.4%, sunflower oil by 28.7%, beef by 67%, white poultry meat by 116.1% and finally fish by 178% compared to the earlier period. Policy implementation had led to reducing the demanded quantities of lentil and cotton seed oil as shown in table 1.

The comparison of the increased supplied quantity to the increased demanded quantity of the commodities being investigated shows the increased ratio rise of the supplied quantity by 55.1% for wheat, 52.3% for rice, 58.3% for bean, 16.3% for beef and 36.3% for white poultry meat. Therefore, there was a surplus in the supplied quantity and hence the agricultural prices were reduced as the producers tended to get rid of the surplus production besides their avoidance of producing such crops and their tendency to cultivate more profitable crops such as vegetables.

As for the crop of wheat, the increased ratio rise of the supplied quantity increase compared to the demanded quantity by 55.1% is attributed to the state's tendency in the recent years towards raising the voluntary supply prices to be as almost or more as importing rates. Therefore, many farmers have tended to cultivate the crop in the hope of getting the declared importing price.

Table 1: Effect of economic reform policies on the produced and consumed quantities & the product and consumer prices of the most important agricultural commodities during the period (1985-2008)

Commodity	% increase/decrease of supplied quantity	Demanded quantity	% change of supplied quantity	% change of demanded quantity	% increase/decrease in prices of product	Prices of consumer	% change of product price	% change of consumer price
Wheat	101.2	46.1	55.1	-	155.8	84.6	71.2	-
Wheat flour	-	46.1	-	-	-	125.6	-	-
Maize	39.4	61.3	-	21.9	131.9	90.3	41.6	-
Rice	102.4	50.1	-	-	169.1	91.5	77.6	-
Bean	90.5	32.2	52.3	-	52	74.7	-	22.7
Lentil	(-64.3)	(-6)	(-58.3)	-	108.2	74.2	34	-
Sugar	-	39.4	-	-	-	60.2	-	-
Sugar cane	42.8	-	-	-	155.6	-	-	-
Sugar beet	260.7	-	-	-	205.3	-	-	-
Cotton	(-26.1)	-	-	-	152.5	-	-	-
Cotton seed oil	-	(-71.2)	-	-	-	131.1	-	-
Sunflower seed	57.7	-	-	-	136.7	-	-	-
Sunflower oil	-	28.7	-	-	-	110.1	-	-
Beef	83.3	67	16.3	-	217.6	82.7	134.9	-
White poultry meat	152.4	116.1	36.3	-	127.5	68.9	40.6	-
Fish	137.1	178	-	40.9	175.1	81.4	93.7	-

Source: computed and collected from references 1,2,8.

It shows the supplied quantity of lentil is reduced by a higher rate than the demanded quantity estimated (-58.3%). This asserts that despite the rising agricultural prices of lentil, the rising production costs prevent farmers from cultivating it. Thus, the state depends on imports to meet the domestic demand. Consequently, the consumer prices soar up. As for the agricultural prices, the product prices increased by 155.8% for wheat, 131.9% for maize, 169.1% for rice, 52% for bean, 108.2% for lentil, 155.6 for sugar cane, 205.3% for sugar beet, 152.2% for cotton, 136.7% for sunflower seeds, 217.6% for beef, 127.5% for white poultry meat and finally 175.1% for fish as compared to the pre-reform period as shown in table 1. In addition, the consumer prices increased by 84.6%, 155.6%, 90.3%, 91.5%, 74.7%, 60.2%, 131.1%, 110.1%, 82.7%, 86.9% and 81.4% for wheat, wheat flour, maize, rice, bean, lentil, sugar, cotton seed oil, sunflower oil, beef, white poultry meat and finally for fish successively as compared to the pre-reform period.

As to the comparison of product prices increase to the consumer prices increase, Table 1 shows the product prices increased by 71.2%, 41.6%, 77.6%, 34%, 134.9%, 40.6%, 93.7% for wheat, maize, rice, lentil, beef, white poultry meat and fish. The product prices increase is attributed to the rising production requirements and, thus, raising the production costs and reducing the expected product revenue.

The comparison indicates as well the rising increase of consumer prices by 22.7% for bean as the rising world and import prices lay the greater burden prices increase on the consumer shoulders as compared to the product.

Market balance of the most important agricultural commodities during period (1985-2008): Balance occurs when supply and demand functions are equal (Imara, 1997). Assuming that supply and demand functions could be formed as follows:

Equation 1 supply function $QS = a + bx$

Equation 2 demand function $QD = a - bx$

Where:

QS= supplied quantity of a certain commodity

QD= demanded quantity of the same commodity

X = commodity Price

Balance occurs when the supply and demand functions are equal:

$QD = QS$

When balance is achieved, balance quantity and price could be obtained. Applying that to the commodities being investigated, table 2 shows quantity and price of commodities being investigated during the period (1985-2008).

Table 2 shows the balance quantity ranges between maximum quantity estimated about 10.5

million wheat tons and minimum quantity estimated almost 64 thousand lentil tons. The balance price ranges between maximum rate estimated about L.E 32530 per ton for beef and minimum rate estimated L.E. 700 per ton for sugar beet during the period of study.

First: Balance quantity: The determination of the effect of implementing the economic reform policy on the market balance requires comparing the achieved balance quantity to the average quantity (consumed) and the actual quantity during the period of study, in order to define the extent of conformity or divergence of the achieved balance quantity with the actual or average balance.

Comparison of the achieved balance quantity to the average quantity during the period (1985-2008): Table 3 shows the achieved balance quantity is equal or nearly equal to the average quantity for wheat flour and bean as the balance quantity reached about 8.2 million tons and ,440 million tons successively during the period of study. The table shows as well the balance quantity is less than the average quantity by 8.1% for wheat, 17.2% for rice, 20.9% for lentil, 24.9% for sugar beet and 15.1% for sugar gross and finally 23.6% for fish. It shows the increase of balance quantity over the average quantity by 17.6%, 21.2%, 53.2%, 67.6%, 204.6% and 11.7% for maize, sugar cane, beef, white poultry meat, cotton seed oil and finally sunflower oil successively during the period of study. This means that balance is achieved by 14.2% out of the total commodities being investigated in the case of comparing the balance quantity to the average quantity.

Comparison of the achieved balance quantity to the actual quantity of the most important agricultural commodities during the period of study (1985-2008): The actual quantity indicates that the nearest consumed quantity equals the balance quantity during the investigated series of time. Table 4 shows the balance quantity is almost equal to the actual quantity. That is, whichever balance is achieved in all commodities being investigated during one year only in the series of time equals 4.2 % during the period of study. However, balance is not achieved in any year during the period of study for maize and cotton seed oil. There is a surplus for maize balance quantity estimated 171 thousand tons and 105 thousand tons for cotton seed oil. To clarify the impact of policy implementation on balance status, the achieved balance quantity for wheat, rice, sugar beet prior to the reform policy estimated 21.4% out of the total commodities being investigated. Whereas the post policy implementation balance reached 64.3% in some commodities, namely wheat, bean, lentil, sugar cane, sugar gross, beef, white poultry meat, fish and sunflower oil as indicated in Table 4.

Table 2. Price and quantity of commodities being investigated during the period (1985-2008)
Quantity= thousand ton price= L.E. per ton

commodity	Balance quantity	Balance price	commodity	Balance quantity	Balance price
Wheat	10580	722	Sugar beet	1468	700
Wheat flour	8291	1282	Sugar gross	1660	1080
Maize	9894	1247	Beef	959	32530
Rice	2221	724	White poultry meat	811	15715
Bean	440	2086	Fish	538	5410
Lentil	64	3851	Cotton seed oil	792	3630
Sugar cane	2371	2520	Sunflower oil	153	6670

Source: computed from references 1, 2, & 8.

Table 3: Comparison of the achieved balance quantity to the average quantity during the period (1985-2008)
Quantity= thousand ton

commodity	Balance quantity	Average quantity	% decrease of balance quantity	% rising of balance quantity
Wheat	10580	11513	8.1	-
Wheat flour	8291	8289	-	-
Maize	9894	8412	-	17.6
Rice	2221	2682	17.2	-
Bean	440	437	-	-
Lentil	64	81	20.9	-
Sugar cane	2371	1956	-	21.2
Sugar beet	1468	1956	24.9	-
Sugar gross	1660	1956	25.3	-
Beef	959	1626	-	53.2
White poultry meat	811	482	-	67.6
Fish	538	704	23.6	-
Cotton seed oil	792	260	-	204.6
Sunflower oil	153	137	-	11.7

Source: Source: computed from references 1, 2, & 8.

Table 4: Comparison of the achieved balance quantity to the actual quantity during the period of study (1985-2008) Quantity=thousand tons

commodity	Balance quantity	Actual quantity	year	Surplus of balance quantity
Wheat	10580	10541	1989	-
Wheat flour	8291	8369	1995	171
Maize	9894	10065	2006	-
Rice	2221	2299	1990	-
Bean	440	452	2007	-
Lentil	64	64	1994	-
Sugar cane	2371	2381	2002	-
Sugar beet	1468	1449	1987	-
Sugar gross	1660	1647	1995	-
Beef	959	962	2007	-
White poultry meat	811	821	2004	-
Fish	538	532	1994	-
Cotton seed oil	792	687	1993	105
Sunflower oil	153	158	2007	-

Source: computed from references 1,2 & 8.

Table 5: Comparison of the achieved balance quantity to the supplied quantity during the period of study (1985-2008) Quantity=thousand tons

commodity	Balance quantity	Supplied quantity	Year	Deficit of supplied quantity	Surplus of supplied quantity
Wheat	10580	8274	2006	2306	-
Maize	9894	7085	2005	2809	-
Rice	2221	2132	1988	89	-
Bean	440	96	2008	344	-
Lentil	64	15	1993	49	-
Sugar cane	2371	2379	2006	-	-
Sugar beet	1468	982	2007	486	-
Sugar gross	1660	3361	-	-	1701
Beef	959	917	2007	42	-
White Poultry meat	811	863	2001	-	52
Fish	538	546	1998	-	8
Cotton seed oil	792	151	1985	641	-
Sunflower	153	30	1995	123	-

Source: computed from references 1,2, 6 & 8.

3. Comparison of the achieved balance quantity to the supplied quantity of the most important agricultural commodities during the period of study (1985-2008):

Table, 5 shows the targeted balance is not achieved in the case of comparing the achieved balance quantity to the actual supplied quantity except to the sugar cane crop as the balance quantity and supplied quantity reached 2.4 million tons. This balance is achieved by 7.7% out of the total commodities being investigated during the period of study. Balance occurs as well during the reform policy implementation in one year only through a series of time. That is, the balance ratio does not exceed 4.2% during the period of study. As to other commodities, 69.3% of the total commodities suffered a deficit in their supplied quantity like wheat, maize, rice, bean, sugar beet, beef, cotton, and sunflower. The deficit estimated 2.3 million tons, 2.8 million tons, 0.089 million tons, 0.334 million tons, 0.049 million tons, 0.486 million tons, 0.042 million tons, 0.641 million tons, and 0.123 million tons successively. Table, 5 shows also 23.1% of the total commodities achieved a surplus quantity, namely sugar gross, white poultry meat, and fish. The surplus of supplied quantity reached 1.7 million tons, 0.052 million tons and 0.008 million tons respectively during the period of study.

Comparison of the actual consumed quantity to the supplied quantity of the most important agricultural commodities during the period of study (1985-2008): Comparing the needed actual quantity to the supplied quantity during the same year as shown in table 6 indicates a surplus in the supplied quantity for a number of commodities representing about 46.2% out of the total commodities like rice, sugar cane, sugar gross, beef, white poultry meat and fish. The surplus of supplied quantity reached 0.168 million tons, 0.93 million tons, 0.764 million tons, 0.045 million tons, 0.161 million tons, and 0.164 million tons successively. Table 6 shows about 53.8% out of the total commodities suffered a deficit in the supplied quantity, namely wheat, maize, bean, lentil, sugar beet, cotton oil, and sunflower oil. The deficit of supplied quantity estimated 7.4 million tons, 3.7 million tons, 0.0391 million tons, 0.055 million tons, 1.3 million tons, 0.0543 million tons and 0.141 million tons respectively during the period of study. Second :Balance Rate: The determination of the effect of economic reform implementation on the market balance require the comparison between the achieved balance rate to the average rate and the actual rate during the period of study in order to determine the extent of conformity or divergence of these rate from the balance rate.

Table 6: Comparison of the actual consumed quantity to the supplied quantity in the same year during the period of study (1985-2008)

Quantity= thousand tons

Commodity	Actual quantity	Supplied quantity	year	Surplus of supplied quantity	Deficit of supplied quantity
Wheat	10541	3182	1989	-	7359
Maize	10065	6374	2006	-	
Rice	2299	3167	1990	868	-
Bean	452	61	2007	-	391
Lentil	64	9	1994	-	55
Sugar cane	2381	2288	2002	93	-
Sugar beet	1449	123	1987	-	1326
Sugar gross	1647	1411	1995	764	-
Beef	962	917	2007	45	-
White poultry meat	821	982	2004	161	-
Fish	532	368	1994	164	-
Cotton seed oil	687	144	1993	-	543
Sunflower oil	158	17	2007	-	141

Source: computed from references 1, 2, 6 & 8.

Table 7: Comparison of the achieved balance rate to the average rate during the period (1985-2008)

commodity	Balance rate	Average rate	% of rising balance rate	% of reducing balance rate
Wheat	722	1005	-	28.2
Wheat flour	1282	1280	-	-
Maize	1247	822	41.4	-
Rice	724	1263	-	42.7
Bean	2086	1988	-	4.9
Lentil	3851	3198	20.4	-
Sugar cane	2520	1685	49.6	-
Sugar beet	700	1685	-	58.5
Sugar gross	1080	1685	-	35.9
Beef	32530	16055	102.6	-
White poultry meat	15715	6134	25.2	-
Fish	5410	8060	-	32.9
Cotton seed oil	3630	3294	10.2	-
Sunflower oil	6670	3941	40.9	-

Source: computed from references 1, 2 & 8.

4. Comparison of the achieved balance rate to the average rate for the most important agricultural commodities during the period (1985-2008):

The comparison of the achieved rate to the average (consumed) rate shows the rising balance rate by 50% out of the total commodities by 41.4% for maize, 20.4% for lentil, 49.6% for sugar cane, 102.6% for beef, 25.2% for white poultry meat, 10.2% for cotton seed oil and 40.9% for sunflower oil. There is a reduction as well in the balance rate by 42.9% out of the total commodities, namely wheat, rice, bean, red beet, sugar gross, and fish by 28.2%, 42.7%, 4.9%, 58.5%, 35.9%, and 32.9% respectively. Finally, the balance rate equals the average rate by 7.1% for wheat flour which reached about L.E. 1282 per ton as shown in table, 7.

Comparison of the achieved balance rate to the actual rate for the most important agricultural commodities during the period (1985-2008): The actual rate means the most approximately price for the consumer which is approximate or equal to the

balance rate during the period of study. Table, 8 shows the balance rate equals the actual rate by 28.6% out of the total commodities, namely wheat, wheat flour, bean, and sunflower oil. The balance is achieved in one year only during the years of series of time by 4.2%. After the implementation of economic reform policy, the balance rate estimated L.E. 722 for wheat ton, L.E. 1282 for wheat flour ton, L.E. 2086 for bean ton and L.E. 6665 for sunflower oil ton. It indicates the rising of balance rate as well over the actual rate by 35.7% out of the total commodities being investigated, namely maize, lentil, sugar cane, fish and cotton seed oil. The increase estimated 5.1%, 3.1%, 6.3%, 8.8%, and 9.9% respectively. Finally, the balance rate is less than the actual rate by 35.7% out of the total commodities being investigated like rice, sugar beet, beef, and white poultry meat. The reduction estimated by 8.1%, 22.2%, 15.7%, 1.4% and 9.6% successively during the period of study.

Table 8: Comparison of the achieved balance rate to the actual rate during the period (1985-2008):

Rate = L.E. per ton

commodity	Balance rate	Actual rate	year	% of rising balance rate	% of balance rate reduction
Wheat	722	727	1995	-	-
Wheat flour	1282	1280	2002	-	-
Maize	1247	1187	2003	5.1	-
Rice	724	788	1992	-	8.1
Bean	2086	2094	2002	-	-
Lentil	3851	3737	2003	3.1	-
Sugar cane	2520	2360	2005	6.3	-
Sugar beet	700	900	1987	-	22.2
Sugar gross	1080	1250	1992	-	15.7
Beef	32530	32990	2007	-	1.4
White poultry meat	15715	17380	2008	-	9.6
Fish	5887	5410	1992	8.8	-
Cotton seed oil	3992	3630	2000 2001	9.9	-
Sunflower oil	6665	6670	2007	-	-

Source: computed from references 1, 2 & 8.

Table 9: Comparison of the balance quantity to the consumed quantity whenever the balance rate equals the actual achieved rate

commodity	Achieved rate	year	Consumed quantity	Balance quantity	% of reduction in balance quantity
Wheat	727	1995	11624	10058	8.9
Flour	128	2002	9144	8291	9.3
Bean	2049	2002	523	440	15.9
Sunflower oil	6670	2007	158	153	-

Source: computed from references 1, 2 & 8.

5. Comparison of the balance quantity and consumed quantity to other commodities whenever the balance rate and the actual achieved rate are equal:

The comparison of the consumed quantity to the balance quantity whenever the balance rate equals the achieved rate during the year 2007 only after the implementation of economic reform policy for the sunflower oil whenever the supplied and needed quantities are equal. It is estimated about 0.153 million tons, whenever the balance rate reached about L.E. 6670 per ton. Table, 9 shows whenever the balance rate equals the actual rate, the balance quantity becomes less than the consumed quantity by 8.9%, 9.3%, and 15.9% for wheat, wheat flour and bean successively as shown in the table.

The most important results and recommendations: The implementation of economic reform policy has several effects. They are as follows: The increase of supplied and demanded quantities of commodities being investigated except for wheat

flour, sugar, and cotton seed oil whose demanded quantities are reduced. The cotton supplied quantities are reduced as well. Finally, the lentil supplied and demanded quantities are reduced too.

The increase of product and consumption prices of all commodities being investigated. The implementation of economic reform policy has an impact on market balance divergence away from the balance status.

When comparing the achieved balance quantity to the average quantity, balance is achieved in two crops only: wheat flour and bean in one year of the study spanned years. When comparing the achieved quantity to the actual quantity, balance is achieved by 4.2% during the years of study.

When comparing the achieved balance to the supplied quantity, the achieved balance occurs only for sugar cane crop during the year 2006. When comparing the actual consumed quantity to the supplied quantity, the balance does not exist as some commodities have surplus supplied quantities such as

rice, sugar cane, sugar gross, beef, white poultry meat and fish.

Therefore, the agricultural prices are reduced and farms do not active the desired profit. There is a group of commodities whose supplied quantity does not suffer a deficit such as wheat, maize, bean, lentil, sugar beet, cotton seed oil and sunflower oil. Therefore, the consumer prices soar up due to the government trend to covering the domestic gap by importing and, hence, the consumer prices which are related to the world prices will soar up.

When comparing the achieved balance rate to the average rate, balance is only achieved for wheat flour. When comparing the balance rate to the actual rate, balance is achieved for wheat, wheat flour and sunflower oil in one year of the years of study. When comparing the balance quantity to the consumed quantity whenever the balance rate equals the achieved rate, balance exists only for sunflower oil. Finally, the market imbalance leads to the occurrence of surplus or deficit for the commodities being investigated. Therefore, the prices will soar up in the case of deficit and will be reduced in the case of surplus.

Therefore, the most important recommendations of the study are the necessity of government's interference to modify the implemented agricultural policies, in order to achieve the market balance for the commodities being studied. This could be done through providing various ways subsidy to the farmers to increase production size, particularly in commodities that are distinctly in deficit. This will help prevent the sudden rising up of consumer prices in commodities like wheat, maize, lentil, sugar and cotton seed oil. The government's role could be summarized as follows:

First: As to the wheat crop: The government's role is necessary to rise up voluntary supplying prices as certain studies (Solieman, et al, 2010) have found that the rising of supplying price to about L.E. 367 per Ardab could lead to increasing the supplying size and hence, reducing both the importing size and the domestic prices.

The government's role is necessary as well to redistribute the wheat-cultivated areas in accordance to types as certain studies have proved (Ashmawy, et al, 2008). The cultivation of types according to their quality in different governorates leads to increasing the annual produced quantities by 0.0399 million tons.

As the US wheat institution president (electronic website- Middle East sons, 2008) said that Egypt is capable of cultivating all types of wheat and can achieve wheat self-sufficiency, particularly, it has all the suitable foundations of lands, climate, and environment. However, the matter needs all parties

concerned; the government, farmers and investors to closely work together.

Second: As to the maize crop: The government's role is necessary to restructure the agricultural production, reduce the rice- cultivated areas and tend to cultivate maize instead because they are two competitive crops. The reduction and transformation of almost 792 thousand fedan rice-cultivated lands into maize-cultivated lands will contribute to the production of about 2.7 million tons of maize. Consequently, the Egyptian imports of maize will be reduced by 61.4% out of the total imports estimated 4.4 million tons in 2008. This will increase the maize self-sufficiency rate to 70% and reduce the rice self-sufficiency rate to 100%.

Third: As to cotton seed oil: The government's role is necessary to restructure the cultivation of reduced areas estimated 0.998 million Fedan in 2008. This entails farmers' encouragement to cultivate the crop by providing the suitable subsidy represented in reducing the production needs and costs or reducing the loan interest provided by the Agricultural lending bank. It entails as well the necessity of increasing the crop supplying price in order to achieve the farmers' targeted revenue. It entails the government's commitment to obtain the crop from the farmer. The reduced areas cultivation will lead to the production of about 1.05 million tons of cotton, 0.699 million tons of cotton seeds, contribute to the production of about 0.140 million tons of cotton seed oil. That is, the gross production will reach about 0.215 million tons of cotton seed oil which will lead to reduce Egypt's imports of other oils.

Fourth: As to Sugar: The government's role is necessary to make the sugar-factories adhere to receive the agreed-upon amounts, particularly the sugar beet farmers. The government should implement strict sanctions represented in bearing such factories the payment of farmer's compensations in the case of not receiving their agreed-upon crop. Thus, the farmers will not bear the losses as a result of the factories' denial to receive the crop. Therefore, the farmers may abstain from cultivating the crop and its supplied size will be, thus, reduced. Hence, domestic prices will be increased as the government will tend to imports in order to fill in the domestic gap.

Fifth: As to bean and lentil crops: There are little cultivated areas of bean and lentil crops. The government's role is necessary to provide appropriate subsidy to farmers in order to achieve the proper profit for the farmers.

Finally as to the crops which achieve supplied quantities surplus, the government's role is necessary to spread the necessary awareness among farmers through the agricultural guides for the proper usage

of modern cultivation techniques in order to produce crops that meet the required quality standards in the world markets. Therefore, the surplus could be oriented towards exporting. This entails the government to modify its production policies, particularly as to the crops whose production has supplied surplus with the target of orienting production towards exporting and not to rely on the production surplus and oriented it towards exporting. Thus, farmers could realize suitable profits which contribute to the continuation of wheat cultivation.

6. Summary:

The study aims to assess the economic reform policies through studying the market balance of the most important agricultural commodities, namely wheat, wheat flour, maize rice, bean, lentil, sugar, cotton seed oil, sunflower oil, beef, white poultry meat and fish to define the extent of conformity or divergence of market to or away from balance. The realization of the study's objectives entails studying the status quo of the commodities being investigated. It requires as well the study of the economic reform policies' impact on the produced and consumed quantities and the prices during the period of study. It requires also the study of market balance of the commodities being studied in order to define the quantity and price of balance and the conformity or divergence of such quantity and price to or away from the average quantity and average price and its relationship with the actual quantity and price. The study has concluded that the implementation of economic reform policies has an effective impact on the market divergence away from the balance status. There is a number of commodities has achieved supply deficit such as wheat, maize, bean, lentil, sugar beet, cotton seed oil and sunflower oil. There is a number of commodities has achieved supply surplus such as rice, sugar cane, sugar gross, beef, white poultry meat and fish. Therefore, the most important recommendations of the study are the necessity of government's interference through modifying the implemented agricultural policies in order to achieve the market balance for the commodities being investigated. The government should provide various types of subsidy to farmers to increase production size of commodities that have supply deficit. As to the commodities which have supply surplus, the government's role is necessary to spread awareness among farmers through the agricultural guides to properly use the modern cultivation techniques with the target of getting production distinguished by the world quality standards. Therefore the surplus could be oriented towards exporting and the farmers could get suitable profits that will contribute to the continuation of

cultivating such crops.

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