Effect of exchange rate regime of Egyptian pound against US dollar on price index and inflation rates for consumers and producers basket of livestock goods

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Key Words

Exchange rate regime, Price index, Inflation rate, Consumer and producer basket.

Abstract

This paper focused on examining the effect of exchange rate regime of Egyptian pound (EGP) against US dollar on price index and inflation rates of consumers and producers basket of livestock commodities through the period 1995 to 2009. The data was extracted from (FSTAT), the statistical data base of FAO and Central Bank of Egypt (CBE) for 14 years over the period 1995-2009. The results revealed that, the adoption of floating exchange rate regime in Egypt made a persistent higher uncontrolled inflation for livestock commodities (meat, milk and eggs) and livestock feed ingredients (soybean, wheat, maize, cotton seed and linseed cake). Also, floating exchange rate regime made sever depreciation in value of Egyptian pound against U$ dollar than fixed exchange rate regime. Finally, we can say that the fixed exchange rate regime was more advantageous than float exchange rate regime because Egypt is not a self-sustained country in food production, and remains one of the world's largest food importers. In case of floating exchange rate regime, advocating inflation targeting should be applied.

Introduction

Egypt has the largest, most densely settled population among Arab countries. Egypt is not a self-sustained country in food production, and remains one of the world's largest food importers (AAFC, 2001). The Egyptian economy, particularly agricultural sector, has passed dramatic changes towards free market economy over the last two decades. Such reform policies include liberalization of input and output prices as well as foreign exchange rates of local currency and interest rate, besides privatization of almost all production sectors (Ibrahim, 1991). Exchange rate is the price at which the national currency is valued in relation to a foreign currency. It is of direct practical importance to those engaged in foreign transactions, whether for trade or investment, so the exchange rate affects the price of imports when expressed in domestic currency and price of exports when converted into foreign currency. It therefore has a link to inflation (Tony, 1996). The basic types of exchange rate are a floating exchange rate, where the market dictates movements in the exchange rate; a pegged float, where a central bank keeps the rate from deviating too far from a target band or value; and a fixed exchange rate, which central bank or government fixes the exchange rate to another currency, mostly more widespread currencies such as the U.S. dollar (CRS, 2004).

At the beginning of the 1990s, Egypt had adopted a fixed exchange rate regime, whereby the authorities set the official exchange rate without regard to market forces. Under this system, the exchange rate started to act as a nominal anchor for the monetary policy, resulting in a highly stable Egyptian pound exchange rate relative to the US dollar (Moursi et al, 2007). In contrast, IMF (2005) found that the switch from the pegged to flexible exchange rate regime resulted in an increase in the whole price index and inflation rates. Egypt is a major agricultural importer of animal feed ingredients such as yellow corn, wheat, soybean, linseed cake (FAO, 2005). According to a household expenditure survey for Egypt, shows that over 50% of per capita income is spent on food, poultry products account for nearly a third of expenditure on animal protein products and for 31% of the total food bill, with the other 69% is spent on items such as cereals, fats, oils, vegetable and fruits (AAFC, 2004). When the feed subsidy was removed in 1988, this caused an immediate jump in the price of imported yellow corn from 180 L.E. to 500 L.E. per

ton. The sharp rise in poultry feed costs caused many feed mills and poultry farms to close down (Taha, 1997).

As expressed in Calvo and Reinhart (2000), one of the problems of floating exchange rates in developing economy is the inability to tackle the problem of speculation headlong given the level of informal financial sector that powers the economic sector. With the understanding that high consumer prices could be as result of the imported inflation and the possibility that the high exchange rates, is contributing to the prices of goods purchased and consumed in the domestic economy. However, floatation of the domestic currency has positively affected the export of commodities especially the agricultural produce (Adubi and Okunmadewa 1999). This paper attempts to examine the effect of different exchange rate systems on producer price index, consumer price index and inflation rates of inputs and outputs of livestock products. Also, determine the effect of different exchange rate systems on value of Egyptian pound against US dollar.

Data and Methodology
The data was extracted from (FSTAT), the statistical data base of FAO and Central Bank of Egypt (CBE) for 14 years over the period 1995-2009. We distinguish four periods in the exchange rate regime of the Egyptian pound against the U.S. dollar as a main reference currency as follow:
  a) From 1995 to 1999: The Egyptian pound was fixed (pegged) to the U.S. dollar.
  b) From 2000 to 2003: It was still fixed but with some floatation (partial floating).
  c) In the period 2004 to 2009: The Egyptian government decided to adopt a new exchange rate policy which was complete floating exchange rate which is still continuous.

1.   Establishment of consumer and producer basket of livestock inputs and outputs
The collected data was classified into two parts. The first part of data was the prices of livestock products (goods) which popular consumed by Egyptian citizens included red meat (cattle and buffaloes), poultry meat, milk from cattle and buffaloes and hen's eggs for each year. These goods were collected together to form a basket goods of consumer as shown in table (1)**,** and the price of each item in this basket was calculated as LE /1000 kg (Ton) and US dollar /1000kg. The second part of data was the prices of inputs (feed ingredients) that used in livestock production included prices of maize, wheat, soybean, linseed cake and cotton seed for each year. These feed ingredients collected together to form basket goods of producer**,** and the price of each item in this basket was calculated as LE /1000 kg (Ton) and US dollar /1000kg. In case of imported goods, the price on basis of international dollar was converted to Egyptian pound according to the exchange rate of pound relative to dollar. The components of two baskets were fixed, not changed all over the years of study.

Producer basket	Consumer basket
Wheat	Buffalo meat
Maize	Cattle meat
Soybean	Chicken meat
Linseed cake	Buffalo's milk
Cotton seed	Cattle milk
	Hen's egg

Table 1: Components of producer and consumer basket during years of study

2.   **Estimation of price index (PI):**
There are two types of price index, producer price index (PPI) and consumer price index (CPI). A consumer price index (CPI) measures the average changes in the price level of <u>consumption goods</u> that consumed by the public relative to a base period, being made up of a basket of consumer while, the producer price index measures the average change over time in the selling prices received by domestic producers of goods relative to a base period, being made up of a basket of producer (**Adetiloye, 2010)**.

Each basket was weighted and the average cost of each basket was calculated on basis of EGP and US dollar for each year (1995-2009). The index for consumer and producer baskets is calculated as the weighted arithmetic mean with a fixed basket in the base period proceeding the observation period (Laspeyres formula).

$$CPI_L = \frac{\sum_i P_{it}Q_{i0}}{\sum_i P_{i0}Q_{i0}}$$

Where:

P_{i0} is the price of item *i* at time 0 (the base period). P_{it} is the price of item *i* at time *t*

Q_{i0} is the quantity consumed of item *i* at time 0.   The base period is the calendar year 1995 = 100.

3. **Estimation of inflation rate:**

Inflation is a rise in the general <u>level of prices</u> of goods and services in an <u>economy</u> over a period of time. Inflation rate is the percentage rate of change of a price index over time.

 Inflation = (Price index of previous year – price index of next year)/ Price index of previous year.

Results and discussion
Price index of consumer basket

The price index of consumer basket is expressed as consumer price index (CPI). According to Figure (1), the CPI of consumer basket that calculated in US dollar was relatively stable around base year (1995=100) till year 2005 then suddenly increased in 2006 to 2009. In contrast, when the same consumer basket was calculated in Egyptian pound (EGP), the CPI was relatively stable and highly near to US dollar till the end 1999 then gradually increased till reached maximum at 2006 revealed inflationary gap. This probably due to the livestock population of Egypt was plagued with serious animal diseases in 2006, including foot and mouth disease (FMD), Lumpy Skin Disease (LSD) and Ephemeral Fever (EF) in the cattle population and Highly Pathogenic Avian Influenza (HPAI) in the poultry production sector (MALR, 2005).
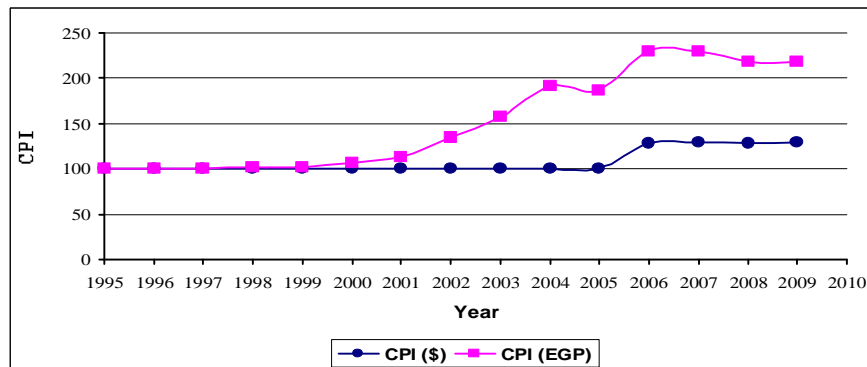

Figure 1: Consumer price index of consumer basket on basis of Egyptian pound and US dollar

Price index of producer basket

The price index of consumer basket is expressed as producer price index (PPI). Figure (2) revealed that, PPI of producer basket in US dollar was relatively stable around base year (1995=100) till 2007 after that suddenly increased. On the other hand, PPI of the same consumer basket that expressed in EGP was relatively stable till 1999 then, increased gradually till reached maximum in 2004, after that decreased again during 2005, 2006 and 2007 then regain to increase in 2008. The inflationary gap between EGP and US dollar started at 1999-2000 and widened with the years after that.
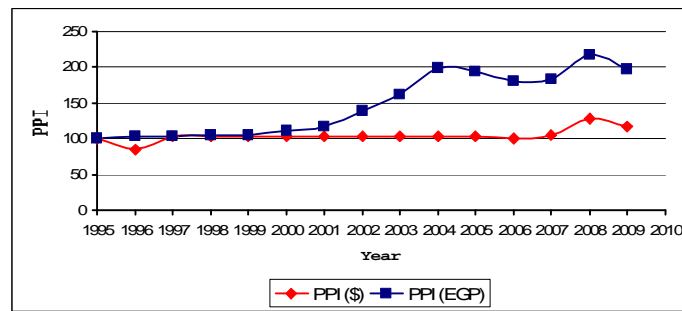
Figure 2: Producer price index of producer basket on basis of Egyptian pound and US dollar

Inflation and deflation rates of consumer basket

According Egyptian pound calculation, the inflation rate of consumer basket in Figure (3) was relatively small during the period from 1996 to 1999. From years 2000 to 2004, inflation rate increased obviously with highly recorded rate at 2004 and 2006. The deflation rate appeared in 2005 and 2008. Otherwise, the consumer basket that calculated on basis of US dollar showed relatively stable of prices of livestock goods till year 2005, after that, sudden increased in prices of livestock goods in 2006 with high inflation rate then decreased in 2008 and 2009. Outbreaks of FMD and Lumpy Skin Diseases in 2006 might be resulted in increase price of red animal products especially meat and milk and therefore higher inflation rate.
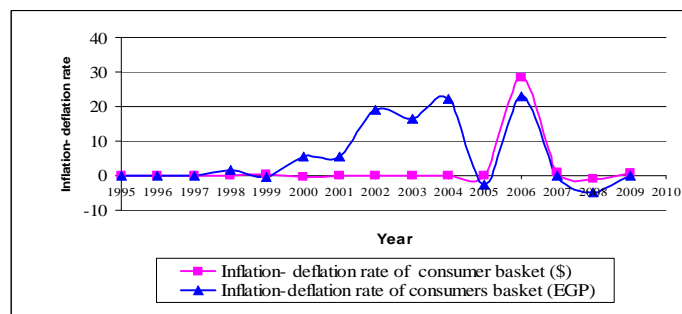

Figure 3: Inflation and deflation rates of consumer basket on basis of Egyptian pound and US dollar

Inflation and deflation rates of producer basket

In figure (4), according Egyptian pound calculation, the inflation rate of producer basket was relatively small during the period 1996 to 1999. At the beginning 2000 year, inflation rate increased obviously with highly recorded rate at 2004. The deflation rate was appeared during 2005, 2006 and 2009 years but, 2008 showed high inflation rate. In contrast, according to US dollar calculation, the inflation rate of same producer basket appeared highly only in 1997 and 2008 and the deflation rate appeared clearly in 1996 and 2006, while the prices was relatively controlled and stable during 1998 to 2005. Outbreaks of FMD and Lumpy Skin Diseases in 2006 might be resulted in decrease price of feed ingredients of animal especially soybean resulted in deflation rate.
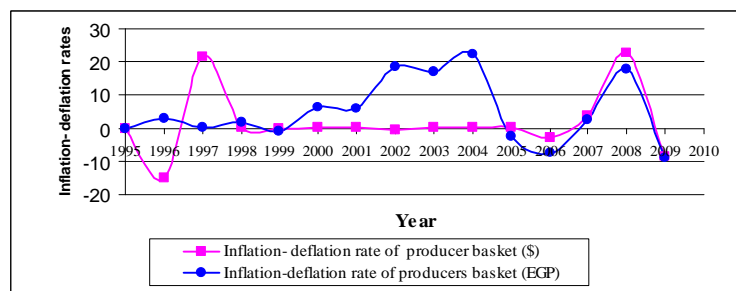

Figure 4. Inflation and deflation rates of producer basket on basis of Egyptian pound and US dollar

Effect of exchange rate regime on value of Egyptian pound relative to the US dollar

As explained in figure (5), during adoption of fixed exchange rate regime (1995 to 1999), the Egyptian pound against US dollar exchange rate was relatively stable (one US dollar equal 3.4 EGP). After switching to a partial floating exchange rate regime in 2000 to 2003, the pound was depreciated from 3.65 in 2000 to 5.34 in 2003. Then with adoption of complete floating exchange rate system in 2004, the pound was depreciated from 5.34 in 2003 to 6.53 in 2004 then appreciated to 5.76 in 2009.
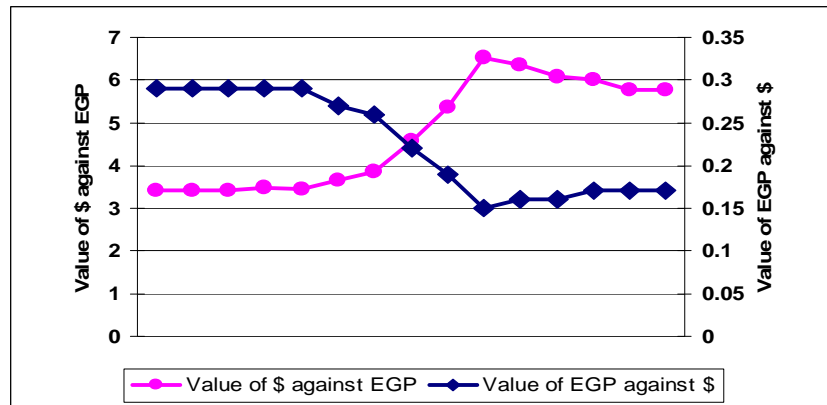

Figure 5:. Effect of exchange rate regime on value of Egyptian pound against US dollar

Conclusion

The results from this paper indicated that:
1.   Prices of livestock inputs (feed ingredients) and outputs (meat, milk and eggs) were highly affected by exchange rate regime that adopted in Egypt.
2.   Switching from fixed exchange rate regime to floating exchange rate regime resulted in higher persistent inflation rates and higher prices of livestock goods on the level of consumers and producers.
3.   Floating exchange rate regime made sever depreciation in value of Egyptian pound against U$ dollar than fixed exchange rate regime.
4.   In developing countries like Egypt, floating exchange rate regime has bad effect on prices of livestock goods as a result of huge imports and very low exports especially in livestock trade.

Recommendations

1.   Egyptian Government should do its best to encourage of local livestock production to achieve the self-sufficiency policy from meat and other animal products in near future and reduce leakages of foreign exchange.
2.   Adoption of strict measures to face and control of black market of foreign exchange rate in Egypt to sustain Egyptian pound value.
3.   Fixed exchange rate regime should be adopted to prevent more depreciation of Egyptian pound against dollar, because Egypt is not a self-sustained country in food production, and remains one of the world's largest food importers.
4.   While it may be difficult to remove the imported consumables completely from the components of the CPI, it is necessary to reduce the consumption of imported goods that have local substitutes and thereby reduce imports from this side.
5.   Controlling measures should be applied on money outflow from Egypt.

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