Aggregate Milk Supply Response to the Government Budget Support Policies And Milk Market Price Policies In Iran

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Abstract: Per capita consumption of milk due to its high nutritional value is one of the important objectives of planners and policy makers. Total supply of milk and milk produced per cow depends on the number of dairy cows. In Present research, we assessed the reaction of the whole milk supply in the short term and long term policy versus support budget of the government and politics of the milk market price. The results showed that in long term, there is a positive statistical relationship among the support budget of the government and politics of the support of the price offered by the market milk. But the short term and long term milk supply had an opposite reaction against simultaneous implementation of the budget support policies, but with the simultaneous implementation of government's support policies and increasing the prices had no reaction. Therefore canceling the simultaneous implementation of these policies is suggested.

Keywords: Aggregate milk supply - Budget Support Policies - market price Policies

1. Introduction

Rate of per capita consumption of milk in our country is 80 kg per year, whereas the recommended consumption of World Health Organization is 160 kg per adult per year (census of Agriculture, 2011). Due to the great gap between current consumption and intake recommendations , increasing milk production and consumption is of the main objectives of the government , policy makers and program planners in developing countries, especially in economic development , social and cultural development of the livestock sub-sector , followed by agriculture and (Hosseini and Erfaniyan , 2008), in a way that various policies to increase production and consumption of milk and dairy products in the country has been chosen . It can support the most basic milk price policy, provision of inputs at reasonable prices for livestock herders, subsidizing certain industries, milk processing, consumer subsidy, school milk program, paying part of the premium, livestock vaccination and treatment plan (Kazemnejad et al, 2004).

2. Literature Review

In the evaluation of different policies supporting agriculture, research is conducted within and outside the country, which in the following we point out some of this research:

Hafman and Evenson (1993), has investigated the effect of support price for milk and livestock products on the productivity of America's production. They used data were from 42 states of America during the period 1950 to 1982. The results of this study, showed a weak positive relationship between productivity growth and support prices of livestock products. Mundlak, Cavallo and Domenech (1989), evaluated the effects of price policies on agricultural productivity in Argentina during the period 1913 to 1984. They showed that heavy and indirect taxes on agricultural productivity growth can have a negative effect. Fulginiti and Perin (1999), in another study in this association using both parametric and nonparametric methods showed adverse effect on the productivity of support. Wonder Mayer and Yasad (1990) presented a hypothesis that showed the dual effect of support price on the goat productivity. At low prices, the relationship is weak and with increasing prices, this relationship is positive and strong. When prices are high, supportive relationship between prices and productivity growth is negative. Hosseini and Iravani (2011), calculated and analyzed the policies to support milk producers in four economic developments, social and cultural rights within the period 1989-2006 using an estimate of the percentage of support from manufacturers and suppliers support the index. The results showed the increased market price support, but support state funding has decreased to a fixed price.

Hosseini and Dour Andish (2008), using a minimization approach, determined the changes in the social loss function and a set of policy tools to boot strach optimal combination of market wheat, milk and poultry meat. The results of this study showed that in milk market, the government using simultaniuosly from three important devices of subside to users, implementing the school milk program and purchasing from stockmen in a price higher than moderate price, have suppordet the users more than suppliers. Hosseini et al (2009), studied the effects of public support on the productivity of the agricultural sector in the first quarter of the program. The results showed that this kind of supports during these years had positive effects on total productivity in the way that in long term due to 1 percent increase in public service support, the productivity will increase by 0.0713 percent. Pira'i and Mojaverian (2008), examines the relationship between price protection and productivity growth in wheat crops irrigated and rain fed, irrigated and dry land barley, rice, cotton, sugar beets and potatoes in the range of 1987 to 1999 when it began. The results indicate that conservative policies during the study period are not necessarily improving the productivity of production.

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Hence, the main objective of this study was to investigate reaction total supply of milk producers is to support programs. With regard to the researches done in the country be that comprehensive and complete research that influence of politics support budget craftsmanship of the price the market milk producers that can react to the producers in the short term and long term to such policies had been there. So do research to study support policy support of the budget and the market price on the sexton the milk in order to investigate their reaction in the short term and long term to such policies is necessary. The main objective of the research study presented reaction to milk the programs supporting the producers.

3. Methodology

We assume the moderate long term level of dairy cows in the time t is:

$$CN_t^* = \beta X_t + U_t \qquad (1)$$

In which: X_t is the vectors determining the supply, β constant parameter vector and Ut is the disorder component.

We assumed that real number of cows CN_t is extracted according to process of detailed moderation. In this way:

$$CN_t - CN_{t-1} = (1-\lambda)(CN_t^* - CN_{t-1}) \qquad (2)$$

Which λ is the parameter moderation rate with $0< \lambda<1$ after replacing equation1 in 2 and solving it we will have CN_t:

$$CN_t = \tilde{\beta} X_t + \lambda CN_{t-1} + \tilde{U}_t \qquad (3)$$

Which:

$$\tilde{B} = (1-\lambda)\beta \quad \text{and} \quad \tilde{U}_t = (1-\lambda) U_t$$

Short-term effects of the supply determines the number of dairy cows by ˜B given while β has been shown that long-term effects. We expect $0 <\lambda$ (the mean number of dairy cows are not immediately adjusted to a desired level) because:

First, biologically in the rate dairy and beef female cows also insert that can be replaced with dairy cows, there are some limitations.

Secondly, if the manufacturer of the products Dairy believe that external market conditions may be intolerable, would probably not be inclined to adjust their capital capacity.

Thirdly: dairy producers may be poor knowledge of current market conditions, which is related to the delay in receiving income vendors. We have used the real prices determining supply and the AMP real price of a kilogram of milk and FEEDP real price of a kg of soybean meal and valley which has 16 percent of the protein. Many dairy and food consumption of effective inputs in the production of milk, so we will expect that food prices have a negative impact on the number of dairy cows kept by the farmers will, however, increase the number of dairy cows will produce more milk, so expect will increase the price per kg of milk, the number of dairy cows kept by the farmers also increased.

The equation used to estimate is as follows:

$$CN_t = \tilde{\beta}_0 + \tilde{\beta}_1 PS + \tilde{\beta}_2 AMP_{t-1} + \tilde{\beta}_3 PS*AMP_{t-1} + \tilde{\beta}_4 FEEDP_{t-1} + \tilde{\beta}_5 CN_{t-1} + \tilde{\beta}_6 UTIL_{t-1} + \tilde{U}_t \quad (4)$$

That:

PS: a dummy variable represents all support programs of government from suppliers.

We have combined the two phrases PS $*AMP_{t-1}$, because it is possible that the number of dairy cows of stockmen has so much sensitivity to the milk price from the introduction of supportive programs of suppliers.

We will expect that $\beta \sim 1> 0$, that is an equilibrium of dayri cow at the time of implementint supportive programs for suppliers cannot be negative. We also have used a productivity model which this productivity equation is a function of real price of milk and food and variable showing progress in technology.

The performance equation was used to estimate the following:

$$YIELD = \lambda_0 + \lambda_1 PS + \lambda_2 TREND + \lambda_3 AMP_{t-1} + \lambda_4 PS*AMP_{t-1} + \lambda_5 FEEDP_{t-1} + v_t \qquad (5)$$

That:

YIELD: the average milk produced per cow, v_t: disorder phrase and μ is a parameter.

We re-integrate the two words PS * AMPt-1 was included in the model as it is possible to increase the yield per dairy cow Property milk prices resulting from the introduction of manufacturers state support programs . We were given a yearly data during 2011-1991. These data support the natural logarithm of the market price variable component TREND variable is negative numbers; it is used to estimate the required functions.

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1.3. Estimating parameters to support milk producers

Estimated index of suppliers support is composed of direct and indirect fund supports, some benefits of tax, the merit of receiving credit and subsite on the profit rate and the regional policies which are stated on the basis of currency of percent (economic cooperation and developing organization 2000). Estimate of the theoretical expression of support for milk producers is as follows:

$$PSE = MPS + BP \quad (6)$$

In which PSE is index of support milk producers, MPS is the index of funds supporting the market and BP shows the Budgets of milk.

A) index of market price support (MPS)

This indicator shows the total product price supports. export credits and food aid foreign Sardaty, limiting exports, quantity restrictions, permissions, sanctions and export tax savings reflects the general soft-peddling., this index is calculated based on the milk:

$$MPS = (P_d - P_{ab}) \times Q_P - L_V \quad (7)$$

In which the MPS is the index of supporting the market price of milk, Pd is the domestic price of milk, P_{ab} Price boundary modified milk, Q_P value of commodity production of milk and L_V-is the tax prices for milk suppliers. In the following, each component of the index price support market definition and how to calculate them is expressed.

1 - Adjusted Border Price:

Overall, the domestic price of a commodity may be very different from the price of the goods at the border. This particular animal for goods, sugar, raisins and fruit juices that significant levels of processing and marketing that is done is very important. Moreover, the cost of such transportation, affects unloading and storage as well as the prices of imported goods (exports). So to make associating adjustment can have a significant effect of amount of support from market price (economic cooperation and developing organization2007). In this way we express how to calculate and adjust the price for milk as an export product. According to 8 we have:

$$P_{ab} = P_b \times Q_{adj} + (C_p + T_{d1}) - (T_{d2} + M) \quad (8)$$

$Q_{adj}$is the coefficient of product difference adjustment, P_b boarder price, P_{ab} adjusted boarder price of milk, C_p boarder costs, ${}_1T_d$ all costs of loading, transport, unloading, storage, and marketing of goods imported from the border to the wholesale market, Td2 all costs of loading, transportation, unloading, storage and marketing of domestic products from farm to market Wholesale and M all costs of processing and marketing of domestic products from the farm to the wholesale market. The featured item, ties up the price of domestically produced and imported commodities at the farm is comparable.

2- Price taxes (production): these taxes is used as part of the tax policies of market prices for agricultural goods producers. For example, taxes that increase the production of milk producers in Europe if a certain value is used, component or production cost. There is no such taxes for milk in Iran.

B) Payment of funds

Another component of the estimated parameters was expressed support payments to producers, manufacturers. According to the Organization for Economic Cooperation and Development Procedure, payments to the state budget is divided into 7 categories: 1) pay the amount of the product, 2) payments based on acreage or number of livestock, 3) a payment based on a history of participation in farm programs, 4) payments based on the use of subsidized inputs, 5) Payment to limit the use of certain inputs, 6) Payments based on overall farm income, and 7) other payments. More in budgetary payments and adjustments for the milk to be expressed in the payment of funds to tap Iran's production include: subsidies for production inputs, energy, insurance and affordable accommodations. Below is how to calculate each of the support expressed.

1- Subsidies for the establishment of production: inputs that are supported by the company of animals to be distributed at subsidized prices, including corn, soybean meal, a meal of fish and barley.

2 - Crop insurance: other protectionist policies in the livestock and poultry sector, insurance products sector. The amount of subsidies considered in this study as subsidized insurance, the government's share of premiums for dairy cows is received.

3- Energy subsidies: subsidies on fuels such as kerosene, gasoline, natural gas, gasoline and electricity subsidies, industrial farms are producing milk. Whether diversity is calculated based on the amount of use of each fuel subsidies.

4 - Credit: In other protectionist policies in the livestock and poultry sector, banking facilities with low interest rates. To calculate the subsidy facility, the difference between the weighted average interest rate on loans paid to all sectors of the economy, interest rates of credits to agriculture and the livestock sector facilities have been used.

5-Veterinary Serum and Vaccine subsidies: Statistics relating to the protection of consumers and producers and subsidies from the central bank is obtained.

4. Results and Discussion

1.4. Unit root test

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To avoid the problem of spurious regression before performing a time series analysis should ensure stationary 0 series. Because of the importance and urgency of the issue in this study, the test Augmented Dickey-Fuller (ADF) unit root test is used. The test results indicated that all variables except for the variables in Table stationary FEEDP, PS * AMPt -1 , PM*AMPT are static.

Table 3: Augmented Dickey-Fuller (ADF) unit root test Results

Results	Makinon test critical value at a significance level		Statistic calculated	variable name
	At 10% level	At 5% level	ADF	
D(1)Significant at the 5% level	-2.701103	-3.119910	-.219377	FEED
D(0) Significant at the 10% level	-2.666593	-3.052169	-.462185	AMP
D(0)Significant at the 5% level	-2.690439	-3.098896	-.494556	UTIL
D(0) Significant at the 5% level	-2.660551	-3.040391	-7.299502	CN_t
D(0) Significant at the 5% level	-2.650413	-3.020686	-3.3715	PS
D(1) Significant at the 5% level	-2.655194	-3.029970	-7.454125	PS *AMP_{t-1}
D(0) Significant at the 5% level	-2.655194	-3.029970	-8.8853	PM
D(1) Significant at the 5% level	-2.660551	-3.040391	-3.2965	PM*AMPT

2.4. Policies supporting the market pric of milk

The results of function estimations for dairy cows, production yield per cow and the total milk produced with the implementation if support policies of market price shows that the implementation of supportive policies from milk market price in long term in function on cows for 1 percent and in milk production and yielding per cow by 20 percent of significance. Marketing of milk and milk price hike not reacted, thus abolishing the concurrent execution of these policies is recommended (Table 2).

Table 2 - Evaluation of short-term response functions of dairy cattle performance and production per cow against policies supporting the market price of milk

Long-term		Short-term		Variable	Equation
P-value	Coefficient Estimate	P-value	Coefficient Estimate		

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0.0004	6.753	0.792	-0.237	Pm	Equation, the number of dairy cows
0.263	0.41	0.279	1.493	Pm *AMP_{t-1}	
0.002	0.21	0.773	0.0006	Pm	Equations yield per dairy cow
0.00001	0.622	0.540	0.000021	Pm *AMP_{t-1}	
0.125	15.967	0.637	5.074	Pm	Equation milk
0.721	0.068	0.620	0.0868	Pm *AMP_{t-1}	

Source: research findings

The general result which we can draw from this study is that the function of long term and short term production of milk against the simultaneous implementation of supportive policies of Budget of government from suppliers and the increase of opposite reaction of milk price and against policies supporting the market price had no reaction, so cancellation of the implementation is recommended.

5. Suggestions

According to the results obtained, the following recommendations are offered:

1 - Given the importance of milk in the diet, and positive and significant coefficient functions of government budgetary support payments, short-term and long-term production of milk from dairy farmer's government seems to support such development. For example, the company supports livestock inputs including corn, soybean meal, a meal of fish and the atmosphere between ranchers to distribute subsidized prices.

2- according to significance of coefficient of supportive policies of market price of milk in long term functions and non-significance difference in short term supply it seems this kind of support from stockmen should develop in short time and attention should be paid to Budget payments.

3 - Recommended Insurance dairy cows in the countryside is widely implemented. Well as lending rancher needed in times of need (such as animal disease) rancher is readily available. In this context, the expansion of micro-credit can be effective.

4- According to Iran's aim on integrating to the world trade center, it is recommended to replace the Budget supports with something like the supports of direct payment regarding the protective standards, production scale, etc.

5 - According to law enforcement targeted subsidies, especially subsidies, thereby increasing the cost of energy will be produced. So it is necessary to select appropriate approaches to adjust these prices through suitable policies such as financial facilities, increasing the input production to improve the situations of production and productive operations of crops like corn, soy , and alike.

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