The pattern of transmission in the market price of chicken meat in Iran

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Abstract: Marketing margins and price transmission between market chain has always been emphasized. Due to the importance of poultry in household food needs and a considerable number of product manufacturers in the country and its impact on policy makers and planners of the agricultural sector, the aim of this study transmission patterns in the market price of chicken meat in Iran. Monthly data for retail and wholesale prices was used during March 2001 to April 2012. Causality test results parasite - Granger showed that for both wholesale and retail levels, two-way causal relationship exists between the markets and prices in both markets are accepting of each other. Pattern results in a torque on the eve of the transfer price is symmetrical as well as emphasize the results of the Wald test to test it out suggests that the transfer price in the short term and long-term price transmission is symmetric.

[Seyed Nematollah Mousavi and Neda Sedghi. **The pattern of transmission in the market price of chicken meat in Iran.** *Life Sci J* 2012;9(4):1284-1291] (ISSN:1097-8135). http://www.lifesciencesite.com. 194

Keywords: symmetry, price transfer, chicken meat, Iran

Introduction

Price theory, is one of the main base neoclassical economics. Prices, the most important determinants of income level of farmers, traders and exporters of agricultural products and the level of economic prosperity are the consumers. Moreover, the relationship between producer and consumer price levels, an indicator of market performance and the welfare of producers and consumers will lose from the policy perspective is also important. The analysis of agricultural commodity prices, both economically and politically important. In this regard, many agricultural economists in the process of price transmission from farm to market structure and associated retail sales have shown interest. (Hosseini and Nikokar, in 2006, Hosseini and Dor andesh, 2006; Brarsn and Kavas, 1985 and Fraygvn et al, 1999).

Studies show that the vast majority of agricultural products, farm goods to the place of consumption, marketing and sales centers, are in different stages and depending on the process that occurs in every stage leading to increased product prices to be processed ahead of time. These changes and price increases are sometimes logical and convincing, and only include costs that are spent during the construction process But in some cases can be seen that the asymmetric price changes were increases in costs and the expected decrease or increase the prices of farm products, This change in consumer prices is symmetrical transmission (Soltani et al, 2008).

If the economy to services and marketing should be efficient, they can transmit the price to be symmetrical, but there is any weakness in the market and profit-seeking individuals looking to profit are false, Ultimately lead to the transfer prices are asymmetric and this is happening while the transfer price can influence the welfare of the producer and consumer welfare. Given the importance of agriculture and the necessity of the transfer pricing analysis, here we try to review the process to review the changes in prices of selected products manufacturing, the wholesale price and retail price, the transfer price and the presence or absence of symmetry in the assessed market price. Survey statistics showed a majority of households in the recipient's food basket, often paired or materials directly or indirectly from agriculture are provided. Various compounds in the food basket per household, there is evidence that a considerable part of this material is a protein containing material. The main sources of protein can be pointed to red meat (beef and sheep), white meat (chicken and fish), and soya.

Among the items mentioned, the chicken is very important because in addition to its importance in terms of suitability for the position in a balanced diet, is economically important. Meat consumption pattern of households in the past three decades show that consumption of chicken meat has been rising more than other types. Azizi and Trkmanian study (2001) also showed that the share of expenditure in the period 1980-2000 through chicken meat has been rising and consumption pattern is oriented toward the chicken. With respect to periodic changes during the year that sees the chicken as the transfer price of the product selected for review, were considered in this study. In 2012 the number 17192 Farms with breeding broilers in the13 878 numbers of active poultry units and poultry

unit on 3314 has been estimated (Statistical Center of Iran). Total poultry meat in more than 17 200 units with a capacity of about 225 million pieces (about 900 million pieces a year) is. 177 number of industrial slaughter of poultry slaughterhouses with 380 nominal capacities of thousand pieces per hour (about 912 million pieces per year) are (Iran Statistics Center, 2007). About 90 percent of farm and 75.8 percent of poultry slaughterhouses are privately owned (Department of Livestock Ministry of Agriculture, 2004. The chicken meat, 22.5 percent of per capita countries provide the protein needs of Iran's chicken meat industry producing over 1400 Thousand tons and 17.4 kg per capita production of over 15,000 units in recent years, producing an equal per capita consumption (the Department of Livestock Ministry of Agriculture, 2006). Per capita consumption of poultry meat in 1998reached more than 18 kg (Electronic Information Corporation's support ANIMAL, 2009).

A review of studies:

Kvtrvmanyds, Zfyryv and Rabatzys (2008) in their study to investigate asymmetric price transmission between producer and consumer prices in the import of wood and they began in Greece and the accumulation of Johansson and two dynamic (error correction model and a model of artistic (GETS)) was used and the results of Granger causality tests and asymmetric price transmission models exist in the market GETS Wood emphasized the import role in determining producer prices Granger causality tests and techniques vital to know and by the accumulation has also been approved.

IL and Van Kramvn (2008) in a study of two econometric models, the threshold vector error correction and error correction vector Markov - switching were compared. Results showed that each model is appropriate for a specific type of non-linear transfer price and performance evaluation test at Monte Carlo techniques to estimate the two models was performed with the same data. Results showed both models to study the properties of transfer prices is consistent with economic theory, is appropriate. This is more than a threshold error correction model is used.

Farzaneh Taheri, Reza Moghadasi and Seyed Nemat Allah Mousavi (2010) to examine the structure and transport market in the world market price of corn began to explain the threshold. Transfer test results for the period 1974-2005 showed that the transfer price of world market prices to the domestic market in the long term and short-term symmetrical and asymmetrical transmission of world market prices to the domestic market is the transfer prices.

Zachary Farajzadeh and abdol Karim Ismaili (2009) the pattern of price transmission between world market and domestic market concluded that Iran's Pistachio, Pistachio between domestic and international prices and long-term two-way causal relationship exists. According to their data, and combined time-series analysis conducted in two parts. Results from analysis of combined data showed that transfer prices based on changes in the composition of pistachio as importer countries to reduce their number and to transfer the Iranian market and world market prices.

Seyed Safdar Hosseini, Habib Ullah Salami and Afsaneh Nekokar (2007) to examine the price transmission in the chicken market in the years 2002 to 2005, Iran began and concluded with Error Correction Model at all levels of poultry meat market in the long term and short-term asymmetric price transmission from poultry to the slaughter of poultry to retail price transmission elasticity of asymmetric and shows a live chicken in poultry prices more aggressively into the retail level transmitted to higher market prices are transmitted slowly.

Bekas and Farto (2006) to study the transfer price of beef and pork market in Hungary, and the results would suggest the beef market in the short term and long term is symmetrical, but pig meat market in the short term is asymmetric and wholesalers and retailers may price changes, the interim profit gain.

Goodwin and Hopper (2000) Relation between farm, wholesale and retail markets for pork in the United States using weekly price data for the period 1998-1987 were reviewed. Convergence threshold was used in this study, no differences in the results important shows.

Marzieh Gadami Kohestani, Afsaneh Nekokar and Arash Dor Andesh. (2010) examined the transfer price of chicken meat in Iran, using a threshold model in the years 2002-2009, and the results suggest that the transfer price of chicken meat in Iran asymmetric market regulation and policy, has no significant effect on the fluctuating price of chicken.

Method

In recent studies, several methods have been used for transfer pricing in various markets. Including the model of Hook and error correction model or ECM cited. Since this study is the use of monthly time series data, it is natural that some of the tests will be performed in this field. Granger causality test to check for such high prices from each other, Dicke Fuller unit root test to check the static data and Johansson convergence test to check the convergence between the variables considered.

If the variables are stationary time series, to review how the transfer price of the Hook (1997), the following relationship is used. Hook method to separate the effects of elasticity obtained from the farm show increase and decrease in price, assuming that with increased Pi and decreased with Pd are shown, the Hook method can be demonstrated as follows:

(1) $P_{r1} - P_{r0} = \alpha_{0t} + \alpha_1 (\sum \Delta P_{ij}) + \alpha_2 (\sum \Delta P_{dj}) + E_t$

The above equation can be easily estimated with OLS and also interrupts the Akayyk test, Showartz or adjusted R2 is obtained. Coefficients α1 and α2 are positive and zero if the premise is true, the α1 and α2 are equal, and the transfer price of the symmetric and asymmetric otherwise transfer price will be. Using the Wald test of this hypothesis is examined.

If time series data with unit root tests Dicke Fuller was investigated and the static test, showed non-stationary, how to review transfer prices to other species. In this case should be investigated whether the data in the long run communicate with or not. Two common methods used for convergence tests, including tests of two-stage parasites - Granger and Uhansson is a multivariate test. If the data are non-convergent (with long-term data are not together), otherwise the model of Hook and error correction model (ECM) is used.

Dynamic series based on mass approach using error correction model (ECM) in which asymmetric adjustment clauses into the equation, we can stipulate more appropriate for asymmetric price transmission were achieved. To test the first mass Engel and Granger approach has been used. Approach based on the Engel and Granger (1987) and the variables used in this study were static variables measured once and then subtracting from the following equation is used to investigate co integration:

(2) $p_t^r = a + a_1 p_t^W + m_t$

Where p_t^W and p_t^r respectively the market price and the wholesale and retail market and is the waste. The static method using the following equation residual sentences are examined.

(3) $\Delta m_t = r m_{t-1} + e_t$

The next step error correction model (ECM) Number (4) the changes in p_t^r to the changes in p_t^W and the error correction term (ECT) can be related, is estimated. ECT deviation from the long-run equilibrium among p_t^W and p_t^r the measures taken thus placing it in the ECM to p_t^r allow to not only react to changes in p_t^W the long-run equilibrium value of any distortions that may affect the course of the past instead of is needed to be corrected.

(4)
$$\Delta p_t^{rt} = a + \sum_{j=1}^{k} (b_j^{+} D_t^{+} \Delta p_{t-j+1}^{W}) + \sum_{j=1}^{L} (b_j^{-} D_t^{-} \Delta p_{t-j+1}^{W}) + f \ ECT_{t-1} + g_t$$

In the above first order difference operator, b_1^+ and b_1^- to increase the coefficient values and world market prices, f the error correction coefficient K and L is the length of delay and g_t waste of sentences.

Co integration analysis method of parasites - Granger static hysteresis sentences with symmetric price adjustment occurs. If you generally adjust quickly to the top and bottom is different, and this may lead to error is asserted (Abdvlay, 2000). For such a case, Anders and Granger (1998) model has been presented from other states under which asymmetry co integration while taking the test will pass. This test is based on deviation from the long-run relationship between (3) describes a process threshold (TAR) [3] is considered as the following equation:

(5) $\Delta m_t = I_t r_1 m_{t-1} + (1 - I_t) r_2 m_{t-1} + e_t$

In the above equation I_t is called the Heaviside indicator is expressed as follows (Abdvlay, 2000):

(6) $$I_t = \begin{cases} 1 & if \ m_{t-1} \geq 0 \\ 0 & if \ m_{t-1} \ \mathbf{p} \ 0 \end{cases}$$

In addition to the function (5) can be considered as the adjustment process by which the adjusted amount is influenced by prior period. This index will be mentioned below (Abdulai, 2000):

(7)
$$I_t = \begin{cases} 1 & if \ \Delta m_{t-1} \geq 0 \\ 0 & if \ \Delta m_{t-1} \ \mathbf{p} \ 0 \end{cases}$$

Use the index (7) compared with the index (6), especially when the asymmetry is such that changes in one direction than another, is very useful (Enders and Granger, 1998). In this test mode, the deviation from

long-term relationship as a self-described process threshold torque (M-TAR2) is.
Asserted error without disrupting the separate components, indicating the transfer is symmetric prices (Abdullahi, 2000) and to test for asymmetric price transmission costs, asymmetric error model stipulates Kramvn Van (1998) estimated that the following is doable. Convergence of correction obtained from the regression between P^r_t, P^f_t of equation (8) is obtained.

(8) $ETC_t = P^r_{t-1} - \lambda_0 - \lambda_1 P^f_{t-1}$

That λ_0, λ_1 and ETC consists of two component coefficients are as follows:

(9) $ETC = ETC^+ + ETC^-$

The asymmetric error correction model can be expressed as an equation 10 is:

(10)

$$\Delta p_t^r = a + \sum_{j=1}^{k} (b_j^+ D^+ \Delta p_{t-j+1}^W) + \sum_{j=1}^{L} (b_j^- D_t^- \Delta p_{t-j+1}^W) + f^+ ECT_{t-1}^+ + f^- ECT_{t-1}^- + w$$

That $\Delta Pr = P^r_t - P^r_{t-1}$ is, L, K and n represent the length of the interruption to determine the optimal length of the interruption Akayyk and Showartz statistics used to estimate the model with different lag be. Finally, the model is preferred that have much less Akayyk and Showartz statistics . f^- , f^+ respectively the rate of retail price adjustment to negative shocks and positive marketing margin.
Using the coefficients in equation (10) to test the transfer price in the short and long term will be large and the transfer price can also be tested. If $\sum_{j=1}^{k} \beta^- = \sum_{j=1}^{l} \beta^+$ is established, there is symmetry in a transfer price. In other words, lower prices at the farm level and the change in price is the retail level. If $f^- = f^+$ is accepted, the transfer price in the long term is symmetric.

Results and Discussion

Using monthly time series data for retail and wholesale price of chicken meat is necessary first to analyze the static; therefore the unit root tests are used. Here, using the generalized Dicke Fuller was determined according to the following table. Retail price data after once difference are stationary at 1% of the wholesale price amounts after subtracting one of the 5% level are static.

Table 1: Unit root tests to determine the static variable, the price of chicken meat

price	The significance level	The critical values	T-statistics in data	T-statistics in the first order difference
Retail price	1%	-3.485	1.418	-3.113
	5%	-2.855		
	10%	-2.579		
Wholesale prices	1%	-3.485	1.423	-2.964
	5%	-2.855		
	10%	-2.579		

Source: Research findings

For estimating long-term relationship among the data, then it is necessary to use the Granger causality test, the relationship between the data set. As in Table (2) is observed in both equations is zero is rejected, it can be concluded that two-way causal relationship between retail and wholesale market prices for both beef and chicken are accept each other's work and influence on the market.

Table 2: causal relationship between retail and wholesale price of chicken meat

Dependent variable	T-statistics	Test results (assuming zero: the absence of causality)	Causality
Retail price	6.188(0.0027)	Is zero can be rejected	Causality from retail to wholesale to be confirmed
Wholesale prices	4.782(0.0099)	Is zero can be rejected	Causality from wholesale to retail to be confirmed

Source: Research findings

Necessary to analyze the relationship co integration, estimated long-term relationship between wholesale prices and retail are two parameters. The estimates presented in Table 3 are retail price and wholesale price as the dependent variable is incorporated as an independent variable. Wholesale price index shows that the influence on the wholesale price retail price is a high level where each unit increase in wholesale prices, the increase in retail price is 0.68 units. Statistic $\overline{R}^2$ variable coefficients show significant levels of the independent variable, dependent variable changes as well as shows. After estimating the long-term relationship, residual values are calculated from a series of sentences in the wholesale and retail prices co integration variables through Granger parasite tests, threshold and threshold used torque.

Table (3) long-run relationship between retail and wholesale price of chicken meat

The dependent variable	Independent variable				Statistics			
	Intercept		Wholesale prices		$\overline{R}^2$	D.W	F	Jarqu-Bera
	Coefficient	T-statistics	Coefficient	T-statistics				
Retail price	-869.28	-12.19	0.68	212.49	0.99	0.8	45154.03	4.5(0.1)

Source: Research findings

As we know, the causality test, Parasitological Engel and Granger, the assumption of symmetry is the residual series of positive and negative sentences, while the expression pattern Abdulai 2000 under conditions of moderate price increases moderated in comparison with the pattern obtained under conditions with reduced prices is different. Thus, in examining the phenomenon of co integration, we consider this issue. In addition to these parasite methods - Granger, co integration test threshold and threshold torque can be provided by Enders and Granger 1998. Table 4 presents the results of the tests of time accumulation. The parasite test line - Granger static test sentences in the sterile waste of our long-term relationship between two variables in order to check the wholesale and retail prices have been expressed. Compare findings with data provided by Mac kinnon (1991) shows the level of 10% long-term relationship between wholesale prices and retail there.

The four default threshold and threshold torque are examined. Zero in the first test case $\rho_1 = 0$ $\rho_2 = 0$ is expressed and affirmed the rejection means there is zero correlation between two variables is long term according to the assumptions and the values of individual test statistic t, only is expressed by two other findings. The other is to be rejected $\rho_1 = \rho_2$ conversion process is a finite zero means that this assumption can be measured using a standard F test (Anders and Granger 1998). The third is to be expressed as $\rho_1 = \rho_2 = 0$ reject zero indicates there is a long term relationship in the shadow prices is assumed symmetry.

The findings of the analysis table (4) explain. According to the results, assuming $\rho_1 = \rho_2$ threshold method is accepted. Thus, a threshold test based on the transfer price is symmetrical. The test statistic F $\rho_1 = \rho_2 = 0$ amount equal to 16.8 is normal and indicates the default is zero. So we can say that based on a threshold test, the long-term relationship, the wholesale price and retail price transmission between the two variables is symmetric. It compares the results with the table numbers have been provided by Enders 2004. Findings in Table 4 show that the threshold method - the torque is zero and $\rho_1 = \rho_2 = 0$ and $\rho_1 = \rho_2$ also accepted. Therefore reflects both the symmetry of prices in the long relationship is long.

Table 4: Results of the test co integration

test co integration	Independent variable						Statistics			
	r		r_1		r_2					
	Coefficient	T-statistics	Coefficient	T-statistics	Coefficient	T-statistics	LM	F(Wald) $\rho_1 = \rho_2$	F(Wald) $\rho_1 = \rho_2 = 0$	Jarqu-Bera
The parasite - Granger	-0.407	-5.78	-	-	-		0.482(0.488)	-	-	11.41(0.003)
Threshold method	-	-	-0.370	-3.90	-0.452	-4.28	0.57(0.45)	0.32(0.56)	16.80(0.00)	10.87(0.004)
Threshold method - a - torque	-	-	-0.200	-1.73	-0.089	-0.683	7.90(0.0057)	0.40(0.52)	1.74(0.17)	23.80(0.000007)

Source: Research findings

After analyzing the presence or absence of long-term relationship between wholesale prices and retail, with its corresponding error correction model in Table 5 is presented. Negative coefficients are negative and positive values of continuous variables disturbing components, show that two variables, wholesale and retail prices tend to converge in the long term and future periods if the deviation from equilibrium relation is a long-term, on its own The next period will be compensated. In fact, any deviation in relation to long-term equilibrium disappears after a while. Calculations show that in the long term and short-term price transmission in Iran's chicken meat market is symmetric. Table (5) using the Wald test to test the transfer price paid. These results suggest that short-term and long-term zero is accepted and the transfer price is symmetrical. Are also reduced to less than wholesale prices on retail prices affect memory. In fact, for every 10% increase in price, wholesale price, retail price increases of 7.1%. So we can say that wholesale prices will move more aggressively into the retail price. States could provide 98% of retail price changes to explain statistics and other data, are emphasized as well as confirming the desirability of the LM test for a break up through first and second, reached the conclusion that the first order correlation and not the second.

Table 5: Results of the test co integration

	Coefficient	Standard deviation	T-statistics
variable	Intercept	3.67	37.62
	incremental Series of wholesale prices	0.71	0.011
	Reduction series of wholesale prices	0.74	0.021
	Uninterrupted series of first order decline in wholesale prices	0.037	0.02
	Incremental series of error correction	-0.31	0.12
	Reduction series, including error correction	-0.38	0.15
Statistics	F	1877.72	-
	$\bar{R}^2$	0.98	-
	LM	1.23(0.26)	-
	Jarqu-Bera	30.90(0.00)	-
	Wald (Symmetrical short-term transfer)	1.40(0.23)	-
	Wald (Equality clauses error correction coefficients: the transfer of long-term symmetric)	0.06(0.80)	-

Source: Research findings

Suggestions:

In this study, retailers and wholesalers in the market price of chicken meat in Iran spent. Required data from March 2001 to April 2012 were collected and used. Wholesale and retail prices have increased and the results of Granger causality tests indicate two-way causal relationship between retail and wholesale prices are. Also through the threshold and threshold torque is reached the conclusion that $\rho_1 = \rho_2$ and $\rho_1 = \rho_2 = 0$ was accepted and the existence of asymmetric price transmission is emphasized. Through the parasite - Granger found that long-term relationship between the level of 1% of wholesale and retail prices there. Values of the LM statistic represents the Autocorrelation between their first and second, that the results of the first and second interruption, the This is your first and second Autocorrelation test for symmetry or asymmetry as well as the pricing is done using the Wald test suggests symmetry in the short and long term is the price of chicken meat. According to Van Kramvn Tayvbadl method, in the period studied, there is a symmetric price behavior in the short and long term be recognized. The different results of the study Hosseini and Nikokar (2005) are similar but the result of long-term is symmetry Hosseini et al (2008). So the government can transfer the pattern with respect to price and those involved in its planning and policy, policy action to stabilize prices in certain time periods. The findings suggest that the increase in wholesale prices with a severity greater than the wholesale prices are transmitted to the retail level that indicates weakness is part of marketing. Therefore recommended in order to maintain a symmetric price transmission cooperative consisting of wholesalers, retailers and even the dealers to be approached at different levels of the transfer market and eliminating unnecessary middlemen and market transparency, asymmetric price transmission sustained. Also supportive policies in order to increase bargaining power can be helped to overcome this problem, but price policies can be very useful because the portion of profits obtained from the intermediaries. Increased competition in the market for chicken meat is recommended whenever possible to reduce government interference and using appropriate mechanisms such as the development of futures markets and benefiting from an insurance company's services, risks in the field of manufacturers and retailers to at least reduced. It is noteworthy that the imperative necessity of government

intervention in infrastructure development is undeniable.

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10/19/2012