

Tomato marketing issues in Fars province (Case study: Kāzirūn County)

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Abstract: In the process of the development of urbanization in the recent decades and the transition of agriculture from traditional to modern and trade stage, the subject of marketing has become increasingly important. This study examines the issues of marketing of tomatoes in Fars province (County of Kāzirūn). Therefore, the problems and difficulties of marketing of tomatoes were reviewed by computation of the values of the margin of the total marketing, retail and wholesale margins, the share of marketing agencies, marketing cost coefficient a technical, price and total efficiency of this product. The data and statistics required for this research were collected and analyzed in two ways of the study of statistical and survey sources through random sampling and filling the questionnaire for 45 producers, 35 wholesalers and 30 retailers. The results showed that the mean price of producer is 3068 Rls, the mean wholesale price is 7486 Rls, and the average retail price is 18400 Rls; in the meantime, the producer's share of the final price is 16.08 %, of the wholesaler is 23.08 %, and of the retailer is 59.4%. At the level of retailing the price efficiency of 90.8% has the highest rate, and after that there are respectively the technical efficiency of 89.92 and the total efficiency of 77.72. The results of estimating of the marketing margin function indicate that the marketing margin in the Mark-up Model and the marketing margin have a direct relationship with the retail price.

Key words: Marketing margin; Tomato; Technical efficiency; Marketing cost coefficient; Relative margin model; Kāzirūn

1. Introduction

Whereas agricultural products play a major role in food security and raw materials supply for industry, they are always supported by policy makers and planners in the country (Murb and Muqaddasī, 2007). The market of agricultural products has been considerably volatile due to some specific characteristics of producing products in the industrial sector; seasonality, bulking large and perishables, dependent on weather conditions and the production zonal are such specifications. On the other hand the role of agricultural crops is important in food security and the supply of food necessities of social strata, and fluctuations in supply and demand for these products cause price changes and a threat to production of products and food security of the community and in some circumstances lead to crisis. Now one of the key income challenges of agriculturists is the method of the supply of producing products on the consumer market and their low share received out of the final consumers' payment. Most agriculturists believe that it is as the result of defects in the structure of the market for agricultural products (Najafī and Kāzimnijād, 2004).

One thing that has always been in the marketing of agricultural products in less developed countries,

including Iran is the difference between the prices that the producer receives and the prices that the consumer pays. Definitely, it should not be assumed that the difference in price is only allocated to developing countries but wherein there is such a difference; however, in the latter countries, the difference in price is more related to services such as packing, grading and conversion of the product; whereas in the less developed countries there has been done a little bit services about the product (Şdrulashrāfi and Karbāsī, 2005). One of the factors known responsible for the difference in price is the mediator factor called the broker and dominant. This factor has somehow a specified role in prices by controlling the market and creating a kind of monopoly, and thereby they gain large profits (Tāhirī, 2008).

Tomato is one of the most important crops of summer vegetables; so that it is at the second-ranking after potatoes. Currently 4600 thousand hectares of lands in the worldwide is under cultivation of tomato, which 125 million tons is produced in annual average of 27.5 tons per hectare. 4.7 percent of the global production of this product belongs to Iran. The average yield of tomato in the country is higher than the global average, and it is about 34.5 tons per hectare. In other words, Iran is at the seventh ranking of producing and exporting of tomato among the countries around the world and at

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the tenth ranking of exporting of tomato paste. In the area of *Kāzirūn* cultivating tomato has been highly developed due to climatic conditions, as this county is most of the time mentioned as a one of the hubs for tomato production in the country. The average of tomato in the county of *Kāzirūn* is more than the national average, that is, about 54 tons per ha, which is considered as a very high figure. The marketing margin of tomato in *Kāzirūn* County has also been studied through the research.

So far, many studies in the field of marketing and its margin have been done some of which are mentioned below:

Traub and Jayn (2008) reviewed the effect of price changes on marketing margins of maize in South Africa during the period 2004-1976 and concluded that the actual margins of retail price of cornstarch in South Africa due to disturbances of retailer prices of 1991 has increased at least 20 per cent. At that the price changes of corn flour has caused transferring at least 179 million US dollars per year from consumers to brokers in marketing system.

Randhir (1995) has analyzed marketing paths and methods of fish in the city of *Bhubaneswar* of *India*. In this study, three main paths have been observed. In the first path, producers sell the product to retailers through brokers. In the second path, producers sell the product directly to retailers, and in the third path producers sell the product through commission agencies. 7, 8 and 85% of the production is supplied to consumers via these three paths.

Mondal et al (1992) in a study titled "Economic Analysis of Production and Marketing of pineapple" have compared and computed return to scale production factors using data from 150 farmers of pineapple producer randomly selected, and also four wholesalers and three retailers via estimating the production function of pineapples, and they have analyzed the difficulties of marketing of this product through studying the current state of marketing of pineapple and specifying its marketing path.

Fallāhī (2008) has analyzed the economic evaluation of marketing paths of tomato in the county of *Marvdasht*. The results indicated that the maximum amount of cost and marketing margin (respectively 1345 and 1870 *Rls*) related to the process path. Moreover the producer's share of the price of the final product in this path is at the lowest value, that is, about one-fourth. In general, it can be said that for all marketing paths desired the value of price efficiency is significantly lower than technical efficiency as well as the efficiency of the total of marketing.

Şdrulashrāfi and Karbāsī (2005) in a study entitled "Evaluation of marketing margin of grapes and raisins in Iran" showed that during the study period the average retail margin the two products is higher than their average wholesale margin, and the average cost of grapes and raisins' marketing is respectively 7.49 and 59.25 percent. The retailer's share of the final price of grapes has raised and for

the wholesaler lowered; furthermore reviewing the factors affecting the marketing margin using Mark-up functions and marketing cost of raisins indicate the influence of factors such as the amount of export, producing of the product, price; in addition the most important factors affecting grape marketing margin is costs of transportation, the amount of grape production, wholesale price and the retail price.

Ṭāhirī (2003) in a study has evaluated the walnut marketing in Iran. The results of estimating the marketing margin using Mark-up Model, the relative margin and marketing cost has been significant and has a positive relationship with the marketing margin. The retail and consumer price has been significant in the Relative Margin Model and not in the Mark-up Model. In the Relative Margin Model the price is of a positive relationship with the marketing margin and a unit change in the retail price makes 11% per unit increase in the marketing margin.

Shajari (2002) has analyzed the issues dealt with marketing and export of *Shāhānī* date in Fars Province. The results of estimating the marketing margin function showed that the marketing margin is directly related to the retail price and a reverse relationship with the marketing costs.

Rahmānī (2002) in his study, he examined the marketing of *Estā'meran-sayer* date in Khuzestan Province. The results indicated that in lieu of per kilogram of the exportation *Estā'meran-sayer* date and domestic consumption respectively 1876.7 and 300 *Rls* spent on marketing costs and benefits of marketing agencies; the share of producer and exportation and packaging plants if the export price is respectively 46.2 53.8 for this kind of date. The share of producer and retailer of the retail price is respectively 85 and 15 percent for the domestic consumption of the date. The results of the marketing inefficiency showed that the inefficiency is high in the marketing paths of date, so that the price inefficiency for the export date and domestic consumption is respectively 0.66 and 0.53.

Shirvanian & Najafi (1999) on the marketing of tomatoes in the count of *Fasā* think that there are diverse difficulties in the marketing yield and prices. At that, due to the fact that the government does not take necessary measures in providing market data, there have been appeared some groups in the marketing organization on account of their awareness of market conditions and prices and at ad hoc entered in the marketing system of the product took the market over their own dominance. He suggests that the government instead of intervention in the market affairs takes measures such as monitoring and taking care and undertakes to improve the process of determining the price on the wholesale market through getting the producers participated in the Pricing Committee and preparing and disseminating the data to the market.

2. Research objectives

A main objective of the present study is to follow the review of marketing margin of tomato and

specifying the factors influencing it in Fars Province (the county of *Kāzirūn*).

Additionally the following specific objectives to achieve the main goal desired to the study were considered:

- Factors affecting the marketing margin of tomato in the county of *Kāzirūn* at the level retailing;
- Determining the share of various factors on the market in the marketing margin of tomato in the county of *Kāzirūn* at different levels of the market;
- Computing the coefficient of marketing efficiency.

3. Method of research

To collect the data required for this study, two methods of library and field research were used. In the library, data were collected via documents, proofs, reports, articles and dissertations that have been related to the subject. In the field research data were also collected by means of questionnaires and interviews with experts in Fars Province (*Kāzirūn* County). It should be noted that the data used in the present study was for the year 1388, published by the Statistical Center of Iran.

The statistical population of this study consists of producers, wholesalers, retailers of tomato in Fars Province (*Kāzirūn* County). Random sampling was used to determine the sample and eventually 45 questionnaires for producers, 35 ones for wholesalers, and 30 ones for retailers of tomato were prepared and completed by the agencies in the county mentioned.

After filling the questionnaires and extracting data for analysis, the results were computed by using a set of mathematical relations, marketing margin, retailing margin, wholesaling margin, and efficiency of marketing system, and in the end the marketing margin function was estimated by using the three models of Mark-up, Relative margin and marketing cost.

In this section, the concepts of marketing margin and the relations between the variables have been firstly discussed:

In order to determine more precisely, marketing margin is divided into two smaller sections, namely wholesale and retail margins. Accordingly, the margin of the total marketing is computed by the following formula:

$$MM = RP - PP$$

MM is the total marketing margin, RP is the retail price, and PP is the price received by the producer (the farm gate price).

The wholesale margin is the difference of the retail price with the received price by the producer, which is computed by the following formula:

$$WM = WP - PP$$

WM is the wholesale margin and WP is the wholesale price of the product. At that the retail margin which is the difference between the wholesale and retail prices are computed by the following equation:

$$RM = RP - WP$$

Furthermore there are the following equations for the share of marketing agencies in the retail price:

Producer's share= (the farm gate price / the retail price) \times 100

Wholesaler's share= (the wholesale price/the retail price) \times 100

Retailer's share= (the wholesale price-the retail price) / (the retail price) \times 100

Using the above equations, a variety of inefficiencies are computed as follows:

$$P_1 = MC / GM$$

$$T_1 = CW / GM$$

$$O_1 = (MC + CW) / GM$$

That based on these equations P1 is the price inefficiency, T1 is the technical inefficiency, and O1 is the total inefficiency; meanwhile MC is the marketing costs, GM is the gross margin, and CW is the cost of losses.

Various models were used to determine the factors affecting the marketing margin that to four major of which are referred here; the Mark-up Model, Relative margin, Marketing cost and Rational expectation that all of which are the most applicable in researches (*Shajari, 2002*).

3.1. Relative margin model

The relative margin model is obtained from the inverse demand function for the processed agricultural product in which the marketing margin is defined as a function of the retail price, the value of goods and cost of marketing agencies (*Najafi and Kāzimnijād, 2004*).

$$MM = f(RP, TR, Z)$$

According to the equation MM is the marketing margin, RP is the retail price, TR is the value of goods sold, and Z is the marketing costs.

According to the equation of relative margin model, the model will be estimated as follows:

$$MM = C + B_1 RP + B_2 TR + B_3 Z$$

3.2. Mark-up model

In this model, the marketing margin is a function of the retail price and marketing costs:

$$MM = f(RP, Z)$$

In this regard, MM is the marketing margin, RP is the retail price, and Z is marketing costs.

According to the Mark-up model, the following model is estimated:

$$MM = C + B_1 RP + B_2 Z$$

3.3. Marketing cost model

In this model, it is assumed that there was a competitive situation, and the economic marketing agency gives services to the extent that the final cost of services is equal to its final revenue (*Najafi and Kāzimnijād, 2004*).

Hence, the marketing margin is expressed as the following equation in this model:

$$MM = f(Q, Z)$$

In which

Q is the amount of product supplied at the farm, and Z is the marketing cost. Based on the above model, the model estimated will be as follows:

$$MM = C + B_1Q + B_2Z$$

4. The results

In this part of the analysis of data, the computation of retail margin, wholesale margin, total market margin, marketing efficiency, technical efficiency, price efficiency and share of each of the factors affecting tomato marketing were mentioned, and then the marketing margin function was estimated by using various models.

The following is the marketing path of tomato in Kāzirūn County:

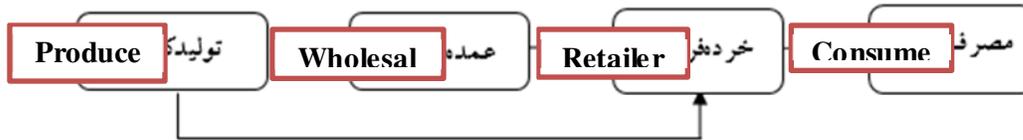


Fig.1: Marketing path of tomato in Kāzirūn County

Whereas the price of tomatoes depends on the supply and demand conditions determined by agreement, price volatilities of this product are usually observed. The prices of the product in the

market consist of the price received by the producer, wholesale and retail prices that the average of the prices at different levels in the market is as follows:

Table 1: The average prices of the producer, wholesaler and retailer in 2009

The average producer price (Rls) P_F	The average retailer price (Rls) P_W	The average wholesaler price (Rls) P_R
3068	7486	18400

4.1. Retail and wholesale margin and the margin of total market

As mentioned in previous sections, the retail margin consists of the difference between the retail price and wholesale price. The wholesale margin is

the difference between the wholesale price and the producer price; at that the margin of total market is the total of retail and wholesale margins. The following table shows the values of margins:

Table 2: The values of retail, wholesale and total margins (Rls)

The retail margin $M_R = P_R - P_W$	The wholesale margin $M_W = P_W - P_F$	The total margin $M_M = M_R - M_W$
10914	4418	15332

According to the above table, the retail margin and the share of retailer is higher than the wholesaler, and in lieu of 18400 Rls paid for one kilo tomato, 10914 Rls is the share of retailer and his marketing costs, 4418 Rls is the share of wholesaler and his marketing costs, and the margin of the total market which is the difference between the price received by the producer and the price paid by consumers is 15332 Rls.

Technical efficiency is to reduce marketing costs without affecting the quality of the product that this kind of efficiency is measured by labor productivity. Price efficiency is the optimal allocation of resources in ways that reduce marketing costs. The efficiency of the total market is the ratio of output to the marketing input that whatever the higher the ratio is, more efficient the market will be. According to Table 3, the efficiency of the price at the retail level is high and after that is the technical efficiency which reflects the high productivity of labor force at the retail level.

4.2. Computation of marketing efficiency

Table 3: Computation of market efficiency and share of marketing agencies at the retail level (%)

Technical efficiency	Price efficiency	Total efficiency	Producer's share	Wholesaler's share	Retailer's share	Marketing cost coefficient
89.92	90.8	77.72	16.8	23.8	59.40	7.67

According to the above table, 16.80% is the producer's share out of 18400 Rls of the retail price of a pound of tomatoes, 23.80% is the share of the

wholesaler, and 59.40% is the retailer's share and the largest share belongs to the retailer.

Marketing cost coefficient represents the share of the marketing costs of the retail price, thus 7.67% is

the share of marketing costs out of 18400 *Rls* of the retail price of a pound of tomatoes.

Table 4: Computation of marketing efficiency and the share of marketing agencies at the wholesale level (%)

Technical efficiency	Price efficiency	Total efficiency	Producer's share	Wholesaler's share	Retailer's share	Marketing cost coefficient
94.1	81.57	75.58	16.8	23.80	59.40	15.35

According to the above table, the technical efficiency has the highest value at the wholesale level have, and then the price efficiency and the total one have the highest values. On the other hand, 19.80% is the producer's share, 23.80% is the share of

wholesaler and 59.40% is the retailer's share out of 18400 *Rls* of the retail price, moreover 15.35% is the share of marketing costs out of 18400 *Rls* of the retail price of a pound of tomatoes.

Table 5: Computation of marketing efficiency and the share of marketing agencies at the total market level (%)

Technical efficiency	Price efficiency	Total efficiency	Producer's share	Wholesaler's share	Retailer's share	Marketing cost coefficient
90.25	61.3	51.62	16.80	23.80	59.40	32.16

According to the above table, the technical efficiency has the highest value, and after that there are the price efficiency and the total one; furthermore, 16.80% is the producer's share, 23.80% is the share of retailer, and 59.40% is the wholesaler's share out of 18400 *Rls* of the retail price of a pound of tomatoes. At that 32.16% is the share of marketing costs of the retail price of a pound of tomatoes.

The results accrued of estimating the marketing margin function using the mark-up model show that the marketing margin has a direct relationship with the retail price; in other words, a unit increase in the retail price causes 0.519 unit increase in the marketing margin; besides the variable of marketing cost is not significant in this function.

4.3. Estimation of marketing margin function using various models

Table 6: Results of estimating the marketing margin based on the Mark-up Model

Variable	Coefficient	Standard error	T-statistic	Probability
Retail price (PR)	0.519	0.052	10.1	0.0000
Marketing cost (Z)	0.505	0.131	0.42	0.69
Intercept (C)	8.71	27.55	0.32	0.76

Whereas the marketing margin function estimated is not significant statistically speaking with the marketing cost model, the results are not mentioned in this section.

relative margin model, the retail price is directly related to the marketing margin.

5. Conclusion

Comparison of the estimated functions show that in the mark-up model only marketing cost variable of Z and the intercept have not been significant; however, in relative margin model of the intercept, the revenue from product sales of TR and marketing cost of Z are not significant, and in marketing cost model the variables of the amount of product Q offered and the marketing cost of Z are not significant. As a result, it can be stated that the mark-up model could be better than the other models to estimate the marketing margin function and this result is consistent with *Najafi* and *Kāzimnijād's* achievements (2004) as well as *Muqaddas's* and colleagues (2011). At that in the mark-up model and

5.1. Recommendations

As it can be seen, the marketing system is inefficient and the inefficiency has made irrational marketing margins become pretty high, to eliminate this it is suggested to form producing and distributing cooperatives of agricultural products comprising of farmers, wholesalers and even brokers. Creating this type of cooperatives causes on the one hand the relationship between farmers and wholesalers get closer and remove unnecessary brokers and on the other hand the farmer can achieve a better share of the final price.

The values of technical efficiency in retail-wholesale-level show that the costs of losses at the retail level were high, besides it is recommended to do something to reduce retailers' losses through

providing appropriate policies in improving the transport system of the product.

The price efficiency in retail-wholesale-level indicates that wholesale marketing costs was high and it is recommended to stop the rise of retail marketing costs by providing appropriate services in product transportation system.

Inasmuch as the retail price has a significant and considerable impact on the marketing margin, it is necessary to adopt appropriate strategies, if it is desired to control the margin and prevent its increase, such as continuous monitoring stop fluctuations and the rising of prices.

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