






RESEARCH ARTICLE

Olive Marketing Analysis in Northern Iran: Marketing Margins and Indices

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ABSTRACT

This study investigated olive marketing channels, margins and indices at Iran's olive trade center namely Guilan province, northern Iran. For this purpose, marketing margin, share of marketing agents, marketing cost coefficient and different types of efficiency in olive market were calculated. The required data set were collected through survey using a questionnaire and simple random sampling on 2017. Results revealed that there were eight different marketing channels in the olive market of Guilan province. Average wholesale and retail margins were 11500 and 31870 Rials, respectively. The average wholesalers' share from the retail price was 9.59%. Also, the average retailers' share from the final product price (retail price) was 26.57%. The average marketing cost coefficient was 20.29%. The highest and lowest overall efficiency in olive marketing channels were 49.78% and 27.56%. Policy solutions should lead to increased marketing services and significant impact of these costs on the marketing margin in the olive market of Guilan province.

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Introduction

The olive tree (*Olea europaea*) is widely cultivated for the production of both oil and table olives. Olive and its products have significant economic value (IOC, 2019). Olive and olive oil, a traditional food product with thousands of years of history, are the essential components of the Mediterranean diet and are largely consumed in the world (Uyulaşer & Yildiz, 2014). Olive farming is a multifunctional activity. In particular, it has much positive social effects in rural areas depending on plantation characteristics and farming practices (Marangon & et al., 2008). Iran is one of the 24 countries with significant olive production (Mohammadi & et al., 2019). The most important olive producing provinces in Iran are Fars, Zanjan, Guilan, Qazvin and Kermanshah provinces. Olive is one of the strategic products of Guilan province and especially Rudbar

County. Olive orchards are located in the central district of Rudbar county. The region's economy is tied to olive and there are about 22,000 olive producers in this county (Statistics and ITC office of Iran's Jihad-Agriculture Ministry, 2017). South Rostam Abad, Rahmat Abad, Manjil, Ali Abad and Lushan areas with subtropical Mediterranean climate are among the most important olive hubs in Rudbar region.

Marketing is the last link in the production chain which any inefficiency can destroy the ability of production. With the expansion of the urbanization, the importance of marketing services has increased, and today marketing is seen as an essential activity. Improving the marketing system by introducing new methods of warehousing, grading, packing, shipping and standardizing reduce waste as well as enhances market transparency (Eslami, 2015). One of the factors

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contributing to the desirable degree of development is the reduction of transaction and marketing costs in goods and services markets. Marketing involves the different stages of processing, packaging, transportation and warehousing. The value of the product increases with each of these steps, so the marketing process is a flow of value added. Going through the above steps is costly and consequently causes a discrepancy between the price at the consumer level and the price at the producer level. This price gap is called marketing margin (Park, 2009).

Marketing margin or price spread is a well-known performance measure in marketing systems (Abbott & Makeham, 1991). The difference between the prices that are taken by producers and prices that are paid by consumers called marketing margin (Askan, 2019). Marketing margins are the result of the demand and supply factors, marketing costs, marketing agencies, technological changes in marketing process and the degree of the marketing channel competition (Marsh & Gary, 2004; Rahim and et al., 2018). Marketing margin is the sum of costs or benefits created from harvesting the product until it reaches the consumer (Wohlgenant & Mullen, 1987). Marketing margin has remained an important tool in analyzing the performance of marketing systems. The study of marketing margin could help policy-makers and managers to improve marketing efficiency (Dinesh and Sharma, 2019). Marketing costs and profit margins which make up marketing margins can be both indicators of marketing systems efficiency. The benefits that accrue to the individual participants may be incentives or disincentives to continue in the business. Proper computation, understanding and interpretation of marketing margin value in relation to prevailing circumstances can reveal a lot about performance in the marketing channels (Achiike & Anzaku, 2010). Marketing margins are the result of the demand and supply factors, marketing costs, and the degree of the marketing channel competition (Marsh & Gary, 2004). Thus, margins reflect the aggregate processing and retailing firm behavior which influence the level and variability of farm prices and may influence the farmer's share of the consumer food dollar (Gardner, 1975; Wohlgenant & Haidaicher, 1989; Tomek & Robinson, 1990). According to Cramer & Jensen (1982) marketing margin is the percentage of the final weighted averages selling price taken by each stage of the marketing chain. The total marketing margin is the difference between what the consumer pays and what the producer/farmer receives for his product. In other words, it is the difference between retail price and farm price (Mendoza & Rosegant, 1995). Since marketing costs affect retail prices, reducing them increases the welfare of the community. In order to achieve this goal, studying the market margins is essential. Few areas of agricultural economics have received as much public scrutiny as marketing margins. Until now, there is little consensus on the sources of changes in margins and whether such changes over time have led to a deterioration or improvement in the welfare of farmers and consumers (Wohlgenant, 2001).

In agricultural markets, the shorter marketing channels and fewer marketing agents involved between production and

consumption is more efficient. On the other words, shorter marketing channel may lead to less waste costs as well as the other costs of marketing. In Iran, agricultural marketing system is traditional and inefficient (Koopahi, 2013). Price can be an effective means of providing the necessary incentives for farmers to increase production if an efficient marketing system that is compatible with the characteristics of agricultural commodities supply has been developed. This system can support farmers, increase the income and employment levels in agriculture sector. Considering the needs and preferences of consumers, improving the olive marketing system and reducing the marketing margins of this product is necessary. Therefore, investigating olive marketing issues, problems and indicators in Rudbar County as well as evaluating marketing channels and market agents is essential.

There have been many studies on the marketing of agricultural products. For instance, Achiike & Anzaku (2010) studied the performance of the marketing system of benniseed in Nasarawa State by using marketing margin models. The results showed that the mean marketing margin was 18.2%, marketing costs 12.8%, net profit 8.3% and farmer's share 78.9% of the retail price. Kızılaslan & Elmalı (2012) analyze marketing margins of grape in Tokat Province, Turkey. Results showed that the margin of mediator was 77.05%.

Kohansal & Dogani (2013) studied the economic marketing of olive at Fars province of Iran and presented inherent techniques for steam lined market of this product. Their results revealed that 20 and 25 percent of canned and oily olive price were related to marketing costs. Adegbola & et al. (2016) analyzed the functioning of the marketing systems of Jew's mallow (*Corchorus olitorius*) produced in Agbédranfo (Dogbo), Southwest Benin. The net margin for jew's mallow produced in Agbédranfo was 3.24 for producers, 9.67 for retailers and 8.37 for wholesalers. Tesfaw (2017) investigated market structure and chain analysis of haricot bean in Ethiopia. Following the marketing chains, 7 marketing channels were identified. Gross marketing margin was maximum for city wholesalers (38.60%) and minimum for farmer traders (13.22%) of the consumers' price. Net marketing margin was maximum (11.52%) for processors and minimum (7.36) for rural assemblers. Jassam & et al. (2018) studied the efficiency and marketing margins of the main vegetable crops in Baghdad province, Iraq. Results revealed that marketing efficiency of marketers was 63.22%, 65.58%, and 60.31% for tomato, eggplant, and cucumber crops, respectively. Also, the total marketing margins were 212 IQD/Kg, 235 IQD/Kg, and 125 IQD/Kg for tomato, eggplant, and cucumber, respectively.

One of the aims of this study is to examine the different marketing channels of olive in the existing market structure and analyze the economic criteria of marketing in each path. To achieve this, it is important to identify marketing agents. The product eventually reaches the consumer, but the path that product reaches the customer is sometime long and in other cases short, which are illustrated by charting the marketing channels. Investigating marketing channels and margins, identifying factors affecting marketing margins, determining the share of different market agents, and

analyzing the marketing efficiency in the olive market are the most objectives of this study.

Materials and Methods

To investigate the marketing margin thoroughly and exactly, it was divided into two smaller portions, the retailer margin and wholesale margin. The wholesale margin is the difference of the price at which wholesalers sell their product and the price which they pay to the farmers as they buy the product from them, and the retailer margin refers to the difference of the price at which the retailers sell the acquired products to the consumer and the price they pay to the wholesalers (Toure & Wang, 2013). The criteria used to determine marketing margins are the relationships of retail, wholesale and total margins (Digby, 1989; Mendoza & Rosegant, 1995):

$$MM_W = P_W - P_F \quad (1)$$

$$MM_R = P_R - P_W \quad (2)$$

$$MM_M = MM_W + MM_R \quad (3)$$

Where MM_W , MM_R and MM_M are the wholesale, retail and total olive marketing margins, respectively. Also, P_R , P_W and P_F are the weighted average of retail, wholesale and farm prices, respectively.

The Shefferd & Futrell (1959) method was used to determine the shares of olive market agents (producer, wholesaler and retailer) from final consumer price at Guilan province:

$$SH_F = (P_F / P_R) \times 100 \quad (4)$$

$$SH_W = (P_W - P_F) / P_R \times 100 \quad (5)$$

$$SH_R = (P_R - P_W) / P_R \times 100 \quad (6)$$

Where SH_F is the olive producer share, SH_W is the wholesaler share and SH_R is the retailer share.

The marketing cost coefficient (r) reflects the share of marketing costs from the retail price (Eslami, 2015):

$$r = (MC / P_R) \times 100 \quad (7)$$

Where, the MC is olive marketing costs. The MC is the sum of all marketing services costs in the olive market like transportation, labour, energy, tax, tariff, and the opportunity cost of capital.

Efficiency is the most important issue in marketing analysis (Thakur, 1992). Prices in an efficient market must always fully reflect available information (Fama, 1970). Profit in marketing is directly related to its efficiency. Inefficient and backward marketing system leads to higher costs, widespread losses, high waste of products, and unreasonable prices. In order to determine the marketing efficiency of olives in Guilan province, the proposed relationship by Shefferd & Futrell (1959) was used. A marketing system operates efficiently when it generates 1\$ for 1\$ marketing service costs.

$$M_E = MV / MC \quad (8)$$

Where, M_E is the efficiency of olive marketing channel and MV is olive marketing Value-added in Rudbar County. The MV is the difference between retail and wholesale price of olive.

In this study tree types of marketing inefficiencies, including technical inefficiency (I_T), price inefficiency (I_P), and total inefficiency (I_o) introduced by Shrivatava & Randhir (1995) were used:

$$I_T = C_w / MM_M \quad (9)$$

$$I_P = MC / MM_M \quad (10)$$

$$I_o = (MC + C_w) / MM_M \quad (11)$$

Where, C_w is the cost of wastes which is calculated based on marketing agents reports. In the above equations, if the marketing and waste costs equal zero, the total inefficiency equals zero and the efficiency equals one (100%), which indicates the overall efficiency of the marketing system. If these costs are equal to the marketing margin, the marketing system is completely ineffective.

From social welfare point of view, it is desirable for the marketing system to generate 1\$ value added per 1\$ marketing services costs. The following equation was used to calculate social welfare efficiency index (M_R):

$$M_R = (MC + C_w) / (MM_M - MC - C_w) \quad (12)$$

Improving the market environments should be a priority for improving the supply and satisfying the market demand of olive. In order to improve the marketing system linked with the markets at the studied area, the role of market-actors, market channels and the existing constraints and opportunities along the olive chain need to be identified. Thus, this study was initiated to investigate the different marketing channels and analyze the marketing indicators. In this study, a questionnaire with 10 components was designed to investigate olive marketing problems. The design questions were about the amount of olive waste, the price of the olive product at three levels of production, wholesaler, retailer and marketing service costs. The interviewed population were 30 stakeholders (producers, wholesalers and retailers) from the different stages of the olive value chain.

Results and Discussion

Our survey revealed that olive production in Rudbar County is mainly carried out by traditional gardeners, but in recent years, private production companies have started producing olives in this region. After harvest, the olives are sold in two ways. In the first case, the producer sells the product immediately after harvesting. In the latter case, the producer breaks down the harvested olives and then sells them. Hence, two types of local buyers are defined. The first type of local buyer buys and sells broken (in order to make the olive, bitter and sweet, after being washed, it is beaten to bring more salt and brine into the fruit) or unbroken olives. The second type of local buyer buys unbroken olives, then breaks it down and sells it to other marketing agents. Field survey of the olive marketing channels in Rudbar County showed that the marketing agents at different levels of the market can be defined as follows:

Table 1. Marketing agents at different level of olive market in Rudbar County

Producers	Wholesalers	Retailers
<p>Producer 1: Local gardeners or agribusinesses that sell olives immediately after harvest.</p> <p>Producer 2: Local gardeners or agribusinesses who break olives and then sell them.</p>	<p>Local buyer 1: Individuals who buy olives from the producers (broken or unbroken) and sell them to other agents.</p> <p>Local buyer 2: Individuals who buy unbroken olive from the producers then breaks it and sell the broken olives to other agents.</p> <p>Processing center: A center that buys olives (broken or unbroken) and produce canned olives, processed olives, etc.</p> <p>Packaging center: A center that buys broken or unbroken olives and packs them up.</p>	<p>Retailer: Includes all shopkeepers, stores and supermarkets that supply olive and its products to end-consumers.</p>

Field survey showed that the following marketing channels exist in the olive market of Rudbar County:

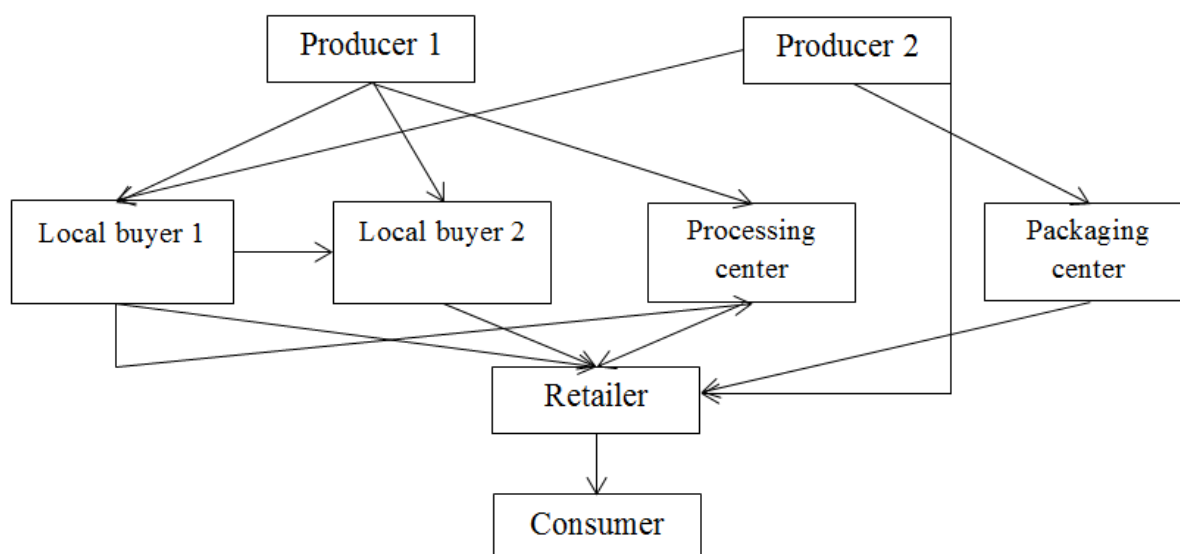


Figure 1. Marketing channels of olive in Rudbar County

Channel #1: Producer 1 → Local buyer 1 → Local buyer 2 → Retailer → Consumer

Channel #2: Producer 1 → Local buyer 2 → Retailer → Consumer

Channel #3: Producer 1 → Local buyer 1 → Processing center → Retailer → Consumer

Channel #4: Producer 1 → Local buyer 1 → Packaging center → Retailer → Consumer

Channel #5: Producer 1 → Processing center → Retailer → Consumer

Channel #6: Producer 2 → Retailer → Consumer

Channel #7: Producer 2 → Packaging center → Retailer → Consumer

Channel #8: Producer 2 → Local buyer 1 → Retailer → Consumer

Field survey showed that channels 1, 3 and 4 were the longest channels with 5 agents. The cost of waste and transportation in these paths is higher than the rest. The shortest marketing channel is channel 6 with 2 agents. Except for breaking the olives, all marketing costs is borne by the retailer. Also, channel 6 has the lowest waste and transportation costs.

Marketing margins were calculated based on the average sales prices of olives at three levels of garden, wholesaler and retailer.

Table 2. Marketing agents at different level of olive market in Rudbar County

Marketing Agents	Farm level (Producer)		Wholesale level				Retail level
	Producer 1	Producer 2	Local buyer 1	Local buyer 2	Processing center	Packaging center	Retailer
Price (Rials)	70000	80000	75000	80000	90000	100000	120000

Table 3. Marketing margin of different olive marketing agents in 2017 (Rials)

Channel	Wholesale margin				Retail margin	Marketing (total) margin
	Local buyer 1	Local buyer 2	Processing center	Packaging center		
#1	5000	5000	0	0	40000	50000
#2	0	10000	0	0	40000	50000
#3	5000	0	15000	0	30000	50000
#4	5000	0	0	25000	20000	50000
#5	0	0	20000	0	30000	50000
#6	0	0	0	0	40000	40000
#7	0	0	0	20000	20000	40000
#8	5000	0	0	0	35000	40000

Channels 1 to 5 have the highest marketing (total) margin of 50000 Rials and retailers in these channels (except channel #4) had the highest margin and share of the final product price. The maximum retail margin was 40000 Rials which belongs to channels # 1, 2 and 6. On channel #4, the packaging center with 25000 Rials had the most margins among the marketing agents. The lowest margin was for local buyer 1 (on channel #1) and local buyer 2 (on channels # 1, 3, 4 and 8). On channels #6 and 8, retail had the largest marketing margin, but on

channels #7, the retail margin was equal to the wholesale margin (packaging center). On channels # 1 and 2 the retail margin was 300% higher than the wholesale margin. On channel # 3 and 5 this was 50% more than the wholesale margin but on channel #4 the wholesale margin was 50% more than the retail margin. On channels #8 the retail margin was 600% more than the wholesale margin. The average wholesale and retail margin were 11500 and 31870 Rials, respectively.

Table 4. Share of marketing agents from retail price (%)

Channel	Producer		Wholesaler				Retailer	Total share of Wholesaler and Retailer
	Producer 1	Producer 2	Local buyer 1	Local buyer 2	Processing center	Packaging center		
#1	58.33	0	4.16	4.16	0	0	33.35	41.67
#2	58.33	0	0	8.33	0	0	33.34	41.67
#3	58.33	0	4.16	0	12.6	0	25	41.67
#4	58.33	0	4.16	0	0	20.85	16.66	41.67
#5	58.33	0	0	0	16.67	0	25	41.67
#6	0	66.66	0	0	0	0	33.34	33.34
#7	0	66.66	0	0	0	16.67	16.67	33.34
#8	0	66.66	4.16	0	0	0	29.18	33.34

The maximum share of the wholesalers from the retail price (20.85%) belonged to packaging center on channel #4. The minimum share of the wholesalers from the retail price (4.16%) belonged to local buyer 1 (channels # 1, 3, 4 and 8) and local buyer 2 (channels #1). The average wholesalers' share from the retail price was 9.59%. Also, the average retailers' share from the final product price was 26.57%. In channels # 1 and 2, the retailers' share from the final product price is 300% higher than the wholesalers share. On channel #3, the retailers share was 49.16% higher than the wholesalers. On channel #4

the wholesalers' share of the retail price was 12.12% more than the retailers share. At channel #5, the retailers' share was 49.97% higher than that of the wholesalers. On channel #7 the wholesalers and retailers share of the final product price were equal (16.67%). On channel #8, the retailers' share was 601.44% higher than the wholesalers' share. In channel # 1 to 5, Producer 1's share of the retail price was 39.98% higher than the total retailers and wholesalers shares. On channel # 6 to 8, producer 2's share of retail price was 99.94% higher than total retailers and wholesalers shares.

Table 5. Olive marketing indicators on 2017 by marketing channels

Channel	MC (Rials)	C _w (Rials)	TC (Rials)	r (%)	M _R (%)	M _E (%)	I _P (%)	I _T (%)	I _O (%)
#1	26600	6000	32600	22.16	262.90	38.03	59.11	13.33	72.44
#2	23600	4000	27600	19.66	212.50	63.04	52.44	8.88	61.33
#3	26600	6000	32600	22.16	262.90	38.03	59.11	13.33	72.44
#4	26600	6000	32600	22.16	262.90	38.03	59.11	13.33	72.44
#5	23600	4000	27600	19.66	212.50	63.04	52.44	8.88	61.33
#6	20600	2000	22600	17.16	120.58	99.11	45.77	4.44	50.22
#7	23600	4000	27600	19.66	212.50	63.04	52.44	8.88	61.33
#8	23600	4000	27600	19.66	212.50	63.04	52.44	8.88	61.33

In Table 5, total marketing services cost (TC) of each channel was calculated by summing marketing costs (MC) and cost of waste (C_w). The marketing cost coefficient (r) for channels # 1, 3 and 4 was equal (22.16%). This means that 22.26% of the olive's retail price in these three channels was related to marketing costs. The maximum value of r is also related to these three channels. The marketing cost coefficient on channels # 2, 5, 7 and 8 is 19.66%, indicating that 19.66% of the olive retail price was spent on marketing services costs (TC). The minimum marketing cost coefficient belonged to channels #6 (17.16%). Also, the average marketing cost coefficient of all understudy channels was 20.29% which mean on average 20.29% of the olive retail price was spent on marketing services costs in these channels.

According to the different calculated inefficiency types, the highest overall efficiency (I_o) with 49.78% was for channel #6. This is due to the low number of marketing agents along this channel. The least I_o was for channels # 1, 3 and 4 (27.56%). Price inefficiencies (I_p) on channels were higher than technical inefficiencies (I_T) because the waste cost was much lower than the marketing services cost.

The results of marketing channel efficiency (M_E) showed that channel #6 had the highest efficiency and a unit cost on marketing in this channel created more value-added (0.99 unit) in compare with other channels. The channels with high efficiency indices had lower social welfare efficiency index (M_R) which means the necessity of promoting and supporting these channels for improving consumers' welfare.

Conclusion

The price shares of the producers, wholesalers and retailers indicate that gardeners have a higher share in the final price of olives. Low processing in order to achieve greater value-added was the main reason for these results. The calculations showed that, on average, the margins of retailers were greater than those of wholesalers. This can be attributed to retailers' higher share of marketing costs, poor marketing services, and more retailers bargaining power. Chegini & et al. (2015) showed that the development of olive processing activities and the production of byproducts can bring significant value-added to the region's economy as well as creating employment in the field of marketing services. Also, Linking the olive value chain to rural and agro-tourism activities, could diversify and increase farmers income.

Market price efficiency of Guilan province olive is lower than technical efficiency. A better monitoring of prices will give more precise information about the performance of the marketing system and will improve its effectiveness. One of the reasons for the low price efficiency in the province is the heterogeneous and inadequate demand structure for fresh olives, which tends to increase marketing costs. It seems that the development of the olive-related food industry and the completion of its supply chain rings could help to alleviate these problems. Inadequate storage practices and non-implementation of olive manufacturing practices were serious challenges in the region.

In recent years, there has been an emphasis on using the value-chain framework in agricultural organization to increase efficiency and expand the sector. The value chain framework is characterized as "a range of activities that are required to bring a product from its conception, through its designing, sourcing of raw materials and intermediate inputs, marketing and distribution, to the final consumer." As such, the value chain creates linkages between the different phases in agriculture, enabling relevant stakeholders understand how best to deliver products efficiently and innovatively, how to reduce costs of production and increase financial gains, and how to ensure successful marketing, food safety, and widespread distribution. It seems that olive value-chain in Guilan province is a necessity. Olive producers and marketing agents could benefit from its advantages. Also, regional economy bloom would happen with this strategy.

Olive market development in Guilan province needs production increase but one of the main challenges was high cost of production. High cost of production and low productivity lead to minimal farmers' profit margin that finally limits farmers' incentives for production increase and investing in orchards development. A major production cost is harvesting cost. The use of mechanical harvester has helped farmers reduce cost, significantly. Also, significant cost of production is link to the small scale of production. Cooperative structures can play a key role to reduce cost by creating common procurement schemes as well as, when feasible, common application of capital inputs.

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