Measuring The Marketing Efficiency and the most important Factors Affecting it for the Potato Crop in Baghdad Governorate for the 2023 Production Season

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Abstract.
Potato crop is evident in its high nutritional value and positive impact on human health, as well as being an essential factor in the national economy. A marketing study of this crop was conducted with a focus on the most important marketing paths. A random sample of (148) farmers from autumn potato producers in Baghdad Governorate was selected, and information was collected through a questionnaire form designated for the farmers. Data was also collected from wholesalers in Baghdad markets using (55) questionnaire forms, in addition to (40) forms for retailers. The results showed that the producer's share of consumer spending on the potato crop was (49.52%), while the wholesaler's share was (14.16%), and the retailer's share was (36.32%). The study also showed that the intermediaries' share of consumer spending on the crop was (50.48%). The study revealed an increase in the profits of retailers of potato crops, as the average profit was about (162,737) dinars/kg, while the profit of the wholesaler was about (66,843) dinars/kg. The producer's profits amounted to about (88,691) dinars/kg. It was also found that the marketing efficiency of the autumn potato crop according to the first relationship amounted to (56.45%). Results of the factors affecting marketing efficiency indicate that the linear formula in the independent variables is the best according to economic and statistical standards. It can be noted that (packing bag costs, packing and loading costs, transportation costs and distance of the marketing center, cleaning and sorting costs, marketing costs for wholesalers and retailers) It has a negative inverse relationship with marketing efficiency, whereas production costs and agricultural experience have a positive relationship, which is consistent with economic theory logic.

Keywords: Potato, Marketing, Marketing efficiency, Marketing margins

.1Introduction

Potato (Solanum tuberosum L.) belongs to the Solanaceae family, and it is among the most important and widely used vegetable crops. It is described as a strategic and economic crop and play an important role in food security for many countries in the world. Potato is grown in large areas of the world, especially in Europe and the United States of America, due to its importance and high nutritional value, and ranks fourth after wheat, corn and rice [8]. Potatoes play an important role in human health because they are a good source of starch, dietary fiber, vitamins, minerals, etc. [9]. It contains 22.6%, 1.6%, 0.1%, 0.4% of carbohydrates, proteins, fats and crude fiber, respectively, and 97 calories, However potato is lacking in several vitamins, such as vitamins A, B1, and B2, whereas it is high in vitamin C[11]. According to statistics from of Food and Agriculture Organization of the United Nations, the total global production was estimated at about 383.1 million tons. China coming in first place with a total production of

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about 93.5 million tons, followed by India with a total production of 60.1 million tons, followed by Ukraine, Russia, the United States, Germany, Bangladesh, France, Pakistan and the Netherlands. As for the Arab countries that were among the top twenty countries in global potato production in 2023, Egypt came in eleventh place with a total production of about 6.8 million tons, followed by Algeria, which came in eighteenth place with a total production of about 4.6 million tons. As for Iraq, the area planted with this crop in 2023 is estimated at about 35,900 dunums and the total production amounted to 229,069 tons (FAO STAT, 2023). Due to the high demand for potato in Iraq, the government decided to expand local production in order to achieve self-sufficiency. This requires increasing the areas planted with potato and enhancing productivity by studying the factors that led to the decline in farmers' interest in growing it, which resulted in a reduction in the cultivated area. Marketing agricultural products is one of the prominent agricultural activities around the world, as it constitutes one of the main pillars of economic and social aspects and contributes to creating job opportunities within the private sector. The importance of marketing is highlighted by providing goods and products at the right time that the consumer needs. Marketing agricultural products through various marketing channels from production areas to final consumption areas is important and necessary to identify the efficiency of the marketing system [3]. Potato marketing operations, like other crops, in Baghdad Governorate face many challenges, including, for examle but not limited to, price fluctuations, delays in supply and distribution operations, and weak transportation and storage infrastructure. On the other hand, bad weather conditions affect the quality and quantity of the crop and its transportation times.

.1.1 Research Problem:

Marketing of potato crops in Iraq, especially in Baghdad Governorate, faces many challenges that negatively affect the economies of farmers, traders and consumers. The most prominent of these challenges is the inefficiency of marketing channels, as these channels rely heavily on mediation, which leads to an increase in the profit margin for traders at the expense of farmers.

.1.2 Importance of the research:

The importance of the research is evident from the economic and nutritional aspects of the potato crop, which is considered one of the most consumed food crops. Therefore, studying the marketing of this crop requires identifying the most prominent marketing obstacles or problems in all available channels and paths with the aim of achieving the highest level of marketing efficiency.

.1.3 Research Objectives:

The research aims to:

a. Calculating the marketing margins and costs as well as the profits for each of the producer, wholesaler and retailer and estimating the marketing margins for the autumn Baghdad Governorate's potato crop for the 2023 agricultural season.

b. Estimate the marketing efficiency and determine the key variables influencing the efficiency of marketing of the potato crop in Baghdad Governorate for the 2023 agricultural season.

.1.4Research Hypothesis:

Direct marketing channels (such as direct sales to consumers) contribute to increasing the profit margin for farmers compared to indirect marketing channels (such as sales to traders). The effectiveness of potato marketing

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channels has a positive impact on the profit margin for farmers and traders in Baghdad Governorate for the 2023 production season.

.2Theoretical Framework

.2.1 Marketing:

A group of authors mentioned a simpler definition of marketing, "It is nothing but the process of managing relationships with consumers and customers who are profitable for the organization", as the definition focuses on two main goals: attracting new consumers and achieving growth in dealing with existing consumers and customers [15]. Marketing is of great importance as it has become a prominent place in economic life with the increasing interest in the consumer and his needs. In addition, marketing is viewed as a link between the company's management and the society in which the markets it serves live and it helps in renewal, innovation and stimulating demand [4.[

.2.2 Agricultural Marketing:

Agricultural marketing is defined as the process that works to deliver agricultural goods and products at the end of the marketing channel to customers in the best form and at the most appropriate price [5]. It is also known as the science that studies the functions and tasks necessary to transport any agricultural product from its primary production site to its final consumption site, fulfilling the conditions (form, place, time) [6]. Agricultural marketing has a significant impact on the three parties due to the interconnectedness, integration, and overlap in their objectives. In addition, it contributes to achieving economic returns for individuals in society, enhances the efficiency of resource distribution and use, and plays an important role in achieving justice in distributing achieved results among members of society [2.[

.2.3 Marketing costs:

Marketing costs refer to the amounts incurred by individuals, institutions or marketing bodies, while practicing their economic activity with the aim of delivering the commodity or service from producers to final consumers [10.[

.2.4 Marketing margins:

The difference between the price that a consumer pays and the amount that the farmer receives is known as the marketing margin. Marketing margins can be expressed as relative value (percentage), which is computed by dividing the absolute margin by the selling price and then multiplying the result by 100, or as absolute worth, which is a difference between selling and purchasing prices at two separate phases stated in monetary terms [14]. Studying the marketing margin is essential to understand the differences in marketing and identify the problems related to it and the efficiency of marketing activities. This margins increase when individual income rises, since the malleability of demand for marketing services is greater than that for agricultural products [13]. Marketing margins vary based on the number of marketing facilities or the stages that the commodity passes through during its transition from the producer to the consumer. Rising agricultural marketing margins raises the price paid by consumers (retail price) while lowering the price earned by producers (farm price). In contrast, a decrease in marketing margins can benefit the producer or the consumer or both, through a decrease in the retail price and an increase in the farm price.

.2.5 Marketing Efficiency:

Marketing efficiency is the maximum ratio of the total cost of resources utilized in the manufacturing process to the output of marketing activity needed to satisfy the customer with products and services [7].

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Agricultural marketing efficiency also refers to achieving the optimal use of marketing inputs in order to meet the needs and desires of consumers and workers in this sector. Marketing efficiency depends on the consumer's estimation of goods and input costs, and is measured based on alternatives to production capabilities [1]. One of the most important economic factors that is used to assess marketing effectiveness is marketing efficiency, It represents a fundamental goal for both producers and consumers, in addition to being of great importance to marketing establishments and society in general [12]. Marketing efficiency is achieved through two methods: The first is to make adjustments that result in a lower cost of functional performance for a certain product without lowering the degree of customer pleasure attained. The second is to increase marketing benefits without this being accompanied by any increase in marketing costs [7.[

.3Data collection methods and analysis style:

Primary data were collected through personal interviews using surveys created especially for each producer, wholesaler, and retailer. Data pertaining to the product was gathered at random from (148) farmers of the autumn potato crop during the 2023 production season, representing (15%) of the total number of farmers of this crop registered in the Directorate of Agriculture in Baghdad Governorate, which number (989) farmers. In addition, data were collected from (55) wholesalers and (40) retailers as a random sample of the study population. The following economic criteria and statistical and standard methods were used: costs of production, marketing costs, absolute and relative margins, revenues, and earnings, In addition to identifying the most important factors influencing potato marketing efficiency, a multiple regression analysis utilizing the ordinary least squares (OLS) approach was used to assess the impact of many variables. A standard model was created with eight independent variables:

$$Y= B0 + B1X1 – B2X2 – B3X3 – B4X4 – B5X5 – B6X6 + B7X7 – B8X8 + Ui$$

Y= Marketing efficiency

X1= Production costs

X2= Packaging bag costs

X3= Packing and loading charges.

X4= Crop transportation costs

X5= Marketing Center Distance

X6= Sorting and cleaning costs

X7= Experience in agriculture

X8= Marketing Operations Costs for Wholesalers and Retailers

.4Results and Discussion

.4.1 Production Costs:

Through direct, in-person interviews, a study of a group of farmers in the Baghdad Governorate was used to determine the entire production expenses of the autumn potato harvest. Calculations were made to determine the production costs per dunum and per ton. Table (1) shows the average variable production costs. These costs amounted to (1073647.090) dinars/dunum per dunum and (174964.701) dinars/ton per ton, while the average fixed production costs amounted to (133096.202) dinars/dunum per ton, and (21689.750) dinars/ton per ton. The following formula may be used to get the total production costs per dunum: total fixed costs + total variable costs = (1206743.292) dinars/dunum. Table 1 illustrates that the total production costs per ton came to (196654.451) dinars/ton ..

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Table (1) Total production costs average of the autumn potato crop in Baghdad Governorate for the 2023 production season.

Total production cost items	The Costs (dinar/ dunam)	The Costs (dinar/ton)	Relative importance (%)
Fixed costs	1073647.090	174964.701	88.97
Variable costs	133096.202	21689.750	11.03
Total	1206743.292	196654.451	100.00

Source: The researcher collected and computed data based on the questionnaire form.

.4.2 Marketing costs items for potato crop:

.4.2.1 Marketing costs borne by farmers:

Farmers are considered the principal link in the marketing of agricultural products chain and the main pillar since they are both producers and marketers as well. These costs include several components including, (cleaning, sorting and grading costs, packaging costs, loading and unloading costs, packaging bag prices, market entry fees, and transportation costs to the market). Table (2) shows the marketing costs items borne by autumn potato crop farmers, as cleaning, sorting and grading costs are the highest costs borne by farmers, at a rate of (26.06%) of the total marketing costs, and market entry fees are the lowest costs borne by farmers, at a rate of (3.59%) of the total marketing costs, while the total marketing costs per dunum amounted to (274759.920) dinars/dunum, and per ton amounted to (44775.688) dinars/ton, and per kilogram amounted to (44.775) dinars/kg.

Table (2) Marketing costs borne by the producer of the autumn potato crop in Baghdad Governoratee for the 2023 production season

Marketing cost items	(Dinar/ dunam)	(Dinar/ ton)	(Dinar/kg)	Relative importance (%)
Cleaning, sorting and grading costs	71604.734	11668.919	11.668	26.06
Packing Costs	30248.620	4929.404	4.929	11.01
Loading Costs	33459.769	5452.702	5.452	12.18
Packing Bag Costs	32506.144	5297.297	5.297	11.83
Transportation Costs to Market	65302.522	10641.891	10.641	23.77
Market Entry Fees	9867.936	1608.107	1.608	3.59
Unloading Costs	31770.195	5177.364	5.177	11.56
Total	274759.920	44775.688	44.776	100

Source: The researcher collected and computed data based on the questionnaire form.

.4.2.2 Marketing costs borne by wholesalers:

The wholesaler bears some marketing costs in order to deliver the crop to the retailer, and then to the final consumer. These costs include (shop rent, worker's and accountant's wages, electricity fees, cleaning fees and joint night guards in addition to other fees such as records, sales receipts and costs of damaged quantities). These costs were collected based on questionnaire form (2). Table (3) shows the marketing costs borne by wholesalers, and the

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total of these costs amounted to (27552.163) dinars/ton, and (27552) dinars/kg.

Table (3) Marketing cost items borne by wholesalers of the autumn potato crop in Baghdad Governoratee for the 2023 production season

Marketi ng cost items	Costs (dinar/ton)	The Cost (dinar/ kg)	Relative importance (%)
Shop rent costs	8146.238	8.146	29.57
Labor and accountant costs	14915.115	14.915	54.13
Electricity wages costs	620.473	0.620	2.25
Security and cleaning costs	311.793	0.311	1.13
Other costs	3558.543	3.559	12.92
Total	27552.162	27.551	100.00

Total 27552.162 27.551 100.00

Source: The researcher collected and computed data based on the questionnaire form.

.4.2.3 Marketing costs borne by retailers:

This includes the costs faced by the retailer from the moment the crop is acquired from the wholesaler to when it is sold to the final consumer. These costs were determined based on a questionnaire form prepared specifically for retailers, where (40) questionnaires were collected and distributed to retail stores spread across the capital, Baghdad, whether in the form of close markets or individual stores. Table (4) shows the marketing costs borne by retailers in order to deliver the crop to the final consumer. The total marketing costs borne by retailers per ton amounted to (79414) dinars/ton, and per kilogram (79.414) dinars/kg.

Table (4) Markeeting costs for the retailer for the autumn potato crop in Baghdad Governorate for the 2023 production season

Marketing cost items	The Cost (dinar/ kg)	Relative importance (%)
Transportation costs to retailer's store	21.600	27.20
Spoiled quantities costs	8.590	10.82
Retailer's costs at his store	49.224	61.98
Total marketing costs per kilogram	79.414	100.00
Total marketing costs per ton	79414 (dinar/ ton)	

Source: The researcher collected and computed data based on the questionnaire form.

.4.3 Prices and distribution of marketing shares for the producer, wholesaler and retailer from the consumer dinar:

.1The producer's portion of the consumer's dinar : The average producer's share of consumer dinar for the autumn season potato crop was about 49.52%.

.2Wholesaler's share of consumer dinar : The average wholesaler's share of consumer dinar for the autumn season potato crop was about 14.16%.

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.3Retailer's share of consumer dinar: The average retailer's share of consumer dinar for the autumn season potato crop was about 36.32%.

.4Intermediaries' share of consumer dinar: The average intermediaries' share of consumer dinar for the autumn season potato crop was about 50.48%. Table (5) shows these percentages.

Table (5) Prices and distribution of shares of the consumer dinar for the potato crop for the autumn season in Baghdad Governorate for the 2023 production season

Prices (dinar/kg)			Distrbution of consumer dinars %			
The product (1)	Sentence (2)	Retail (3)	Producer's share (%) (4)	Wholesaler's share (%) (5)	Retailer share (%) (6)	Brokers' share (%) (7)
330.121	424.515	666.666	49.52	14.16	36.32	50.48

Source: The researcher collected and computed data based on the questionnaire form.

Producer's share (4) = (Product price)/(retail price)*100

Wholesaler's share (5) =(wholesale price-Product price)/(retail price)*100

Retailer's share(6) = (retail price-wholesale price)/(retail price)*100

Brokers' share (7) = Wholesaler's share + Retailer's share

Extracting profits for producers, wholesalers and retailers:

Revenue and profits for producers:

Revenue represents the total amount of money that the farmer gets from selling the potato crop or any other crop. As for profits, they are the amount remaining after deducting all total production costs from the revenue. The producer's profits per ton can be calculated using the following formula:

Producer's profit = Revenue (dinar/ton) - (production costs + marketing costs) dinar/ton.

Table (6) shows that the average revenue per ton of potato crop amounted to (330121.622) dinars/ton. The table also shows that the revenues achieved exceed the total costs, which means that potato producers will make profits. The average profits per ton were estimated at (88691.483) dinars/ton, and per kilogram at (88.691) dinars/kg.

Table (6) Revenues and profits for potato farmers in Baghdad Governorate in autumn for the 2023 production season

Costs of production (Dinar/ton)	Costs of marketing (Dinar/ton)	Total expenses for the production and marketing (Dinar/ton)	Revenues (TR) (Dinar/ton)	Profits (Dinar/ton)	Profits (Dinar/kg)
196654.451	44775.688	241430.139	330121.622	88691.483	88.691

Source: The researcher collected and computed data based on the questionnaire form.

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.4.4.2 Extracting profits for both wholesalers and retailers:

Wholesalers' profits amounted to (66,843) dinars/kg, while retailers achieved profits of up to (162,737) dinars/kg, as shown in Table (7). Wholesaler's and retailer's profits are calculated using the following formula:

a. Wholesaler's profit = Wholesaler's price - (Product price + Wholesaler's marketing costs(

b. Retailer's profit = Consumer price - (Wholesaler's price + Retailer's marketing costs(

Table (7) Profits of wholesalers and retailers of the autumn potato crop in Baghdad Governorate for the 2023 production season

Average price received by the producer (dinar/kg)	Average wholesale price (dinar/kg)	Total marketing costs for wholesaler (dinar/kg)	Average consumer selling price (dinar/kg)	Total marketing costs for the retailer (dinar/kg)	Wholesaler's profit (dinar/kg)	Retailer's profit (dinar/kg)
330.121	424.515	27.551	666.666	79.414	66.843	162.737

Source: The researcher collected and computed data based on the questionnaire form.

.4.5 Estimating marketing margins:

Marketing margins can be represented in absolute values, which are defined as the difference between selling and purchasing prices at the two different stages, or they can be expressed in relative terms, which are calculated by dividing the absolute difference by the selling price and multiplying the result by 100.

.1Marketing margin between the wholesaler and producer stages: The absolute marketing margin that occur between wholesalers and producers of the potato crop was around (94,394) dinars/kg, whereas the relative marketing margin, it reached (22.24%) as shown in Table (8.(

.2Marketing margin between the retail and wholesale stages: The absolute marketing margin between them for the potato crop amounted to (242.151) dinars/kg, while the relative marketing margin amounted to (36.32%) as shown in Table (8.(

.3Marketing margin between the retailer and producer stages: The absolute marketing margin between them for the potato crop amounted to (336,545) dinars/kg, while the relative marketing margin amounted to (50.48%) as shown in Table (8.(

Table 8: Marketing margins across marketing phases of the potato harvest in Baghdad Governorate for the 2023 agricultural season.

Marketing margins					
Wholesaler - Producer		Retailer - Wholesaler		Retailer - Producer	
The Absolute (1)	The Relative (2)	The Absolute (3)	The Relative (4)	The Absolute (5)	The Relative (6)
94.394	22.24%	242.151	36.32%	336.545	50.48

Source: The researcher collected and computed data based on the questionnaire form.

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Absolute marketing margin (producer) = wholesale price - product price

Relative marketing margin (producers)=(Absolute marketing margin (producer))/(Wholesaler price)*100

Absolute Marketing Margin (Wholesaler) = Retailer Price – Wholesaler Price

Relative marketing margin (Wholesaler) = (Absolute Marketing Margin (Wholesaler))/(Retailer Price)*100

Absolute marketing margin (retailer) = retailer price – producer price

Relative marketing margin (retailer) = (Absolute marketing margin (retailer))/(Retailer Price)*100

Measuring marketing efficiency and factors affecting marketing efficiency:

Marketing efficiency is often recognized as one of the most essential economic measures for assessing market success. Improving efficiency is a major goal for producers, customers, marketing businesses, and society as a whole. After estimating the manufacturing and marketing costs for each stage of marketing (producer, wholesaler, retailer) based on the initial data in the questionnaire forms, marketing efficiency was calculated through the first relationship, which amounted to (54.45%), which is a good percentage, but it needs to be improved by reducing marketing costs. As for marketing efficiency according to the third relationship, it amounted to (47.74%), which is a relatively low level. This indicates that there is an opportunity to improve production and marketing processes. Table (9) illustrates this.

Table (9) Measures marketing efficiency based on the first and third relationships for the fall potato crop in Baghdad Governoorate for the 2023 production season.

Price received by the producer (dinar/kg)	Consumer price (dinar/kg)	Production costs (dinar/kg)	Total marketing costs for the product, wholesale and retail (dinar/kg)	Total total costs (production and marketing) (dinar/kg)	Marketing efficiency according to the first relationship %	Marketing efficiency according to the third relationship %
330.121	666.666	196.654	151.741	348.395	56.45%	47.74%

Source: The researcher collected and computed data based on the questionnaire form.

Standard analysis to determine the factors affecting the marketing efficiency of the autumn potato crop:

To determine the independent factors that most affect the marketing efficiency variable, the multiple regression method using the least squares (OLS) method was used, and the parameters' signals were consistent with the logic of economic theory, as shown in Table (10) and as shown in the equation:

Y=60.91566+0.000105X_1- 0.000149X_2-0.000105X_3-0.000508X_4-0.000121 X_(5)-0.000403X_(6)+0.000403X_7-0.000139X_8

t = (6.968) (4.123) (-10.269) (-0.915) (-2.202) (-5.625) (-2.562) (3.133) (-8.868)

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Table (10): Results of the statistical analysis into the link between marketing efficiency and the factors influencing it for potato crops in Baghdad Governorate

Variable	Coefficient	Std.Error	t.statistic	Prob.
C	60.91566	8.741586	6.968490	0.000
X_1	0.000105	2.54E-05	4.123938	0.000
X_2	-0.000149	1.45E-05	-10.26909	0.000
X_3	-0.000105	1150.000	0.915653-	0.366
X_4	-0.000508	2310.000	2.202145-	0.035
X_5	-0.000121	2.15E-05	5.625904-	0.000
X_6	-0.000403	0.000157	-2.562363	0.015
X_7	0.000403	0.000129	3.133607	0.003
X_8	-0.000139	1.57E-05	-8.868476	0.000
$R^2 = 0.88$		**$F - statistic = 29.7296$**		**$D.W = 2.0412$**

Source: Created by a researcher based on the results of the statistical application EVIEWS 12.

The result of (R2) is 0.88, indicating that the model's explanatory variables can explain 88% of the variations in marketing efficiency. The remaining 12% is attributable to factors that were not included in the model, or may be within the range of the random variable that absorbed their effect. The value of (F-statistic) which was (29.7296) showed a significant significance for the estimated model as a whole at the level of (1%). To evaluate the acceptance of the standard model and examine the compatibility of the hypotheses related to random error, it was necessary to conduct standard tests to detect potential problems. The problem of auto correlation was detected using the (D.W) Durbin-Watson test, which showed that the model is free from the problem of autocorrelation, as its value was (2.0412), which is greater than the value of (du) which is (1.799) and less than the value of (du-4) which is (2.201). The calculated model parameter values demonstrate that the variable parameter of production costs (X1) had a positive sign, which is consistent with economic theory, and it was statistically significant at the 1% level. As production costs rise, so do potato crop production amounts, which improves marketing efficiency. When production costs rise by one percent, marketing efficiency rises by 0.000105%. The variable of bag costs (X2) has a negative sign, indicating that there is an inverse association between the independent variable and marketing efficiency, since its value is (-0.000149). The (t) test resulted in a value of (-10.26909), indicating that the variable is statistically significant at the 1% level. This means that increasing these expenses by 1% reduces marketing efficiency by 0.000149%. The packing and loading variable (X3) was insignificant and this can be explained by the fact that the loading operations do not affect the marketing efficiency as they do not add any additional benefit to the crop and also because the studied crop does not need special packing and therefore the variable was insignificant. Also, the crop transportation costs variable (X4) is inversely related to marketing efficiency, The results indicated agreement with economic logic, with a negative sign of (-0.000508). The (t) test revealed that the variable is statistically significant at the 5% level, implying that a 1% increase in crop transportation costs causes a 0.000508% loss in marketing efficiency. The variable of the marketing center's distance (X5) is regarded

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one of the basic components that causes a drop in marketing efficiency as the distance grows. The greater the distance between the marketing centers and the farms, the greater the costs borne by farmers. The results of the analysis showed that the value of this variable was negative (-0.000121), which is consistent with the logic of economic theory, as it indicates the existence of an inverse relationship between marketing efficiency and the independent variable. This result was also statistically significant at a significance level of (1%), indicating that the distance of marketing centers from potato production farms leads to a decrease in marketing efficiency. The parameter of the sorting and cleaning costs variable (X6) was negative, which is consistent with economic logic that indicates an inverse relationship between the marketing efficiency of the crop and the costs of sorting and cleaning. This means that an increase in the costs of sorting and cleaning by 1% leads to a decrease in marketing efficiency by 0.000403%, with other factors in the model constant. Through the (t) test, it was found that this variable is statistically significant at the 5% level. While the variable of experience in agriculture (X7) had a positive parameter, i.e. its relationship is directly proportional to marketing efficiency, as the variable parameter reached (0.000403), which is consistent with the logic of economic theory. The value of (t) also showed statistical significance at a significance level of (1%), indicating that an increase in the years of experience by one year leads to an increase in marketing efficiency by (0.000403%). The variable of marketing costs for wholesalers and retailers (X8) had a negative sign, which is consistent with the logic of economic theory, indicating the existence of an inverse relationship between it and marketing efficiency. This suggests that increasing marketing costs for wholesalers and retailers by 1% reduces marketing efficiency by 0.000139%. The (t) test revealed that this variable is statistically significant at a level of 1%.

Conclusions

From this study, found a significant increase in production costs due to the rise in the prices of production requirements and the lack of government support, which led to higher crop prices. Marketing costs also appeared high for each marketing link, and the rise in marketing costs led to lower profits in all marketing links. It also showed that the share of intermediaries is close to the share of the producer, due to their ability to sell without providing similar marketing services. The retailer's profits amounted to 162,737 dinars/kg, while the wholesaler's profits were 66,843 dinars/kg. The marketing efficiency of the potato crop was (56.45%) and the most important factors affecting marketing efficiency through variables. We conclude that the variables (packing bag costs, packing and loading costs, transportation costs, distance of the marketing center, cleaning and sorting costs, and marketing costs for wholesalers and retailers) are inversely related to the amount of marketing efficiency, while Either production costs or agricultural expertise have a positive relationship with marketing efficiency, which is compatible with economic theory.

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Recommendtions

For the purpose of increasing the marketing efficiency of potato crops, it requires reducing marketing costs without affecting consumer satisfaction. This can be achieved by improving the performance of marketing functions and services, and adopting modern marketing methods such as sorting, grading and packaging. It also recommended that the Ministry of Agriculture provide support to potato farmers by providing all basic production requirements at subsidized prices, in addition to granting them loans and advances to cover production expenses. It recommends setting a period of import ban for potato crops that is proportional to the volume of local production during the season. The possibility of reducing imports of this crop should also be studied due to the impact of imports on local product prices.

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