Marketing prospects for Saffron in domestic market: the case of Moroccan PDO "*Saffron of Taliouine*"

Fatima Lambarraa-Lehnhardt [1] and Assem Lmouden[3]
[1] Farm Economics and Ecosystem Services Group, Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany, [2] United Nations Development Programme (UNDP), Morocco

[1]Corresponding author E-mail: fatima.lehnhardt@zalf.de;

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Abstract

Morocco is the world's fifth largest producer of saffron, 95% of this production is located in the southern regions of the country in Taliouine area. The Moroccan saffron sector plays a primordial economic and ecological role. However, the lack of information on the marketing prospects of this product does raise questions on the potentialities of its market and its consumers' expectations and preferences. The purpose of this study is the analysis of the perceptions and preferences of Moroccan consumers toward this product. Particularly, the specific objectives aim firstly, the development of a strategic analysis of the Moroccan saffron sector. Secondly, the determination of consumer's preferences and attitudes and their willing to pay for this product. To achieve these objectives, we used a participatory approach with the different stakeholders in order to create a strategic SWOT matrix followed by a cluster analysis to segment saffron market and then the estimation of willingness to pay for saffron. The main results suggest that the Moroccan saffron sector are characterized by low productivity and informal marketing channels. The saffron market is organized around two consumers segments. Besides quality seekers, there is other group that paid attention to the product appearance and packaging. Finally, the willingness to pay for the label Protected Designation of Origin (PDO) "*Saffron of Talouine*" depends on the product intrinsic as well as and extrinsic quality attributes.

Keywords: Saffron quality attributes, labelling, packaging, Consumers preferences, Willingness to pay, SWOT strategic analysis, PDO "Saffron of Taliouine".

1. INTRODUCTION

Morocco is the world's fourth largest producer[1] of saffron, with a production of 6.8 tons in 2018 for an area of approximately 1,800 hectares (ORMVAO, 2019). Most of this production (95%) is located at Talouine region. The Saffron sector plays a significant role in improving income and then living conditions of small farmers in the southern region of Morocco. It is the major agriculture product at Taliouine region (MAPM, 2019)[2]. This agriculture activity is very profitable for the small producer located in this area. The concentration of the saffron production in the less-developed areas provides an important source of income of small household farms. The saffron picking and cutting creates seasonal employment in winter, which complement seasonal jobs provided by other agricultural activities for the rest of the year. Originally, the saffron was cultivated in a limited area of Taliouine. However, since the early 80s, the rainfall in Morocco dropped sharply and the drought has become a characteristic of the Moroccan climate. Thus, the cultivation of saffron starts to replace the less profitable cereal culture that was rain-fed oriented. This situation is very profitable for the expansion of a sustainable farming system based on low-input and crop diversification. Currently the production area is located in Souss Massa Draa region and spread over the province of Taroudant (Taliouine area) and the province of Ouarzazate (Taznakht area). This area is located at the junction of the High Atlas in the north and the Anti-Atlas in the south. It is a very mountainous area with difficult access. Only the road from Ouarzazate to Agadir (via Taliouine and Taznakht) is paved (see Figure 1).

Source: ORMVAO, 2019

Figure 1. Saffron production area in Morocco

[1] Behind Iran, India, and Greece.
[2] Almost all Moroccan Saffron production (95%) come from the region of Taliouine Taznakht, the rest of the production is located in Ourika, Chefchaouen or Taza, (MAPM, 2019).

Despite the expansion of the saffron production area in the last decades, the Moroccan saffron domestic market remains controlled by a traditional marketing channel, characterized by bad product reputation and deficiency of quality standards. The product is mostly sold at traditional markets (souks[3]) or herbalists (Dubois, 2010). Some cooperatives working in the sector adopt the e-commerce but this circuit still limited at the international market

The Saffron is consumed in the world in various forms (condiments, medical use, aromatherapy and coloring…). In Morocco, the Saffron is mainly consumed as a condiment in filaments form. Such a form ensures the product quality for the Moroccan consumers in return for its high price (MAPM, 2019). To promote the Saffron sector, the Moroccan Agriculture Policy "Plan Maroc Vert, PMV" devotes special attention to this sector. It is considered as a Terroir[4] interactive cultivated ecosystem product with high added-value and market potentialities. Such strategy was reinforced by the establishment in 2010 of a new Protected Designation of Origin (PDO) "*Saffron of Taliouine*" which guarantee the product quality and traceability from the producer to the consumer, avoid the fraud related the traditional marketing channel and promote the product at domestic market.

Even though this product promotion is beneficial for the consumer because it offers a guaranteed quality product, the lack of information on the habits and preferences of consumers towards this product imposes practical difficulties to make this process successful. The quality of saffron can contributes much more to its price determination and then influence the buying decision of the consumer at the domestic market. We suggest that the designation of origin (PDO) label "*Saffron of Taliouine*" can be a decisive attributes affecting consumers decision to buy the Saffron at domestic market. Consequently, the main objective of this study is the revelation of the Moroccan consumer preferences, attitudes and expectation towards PDO "*Saffron of Taliouine*". To reach this objective, we start first with a strategic analysis of the Moroccan saffron market through identifying the strength, weakness, opportunities and threats (SWOT matrix). Then, we use a multivariate analysis to segment the actual saffron market and to identify the potential market. Finally, we use a hedonic price model to estimate the willingness to pay for the certified product PDO "*Saffron of Taliouine*" and determine the most important attributes that affect its price. We expect that the results of this study can help the policy makers to better state the different criteria to reach the quality standards in the new established denomination of origin. Such a policy design can be beneficial for consumers through a clear positioning of high quality product at the domestic market as well as for the farmers by adding value to their product, which contributes to the development of local economy at marginal areas (Gresta et *al.,* 2008).

[3] Souk is an open-air farmer market

[4] Terroir can be defined as an interactive cultivated ecosystem in a given place influenced by physical environment (including climate, soil and water) and farmers Know-how

This paper is organized as follows; in the next section, we present the methodological framework. Then, we introduce the empirical application. Finally, we expose the results and we finish by the conclusions.

2. METHODOLOGICAL FRAMEWORK

The use of the marketing research enables us to evaluate the consumers' reaction to the saffron as a product at the marketplace. The objective is to know what makes the saffron attractive, and which price are consumers willing to pay for this product or for a specific attribute of this product. The evaluation of the consumer preferences can be done by a panorama of traditional empirical methods using different data forms and sources. The method of hypothetical questionnaires provides great flexibility and allows to study a multitude of market or non-market goods (Kuhfeld, 2000).

This section is organized as follows, first we expose the strategic analysis methodology using the participatory approach then we explain the factorial and cluster analysis and we finish by the hedonic price modeling.

2.1 Strategic analysis of Moroccan saffron sector

In the first stage, we conduct a strategic analysis of the Moroccan saffron sector. This analysis consists of the diagnostic of the entire system generated by the saffron product (external and internal analysis) which allows the elaboration of SWOT matrix (Weaknesses-Threats-Strengths-Opportunities) (Lambarraa, 2003). The SWOT matrix gives an overview of the set of opportunities and threats that the environment of this product presents, as well as the set of strengths and weaknesses in relation to the competitive factors that define the field of activity of the (PDO) label "Saffron of Talouine" (Lambarraa and Gómez-Limón, 2004). The result of the SWOT analysis is used to formulate the strategies and policies regarding this sector. Different sorts of data are used for this analysis, first, we conducted a participatory approach with the different stakeholders (farmers, processors, retailers, consumer, scientist and expert). Then, we used additional data from the Agricultural Development Regional Office (ORMV) and the Ministry of Agriculture and Fisheries.

2.2. Factorial and cluster analysis

Other questions we want to examine is the determination of the consumers segments of saffron market. First, Factor analysis is an exploratory technique applied to a collection of inter-correlated metric variables with the objective of data reduction and interpretation. The objective is to reduce and condense the information of the original variables into smaller number of factors. The Factor analysis reduces data by seeking underlying unobservable (latent) variables that are reflected in the observed variables (manifest variables). To determinate the number of factors to extract, we are guided by the theory, but also informed by running the analysis extracting different numbers of factors and seeing

which number of factors yields the most interpretable results. Second, we used the Cluster analysis. The Cluster Analysis is an explorative analysis that tries to identify structures within the data. Cluster analysis is also called segmentation analysis or taxonomy analysis. It tries to identify homogenous groups of cases, i.e., observations, participants, respondents. This technique is used in order to classify the objects based on measured characteristics into a series of segments. In the way, that is homogeneity within segments and heterogeneity between segments. The consumer segments may be identified based on their perceptions of products, the benefits they seek from products or their lifestyles (Lambarraa-Lehnhardt et al., 2020; Saunders, 1980). The goal is the identification of homogeneous consumer segments regarding "*Saffron of Taliouine*" preferences. The cluster analysis was conducted on the factor scores and employed a hierarchical method, which produced two main groups.

2.3. Willing to pay for the PDO "*Saffron of Talouine*"

Finally, we estimate the hedonic regression model. It is a relatively new marketing tool. The first works dates back to the mid-50s with the psychological study of consumers' behavior. Then in the late 60s, the relationship between mathematics, statistics and psychology bring evident supplements in the development of this analysis (Lancaster, 1966). In the early 70s, with Green and Rao (1972), this method becomes a tool in marketing research to assess the willing to pay of consumers. According Saporta (1998), the model of hedonic prices is a regression that predict ordinal variable by using qualitative variables. The hedonic regression is therefore an empirical practice to measure the contribution of product characteristics to its price (Terra, 2005). It explain statistically a product price by its characteristics (Rosen, 1974). The hedonic price function determine as well the implicit price of each characteristic. The model of hedonic prices has large applications in the consumer research topics (Cuevas *et al*., 2016; Wang *et al*., 2009; Suwannaporn and Linnemann, 2008; Stanley and Tschirhart, 1991; Abansi *et al*., 1990).

The model specification is:

$$P_i = \alpha x_i + \beta z_i + \varepsilon_i + c \qquad (1)$$

where, P_i the willing to pay (WTP) for PDO "Saffron of Taliouine" by consumer i, x is a vector of physical attributes characterizing "Saffron of Taliouine" purchased by consumer i, z is a vector of socioeconomic characteristics describing consumer i, ε is the error term of the model and c is the constant of the model. The hedonic model expressed in Eq (1) is estimated in semi-log functional form using Ordinary Least Squares (OLS). This regression is possible only if the price is following the normal distribution. To assure that, we use a logarithm transformation of variable price. Traditionally, the estimated coefficients from the hedonic regression are interpreted as consumers'

WTP for a given attribute of the product. A positive sign indicates that consumers are willing to pay a price premium for the attribute, while a negative sign reveals that consumers discount the attribute.

3. THE EMPIRICAL APPLICATION

To realize the exploratory study of consumers' preferences, the data used in this analysis were obtained from face-to-face questionnaires with Moroccan consumers. We started first by conducting a pilot survey with different stakeholders (consumers, Herbalists, cooperatives and retailers) in order to prepare the final survey and setting up the attributes of the product (Lambarraa and Elyoubi, 2018; Kallas *et al.*, 2011). The questionnaire collects information on consumer's socioeconomic characteristics, their attitudes and perceptions toward "*Saffron of Taliouine*", questions on Saffron consumption and purchasing, saffron quality attributes and willing to pay for the product. The final sample consists of 106 consumers. Our data set is completed with other additional data sources from Moroccan Ministry of Agriculture (MAPM, 2019) as well as interviews with professionals of the sector (cooperatives, herbalists and experts at ORMVAO)[5].

Based on the results of our pilot questionnaire, the expert's interviews, the established PDO[6] "saffron of Taliouine" and prior research[7], we define the following saffron attributes that strongly affect the buying decisions of Moroccan consumers:

- Quality of the product (flavour, aroma, taste and color)
- Product form: filament or powder
- Type of packaging: bag or glass bottle
- Certification: Certified organic or not
- Origin of produce: Taliouine or not
- Control the drying method

4. RESULTS

4.1. Strategic analysis of the Moroccan saffron sector

The results of the strategic analysis of the Moroccan Saffron sector are summarized in Table 1.

[5] Experts from the Ouarzazate Agricultural Development Regional Office (Office Régional de Mise en Valeur Agricole d'Ouarzazate), located in the main production area of saffron
[6] as defined by the Moroccan Agriculture Ministry
[7] Research performed on Saffron Quality attributes e.g., Ehsanzadeh *et al.*, 2004; lage, 2009

Table 1. *SWOT Matrix of Moroccan Saffron sector*

Strengths	***Weaknesses***
▪ Product with high added value ▪ PDO that preserve product quality, identity and geographical origin ▪ Farming type adapted to the climatic condition of the production area ▪ Sustainable agriculture with low input farming system ▪ Important source of income for the population located in less favoured mountains area ▪ Promotion of the product by the Moroccan Agricultural policy "PMV" as a Terroir product	▪ Traditional Farming techniques, low productivity and high production costs ▪ Reduced offer on high quality bulbs ▪ Drought and water shortage problem ▪ Unskilled (insufficient training programs) and scarce labour ▪ Excessive Land fragmentation ▪ Low potential of cooperation and organisations between farmers ▪ Bad storage (in plastic bags) and conservation conditions (harvest during the day) which affects the product quality ▪ Sales mostly at traditional markets with Non-competitive prices ▪ Informal and undeveloped Marketing channel controlled by intermediaries (wholesalers, retailers...)
Opportunities	***Threats***
▪ Increase of the saffron demand at the domestic market ▪ Increase of Moroccan saffron exportation and the opportunities at the international market after the signature of several free trade agreements (e.g. with EU and USA market) ▪ Increasing the world spices demand ▪ High potential demand at the tourism market in the production area ▪ New technologies to increase productivity & adopt organic techniques ▪ Comparative advantage of product quality compared to Iran (main rival) ▪ High labour cost at competing countries (mainly in EU: Spain, Italy, Greece & France)	▪ Strong competition at international market accelerated by the liberalization of agricultural markets between countries ▪ More than 80% of Saffron world trade is controlled by EU ▪ Increase of Spanish exports (using 90% of Iranian production) ▪ High prices at the world market which increase the demand for substitutes ▪ Strong rural emigration which affect labour offer at the production area ▪ Fraud problem affecting the quality and reputation of the Moroccan Saffron ▪ Saffron Pest and Diseases

The strategic analysis shows that the Moroccan Saffron sector in general, and the "*Saffron of Taliouine*" in particular, has a good potential to grow and expand further, particularly in terms of potentiality at the Moroccan and international market. The production needs to be expanded further in order to meet the increasing domestic market and to profit from the opportunities exiting at the international export market (particularly the USA and EU). Moreover, the region of Taliouine - Tazenakht is located in a less favoured area suffring since the last decades from biodiversity loss (Birouk, 2009). The saffron farming system is a good alternative to enhance the biodiversity and improve the ecosystems services at these marginal areas. The "Saffron of Taliouine" positioning at the domestic and international market can be reinforced by increasing the quality of the product granted by the PDO "*Saffron of Taliouine*". Those strategic actions can stimulate the economic development and fight against poverty in the production area. However, a main constraint to promote this sector is the dominance of the traditional Farming techniques, which leads to low productivity and affects the quality of the product. Additionally, the marketing channels is mainly informal and controlled by a high numbers of intermediaries. Those constraints affects the positioning of the PDO at the domestic market and limit the access to the highly competitive international market.

4.2. Reduction by Factor Analysis

The Factor Analysis (FA) allows the reduction of a large number of variables to a smaller number by grouping the variables that measure the same dimension based in shared variance (lambarraa et al., 2002). Then, we obtain factors that are representing the variables of interest. In our survey, we had many variables that characterize the preferences of the Moroccan consumers toward saffron, and we want to regroup those variables in the main factors to facilitate their interpretation. To construct the components matrix we removed variables having a value less than 0.3. Furthermore, we keep only the variables having a value greater than 0.5. This allowed a total explanation of 74% of the information for the two selected axes.

Table 2 shows the selected factors using a component matrix, which describes the correlation of each variable with the corresponding axis. From Table 2, we can restrict the initial variables into two main factors; Packaging/ appearance and saffron quality.

a. Packing & appearance

The main variables summarized in this component are dry Saffron, bag and glass Packaging, fresh Saffron (less than a year of harvest), Saffron mixed with other spices, Filament-Saffron and finally organic certification of the product. Thus, the negative sign of the coefficient of saffron mixed with other spices shows that this attribute adversely affect the appearance of the product. Thus, Moroccan consumers avoid buying this type in fear of falsification. The coefficients of fresh filament Saffron are high (>0.75). The filament form is preferable to prevent any attempt of fraud. The fresh Saffron

(less than a year of harvest) is characterized by strong fragrance, flavor and aroma. In light of these results, we can say that the consumption of saffron in the Moroccan market is heavily dependent on the method of packaging, appearance (filament, dry, and fresh) and the presence of labelling information especially the organic certification.

b. Saffron quality

This second factor is explained mainly by the variables red color, powerful aroma, bitterness, taste, ground saffron, drying method, purity and the origin of Taliouine. The majority of coefficients has positive signs, which means that good quality saffron should be from Taliouine, red color, bitter (spicy taste) with powerful aroma and without any impurities. In this sense a fast drying method is required for the product to keep its aroma (Safranal). The ground Safran have a negative value which shows that the saffron powder is poorly appreciated by the Moroccan consumers and it is considered as a sign of low quality.

Table 2. *Factor Analysis Results*

Variables	**Factors**	
	Packing & appearance	***Saffron quality***
Dry Saffron	0.562	-
Bag Packaging	0.527	-
Glass Packaging	0.565	-
Fresh Saffron (< 1 year of harvest)	0.759	-
Saffron mixed with other spices	- 0.519	-
Filament-Saffron	0.755	-
Certified Saffron	0.506	-
Fast drying	-	0.609
Talouine Origin	-	0.633
Red color	-	0.651
Bitterness and powerful aroma	-	0.667
Taste	-	0.535
No impurity (including pistil zone)	-	0.567
Ground Saffron	-	-0.574
Pure Saffron	-	0.762

Sources: own elaboration, 2019

4.3. Cluster analysis

Using the result from the factorial analysis, the next step is the classification of the "saffron of Talouine" consumers into a series of homogenizes groups. The classification of the consumers into different segments is based on their perceptions and preferences towards the product attributes. In this study, we used extrinsic variables (e.g. packaging, certification) and intrinsic variables (e.g. quality

of the product) as well as socioeconomic variables. The results of this analysis show two main groups of "Saffron of Taliouine" consumers. The first group represents 65% and the second one 35% of the total sample.

Overall, it is clear that the whole sample gives more importance to the intrinsic quality attributes comparing to the appearance. In the first market segment, consumers prefer "Saffron of Taliouine", pure, dark red, with a bitter taste, strong aroma and without any impurity. While in the second segment, consumers tend to prefer the product appearance and packaging. For this class, the saffron must be packed, certified, dry, fresh and not mixed with other spices. To better describe those segments, we use the socioeconomic characteristics (see Table 3).

Table 3. *Characteristics of the consumers groups using socioeconomic variables and willing to pay for the product*

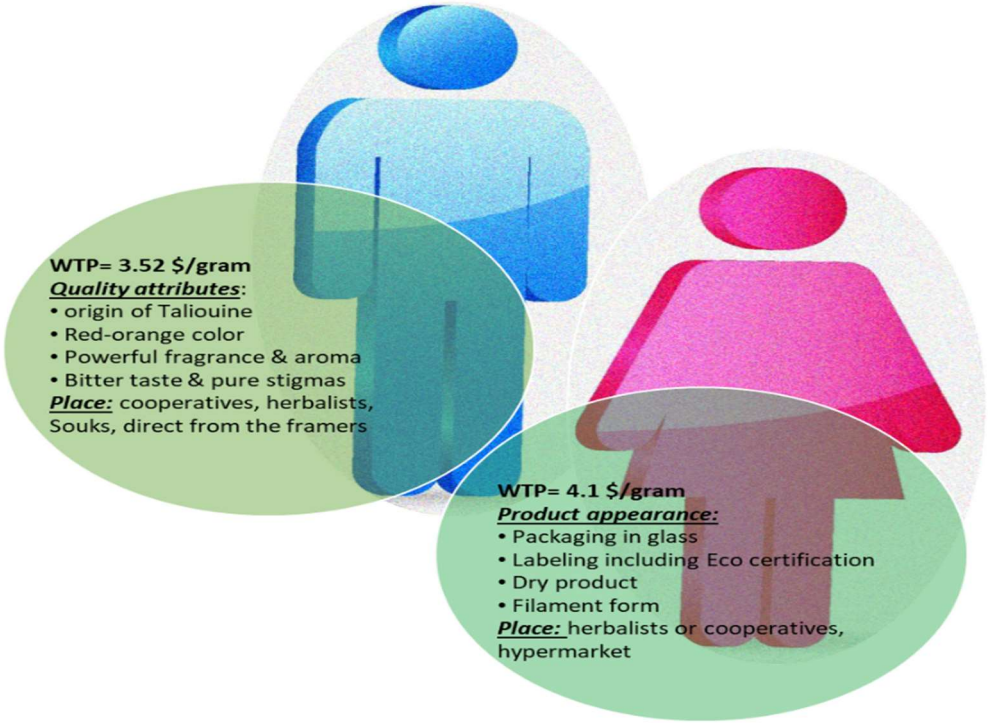
Variable	**Form**	**Groups (%)**		**Total (%)**
		G 1	***G 2***	
Sex	*Male*	55.6	0	55.7
	Female	10.4	34	44.3
Occupation	*Free occupation, Entrepreneur*	**35.8**	0	35.8
	Executive	24.5	27.4	51.9
	Worker	4.7	0	4.7
	Retired	0	3.8	3.8
	Housewife/jobless	0	3.8	3.8
Studies	*Not finish primary school*	2.8	0.9	3.8
	Primary school	2.8	0	2.8
	Secondary school	15.1	1,9	17
	University studies	45.3	31,1	76,4
Income ($)	*< 150*	1.9	0	1,9
	150-300	10,4	0,9	11,3
	300-450	13.2	4.7	17.9
	450-600	23.6	15.1	38.7
	> 600	17	13.2	30.2
Preferred place of purchase	*Hypermarket*	0	4.7	4.7
	Souks	11.3	1.9	13.2
	Herbalist	20.7	13.2	34
	Cooperative	23.6	12.3	35.8
	Farmers	8.5	3.8	12.3

Age	*year*	35	38	-
Willing to pay	*$*	3.52	4.1	-

According to the results in the Table 3, we can characterize each class according to the parameters taken into consideration:

- *Quality seekers Consumers* (G1): The majority are men, entrepreneur or with free Occupation. The income level is more than $ 300. An average age of 35 years and willing to pay of 3.52 $/gram. This segment buys Pure "*Saffron of Taliouine*" in bulk form mostly from Souks and herbalists. At the purchasing time, those consumers consider important the following attributes: colour, aroma, flavour, taste, purity and the filament form.
- *Packaging- labeling oriented Consumers* (G2): are employed women with high university studies. Their income exceeds $ 450. This group of consumers consider the form of appearance (packaging), organic certification, the product quality attributes (dry product, filament form and not mixed with other spices) when buying the saffron. The main place of purchasing is Herbalist, cooperative and hypermarket. Indeed, this type of consumers have a higher willing to pay with 4.1 $/gram.

Figure 2 summarize domestic market Segmentation of the "*Saffron of Taliouine*"



Source: own elaboration, 2019

Figure2. Market Segmentation of the "*Saffron of Taliouine*"

4.4. Willing to pay model

The hedonic price method allows the determination of the implicit price of each attribute of product that consumer can pay.

The explanatory variables retained in the estimated hedonic price model are:

- Product origin: having Taliouine origin or not
- Organic certification: yes or not
- Packing form: glass bottle or Bag
- Saffron quality attributes factor (issue from factorial analysis which involved a series of quality attributes)
- Humidity degree of Saffron (dry or not)
- Form of Saffron: Filament or powder
- Consumer Income

Results derived from estimating the semi-log model are presented at Table 4:

Table 4. *Estimation results of Hedonic price model*

Variable	**Estimate**	***Standard Error***
Taliouine origin	0.105	(0.024)***
Certification	0.516	(0.120)***
Packaging	0.336	(0.124)**
Form of Saffron	0.094	(0.018)***
Quality attributes	0.790	(0.034)**
Humidity	0.052	(0.023)**
Income	0.102	(0.047)**
R^2	0.787	
F	50.290	

Note: *** and ** indicate that the parameter is significant at the 1% and 5% respectively

All explanatory variables are significant at 1% and 5%. The signs of the different parameters are positive which means that the price of a gram of saffron can be explained by its quality attributes, the presence of organic certification, packaging, the origin of Taliouine, the form and the degree of the humidity. The results of the income coefficient means that more income has the consumer more is its willing to pay for the saffron.

Using the estimated model, we can decompose the willing to pay of the consumer with the objective of calculating the implicit price of each attributes. Figure 3 shows the results of this decomposition.

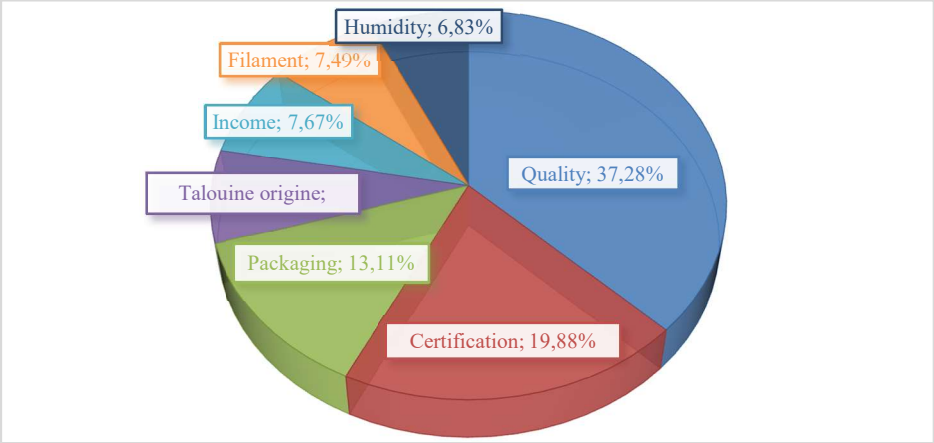


Figure 3. Implicit price weight of each attribute of saffron

Finally, we can conclude that Moroccan consumers willing to pay (WTP) for quality improvement increased by 6.17 $/10g of saffron. Improvement in the quality means improvement on colouring (red), bitterness, aroma, taste purity, fast drying technique (to better conserve organoleptic characteristics) and an organic certification. The impact of the quality attributes is important on the implicit price of Saffron in comparison to other attributes. The WTP for an organic certified Saffron is 3.29 $/10g which means that it is important to use an appropriate organic certification logo in the label of saffron produced in an organic way. The glass packaging is more preferred than the bag, so consumer are willing to pay 2.17 $ more for 10 gram of Saffron packed in a glass bottle comparing to a plastic bag. The Moroccan consumers are willing to pay $ 1.28 more for a 10 gram of Saffron originally produced at Taliouine area. The filament form and dry saffron have WTP of 1.24 $/10g and 1.13 $/10g respectively. Ultimately, once the consumer's income increases by $ 150, its WTP for 10 gram of saffron increases by 1.27 $.

5. Conclusion

The main objectives of this study are the strategic analysis of the Moroccan saffron sector, the analysis of the saffron market and the determination of the Moroccan consumer's preferences and expectations towards "*Saffron of Taliouine*". To reach those objectives, we established a strategic analysis of saffron sector followed by a market segmentation and then estimate the variables affecting the willing to pay for saffron.

The results from the strategic analysis show that the Moroccan Saffron sector can benefit from several strengths and opportunities that make it a key for a local development of marginal area at the atlas mountain and a medium to increase small farms income and to fight against poverty. The saffron cultivation is considered a good alternative for a more sustainable farming system than can enhance biodiversity and ecosystems services at less favoured production area. However, many factors handicap the development of this sector in Morocco such as traditional farming techniques and the

informality of marketing channels, which affect the quality and then the valorisation of the final product. The organization of the sector, the modernization of the farming technique and the instauration of formal marketing channel seems to be urgent actions to take into consideration in order to increase product competitiveness at the national and the international market.

The segmentation of the Moroccan saffron market report two types of consumers. Besides the quality seekers, exist other group more focused in the product appearance, packaging and organic certification. The quality component remains an important attributes for Moroccan consumers. It is appreciated by its intrinsic characteristics (e.g. red colour, aroma, flavour, bitterness, purity of the product) and extrinsic characteristics (e.g. Taliouine Origin, organic label, and packaging). The filament remains the most preferred consumed way because it guarantee the quality of the product. Consequently, it seems important the consideration of the different quality attributes, the packaging and the organic certification in the new established PDO "*Saffron of Taliouine*".

Finally, more action should be taken regarding saffron quality, packaging and organic certification in the new established PDO label "*Saffron of Taliouine*" in order to improve its visibility and positioning at the national market.

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