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Consumer's Behaviour and Preferences towards Olive Oil in Morocco: The Case of Meknes-Fes Region

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ABSTRACT: During centuries, Moroccan olive oil sector has played an important role in rural communities development, as a source of income and employment for a large segment of farmers. In 2019, Morocco is ranked 4th producer of olive oil in the world-wide thanks to its geographical position, climate conditions and to new agriculture economic policy called 'Moroccan Green plan'. Hence, these characteristics explain the importance and need of studying consumer' behaviours to establish adapted strategy of commercialization in local market.

The main objective of this paper is the investigation of factors influencing consumer preferences toward olive oil. Data were collected by face-to-face interview, a total of 313 adult consumers interview in Fez-Meknes region were done. The main variables collected are related to psychological factors, socio-demographic factors, psychosocial factors and product characteristics (intrinsic and extrinsic attributes). The analyse was based on descriptive statistics and independence test (Chi-square).

The results reveal that before the purchase decision making, consumer preferences are oriented by psychosocial (family), psychological (benefits) and socio-economic (household size) factors. Regarding intrinsic attributes, the majority of consumer is unaware of oil grades extracted from the olive fruit (extra virgin, virgin etc.) since the purchase decision is based on generic criteria 'Quality' with a clear differentiation towards sweet taste. The results show also that consumers are price sensitive and interested by olive oil origin because of linkage to the childhood origin (terroir). Furthermore, consumers prefer bulk olive oil (most trusted quality) but still prone to try branded olive oil (untrusted product) if the 'quality' concept remain.
Keywords: Consumer behaviour, influencing factors, preferences, Olive Oil, Morocco.

I. INTRODUCTION

The Mediterranean Basin is rightly considered the homeland of olive. Indeed, olive oil is an iconic product playing a fundamental role in economic, social and environmental dimensions (Muça, Kapaj, Sulo, & Hodaj, 2016; Zafeiriou, Koutroumanidis, Karelakis, & Trivellas, 2012), and guarantee a nutritional benefits and ethical quality (Parras, 2013; Predieri, Medoro, Magli, Gatti, & Rotondi, 2013). Even if it represents less than 3% of the world edible oil market (Barjol, 2014) , olive oil sector is attracting huge interest from traditional and non-traditional market which justify its exponential growth rates.

Olive oil is considered as a food heritage in Mediterranean region (Topcu, 2009), especially, Spain, Italy, Greece, Turkey, Tunisia and Morocco etc. About a half of worldwide production of olive oil is provided by Spain (51%) which constitute now a real force in the global olive oil market (IOC, 2019; Urieta et al., 2018). This makes Europe the main producer of olive oil, holding about 73% of world production (Yangui, Costa-Font, & Gil, 2016). In fact, olive oil production fluctuates according to the climatic conditions and the biennially of the harvest, but also influences by olive oil production in Italy and Spain.

Although the highest level of per capita consumption is still found in the main traditionally producer countries, such as Greece, Spain and Italy (IOC, 2019), the consumption in non-traditional market is in steady increase in countries with high purchasing power such as, United-States, Canada, Australia, Japan, Sweden, Germany, Israel and Jordan (ÖĞÜTÇÜ & Yilmaz, 2009; Topcu, 2009; Yangui et al., 2016), which create an increased globalization and a world competition more and more exacerbated (Lynch & Rozema, 2013). During the last campaign (2018/2019), the world olive oil production reached 3,131 million tons, of which Morocco contributed with 6,4% and ranked the fourth largest olive oil producer in the world (IOC, 2019). In fact, the last campaign was promising for some countries much more than other. Indeed, Moroccan olive oil sector enjoyed a solid production increases and performances after a series of fluctuations in the last few years (Dawson, 2018).

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Since 2008, the olive oil sector has received a massive attention as part of the Moroccan green Plan (MGP) strategy, which promised to boost production, area and export by appealing to private investors in the context of modern agriculture of Pillar I or by helping small farmers in difficulty through Pillar II for the recovery of solidarity farming (Benabderrazik, 2009; MAPM, 2009). To this end, a lot of effort was employed in order to achieve the main objectives assigned by the end of 2020 (Akesbi, 2012). Regarding the last decade, Moroccan olive sector has expanded in terms of area, recording an increase of 33,6% for the period 2007/08-2018/19 (MAPM, 2018). This upward movement is perfectly in line with one of the MGP targets, which aims for an olive area of 1,22 million hectares by 2020 (Anonymous, 2017).

The climate hazards and the phenomenon of yields alternation are the two determining factors that manipulate the national olive production. Indeed, the rainfall deficit recorded in 2016 caused a decline in olive production of around 34% in the 2016/2017 season, compared to the preceding one. Paradoxically, the 2017/2018 campaign was able to take place in good conditions. On the one hand, cumulative rainfall increased by 51% compared to the previous season, and on the other hand the recorded temperatures positively affected the flowering and the setting of the olive tree. Since then, Morocco has risen to sixth place in 2018, in terms of olive production (Hali, 2018) and the fourth place in 2019 with 200.000 tons of olive oil (IOC, 2019; Zolichová, 2018).

Since the launch of MGP program, the crushing capacity has exceeded one million tons per year, compared to 700.000 tons in 2009. Over the period from 2009 to 2019, the national production average of olive oil is 124.000 tons (IOC, 2019). Although this data is growing, it barely presents 66% of the volume envisaged by the olive program contract. Similarly, olive oil export performed very well in 2017/18 with a 30% increase compared to the average. It was closed to 21.500 tons, after falling in the previous campaign following the decline in local production (Eurostat, 2018). Although olive oil export is on an upward trend, it presents only 17% of the volume provided by the MGP goals. According to Saber (2018), export is profitable only if the price of olive oil in the international market reaches 3,5 to 5 € / litter. With an average production cost ranging from 2,4 to 3,6 € / litter, as well as the packaging form (in bulk), the competitiveness is very limited and the product is penalized. Also Moroccan export remains concentrated in traditional market mainly, European Union and USA which absorb 38% and 23,9% respectively (Douane, 2019). Unlike the export, Morocco imports annually an average of 6.000 tons of olive oil to satisfy local needs (Chaoui, 2018). This data reveals a shortfall in terms of Moroccan olive-growing potential and justifies the interest given to the development of this sector.

The consumption of olive oil in Morocco shows an increase, from 45.000 tonnes in 2000/01 to 129.000 tonnes in 2012/13, before stagnating around 120.000 tonnes in the last five years (Boukaid, 2016; Idrissi, 2017). It should be noted that the consumption of olive oil in Morocco per capita is very modest compared to countries around the Mediterranean. In fact, national consumption is rather low than 3 l/person/year, whereas Greece retains its first position with 21,3 l/person/year (Alami, 2016). Therefore, the conversion of part of vegetable oil consumption into olive oil, at the national level, remains an issue dependent on the decrease of the price difference between these two oils.

A year before the completion of the strategy, the MGP has succeeded in its challenge and was able to develop the olive sector by making it more productive and attractive for private investors. These performances, following a doubling of olive production in six years, do not reveal the national olive potential which is still under-exploited. However, the new global context of the production and marketing of olive oil imposes considerable obligations on the olive-growing countries, required to continually improve their production systems and to implement innovative marketing strategies in order to keep a competitive positioning on the market (Parras, 2013).

II. THEORETICAL BACKGROUND

In global competitive world where companies are innovating and creating new products with exponential speed, an analysis of consumer behaviours during the decision making process, and the factors conditioning the purchase of such a product has become necessary. Several theoretical frameworks have been used to explain consumer behaviour and decision making process regarding agro-food products (Salazar-Ordóñez, Rodríguez-Entrena, Cabrera, & Henseler, 2018; Vlontzos & Duquenne, 2014), such as Theory of Reasoned Action (TRA) (M. Fishbein & Ajzen, 1975), Theory of Planned Behaviour (TPB) (Ajzen, 1991) and the Reasoned-Action Approach (RAA) (Martin Fishbein & Ajzen, 2010).

Derived from previous research in social psychology and attitude theories, the purpose of the TRA is to explain individuals' behaviour based on the relationship between attitudes and intentions by examining the motivation to perform an action (Doswell, Braxter, Cha, & Kim, 2011). Nevertheless, it was criticised for not taken into account the effect played by social factors and the environment (Werner, 2004). In the following decades, the TPB was born from a revision and an expanding version of TRA. Ajzen (1991) suggested a theory that links one's beliefs and behaviour by including perceived behavioural control. This theory proposed that an individual's behavioural intentions and behaviours are a result of attitude toward behaviour and subjective

norms. As for RAA, it states that human behaviour is predicted by the intentions which determined by the perceived norms, behavioural and attitudes.

The literature supports that consumers' behaviour and preferences are based on a decision making process (Cavallo, 2016; Dobal, Wesley, & Wilson, 2018) which is defined as: (1) problem recognition (Bruner & Pomazal, 1988), (2) gather information (Schmidt & Spreng, 1996), (3) values, (4) preferences, (5) decision, (6) behaviour and (7) outcomes (Bi, Gao, House, & Hausmann, 2015). The dynamic interaction among these concepts (Rothert et al., 1997; Wills & Holmes-Rovner, 2006) lead to a decision during purchase (Cavallo, 2016). Furthermore, the decision making depends on consumers' needs. Sometimes it can be spontaneous when products are not expensive and frequently purchased, or planned when the consumer know what to buy, where and alternatives. Even though, the packaging attractiveness and promotions related to store environment should not be neglected because of their influence on the decision, driving the consumer to make an unplanned purchases (Dittmar, 2001) and skip some salient cues (Burke & Leykin, 2014).

In fact, the product quality still one of the main factors that drives purchase decision. In-depth studies have been carried out on quality (e.g., (Jacoby, Olson, & Haddock, 1971; Zeithaml, 1988)) and defined it in different ways. For consumer, the concept of quality can be related to several factors, especially, brand awareness, product price, store environment, country of manufacture and services (Clodfelter, 2019), as well as, performance, reliability, conformance, durability, features and aesthetics (Garvin, 1984, 1987). Otherwise, quality is a sign of superiority and excellence which brings benefits to consumer through an overall judgement of product (Zeithaml, 1988). According to Brunsø, Bredahl Jensen, Grunert, and Scholderer (2005), the product quality concept is classified into two groups that allow consumer to choose and evaluate the product. Objective quality which can be measured, confirmed and controlled and subjective quality based on judgments of value and quality perceptions (Espejel, Fandosa, & Flaviána, 2009). However, the measurement of objective quality remains a debate subject discussed between researchers who find difficulty to select the ideal standard. Even more, they claim that quality is subjective since it is perceived (Maynes, 1976). As such, the perception is more important for the purchase of the good than its real characteristics (Mtimet, Kashiwagi, Zaibet, & Masakazu, 2008; Schiffman & Kanuk, 1987). Besides, other researchers highlight characteristic of change that may have a subjective quality because of added information, market competition and changes in consumer expectations (Gómez & Bello, 1996; Zeithaml, 1988).

In another setting, Olson and Jacoby (1972); Ophuis and Trijp (1995); Steenkamp (1997); Zeithaml (1988) have emphasised the interest to analyse the perceived quality from two different perspectives : intrinsic attributes and extrinsic attributes, which depend on how the information was gathered to enable a perfect assessment of products. In the case of traditional food products, the literature records extensive research about attributes. Scholars suggest a separation between intrinsic attributes which include physical aspects of products (colour, shape, flavour, appearance...) and extrinsic attributes related to product environment (brand, quality stamp, price, country of origin, store, packaging, production information, etc) (Bernués, Olaizola, & Corcoran, 2003). In the last two decades, an important number of papers have been published about consumption behaviour, consumer preferences and product knowledge in the case of the traditional food product, and especially, olive oil.

Boncinelli, Contini, Romano, Scozzafava, and Casini (2016) shed light on the Italian market heterogeneity related to consumer preferences. They emphasized the existence of vertical and horizontal differentiation of product. The literature showed also interest in the influence of product attributes (intrinsic and extrinsic) on the consumer' purchase decision and concluded the effect significance (Chan-Halbrendt, Zhllima, Sisior, Drini, & Leonetti, 2010; Ward, Briz, & de Felipe, 2003). However, consumer behaves differently based on market characteristics. Siskos, Matsatsinis, and Baourakis (2001) concluded that French consumer puts more emphasis on colour and company image. Contrarily, the consumption of olive oil in UK took another horizon with packaging, size, and price as the most important predictors (Garcia, Aragonés, & Poole, 2002). Baourakis and Baltas (2003) found that Greek consumer selects olive oil according to colour while the quality occupies the second place. Whereas, the selection in Dutch market is based on quality which play the most important role followed by price and colour. Garcia et al. (2002) studied the UK market and found that consumer prefers a one packed in medium sized bottles at a price of £2,99.

Espejel et al. (2009) analysed the influence of perceived quality on satisfaction and consumer loyalty in Spanish market. The research concluded that intrinsic attributes explain consumer' satisfaction and loyalty. However, when consumers are classified according to their degree of knowledge, then, extrinsic attributes explain much more consumer' satisfaction and loyalty. Furthermore, by studying Tunisian market, Mtimet, Zaibet, Zairi, and Hzami (2013) pointed out a higher preference for sensory attributes, especially olive oil type, colour and flavour which influence consumers' purchasing decision. In fact, the result obtained showed a strong sensitivity to the price.

By studying a producer market, Panico, Del Giudice, and Caracciolo (2014) found a significant effect of origin (certification and labelling), production method and organoleptic characteristics on the Italian

consumer preferences. While the determinant of extrinsic attributes such as region of origin did not affect the decision making of Tunisian consumer (Mtimet et al., 2013). Unlike producer markets, non-producer markets and especially the Canadian one (Menapace, Colson, Grebitus, & Facendola, 2011), consumer is focused much more on country of origin followed by other product attributes, mainly, price, and production system. Similarly, Mtimet et al. (2008) studied factors that affect Japanese consumer' choice and indicated that consumer is more interested by olive oil origin , colour, taste and type. Indeed, they prefer a Tunisian olive oil than Italian or Spanish one, with a green colour and bland taste. In the same way, Ward et al. (2003) analysed the effect of country of origin on the decision making of German consumers' and highlighted that demographics, product characteristics, and information sources are the main factors using to select olive oil.

However, a determination of factors that motivate consumer behaviour and guide the purchase decision making is still difficult (Delgado & Guinard, 2011). Indeed, Nelson (1970, 1974) showed that product quality attributes can be evaluated before the purchasing time, which can complicate the assessment of consumer preferences. Furthermore, Trognon, Bousset, Brannigan, and Lagrange (1999) found that the influence on consumer behaviour can be linked also to socio-demographic, perceptive, knowledge and attitude factors which was neglect for a long time.

Hence, the main objective of our study is to shed light on Moroccan consumer preferences and behaviours during the decision making based on product characteristics (intrinsic and extrinsic attributes), psychological factors, socio-demographic factors and psychosocial factors. The paper gives an understanding of olive oil consumption in one of the top producer country of olive oil in the word.

III. DATA COLLECTION AND METHODOLOGY

In order to explain how Moroccan consumer proceed in a decision making process and how olive oil is selected based on preferences and perception factors, a survey was carried out during December 2018. A face-to-face survey was executed in Fes-Meknes region (north of Morocco) with olive oil consumers. The choice of this region is made on the basis of its high production capacity of olive oil making it at the top of the producing regions of Morocco (Figure 1). The instrument used to collect the primary data was a questionnaire. After data cleaning, 313 questionnaires have been used in the analysis.

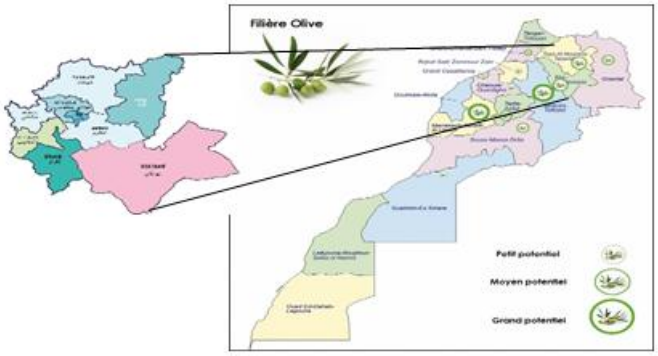


Figure 1. *Map of the most productive regions/ Fes-Meknes region*

The questionnaire is divided into three blocks. The first block includes questions about olive oil consumption and non-consumption with reasons behind each choice, olive oil types and uses, amount of olive oil consumed and decision maker in purchasing process. The second part of the questionnaire contains factors influencing consumers' purchase of olive oil, whereas the third block includes questions related to respondents' sociodemographic characteristics.

Consumer behaviour is described by four factors : psychological, socio-economic, psychosocial and product factors. The product factors is composed of intrinsic and extrinsic attributes of olive oil, especially, olive oil types, quality, origin, packaging and price. The choice of these factors was based on the results of olive oil consumer behaviour researches conducted in other countries and on the observation of particularities of Moroccan olive oil market. The selected factors and their corresponding levels are shown in table 1.

Table 1. *Selected olive oil factors and their corresponding levels*

Factors	*Level*
Psychological factors	Yes – Why? No – Why? Amount per year
Socio-economic factors	Age/amount of OO [2] Income/ amount of OO Household size / amount of OO
Psychosocial factors	Family Friends Myself
Product factors	Olive oil types Intrinsic quality Origin of olive oil Packaging Price

Table 2 summarizes the selected socioeconomic characteristics of the sample. Over 40% of respondents are less than 45 years old and 62% are male. In addition, 83% of respondents are married and 26% of them completed their university studies. More than a half (56%) has monthly income less than 499 € per household and only 1% are unemployed.

Table 2. *Consumers Sample Characteristics.*

Characteristics	*Definition*	*Values (%)*
Age	18-25 years	2
	26-35 years	20
	36-45 years	22
	46-55 years	29
	56 and above	27
Gender	male	62
	female	38
Household size	single	1
	two members	7
	three members	16
	four members	25
	five members	21
	six members	15
	more than six	14
Occupation	self employed	41
	employee	31
	housewife	18
	pensioner	8
	unemployed	1
	student	1
Family expenditures per month	less than 300 €	31
	300-499 €	25
	500-699 €	21
	700-1,200 €	13
	1,200-2,000 €	4
	2,000-2,500 €	4
	more than 2,500 €	2
Geographical area	rural	33
	urban	67
School level	without	16
	primary	25
	secondary	33
	university	26
Civil state	single	17
	married	83

[2] OO : olive oil

Subsequently, a series of factors regarding consumer behaviour and preferences is measured, using basic descriptive statistics analysis to describe the responses of sample group under study. A Test of independence (Chi-square) among certain variables is applied in order to identify the presence of links between them. Also, a cross between factors is used to highlight combinations.

IV. RESULTS AND DISCUSSIONS

4.1. Psychological factors

From 313 individuals surveyed, 294 were classified as consumers, while only 6% declared a non-consumption of olive oil. In fact, the major reasons behind olive oil consumption are related to the perceived health benefits (50,5%), food habit and religious characteristics. Indeed, olive oil is preferred because of its virtues, energy and nutritional characteristics which constitute a major influencer of food choice as one of non-sensory variables (Cicerale, Liem, & Keast, 2016). As a food habit, the interviewers are used to consuming olive oil from an early age and consider it as an inheritance left by their ancestors especially in rural areas. This result is justified by the product nature namely "beldi ", ie. natural. Moreover, the olive tree was quoted in the "Quran" as a benedict plant, which explains the reason behind selection of religious characteristic as a factor influencing olive oil consumption, especially for interviewers aged from 50 to 65 years old. However, health problems, burns and price are the main factors behind non-consumption of olive oil. The results obtained are explained by the olive oil type consumed, which is in majority lampante (MADREF/DERD, 2001). According to the International Olive Council, it is an oil unfit for consumption, in particular because of its high acidity (10%). This observation can be asserted since the individuals concerned show their predisposition to consume light olive oil. On the other hand, some respondents admit that olive oil is pricy compared to their income level, specifically during the last 3 years when the price climbed to 50-70dh/litter (5-7 euro/litter) (Saber, 2018).

Olive oil consumption differs according to consumer category. The average consumption per household in urban area reaches 58,6 l/year, equivalent to 11 l/person/year, while rural area and especially farmers records 116 l/year, equivalent to 17,26 l /person/year. This higher volume consumed by farmers is justified by an own production. Overall, the volume consumed per inhabitant in the study area is considered very high regarding the national average (2-3 l/person/year) (Saber, 2018), which emphasizes that olive oil consumption in production regions is important but still far from the Greek consumer who occupies the first position with 21,3 litter/person/year (Akesbi, 2012; Alami, 2016; MAPM, 2009).

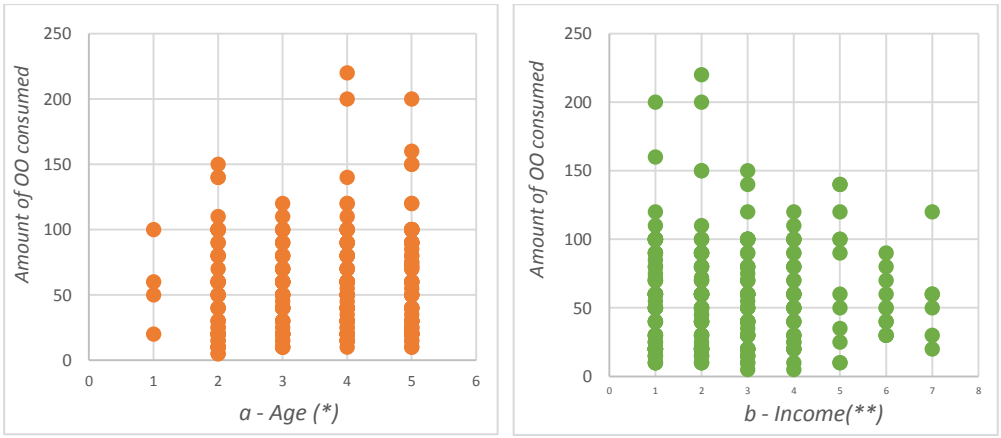
2. Socio-economic and demographic factors

Socio-economic analysis was based on independence Test (Chi-square) in order to study the effect of age, income and size on the amount of olive oil consumed at the household level (Table 3). The test applied shows non-effect of household head age and Income on olive oil amount at a level of 0.05. Indeed, Vlontzos and Duquenne (2014), proved that income does not contribute significantly in the interpretation of consumer preferences. Though, the relationship between household size and the amount of olive oil is accepted and shows a statistical significant impact as the computed p-value is lower than the significance level alpha=0.05. The result obtained is supported by Lazaridis (2004) and Ward et al. (2003), who highlighted the significant influence that can have the number of elders in household on their olive oil consumption.

Table 3. *Test of independence (Chi-square)*

Variables	***Amount of olive oil***
Age	
Chi-square (Observed value)	94,593
Chi-square (Critical value)	133,257
DF	108
p-value	0,818
alpha	0,05
Income	
Chi-square (Observed value)	145,863
Chi-square (Critical value)	192,700
DF	162
p-value	0,813
alpha	0,05
Household size	
Chi-square (Observed value)	445,471
Chi-square (Critical value)	381,873
DF	338
p-value	< 0,0001
alpha	0,05

Even if not all socioeconomic and demographic characteristics showed a statistically significant influence according to chi-square results, those factors still crucial to understand the tends of olive oil consumption decision. The graph (a) below indicates that an increase in age can induce an increase in the amount consumed and highlights that the majority of consumers aged over 36 years purchased more than 50 litters per year and per household. This result can be explained by the awareness of olive oil health benefits based on knowledge that a person can acquire with age. From another hand, the graph (b) shows that olive oil remains an essential product even when the income is low due to the place forged in the Moroccan diet. However, an increase of household income is not followed by higher consumption of olive oil, which can be explained by the priority giving to certain products, unlike Turkish consumer where the opposite case was raised (Tiryaki, 2008).



(*) : 1-18-25 years ; 2-26-35 years ; 3-36-45 years ; 4-46-55 years ; 5-higher than 56.
(**) : 1-less than 300 € ; 2-300-499 € ; 3-500-699 € ; 4-700-1,200 € ; 5- 1,200-2,000 € ; 6- 2,000-2,500 € ; 7-more than 2,500 €.

Figure 2. *Effect of household size, age and income on the amount of olive oil consumed per household*

3. Psychosocial factors

Knowing the purchasing maker in a household constitutes an essential phase to determine olive oil consumer behaviour. It explains parameters of decision making process and highlights special characteristics of the maker. Based on the position and gender of household head, olive oil purchasing is almost exclusively a male activity, which highlights the decisive role played by this gender and its dominance in decision process, especially for in bulk olive oil available directly in the crushing unit. Although the role of women in decision-making is weak, they still more present at the supermarket where purchasing bottled olive oil is effectuated.

A comparison between buyers of bulk and bottled olive oil reveals that the latest appears to be more autonomous with regard to purchasing decision making. Indeed, the majority used their own experiences, since the purchase is in small quantities and consumer has the possibility to change the brand in case of dissatisfaction. Also, the limited number of brands presented on the supermarkets shelves and even less at the grocery stores, as well as the literal price, which varies greatly between certain brands, means that buyers are spared the search for information. In the contrary, Vlontzos and Duquenne (2014) analysed the household preferences based on olive oil types (packaged vs in bulk). The results obtained showed that the majority of Greek consumers (81%) purchase from retail chain stores. In other words, it is obvious that packaged olive oil occupied a huge place as a formal network compared to the other categories, namely, family/relative or friends as informal alternative. In addition, the research indicated that the use of informal networks for purchasing olive oil is correlated with age and specifically, the older consumer. Without neglecting the effect of the proximity of the producing zones which can increase positively the consumption of olive oil for informal networks instead of super market.

In fact, social characteristics are one of the main driver of olive oil consumption. Actually, 95% of consumers are influenced by their families considering olive oil consumption much more a habit than a diet. Only, 5% is oriented by their choice or friends to make a decision, which explains the crucial role played by families in preparing the new generation consuming olive oil. Consumption habits conveyed by social environment constitutes certainly a force stimulating consumption. However, consumer has inherited their habits, attitudes and behaviours favourable to "traditional" notion which contradicts with the national programs ambitions for the promotion of a quality olive oil that can only be achieved through modern processes adopted during all phases of processing olive oil until storage. Changing these behaviours will certainly require time but also great efforts in terms of awareness.

In other words, the reference to a social group is greater when the consumer does not have enough information about a product (Petrof, 1999). Indeed, this is the case of in bulk olive oil consumers, since they face a multitude of choices, they often refer to a social group to learn about a place where they can buy "quality" olive oil. Often these consumers appeal to their families or friends.

4. Product factors : Intrinsic and extrinsic attributes

Knowing how the purchase decision is made is a very important step in the constitution of marketing strategy. The behaviour is directly targeted in order to adapt product to consumer need. The perception factors of product are based on intrinsic and extrinsic characteristics which explain a part of decision making process.

Table 4. *olive oil product attributes, their corresponding levels and frequencies*

Attributes	*Levels*	*%*
Olive oil type	Extra-virgin	3
	Virgin	4
	Standard	93
Olive oil intrinsic characteristic (multiple choice)	Taste	86
	Colour	31
	Smell	20
Region of origin	North	89
	Centre	10
	South	1
Packaging	Bottled	2
	In bulk	93
	Both	5
Price (i)	20-35 MAD/ litter	26
	36-50 MAD/ litter	60
	51-65 MAD/ litter	14

(i) : One MAD (Moroccan dirham) is the equivalent of 0.0920 Euro.

4.1. Intrinsic product attributes

The intrinsic quality of olive oil is measured on the basis of "taste", "colour" and "smell". The results show that quality of olive oil is judged unanimously by taste. The majority of respondents (86%) buy their olive oil only after tasting. It seems that consumers largely do not prefer the bitter taste as well as the spiciness and tend towards a sweet taste. It should be noted that the sweet taste found in olive oil results from the crushing of ripe olives, unlike the bitter and pungent taste related to green fruits. When bitter and spicy are little present or non-existent, the sweet taste takes place. The second criteria for consumers is colour with 31% from green to green-yellow. Then smell comes after with a significant percentage of 20%. It is necessary to point out the place occupied by the intrinsic characteristic of olive oil compared to the price in the purchase decision. Indeed, 59% of consumers are focusing in the first place on quality (taste, colour…) then price. Even when the price increases, which is the case of the last three years, the consumer is predisposed to buy olive oil by reducing quantities.

The results obtained are consistent with the literature (Barbieri, Bendini, Valli, & Gallina Toschi, 2015; Di Vita, Mario, La Via, & E, 2014; Mtimet et al., 2013; Santosa, Clow, Sturzenberger, & Guinard, 2013; Thompson, Haziris, & Alekos, 1994; Vázquez Araújo, Adhikari, Chambers, Chambers, & Carbonell-Barrachina, 2014). Studies involving Spanish, Italian, US and UK consumers demonstrated that olive oil taste is a main driver of decision making process. Overall, the studies shown that consumer appreciates fruity, floral and sweet olive oil flavour more than bitter and pungent notes, but those attributes varies among populations. Furthermore, a handful of studies have also shown that olive oil colour can be used as a quality index. Several researches studying the influence of intrinsic product characteristics in Spanish, Tunisian, Italian and UK market showed a high significant preferences for green over yellow colour (Di Vita et al., 2014; Mtimet et al., 2013; Vázquez Araújo et al., 2014). While the paler or lighter one was associated to cheaper and flavourless olive oil (Cicerale et al., 2016).

4.2. Extrinsic product attributes

4.2.1. Olive oil type

There are many misconceptions and misunderstanding regards olive oil types. The different grades of it and associated standards are defined by the International Olive Council. Indeed, there are five different types of olive oil, namely, Extra Virgin Olive Oil, Virgin Olive Oil, Refined Olive Oil, Olive Pomace Oil and Lampante Olive Oil. The differentiation between those types is based on production and processing methods, taste and chemical composition. In fact, surveys revealed that consumer is unaware about the existence of different olive oil types (93%). The remaining 3% are split between extra virgin, virgin and mainly standard olive oil. The

consumer who does not know the different types of olive oil cannot identify it during consumption. In addition, even if consumers know the types of extra virgin and virgin olive oil, they do not consume them for several reasons, mainly, high price, bitter taste and lack of information. These two results highlight the lack of awareness in terms of types and quality of this oil with regard to acidity level and also promotion actions that allow the increasing of product consumption.

While studies in Spanish and Italian markets are focused on preferences of their consumer regarding extra virgin, local labelled and imported olive oil, Moroccan consumer is still late and can't differentiate between olive oil available in the local market up to now. Even worse, the majority think that there is only one olive oil type called "standard olive oil" and the choice is mainly related to price and intrinsic quality (flavour and colour) which depends only on the production regions and olive variety, according to their declaration.

Olive oil is consumed in various forms namely, direct consumption, cosmetic or therapeutic purposes and cooking or seasoning. Thus, results showed that olive oil is intended for direct consumption for all consumers surveyed by eating it with bread. Direct consumption of olive oil include often a mixture with other products. It is primarily cheese, honey and jam, or other products such as "Amlou"(which is a mixture of Argan oil, almond and honey), black olives, butter, Argan oil, and some aromatic herbs. Cooking and seasoning occupy the second position as a form of consumption with 78% of consumers surveyed, whereas the use of olive oil as a cosmetic/therapeutic product is declared by 56%, mainly women.

According to these results it is assumed that Moroccan consumer does not know much about olive oil, which is abnormal for a country known to be the cradle of the olive tree. If Morocco does its best to improve its image abroad, Moroccan consumer remains during this time, exposed to olive oil sold without any guarantee of hygiene, quality or provenance. Morocco has therefore burned the stages, instead of starting promotion of olive oil at national level it has instead chosen to do so in the international market that seems more attractive by its growing demand for olive oil.

4.2.2. Olive oil Origin

Olive oil consumption in Morocco follows a specific directive. Indeed, consumer has preferences in terms of terroir. Every year, consumers in different cities look for olive oil according to a desired terroir. the results showed a focus on northern Morocco (89%) and mainly the study area as it is the cradle of olive oil. In addition, we must not neglect the source of the remaining 11%, where the consumer gets supplies from distant areas (central or southern). Hence, it is noticed that consumer origin influences positively purchase zone. This is generally due to social effect (inheritance of the family), habit and appreciation of olive oil taste, thus the memory of childhood.

To the opposite of other studies on origin where consumer is indifferent about olive oil provenance (Mtimet et al., 2013), Moroccan consumer is still more interested about region of origin. The majority consumes a local olive oil product except for cities near to Spanish border, where Spanish olive oil is abundant.

4.2.3. Olive oil packaging

In local market, olive oil is distributed in two forms, in bulk or bottled, thus constituting two purchase modes. Olive oil sold in bulk includes all olive oil transported, packaged or distributed in large quantities, with an amount exceeding 5 litters. As for bottled olive oil, it is all olive oil sells in the market in packages containing volumes less than or equal to 5l and registered under a brand name or label. Indeed, in the north of morocco, region of surveys, the most commercialized form of olive oil is in bulk. In fact, the majority of consumers buys olive oil only in bulk (93%). The first reason is related to the quality guaranteed through this mode, where consumer has the advantage of tasting and smelling the product before purchasing it. This purchasing process is relies on trust on either family members or friends. On the other hand, the second reason is connected to consumers' mistrust in bottled olive oil. Most consumers consider this oil to be a mixture of different types of olive oil or a blend containing chemically treated table oil. Other reasons are linked to the economic price of olive oil sold in bulk, an unappreciated taste of bottled olive oil, or to the possibility of buying large quantities in the beginning of harvest.

The results obtained are consistent with literature, particularly in Tunisian market which share almost the same consumer characteristics and sale and consumption mode (Mtimet et al., 2013). Indeed, 95% of Tunisian olive oil is sold in bulk which explained the significant effect of this pattern on olive oil consumption. However, it is important to point out that this consumption mode is still specific to this region which present an inverse pattern compared with what should be do. Conversely, Italian, UK and US consumer declared that packaging is a crucial determinant of high quality products with a preference for glass versus plastic bottle (Delgado, Gomez-Rico, & Guinard, 2013; Delgado & Guinard, 2011). The packaging allow to guarantee the quality and have more information about the provenance, component, nutritional value and so on.

However, consumers remain able to change their habit and decision making by buying a bottled olive oil only if the quality remains identical or equivalent to olive oil purchased in bulk. Nevertheless, this

requirement is relative, since each consumer has its own quality criteria which not based on standards of good practice. Furthermore, the selling price must be competitive, hence the need to reduce it and adopt an attractive and conform packaging and a labelling that informs consumer about origin, components, production & expiry date as well as ensuring a non-use of preservatives. Other requirements are related to advantages offered by the bulk form, such as availability in large quantities, tasting before purchasing and choice diversity. A combination of all this requirements can boost consumer to change the way of buying. But the change of habits can face some difficulties seen that purchasing in bulk or packaged olive oil depends mainly on the household social factors and the origin (Vlontzos & Duquenne, 2014), as some consumer confirmed that they would pay an extra money in order to get olive oil in bulk (Mtimet et al., 2013).

4.2.4. Olive oil price

It seems that local market will remain for a long time a driving force for olive oil consumption, taken into account the potential of domestic demand, especially for the region studied, because of the high quantities consumed per household. However, fluctuations in olive oil price often lead to a change in terms of quantities purchased. The investigation revealed that the average price is around 43,13 MAD/ litter for the olive oil distributed in the local market, with a maximum of 65 MAD/ litter and a minimum of 20 MAD/ litter. A comparison between price practiced and of olive oil types shows that this oil is sold at an expensive price for an unknown quality. An awareness of Moroccan consumer about olive oil quality standards is crucial.

Figure 3. *Olive oil psychological and economic price*

In order to determine the acceptable olive oil price level, a psychological and economic price were collected. Economic price is the price above which olive oil is judged to be too expensive, while psychological price used to determine the price below which olive oil is judged of poor quality. From this logic, consumers were divided into 14 groups of 21 individuals. Thus, the price accepted is 40 MAD/litter. Indeed, price is found to be a determinant factor of purchase (Dekhili & d'Hauteville, 2009; Di Vita et al., 2014; McEwan, 1994; Mtimet et al., 2013; Santosa et al., 2013). Several studies on this field showed that low price of olive oil is equivalent to inferior quality and that consumer is able to pay more to guaranty the quality standards.

V. CONCLUSION

The aim of this research is to analyse Moroccan consumer behaviour and preferences, since that olive oil consumption in Morocco has been increasing slowly due to dietary and price fluctuations in the last decade but also because olive oil product is a traditional diet in Moroccan gastronomy. A survey based on face to face interview was carried out to a panel of Fes-Meknes region and a data of 313 persons responded to the questionnaire was collected.

The analyse have determined that consumer preferences is oriented by psychosocial and psychological factors. Before purchasing decision action, consumer is already influenced by the healthy benefit and nutritional value of olive oil and its importance in traditional diet as well as social environment, and mainly family that inculcates the importance of olive oil as a terroir product for future generation. Moreover, the purchase of olive oil is made chiefly by family members since this informal network is based primarily on confidence as a significant product quality cue.

Concerning product attributes, consumer is unaware of the existence of olive oil types or the difference between them which justifies the limited presence of extra virgin olive oil in the market. Unlike the Mediterranean olive oil producing countries, consumer has little knowledge of olive oil types characteristics since the selection is based mainly on psychological and psychosocial factors as well as false intrinsic attributes. In the absence of consumer awareness, the latter is faced with an olive oil sold at high prices without a guarantee of quality.

Furthermore, our search indicated a higher preference of taste as a quality criteria and especially, a sweet one against the bitter or/and the spiciness taste. The results clearly show that quality remains relative, since the olive oil type preferred is the sweetest one coming from very ripe olives and therefore has exceeded the recommended level of acidity caused by a long duration harvesting and crushing. In addition, the green or green-yellow colours have occupied the second place as a quality criteria. It can be summarized that Moroccan consumer prefers to test before buying olive oil and remains very interested by internal characteristics of the product.

Regarding the extrinsic product attributes, namely, region of origin, packaging and price, results have shown that consumer is connected to region of olive oil origin. This relation could be explained by a relationship with the terroir, habit and tradition carried out in childhood and followed thereafter. In the same way, results indicate that the majority of consumer prefers buying olive oil in bulk instead of bottled. This choice is due to the difference of price as well as the connotation of the word "traditional" and "natural". On the other hand, the study has shown also that Moroccan consumer obtains an unknown olive oil at a price exceeding the one of extra virgin olive oil sold in international market.

To sum up, this study examined various aspects of consumer's attitudes and preferences toward olive oil. The results obtained showed a significantly positive effect of socio-economic factors and mainly the household size on the amount of olive oil consumed per year. The results indicated also a high dependence to family in the purchase decision, since the olive oil consumption is not just a Mediterranean diet but also has part as a consumption culture. The region of origin occupied a high importance in this process, seen that consumer seeks for a specific oil from a specific region but the taste is still primordial.

In this sense, a strategy aimed at changing eating habits of Moroccan consumer in order to ensure product traceability, to guarantee olive oil quality and protect consumer health must be advocated. Also, a consumer awareness of packaging and labelling importance by institutions is recommended. in the same way, companies must carry out promotions in order to communicate on product quality, regions of origin and types, organize tasting sessions to bring consumer closer to the product, and practice the economy of scale to reduce the price and become competitive in domestic and international market.

Like all other studies, this one is not exempt from limitations. The results obtained by this research is limited to a data of a single region. As future research, it is important to undertake other experimental study by using a larger data covering several regions to be more objective. In addition, future research can use other experiment technique such as conjoint analysis in order to consolidate the results obtained. Furthermore, a sensory analysis can be used to explain qualitatively the consumer choice. And finally, a study on consumer behaviour regarding olive oil origin and its relationship with the origin of the head household is recommended.

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