Tendencies Regarding Fish Consumption – The Case of Portugal (Europe's Leader & 3rd in the World)

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Abstract

Portugal is Europe's leader in consumption of fish and ranks 3rd in the world (topped only by Iceland and Japan). Portuguese consumers eat 59 kg of fish per year, distantly followed by E.U. (28) numbers 2 and 3 - Spain and France - with 39 and 33.9 kilos per capita (2015). Culture theorists like Claude Fischler, Leon Rappoport, Mary Douglas, Poul Rozin, Massimo Montanari, Pierre Bourdieu and Cornelius Castoriadis, agree that the basic determinant of population's diet is its culture and food has always been much more than a source of physical nourishment. To analyse the tendencies regarding fish consumption we used *Docapesca Portos e Lotas S.A*'s data (a government owned company, under the Ministry of Finance and the Ministry of Sea). A total of 1393 respondents participated in 2 surveys (one survey being for the general of the population and another one specifically for generations born after 1980s) which gave us a total of 221 variables to analyse. 7 segments were identified, depending on lifestyle, relationship with fish and how consumers buy fish. Results were abundant, remarkable and complete, including ex. factors influencing store choice store; the best source of information about food; what healthy eating means/ how it has changed over time; price; time; taste; availability; cooking skills; factors influencing the choice of a store; perceptions regarding fresh fish, its flavour, quality and freshness, smell, price and confection; personal preferences (salted dry fish, smoked fish, frozen fish, canned fish, fresh fish, whole fish, fish stalls, fish fillets).

Keywords: food consumption, taste and identity, tendencies, fish, Portugal, EU, culture

Introduction

One of the most interesting and visible ways in which men and women express their cultural differences is through the food that they eat or do not eat (Fieldhouse 1986). Human diets are governed first by what men can gather from their environment and when given a choice, they eat what their ancestors ate before them. Regarding fish consumption Portugal turned out to be the highest in the EU-28, with 59 kg per capita year (2015) and the 3rd highest in the world (Topped by Iceland and Japan). These figures had no positive correlation with fish production levels. Fish production figures in Portugal did not achieve more than 256,589.00 tons in 2017, a figure that puts Portugal in a modest 10th place in the EU-15 and an insignificant place worldwide. Countries like Denmark or UK, with very high production levels, came (far) behind in the consumption ranking. It was with the EU-28 reality as a base of comparison that this research focused in the case of Portugal. Historically, fish consumption per capita in Portugal reached an all-time high of 71.4 kg in 1967 and an all-time low of 25.4 kg in 1979. Graphic 1 shows the levels of fish consumption and fish production in EU-28, and easily one can see how the reality of Portugal stands out in the group. Portuguese fish per capita consumption is more than 30 kg higher than the EU average of 25,1 Kg. Since the production level of fish is less than one third of the fish consumption, the market dependency on imports is very big. The main species imported are cod, shrimps, hake, squid, octopus, horse mackerel, tuna, sardines, mackerel, salmon, seabass, monk, crab and gilthead seabream.

Graphic 1

### Levels of Fish Production and Consumption in the EU-28– Kg/Per Capita
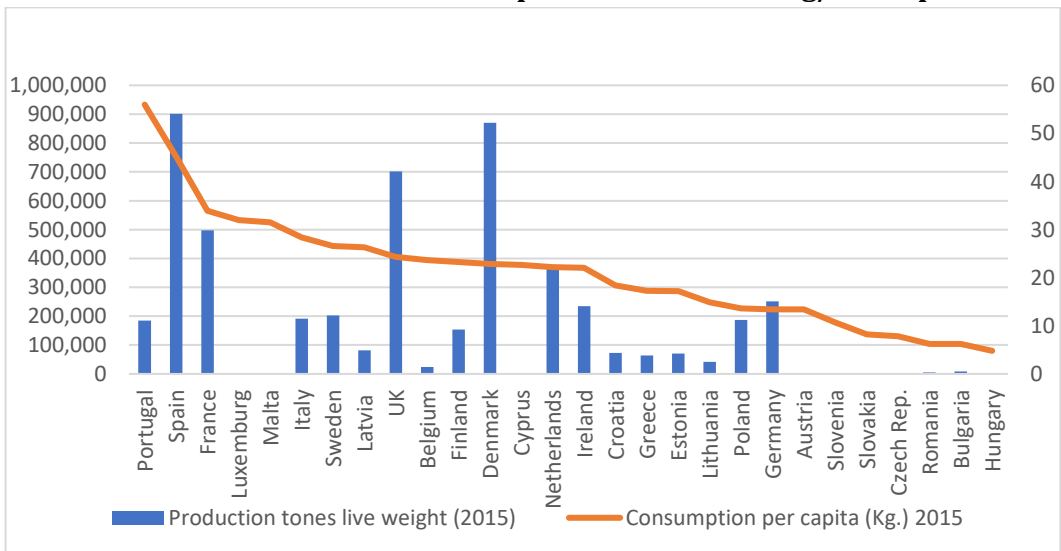
Source: (Source: FAO Fisheries Circular No. 972/4, Part 1, 2007; FAO 2016)

In line with these high fish consumption figures, Portugal household expenditure's for fish present a recording EUR 327 in 2016, which is about three times the EU average (graphic 2).

Graphic 2

Per Capita household expenditure for fishery and aquaculture products in the EU in 2016 and % variation 2016/2015 (out of home consumption is excluded)
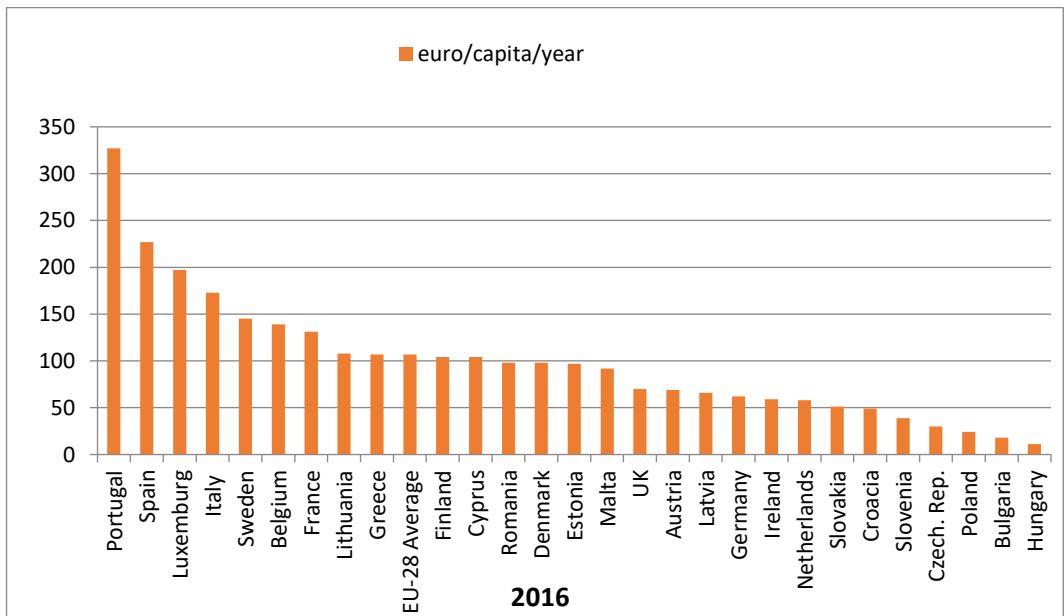
Source: "The EU Fish Market, 2017" Highlights, the EU in the world, EU market supply, Consumption trade, EU landings,

Aquaculture production, Maritime affairs and Fisheries – EUFOMA – European Market Observatory For Fisheries and Aquaculture Products

As a note for comparison, in 2016 the EU expenditure was EUR 220 billion for meat and EUR 54,8 billion for fish. The EU consumer spends, on average, four times more for meat than for fish. Portugal's expenditure for fish was around three-quarters that of meat in 2016. One should notice now that Portugal is a country with 1.187 km of coast line, (including the archipelagos os Azores and Madeira), with a Exclusive Economic Zone of 1,7 million km square and that more than 75% of its population living by the ocean. Portuguese culinary tradition is mostly linked to cod, small pelagics fish products (sardine), whole fish prepared with bones, and other different

types of seafood. The Portuguese seafood consumption is characterized by a wide variety of species. Despite the culinary tradition, cod (salted and dried) does not exist into the Portuguese waters[1]. Price has obviously affected consumption frequencies but, despite the risk that it could deter consumers from eating expensive products, such as cod, Portuguese consumers' choices are strongly affected by tradition. For this reason, despite the fact that its prices are two times higher than those of other fish species, cod remains the most consumed species[2]. Portuguese fish consumers perceive fish as healthy food. However, due to the current high level of seafood consumption, further increases may generate impacts on both on population diet and stocks, with increased fishery pressure (Almeida C., et al 2015).

Theoretical background: Food Culture Theory

Food is more than just a collection of nutrients; it has always been much more than a source of physical nourishment, being an important part of everyday culture (Sanjur, 1982). Food is a mean to distinguish us from the rest of the world and has the strength to define us. Food has many different meanings attached, like identity, personal relationships and power; Culture theorists like Claude Fischler, Leon Rappoport, Mary Douglas, Poul Rozin, Massimo Montanari, Pierre Bourdieu, Cornelius Castoriadis, and Diva Sanjur agree that the basic determinant of population's diet is its culture. Adults and children everywhere know exactly what to say when asked to describe a nutritious diet: they recite the food guide and list rich sources of vitamins and minerals. However, none of this memorized knowledge is reflected in their own eating habits (Fieldhouse 1986, preface). In fact, most people do not decide what to eat based on their rational biological and nutritional needs. They decide based on their culture.

Culture is not biologically determined nor individually developed. It is a learned experience, cultivated subconsciously in a natural group atmosphere. It is a kind of social heritage that makes us similar to some people and yet different from the vast majority of people in the world. The food we eat is a reflection of that heritage, of that culture. A taste towards a particular food or set of foods largely reflects the prevailing cultural environment (Mela, in Frewer et. al. 2001, pg 19), or, as Askegaard et al., (1998) defined, food culture is (in a anthropological way) a culinary order whose traits are relevant and similar among a certain group of people.

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[1] At this point one should mention the importance given to this fish species during the dictatorship period of 1933-1974, specially the 1934-1967 "Cod Campaign".

[2] The EU Consumer Habits – EU Consumer Habits Regarding Fishery and Aquaculture Products – January 2017

Food's traditional metaphysical significance can be accredited to its being an indispensable source of life and nourishment (Rappoport, 2003 pg 113). Counihan (1997, pg 1) stated that food is life, and life can be studied and understood through food. Nothing can be more vital than eating; nothing can be more intimate. Intimate is precisely the adjective to be applied, as in Latin, it is the superlative of interior. The mouth is the orifice opening into the interior depths of the body (Fischler, 1988, pg 282). Nothing could be more threatening or intimate than taking something into the body and yet this occurs in every act of ingestion (Rozin, 1998, pg 219). By eating food we allow it to ascend to the heart of our interior (Fischler, 1990, pg 11). The food we chose to incorporate will represent us, in a biological, psychological and social way (Fischler, 1988, pg 275).

2.1. The Functions of Food

The food we eat has different functions, which are deeply intertwined and of absolute importance: a biological function and a cultural function.

2.1.1. Biological Function (Nutrition): In physiologic terms, we use food to satisfy hunger, and provide nourishment; we cannot survive without eating.Food fulfils the basic biological needs of satisfying hunger and nourishing the body (Maslow, 1954), and through food, humans prevent, diagnose and treat physical and psychological illness. Some foods have traits that can have an immediate effect on psychological or emotional systems - sweets stimulate the brain and chocolate is well known for its ability to comfort a broken heart; certain teas treat stomach illnesses while drinking chamomile tea provides calmness; drinking coffee can make us sharper but also more stressed. By eating healthy food we can reduce high cholesterol and the risk of heart attacks; by not easting or by losing too weight, our body sends signals that something is wrong with it. But perhaps most interesting is the individual reactions people have to different types of foods. Basically "any want or need which we have relates to a sort of tension in our body; and by eating the kind of food we like we relieve that tension and we are happy" (Dichter, 1964, pg 11).

2.1.2. Cultural Function (Symbolic): In social terms, our relationship with food expresses our cultural identities. Aside from physiological needs, the creation of a diet is influenced by cultural and social standards on what can and cannot be eaten and what is liked and disliked (Fischler, 1980, pg 937). Indeed, there are hardly any significant social activities or emotional states to which food is irrelevant, and there are many personal interactions, such as parent-child relationships, to which it is central (Rappoport, 2003 pp. 21). Since our culture and its habits are deeply rooted in the food experiences of children, the formation of children's food habits is of major

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interest. By eating certain foods, cooking in a specific way or using certain utensils for preparation (Douglas, 1972), we are sending signals that link us to our family, our culture, and our identity. Food behavior is closely tied to our sense of personal identity and social-adjustment habits; it is part of humans' social capital (Rappoport, 2003, pg 206). People communicate who they are through their uses of food (Fieldhouse 1986, pg 44), and seek out and consume only those things identified by their group or society as being good to eat (Rappoport, 2003, pg 142). Cultures shape our tastes. As we understand that food makes the eater (we are what we eat), it is therefore natural that the eater should try to make himself or herself by personal eating practices. It is because of the vital and symbolic importance of identity that man has invented cuisine (Fischler, 1988, pg 277). Cuisine, or in Lévi-Strauss 1968, words "a society's cookery" is a language into which society translates its rules, its practices, its structure.

3. Theoretical background: The Meanings of Food

People develop meanings to their reality and then express them through their cultural symbols and culinary systems. Culinary systems play a part in giving a meaning to man and the universe, by relating them to each other in overall continuity (Fischler, 1988, pg 281). But the meanings that we create can transform themselves, as one person gets one pattern and another a quite a different one from the same events (Douglas, 1992, pg 25).

Meanings are observable in physical things (Douglas, 1992, pg 23), and to find consistent and transparent meanings, it is useful to examine consumption patterns (Douglas, 1992, pg 22). Man gives meaning to food and food gives meaning to man. What we eat, the importance we give to food, and the meanings we create from our diets, reflect our gastronomic traditions and our food culture. If we observe the rules, then we would understand why some food products became part of countries' diets instead of others.

3.1. Food, Taste and Identity

Quantitative social differences have always existed between rich and poor populations, but with an increasing diversity of foods, these differences were able to take on a more qualitative character: food became not only a matter of social status, but also a mark of one's personality and taste (Hortense Powdermaker in Counihan et. al, 1997, pg 207). In his work from 1984, Distinction: a social critique of the judgment of taste (in French, La Distinction), Pierre Bourdieu gives us a view on how taste is formed, the underlying roots of taste, and on these taste mechanisms and

institutions. Belonging to a social class is as much a matter of mastering an aesthetic repertoire as it is a matter of material wealth. People tend to find things beautiful because they have been taught to appreciate them, not because they are inherently beautiful. A taste for the subtleties of fine wines or abstract expressionist paintings is acquired as part of an elaborate and advanced education unavailable to most people. Bourdieu puts things in a social space; socio-economic classifications like education and income are part of what he calls of cultural capital and economic capital. These two sources of capital are indicative of a higher social position.

The economic capital is associated with money. As food is concerned, the abundance and the type we eat are a sign of wealth and security in life. For Catholics, the difference between eating the jovial and privileged meat or the melancholy and humble fish, can distinguish high and low status on the social ladder (Toussaint-Samat, 1992, pg 313). The Lent fast, which lasts the forty days before Easter, forbids consumption of meat, but that does not apply to everyone, since the restriction may be removed by paying a certain fee to the local priest (Montanari, 1994, pg 47).

Cultural capital deals with something different: knowledge and recognition. Gourmets make efforts to acquire substantial knowledge about food and cuisine, primarily to use it to gain social status, to win friends, to influence people and above all, to acquire a valuable form of social capital. (Rappoport, 2003 pp 206). By displaying expertise in such matters, gourmets sincerely appreciate what they represent, but also display that they have acquired connoisseurship, and that they are members of an elite group capable of appreciating the finer things in life.

Just as the music connoisseur appreciates both the beauty and the taste of melody and scientific precision of orchestration, the food expert also appreciates both facets. He is aware of the orchestration of the meal, the combination of taste and aroma, and the nutritionally correct preparation and composition (Dichter, 1964, pg 12). From their knowledge on food, gourmets gain recognition. This is an example of Bourdieus' cultural capital. This competence to appreciate and experience things such as a fine fish dish or fine art is something that begins at home, with early childhood experiences. Someone in our life will teach us how to appreciate fish, and even how to desire coffee and chilli (Filedhouse, 1986, pg iii; Rozin, 1990) despite the bitter and burning sensations they evoke. We acquire these likes and preferences by interiorizing what we are exposed to. When all of the influences that our parents, family, peers (McFerran et. al, 2013, pg 61), teachers, media, work colleagues (...) have in forming our tastes are taken into account, it becomes apparent that our tastes are not subjective.

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3.2. Food and Personal Relationships

Foods also have the function to initiate and maintain personal and business relationships (Farb et al., 1980, pg 4). It is through food that we demonstrate the nature and extent of relationships. When we are dating, taking or being taken out to dine is one of the first steps in a relationship, when facing emotional stress, couples usually try to bring back romance by dining out, and when it's time to apologize, a box of chocolate or a bottle of wine express thoughtfulness and sincerity. By preparing a special meal for a dear one or buying the type of chocolate our children prefer (Miller, 1998), we are showing that we think about them even when they are not present. Through food, we can express our love and caring for other people, just as how women have expressed love of family through careful selection, preparation, and serving of meals (Fieldhouse 1986, pg 28). The eating and giving of food thus remain a symbol of love, affection, and friendliness, as well as a source of pleasure in itself (Powdermaker, In Counihan et al., 1997, pg 208). Consumers eat in conformity with the society they belong to, more precisely the group, establishing distinctions and delineating precise frontiers (De Garine, 1990, p. 1453). By absorbing food, the eater incorporates a culinary system and with that, the group which practices it (Fischler, 1988, pg 280). Through food one can proclaim association or separation from a group. Human beings mark their membership in a culture or a group by asserting the specificity of what they eat, or more precisely by defining the differences of others' diets. Food determines, more than any other physiological function, the nature of social groups and the way their activities are formed (Richards 1948 in Fischler 1990, pg 18). If food was to be treated as a code, as a way to communicate, its messages would be found in the pattern of expressed social relations. These messages would be about different degrees of hierarchy, inclusion and exclusion, boundaries and transactions across the boundaries (Douglas, 1972 pp. 61).

If we were not submitted to the same food code we would not able to find the social organization encoded by the sender of the particular message. Food has an important symbolic and emotional weight attached to it and depending on our learned codes; we give different meanings to it. If we are born and raised in southern Europe we cannot imagine going to a wedding where champagne is not present, but, instead, if we are from the rural parts of the northern Europe, having champagne could be understood as an excessive luxury and perhaps also to some extent a sign of decadence (Solomon et al., 2002).

Going against these learned codes can be something intentional, like a teen's individuality statement, but it can also be something feared, due to groups'

stigmatization and personal guilt. It would seem impossible for someone raised as an orthodox Jew or Muslim to have an unmediated experience with a pork chop or ham sandwich because he or she would inevitably feel some sense of guilt or at the least an awareness of violating a religious prohibition (Rappoport, 2003 pp 107). People generally tend to feel guilty when indulging in junk food. The guilt aspect is already so well entrenched in our collective national discourses that consumers are often ready to apologize and rationalize for even thinking about eating a Big Mac or an ice cream (Rappoport, 2003 pp 196). The ritual of fasting, common to many religions, is instructive of an aesthetic diet being associated with the highest levels of spiritual and moral attainment, wisdom (Rappoport, 2003 pp 112), and self-control.

By sharing the same food codes and the same values of a group, we demonstrate our support and acceptance of its communal ties, and confirm and connect ourselves to the group and to what binds it. Examples of this assumption are prevalent: teenagers that want to be slim so to be accepted in a group; Catholics that fast from meat on Fridays and wholly days to identify themselves as Catholics. By eating something beyond the limits of what is locally accepted, people become the targets of powerful sanctions, and those who violate the food conventions of their group or society do so at their own risk (Rappoport, 2003; pg 44);

5. Methodology

So how can we start understanding the tendencies regarding fish consumption for the next decade? Well, according to Solomon, tendencies and trends refer to underlying values that drive consumers toward certain products and services and away from others; however, these values evolve over time and consumer trend forecasting is now a big business, with many organizations devoting huge resources to monitoring the bleeding edge of consumer behaviour. Based on this, we have framed our research giving top priority to the study of generation Y (people born in 1980-1995) and generation Z (born mid-1990s to mid-2000s). The fact is that, according to food culture theory, if we want to better understand the tendencies regarding fish consumption, we should pay special attention to generations Y and Z since they are the ones shaping seafood consumption in Portugal over the next decade.

Procedure and sample

To analyse the tendencies regarding fish consumption we used Docapesca Portos e Lotas S.A's data (a government owned company, under the Ministry of Finance and the Ministry of Sea). A total of 1392 respondents participated in 2 surveys (one survey being for the general of the population and another one specifically for generations

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born after 1980s, generations Y and Z). Data was collected in 2017 using used quota sampling, by using a socio-demographic variable such as sex, age, and region representative of population as non-probability sampling technique. The descriptive statistics are shown in Table 1 and Table 2. The questionnaire was anonymous in order to guarantee a higher level of participation and honesty. Each question was debated by a multidisciplinary team composed of nutritionists, marketing and survey specialists, representatives of commercial companies, statisticians, and people experienced in the seafood sector. Furthermore, the attained preliminary questionnaire was sent to a group of twenty individuals outside the expert group with the purpose of assaying the clarity, simplicity, and appropriateness of the various questions. During this process, several alterations were introduced, but the overall architecture of five sections was kept in the final form of the questionnaire. These fish products were chosen on the basis of consumption importance in Portugal. In order to reach a large universe and different ages and geographical regions of the country, a telephonic and a web online medium was the natural option respectively. Survey for the general of the Portuguese population was contacted in order to understand a seafood consumption patterns in general. *There is a set of characteristics common to all these young people. However, there is also a lot that separates them and, in fact, there is not a homogeneous group of young people but rather 7 segments with different philosophies of life. Through the use of techniques of multivariate analysis Docapesca Portos e Lotas S.A identified the existence of a more complex response, indicating that it is necessary to understand how to communicate with these 7 distinct groups of young people: Trendy Seekers, Conservatives, Extreme Lifers, Traditional Families, Social Techies, World Protectors and Simple Lifers (Coelho et al., 2018)*. More detailed results data of relationship with fish and how Y and Z consumers buy fish for *each segment*, will be presented in a another paper as the second part of this study.

Statistical analysis

Factorial analysis of variance (general linear model, one-dimensional ANOVA) was carried out using the SphinxIQ software (Sphinx Company, Montréal, Canada). This methodology enabled to analyse the overall distribution of respondents as well as the consumption preferences and frequencies affected by the independent variables. The difference of means between pairs was resolved by using confidence intervals in a Tukey HSD test. Level of significance was set for $p < 0.01$.

6. Results and Discussion

Place of purchase of the fresh fish in the Portuguese population

Concerning place of purchase of the fresh fish, the universe of respondents clearly prefers supermarkets to local markets, 54.1% vs 17,6% (Table 3). The tendency is reinforced by Generations Y and Z, 66,5% vs 14.5% and 70,7% vs 8.1% respectively (Table 4).

Perception of the fresh fish in the Portuguese population

Portuguese consumers perceive Portuguese fish as the best in the world, ranged 4,05 by 5-point Likert type scale with 67,8% for agree/totally agree answers. However only with 38,9 % for agree/totally agree answers, consider themselves fish connoisseurs, , ranged 3,24 by 5-point Likert type scale (Table 5 and Table 6)

Store choice behavior in the Generations Y and Z in Portugal

Since supermarkets are preferred for the purchase of the fresh fish by Generations Y and Z, 66,5% vs 14.5% and 70,7% vs 8.1% respectively (Table 4), there is a growing need to evaluate the store choice behaviour in Portuguese context. The distribution of the importance variables of store choice criteria are presented in Table 6 (mean values in 5-point Likert type scale) and Table 7 (%). The data in Table 7 and Table 8 indicate that everyday low price, good value for money, pleasant shopping experience and variety are considered the most important store choice criteria, while product samples, being kid-friendly, variety of gourmet and exotic foods attracts the least attention. The importance attached to takeaway, specialties and recipes is moderate.

The best source of information about food for the Generations Y and Z in Portugal

The data in Table 9 indicates that 39,5% of young people in Portugal often look for fealty food solutions. It is for this reason that it is so important to understand the best source of information for them. Young people consume collaboratively, they rely more on input from social circles in making food decisions. The data in Table 10 indicates that Facebook is considered the most important source of the information about food, while blogs and magazines and producer website attracts the least attention. The importance attached to Youtube, Google, TV and Instagram is moderate. Generations Y and Z in Portugal will confer with family and friends (including their large social media friend groups) to help them make decisions related with food as much as they believe "chef de cuisine" (Table 11).

What healthy eating means to the Generations Y and Z in Portugal

Generations Y and Z in Portugal are concerned with health and food since 54% are pay special attention to the food they eat and 46% practice sports *(Coelho et al., 2018)*. The data in Table 12 indicates that main changes for a healthy diet are: cutting down on chocolates, sugar, etc. (46, 2%); cutting down on fats (39,8%); eating fewer processed foods (39,3%). Following a low-carbohydrate/high in omega 3 diet has moderated importance (29.6%). The data in Table 13 and Table 14 indicates that Generations Y and Z in Portugal perceive fish as the best choice for their meals, recognizing that fish is not their favourite. The data in Table 15 and Table 16 reveals that what young Portuguese like the most about fresh fish is its taste (66.7%) and its quality and freshness (26.4%). Smell (47.2%) is perceived as the biggest problem. The importance attached to price (25%), to bones (12.5%) and to the difficult of confection (11.1%) is moderate. There is also a belief that fresh fish is the most suitable food for meals, but it is more expensive than meat. This comes in line with the moderated belief that healthy food is more expensive (Table 12).

Meal choice behavior in the Generations Y and Z in Portugal

Regarding meal choice, the data in Table 17 and Table 18 indicate that price is more important in case of fresh fish then in general (65.3% vs 48%). On the other side of the scale we have consumption objective (frying, grilling, for parties), type (fresh, frozen, canned), format (whole, put, fillet), expiration dates, quality, final consumer (myself, children, family, friends) and promotion, which are perceived as particularly unimportant in case of fresh fish.

Cooking skills in the Generations Y and Z in Portugal

The data in Table 19 indicates that, contrary to what one might think, Portuguese young people know how to cook and like to cook, as opposed to Americans (Fromm et al., 2011). Almost 50% actually enjoy cooking and to be creative in the kitchen; 7.7% love to cook and consider themselves as experts; 31.1% simply do not mind cooking - it's just one of the things they do. On the other hand, less than 12% do not like to cook (it's an annoyance).

Personal preferences in the Generations Y and Z in Portugal

The data in Table 20 and Table 21 display a higher preference for Portuguese fish than for foreign farmed fish. Regarding fish presentation, chilled (fresh) fish is much more liked than salted/dried (Table 24 and Table 25). Appetizers, grilled and braded are particularly liked (Table 22 and Table 23). Portuguese young consumers prefer fish

filets to whole fish or fish stalls. This cannot be easily correlated to consumption levels of the various fish products, since many products cannot be sold in fish stalls (Table 26 and Table 27).

Spontaneous awareness of the seafood in the Generations Y and Z in Portugal

The data in Table 28 display a higher spontaneous awareness for codfish (37.8%), which comes as no surprise. As it was described previously, Cod is considered, by far, as the national fish – even though it does not swim in Portuguese waters. According to the Cod Industry Association, and according to the Norwegian Seafood Export Council, 20% of all the Cod captured in the world is consumed in Portugal – a total of 70.000 tones, 70% of which comes from Norway. As a curiosity, Portugal is the only country in Europe that consumes more Cod than salmon.

Conclusions

Portugal is Europe's leader in consumption of fish and ranks 3rd in the world. To analyze the tendencies regarding fish consumption we used Docapesca Portos e Lotas S.A's data (a government owned company, under the Ministry of Finance and the Ministry of Sea). Results were abundant, remarkable and complete. Substantial data indicates that (i) Portuguese consumers prefer to buy fresh fish in the supermarket; (ii) Everyday low price, good value for money, pleasant shopping experience and variety are considered the most important store choice criteria; (iii) while product samples, being kid-friendly, variety of gourmet and exotic foods, attracts the least attention of young people; (iv) The importance attached to takeaway, specialties and recipes is moderate; (v) Portuguese consumers perceive national fish as the best fish in the world (small pelagics like sardines and mackerel); (vi) but nevertheless, they don't consider themselves as fish connoisseurs in general; (vii) Young people in Portugal often look for healthy food solutions. It is for this reason that it is so important to understand the best source of information for them; (viii) Young people consume collaboratively - they rely more on input from social circles in making food decisions; (ix) Facebook is considered the most important source of information about food, while blogs and magazines and producer website attracts the least attention; (x) The importance attached to Youtube, Google, TV and Instagram is moderate; (xi) Generations Y and Z will confer with family and friends (including their large social media friend groups) to help them make decisions related with food as much as they believe "chef de cuisine".

Based on this extensive study one can also understand that generations Y and Z in Portugal are concerned with their health and with the food they eat, and the main

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changes they normally do when "going healthier" include cutting down on chocolates/sugar/fats and eating fewer processed foods. Following a low-carbohydrate and high in omega 3 diet has moderated importance. Yong people in Portugal perceive fish as the best for their meals, recognizing that fish is not their favourite, reviling that what they like the most about fresh fish is the taste, it's quality and freshness – and what they like the least is its smell. There is also a belief that fresh fish is the most suitable food for meals but that it is more expensive than meat – which reinforces the belief that healthy food is usually more expensive. They still prefer wild to cultured fish - as well as Portuguese fish to foreign fish. Regarding fish presentation, chilled (fresh) fish is preferred over frozen, salted/dried, canned, and smoked fish. Furthermore, appetizers, grilled and braded are particularly liked by Portuguese young consumers. Fish filets are also more valued than whole fish or fish stalls. Regarding meal choice, data indicates that price is more important in case of fresh fish then in general. Contrary to what one might think, Portuguese young people know how to cook and like to cook. Portuguese young people's minds still perceive cod as having the highest fish awareness. Portugal is a leader in fish consumption and according to what was described in this research, that position will be maintained for some time. Some new nuances appeared with these new consumers (some new tendencies regarding preferred fish presentation or to better understand how to communicate with Generations Y and Z) but the conclusions indicate that consumers continue to believe in the excellent quality of fish and that it is an excellent and healthy food. According to the food culture theories, food habits are determined and dependent on the culture one belongs too. They are intertwined with ones identity and ones interpretations of the world. The food we eat reflects shared values and practices that characterize an institution - and institutions (or groups) share specific values and practices, making it distinct from other institutions or groups. The food we eat also makes us similar to our family or group and at the same time different from the other groups – it delineates social groups. People build their identity by consuming certain specific products and by consuming certain specific foods. Food and drink have such a symbolic and emotional significance, that food preparation and consumption are often associated with particular ritual events which have nothing to do with nutrition (Farb and Armelagos 1980). Having said so, in Portugal fish entirely fulfill its different biological/nutrition function and well as its cultural/symbolic function. One cannot ignore the fact that to generations Y and Z in Portugal, fish is also considered as having very good taste, and as being part of a tradition that is still very much present in these new generations. The foods served on Christmas and Thanksgiving carry a wide variety of emotional for family members. The meal as a

whole as well as specific items on the menu, usually evoke shared family stories, myths, and memories of deceased relatives embodying and preserving significant aspects of the family culture (Rappoport, 2003 pp 194). Portuguese food culture is embedded with fish and from what we have revealed in this paper, the new generations will continue to include it in their meals. Somehow fish is strong item in the complex construct which is "being a Portuguese".

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Tables
Table 1
Respondents demographic profile (n=1000) of survey for the *Continental Portugal population in general*

	No.	%
Region according to Nuts II		
North	352	35,2%
Centre	250	25,0%
Lisbon	277	27,7%
Alentejo	80	8,0%
Algarve	41	4,1%
Gender		
Male	491	49,1%
Female	509	50,9%
Age		
16/24 years	91	9,1%
25/34 years	168	16,8%
35/44 years	185	18,5%
45/54 years	181	18,1%
55/64 years	166	16,6%
65 years or more	209	20,9%
Education level		
Primary	192	19,2%
Secondary	488	48,8%
Higher	320	32,0%

Table 2
Respondents demographic profile (n=392) of survey for Portugal's *Y and Z generations*

	No.	%
Region according to Nuts II		
North	156	39,8%
Centre	90	23,0%
Lisbon	105	26,8%
Alentejo	25	6,4%
Algarve	16	4,1%
Gender		
Male	491	49,7%
Female	509	50,3%
Age		
16/19	45	11,5%
20/24	112	28,6%
25/29	110	28,1%
30/34	125	31,9%

Table 3
General results (%) of the survey into the place of purchase of the *fresh fish in the Portuguese population*

	% cit.
Supermarkets	54.1%
Fishmongers	22.1%
Local Markets	17.6%
Fish Auctions	6.2%
Total	**100.0%**

p = <0.01 ; Khi2 = 632.44 ; dof = 3 (VS)
The relation is very significant.
elements over (under) represented are coloured.

Table 4

General results (%) of the survey into the place of purchase of the *fresh fish in the*

Table 5

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Portuguese population as a function of age

	Supermarkets	Fishmongers	Local Markets	Fish Auctions
18/24	**70.7%**	**14.1%**	**8.1%**	7.1%
25/34	**66.5%**	**15.0%**	14.5%	**4.0%**
35/44	59.0%	22.5%	15.9%	**2.6%**
45/54	57.8%	17.3%	17.8%	7.1%
55/64	**42.7%**	**27.3%**	**23.3%**	6.6%
65 or more	**41.3%**	**29.5%**	19.9%	**9.2%**

*p = **<0.01** ; Khi2 = **67.57** ; dof = **15** (**VS**)*

The relation is very significant.
elements over (under) represented are coloured.

General results (5-point Likert type scale) of the survey into the perception of the *fresh fish in the Portuguese population*

	Mean	Std deviation
The Portuguese fish is the best in the world	**4.05**	0.99
I am careful with the origin of fish I consume	**3.37**	1.38
I like to explore new fish recipes	**3.27**	1.16
I consider myself a fish connoisseur	**3.24**	1.20

*Cronbach's Alpha = **0.66***

Evaluation of scales: from 1 (Strongly disagree) to 5 (I totally agree)

Table 6
General results (%) of the survey into the perception of the fresh fish in the Portuguese population

	Strongly disagree	I disagree	Neither agree nor disagree	I agree	I totally agree
I like to explore new fish recipes	7.3%	**16.9%**	**36.7%**	20.1%	**19.0%**
The Portuguese fish is the best in the world	**1.4%**	**4.0%**	**26.8%**	**24.1%**	**43.7%**
I consider myself a fish connoisseur	8.2%	**18.3%**	**34.6%**	19.2%	**19.7%**
I am careful with the origin of fish I consume	**13.1%**	14.7%	**23.6%**	19.0%	29.6%

*p = **0.00** ; Khi2 = **374.89** ; dof = **12** (**VS**)*

Table 7
General results (5-point Likert type scale) of the survey into the store choice behaviour *in the Generations Y and Z in Portugal*

	Mean	Std deviation
Everyday low price	**3.06**	0.60
Good value for money	**3.03**	0.64
Provide a pleasant shopping experience	**2.96**	0.62
Having a little bit of everything	**2.94**	0.64
Takeaway	2.86	0.65
Having specialties	2.82	0.64
Providing creative menu ideas or recipes	2.78	0.61
An online ordering system	**2.75**	0.62
Variety of exotic foods	**2.74**	0.59
Being kid-friendly	**2.71**	0.59
Providing new product samples	**2.70**	0.59
Variety of gourmet	**2.55**	0.62

*Cronbach's Alpha = **0.85***

Table 8
General results (%) of the survey into the store choice behaviour *in the Generations Y and Z in Portugal*

	Not important	Little important	Important	Very important
An online ordering system	**5.6%**	**17.9%**	**72.7%**	**3.8%**
Variety of gourmet	**4.8%**	**37.8%**	**55.4%**	**2.0%**
Providing new product samples	2.6%	**28.8%**	64.3%	**4.3%**
Being kid-friendly	2.3%	**29.1%**	63.8%	**4.8%**
Variety of exotic foods	1.3%	**29.8%**	62.8%	**6.1%**
Providing creative menu ideas or recipes	1.8%	27.0%	63.0%	8.2%
Having specialties	1.5%	26.5%	60.7%	11.2%
Having a little bit of everything	**0.3%**	23.0%	59.4%	**17.3%**
Takeaway	2.0%	23.0%	61.6%	13.3%
Good value for money	**0.3%**	**18.4%**	59.9%	**21.4%**
Provide a pleasant shopping experience	**0.3%**	20.7%	61.7%	**17.3%**
Everyday low price	**0.3%**	**14.3%**	64.5%	**20.9%**

*p = **<0.01** ; Khi2 = **348.73** ; dof = **33** (**VS**)*

Table 9
General results (%) of the survey into the healthy food solutions in the Generations Y and Z in Portugal

Table 10
General results (%) of the survey into the best source of information about food for the Generations Y and Z in Portugal

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Non-descriptive	———
I often look for healthy food solutions	———

p =)
VS
7.7% (
I love to cook and consider myself an expert2
; *dof* =
11.7% 118.69
It's an annoyance ; *Khi2* =
−0.00
I really don't like to cook *p* =
it's just one of the things I do **52.0%**
−Neutral
I don't mind cooking **39.5%**
Descriptive
I enjoy cooking and being creative in the
kitchen **8.4%**
grandparents

Facebook	**55.9%**
YouTube	32.1%
Google	30.1%
TV	30.1%
Instagram	23.0%
Blogs	**17.9%**
Magazines	**16.8%**
Producer / Brand website	**6.1%**

p = **<0.01** ; *Khi2* = **224.28** ; *dof* = **7** *(VS)*

Table 11 General results (%) of the survey into the best source of information about food for the Generations Y and Z in Portugal

Chef de cuisine	**55.1%**
Family	**40.5%**
Colleague / Friend	**36.9%**
Teacher	23.3%
Scientist / Doctor	23.1%
Blogger	**10.8%**
Celebrity	**5.1%**

p = **0.00** ; *Khi2* = **257.49** ; *dof* = **6** *(VS)*

Table 12 General results (%) of the survey into the best source of information about food for the Generations Y and Z in Portugal

Cutting down on chocolates, sugar, etc	**46.2%**
Cutting down on fats	**39.8%**
Eating fewer processed foods	**39.3%**
Following a low-carbohydrate, high in omega 3 diet	29.6%
Eating more natural, fresh foods	23.2%
Eating the same, but having smaller portions	20.7%
Using slimming programs	**9.7%**
Following another non-specified diet plan	**7.1%**

p = **<0.01** ; *Khi2* = **209.10** ; *dof* = **7** *(VS)*

Table 13

General results (5-point Likert type scale) of the survey into the perception about fresh fish meals for the Generations Y and Z in Portugal

	Mean	Std deviation
Fresh fish is the best for my meals	**4.09**	0.72
Fish is a very important part of a healthy diet	**3.74**	0.67
Fish is more expensive than meat	**3.74**	0.66
Fish is my favorite food	**3.52**	0.78
I buy fish only if it´s on the shopping list	**3.49**	0.80
I'm careful about the health benefits of products I consume	3.66	0.66
Healthy food is usually more expensive.	3.63	0.71
I should be eating more fish	3.66	0.74

*Cronbach's Alpha = **0.74***

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Table 14

General results (%) of the survey into the perception about fresh fish meals for the Generations Y and Z in Portugal

	Strongly disagree	I disagree	Neither agree nor disagree	I agree	I totally agree
Fresh fish is the best for my meals	1.3%	0.8%	12.2%	59.4%	26.3%
Fish is a very important part of a healthy diet	0.0%	1.8%	33.2%	54.3%	10.7%
Fish is more expensive than meat	0.0%	1.3%	33.7%	54.3%	10.7%
Fish is my favorite food	2.3%	4.1%	40.1%	46.7%	6.9%
I buy fish only if it´s on the shopping list	2.0%	6.1%	39.8%	44.6%	7.4%
I'm careful about the health benefits of products I consume	0.3%	2.0%	37.5%	52.3%	7.9%
Healthy food is usually more expensive.	0.3%	4.1%	36.7%	50.0%	8.9%
I should be eating more fish	0.5%	3.1%	37.5%	47.4%	11.5%

*p = **0.00** ; Khi2 = **234.10** ; dof = **28** (**VS**)*

Table 15

General results (%) of the survey into the what Generations Y and Z in Portugal like less about fresh fish

Smell	47.2%
Price	25.0%
Spines	12.5%
Difficult confection	11.1%
Being farmed	4.2%

p = **<0.01** ; Khi2 = **81.39** ; dof = **4** (**VS**)
The relation is very significant.
elements over (under) represented are coloured.

Table 16

General results (%) of the survey into what Generations Y and Z in Portugal like most about fresh fish

Flavor	66.7%
Quality and freshness	26.4%
Variety	5.6%
Color	4.2%

p = **<0.01** ; Khi2 = **70.72** ; dof = **3** (**VS**)
The relation is very significant.
elements over (under) represented are coloured.

Table 17

General results (%) of the survey into the fresh fish meal choice behavior in the Generations Y and Z in Portugal

Table 18

General results (%) of the survey into the meal choice behaviour in the Generations Y and Z in Portugal

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Price	65.3%
Origin (wild or farmed)	25.8%
Being Portuguese	15.8%
Certification	13.5%
Appearance	10.7%
Brand	10.5%
Flavour / Taste	10.2%
Promotion	8.9%
Final consumer (myself, children, family, friends)	6.9%
Quality	6.4%
Expiration dates	5.4%
Format (whole, put, fillet ...)	4.3%
Type (fresh, frozen, canned)	4.3%
Consumption objective (frying, grilling, for parties)	3.6%

p = **<0.01** ; *Khi2* = **949.67** ; *dof* = **13** (**VS**)
The relation is very significant.
elements over (under) represented are coloured.

Price	48.0%
Flavor / Taste	45.2%
Easy to find	36.0%
Appearance	33.5%
Quality	30.7%
Easy to cook	16.8%
Smell	15.6%
Nutritional value	12.9%
Texture	9.4%
Convenience	8.2%
Healthy	7.1%
Functional	5.9%
Biological / Organic)	5.4%
Pleasure	5.1%

p = **0.00** ; *Khi2* = **694.20** ; *dof* = **14** (**VS**)
The relation is very significant.
elements over (under) represented are coloured.

Table 19
General results (%) of the survey into the cooking skills in the Generations Y and Z in Portugal

I enjoy cooking and being creative in the	49.5%
I don't mind cooking – it's just one of the things I	31.1%
I really don't like to cook – It's an	11.7%
I love to cook and consider myself an	7.7%

p = **<0.01** ; *Khi2* = **174.69** ; *dof* = **3** (**VS**)
The relation is very significant.
elements over (under) represented are coloured.

Table 20
General results (5-point Likert type scale) of the survey into the cooking skills in the Generations Y and Z in Portugal

	Mean	Std deviation
Portuguese fish	4.11	0.74
Wild Fish	3.99	0.75
Portuguese farmed fish	3.85	0.89
Foreign farmed fish	3.80	0.88

*Cronbach's Alpha = **0.81***

Evaluation of scales: from 1 (Do not like) to 6 (I do not know / I never tried)

Table 21

General results (%) of the survey into the cooking skills in the Generations Y and Z in Portugal

	Do not like	Like little	Indifferent	Likes	Like very	I do not know / I never tried
Portuguese fish	0.8%	1.5%	13.3%	54.3%	30.1%	0.0%
Wild Fish	1.3%	0.8%	18.4%	56.6%	23.0%	0.0%
Portuguese farmed fish	2.3%	3.8%	21.9%	51.3%	19.9%	0.8%
Foreign farmed fish	2.6%	4.3%	21.9%	52.8%	18.4%	0.0%

p = <0.01 ; Khi2 = 52.99 ; dof = 15 (VS)

Table 22

General results (5-point Likert type scale) of the survey into the preferences in cooking skills in the Generations Y and Z in Portugal

	Mean	Std deviation
Appetizers	4.11	0.75
Grilled	4.04	0.67
Breaded	4.04	0.78
In ethnic foods	3.96	0.82
Hamburger	3.96	0.89
Sandwiches	3.96	0.83
Roasted	3.94	0.75
In salad	3.94	0.79
Gourmet	3.94	0.84
Cooked	3.92	0.76
Tapas	3.89	0.90
Fried	3.85	0.67
Sushi	3.76	1.04
Crude	3.69	0.98

Cronbach's Alpha = 0.90

Evaluation of scales: from 1 (Do not like) to 6 (I do not know / I never tried)

Table 23

General results (5-point Likert type scale) of the survey into the preferences in fish presentation in the Generations Y and Z in Portugal

	Mean	Std deviation
Fresh fish	4.30	0.75
Canned fish	4.06	0.74
Smoked fish	3.96	0.87
Frozen fish	3.94	0.72
Salted / dry fish	3.93	0.88

Cronbach's Alpha = 0.86

Table 24

General results (%) of the survey into the preferences in cooking skills in the Generations Y and Z in Portugal

	Do not like	Like little	Indifferent	Likes	Like very	I do not know / I never tried
Cooked	1.3%	4.6%	11.7%	65.3%	17.1%	0.0%
Fried	1.3%	2.3%	16.6%	69.6%	10.2%	0.0%
Grilled	0.8%	0.8%	13.0%	64.8%	20.4%	0.3%
Roasted	1.3%	1.8%	18.4%	58.4%	20.2%	0.0%
Crude	5.4%	5.1%	19.4%	56.4%	12.5%	1.3%
Sushi	5.9%	4.3%	18.9%	51.5%	17.9%	1.5%
Tapas	2.6%	3.8%	18.1%	55.1%	18.9%	1.5%
Sandwiches	1.3%	2.3%	19.9%	55.1%	18.9%	2.6%
In salad	1.0%	2.3%	19.9%	56.4%	18.9%	1.5%
Gourmet	1.8%	2.0%	20.2%	54.3%	20.2%	1.5%
Hamburger	1.0%	4.1%	19.9%	51.3%	20.4%	3.3%
Breaded	0.5%	2.0%	17.9%	53.8%	24.5%	1.3%
In ethnic foods	1.3%	1.8%	20.2%	55.4%	19.1%	2.3%
Appetizers	1.0%	1.5%	11.0%	59.7%	25.3%	1.5%

p = <0.01 ; Khi2 = 243.65 ; dof = 65 (VS)

Table 25

General results (%) of the survey into the preferences in fish presentation in the Generations Y and Z in Portugal

Personal preferences

	Do not like	Like little	Indifferent	Likes	Like very	I do not know / I never tried
Fresh fish	1.0%	1.5%	6.6%	48.2%	42.1%	0.5%
Frozen fish	1.3%	2.0%	14.5%	65.6%	16.3%	0.3%
Smoked fish	1.8%	4.1%	14.5%	57.4%	20.2%	2.0%
Salted / dry fish	2.3%	3.1%	17.9%	54.1%	21.4%	1.3%
Canned fish	0.8%	2.0%	13.0%	59.4%	24.0%	0.8%

p = <0.01 ; Khi2 = 114.08 ; dof = 20 (VS)

Table 26

General results (5-point Likert type scale) of the survey into the preferences in fish presentation in the Generations Y and Z in Portugal

Table 27

General results (%) of the survey into the preferences in fish presentation in the Generations Y and Z in Portugal

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	Mean	Std deviation
Fish fillets	**3.75**	**0.69**
Whole fish	**3.58**	**0.77**
Fish stalls	**3.57**	**0.73**

*Cronbach's Alpha = **0.86***

	Do not like	Like little	Indifferent	Likes	Like very	I do not know / I never tried
Whole fish	**1.3%**	**5.6%**	**34.7%**	**50.8%**	**7.7%**	**0.0%**
Fish stalls	**0.8%**	**3.1%**	**43.6%**	**43.9%**	**8.7%**	**0.0%**
Fish fillets	**0.8%**	**2.8%**	**26.5%**	**60.7%**	**9.2%**	**0.0%**

*p = **<0.01** ; Khi2 = **33.46** ; dof = **8 (VS)***

Table 28

General results (%) of the survey into the spontaneous awareness of the seafood in the Generations Y and Z in Portugal

Codfish	**37.8%**
Sardine	**21.3%**
Hake	**18.9%**
Horse mackerel	**18.1%**
Sea bass	**16.5%**
Salmon	**11.8%**
Octopus	**8.7%**
Sea bream	**8.7%**
Squid	**5.5%**
Tuna fish	**5.5%**

*p = **<0.01** ; Khi2 = **71.15** ; dof = **9 (VS)***
The relation is very significant.
elements over (under) represented are coloured.