

Faculty of Biosciences, Fisheries and Economics

Influence of eco-labels on hake, salmon and cod price

A Spanish case study

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Abstract

Consumer awareness on ecological issues has increased and, consequently, companies have incremented the presence of eco-friendly products in the market, that can be distinguished by the presence of an eco-label. This thesis studies whether or not the products with an eco-label shows any price differences in the Spanish market in two different cities (Madrid and Granada) by conducting a hedonic analysis of eco-labeled and non eco-labeled products of hake, salmon and cod in supermarkets. Results show that there is a premium price in some of the eco-label products. Is this a sufficient incentive to make a big investment for environmental-friendly fishing practices, in order to get these labels?

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1. Introduction

On the constant seek of benefits, companies are looking for new methods in order to get a premium price in the market. To do so, companies search for new ways to make products more attractive for the final consumer to have a better market position with a better product differentiation; these can go from the processing method of the fish to visual incentives that correspond to the product packing.

Companies show several information on the package; it is possible to find information like the origin of the fish, type of capture, notes about the quality of the product and labels from external companies or from the own company (Underwood and Klein 2002).

An increased consumer awareness on ecological issues has resulted in a supply of “green fish” products, that is, fish supplies that take environmental and sustainability issues into consideration (Brécard et al. 2009). The means to identify such products would be the presence of the so-called “eco-labels”. The eco-labels arise from a consumer rising preoccupation for biological resources. According to Roheim et al. (2011): *“poor management may evolve from a close relationship between the managers and the industry being managed. As a result, decisions regarding what is best for the resource are replaced by decisions regarding what is best for those utilizing the resource. To allow consumers a voice, certification programs for sustainably-managed resources and eco-labeled products derived from those resources have been introduced”*.

Eco-labeling programs aim for a better management of the environment (US Environmental Protection Agency (US EPA) 1998), paying attention to three different parameters: the current status of the fish stock, the resilience to fishing pressure in such stocks and the fishing techniques (including any measure taken to minimize the impact upon it) (Cummins 2004, Pescanova 2014). These labels provide the consumers with visual information of good practice on the use of the natural resources and give them the opportunity to contribute with the sustainability of these resources (US EPA, 1998). If this information is valuable for the consumers, they might pay a higher price on the products in order to support responsible fishing, which will be a motivation for the producers to supply products with eco-labels (Roheim et al. 2011).

We can divide eco-labels based on who makes the certification. The ones certified by the own company are called first party; labels certified by industry-related associations of the country of origin are called second party, and the ones certified by an independent association are third party eco-labels (Hatanaka and Busch 2008).

There are many different seafood eco-labels, the most important in terms of occurrence, logo presence and volume of edible seafood certified is the Marine Stewardship Council's (MSC) (Parkes et al. 2010). The eco-labels present in this study are MSC, Pescanova, Respeto a los Recursos Marinos (RRM) and Andalucía; where RRM and Pescanova are first party eco-labels, Andalucía is second party eco-label and MSC is third party.

There is not a wide range of research done about eco-labeled products in the Spanish market. The Spanish Ministerio de Medio Ambiente y Medio Rural y Marino has been doing these researches and the main conclusions that could be taken from their results are that the suppliers are optimistic on how the consumers react with these products and, therefore, the sales increase (Ministerio de Agricultura 2007, Ministerio de Medio Ambiente y Medio Rural y Marino 2010). On average, the Spanish population consumes fish products 10 days a month and they prefer to buy cheaper fish than decreasing their fish intake (Ministerio de Agricultura 2007, Ministerio de Medio Ambiente y Medio Rural y Marino 2010).

The prices of fish products can be influenced by a wide range of attributes (Asche and Guillen 2012). This study focuses on eco-labeling and how its presence influences the product price. Are eco-labeled product prices significantly higher than those from non eco-labeled products in the Spanish market?

2. Research Method and Data

For this study, data (see Annex) from three frozen fish commodities: salmon, cod and hake, has been collected by personal observation¹ in two cities of Spain. Hake is the most consumed fish product in Spain with a 22% of the total fish consumption (MdAPyA 2006, Asche and Guillen 2012). Salmon and cod were also taking into notice since Norway is the main exporter of these products (Asche and Hannesson 2002, Asche et al. 2005) and are included among the most consumed frozen fish in Spain (Martin Cerdeño 2010). The advantage of the chosen data collection method is that, with the personal observation, it is easier to assess the visibility of eco-labels to the main consumer and to gather any specific information that might be relevant for the study. However, such acquiring method can be somewhat time consuming, slowing the analysis and complicating its distribution and organization.

¹ Pictures of all packages were taken to see all different attributes and prices of each product, getting a total of 3000 pictures.

The two cities where the study was conducted are Madrid and Granada. The former is considered relevant for being a big city (biggest in Spain) and the capital of the country, whilst the latter is a smaller city, located in the southeast of Spain. Such difference makes this study broader, in terms of data variety. The study was carried out after Spanish Christmas holidays, from 7th of January until the 15th of January, to avoid holidays' influence on prices. 30 and 23 supermarkets were visited in Granada and Madrid, respectively.

During the data collection, 182 different products were found; 12 were salmon products, 51 cod products and 119 hake products. A total number of 749 samples were taken in total during the field work. The distribution of the observations can be seen on Table 1.

Table 1: Number of observations on each city for each kind of fish

	Salmon	Cod	Hake	Total
Granada	27	107	343	477
Madrid	20	43	209	272
Total	47	150	552	749

Among these 182 products, only 42 had eco-label, where 4 different eco-labels were found: MSC (10), Pescanova (29), Findus (10) and Andaluz (3). Some of the products contain two eco-labels on their packages but this study focused only on the presence or absence of eco-label.

Twenty different supermarkets are included in the study:

- Granada: Carrefour express, Coviran, Dia, El Corte Inglés, Lidl, Spar, Mercadona, Supersol, Carrefour, Eroski, Hipercor, Dani, Ifa and Alcampo.
- Madrid: Carrefour express, Coviran, Dia, El Corte Inglés, Lidl, Spar, Gamma, Miniprecio, Proxim, Simply, SP and Vecino.

Some of these supermarkets are chains and others are single stores. Studies on these chains' prices were held by the Spanish Consumers Association (OCU, 2014). The classification, from cheapest to most expensive can be seen on Table 2:

Table 2: Price index of the different supermarkets where the difference on percentage corresponds to the difference on prices with regard to Dani supermarket (100%)

Supermarket Chain	Price index %
Dani	100
Alcampo	106
Mercadona	111
Carrefour	111
Eroski	118
Simply	119
Hiperacor	120
Carrefour express	122
El Corte Inglés	122
Coviran	123
Spar	126

3. Model specification

The variables taken on the observations were price, weight, percentage of fish (if applicable), brand and presence of eco-labels on the package.

The model specification follows Brown and Rosen (1982), and it uses a hedonic price model that specifies the price of a product according to the attributes of it:

$$P_j = f(s_1, \dots, s_n) \quad (1)$$

where P_j is the price of product j , and s_1, \dots, s_n is a vector different product attributes which determine the price of the product as a multidimensional good.

The study uses a log-linear functional form and that parameter estimates are interpreted as deviations from a base supermarket (Asche et al. 2012), the base supermarket chosen for each regression is the one with the lowest p -value. The basic specification can be written as:

$$\ln P_j = \alpha + \sum_{n=2}^N b_j s_j + \sum_{n=2}^N \alpha_n s_n + \dots + e_{it} \quad (2)$$

On the model, the dummy variables are predominant. In Equation 2 α represent the base supermarket, " b_j, \dots, c_1 " correspond to each product attribute included on the regression,

" s_j, \dots, s_l " correspond whether the attribute is present or not on the product and e correspond to the standard error.

In addition to this basic model, the interactions between the eco-labels and the other parameters on the equation have been introduced. The model is explained as:

$$\ln P_j = \alpha + \sum_{j=2}^J b_j s_j + \sum_{n=2}^N n_k s_k + \sum_{k=1}^K \sum_{l=1}^L f_{kl} s_{kl} + e_{it} \quad (3)$$

In Equation 3, f_{kl} provides the interaction effect, showing how the eco-label affects (positive or negative) the final price of the product.

Stata 13 software (StataCorp 2013) has been used in order to calculate the regressions with robust standard errors. The regressions have been calculated for different fish products, different cities and both parameters together, to see if the eco-label, city or supermarket chain variables have any influence in the price.

According to Asche et al. (2012), "*in the hedonics models, standard errors are not expected to be independent across units, but rather independent across some clusters of units and correlated within those clusters. The strategies on prices of the supermarkets limit price variation, which leads to a potential for correlation among product types, conservation forms, or retailers. This can produce a correlation that will turn out into bias in the estimated standard errors*". Prices have been calculated with different clustering to calculate the impact of prices on the results, considering that all supermarkets have to buy the products in the same market but at the same time they set their own prices.

In order to analyze the influence of the eco-labels on the final product price, it is necessary to have both non eco-labeled and corresponding eco-labeled products from the same supermarket (Casielles et al. 1996). Therefore on the present study it was not possible to study this among all supermarkets.

In the following chapters, the main hypotheses are formulated and results for salmon, hake and cod products, obtained in the two cities (Granada and Madrid) are presented. Finally, a comparison of the findings in the two cities is provided.

4. Hypotheses

In order to calculate the different regressions, I have to consider three different pairs of hypotheses for each product on each city:

- 1) To compare the prices among the different supermarkets.
- 2) To see if there are some differences on price amongst eco-labeled products.
- 3) To consider the differences among non-labeled products.

4.1 Granada

4.1.1 Salmon

To calculate the regression that shows the difference on prices in Granada of salmon products, I have used prices from Carrefour and Alcampo, because they are the only ones having both non eco-labeled and eco-labeled products.

The prices on the regression have been calculated by taking Alcampo's average prices as a base comparator.

The two hypotheses used to test the differences among the labeled and non eco-labeled products in Alcampo are (H_{ASG}):

- H_{0ASG} : there is no statistical significant difference between the price of non eco-labeled and eco-labeled salmon in Alcampo.
- H_{1ASG} : there is a statistical significant difference between the salmon price of non eco-labeled and eco-labeled salmon in Alcampo.

The hypotheses for the difference on prices of non eco-labeled products between Alcampo and Carrefour (H_{BSG}):

- H_{0BSG} : There is no statistical significant difference between the Alcampo non eco-labeled salmon price and Carrefour non eco-labeled salmon price.
- H_{1BSG} : There is a statistical significant difference between the Alcampo non eco-labeled salmon price and Carrefour non-eco labeled salmon price.

Also I have two hypotheses to calculate the difference among the eco-labeled salmon products, these are (H_{CSG}):

- H_{0CSG} : There is no statistical significant difference between Alcampo eco-labeled salmon price and Carrefour eco-labeled salmon price.
- H_{1CSG} : There is a statistical significant difference between Alcampo eco-labeled salmon price and Carrefour eco-labeled salmon price.

4.1.2 Hake

As it is explained in previous sections, data from supermarkets selling both eco-labeled and non eco-labeled products can only be used. The presence of both kinds of products has not been found in all supermarkets where the study was conducted. Therefore,

there are some supermarkets that have been removed from the regression, either due to the appearance of only eco-labeled hake products (Supersol) or the lack of these ones (Spar and Ifa).

In this case, El Corte Inglés has been taken as basis for the regression.

The two hypotheses to see the differences among the labeled and non-labeled products are (H_{AHG}):

- H_{0AHG} : there is no statistical significant difference between El Corte Inglés non eco-labeled hake price and “other”² supermarket chain eco-labeled hake price.
- H_{1AHG} : there is a statistical significant difference between El Corte Inglés non eco-labeled hake price and “other” supermarket chain eco-labeled hake.

The hypotheses to calculate if there is some difference on price of non eco-labeled hake price are (H_{BHG}):

- H_{0BHG} : There is no statistical significant difference between El Corte Inglés non-eco labeled hake price and “other” supermarket chain non eco-labeled hake price.
- H_{1BHG} : There is a statistical significant difference between the price El Corte Inglés non-eco labeled hake price and “other” supermarket chain non eco-labeled hake price.

Moreover, I have developed some hypotheses to calculate the difference among eco-labeled hake products (H_{CHG}):

- H_{0CHG} : There is no statistical significant difference between El Corte Inglés eco-labeled hake price and “other” supermarket chain eco-labeled hake price.
- H_{1CHG} : There is a statistical significant difference between El Corte Inglés eco-labeled hake price and “other” supermarket chain eco-labeled hake price.

4.1.3 Cod

There are some supermarkets that have been excluded from the regression due to the lack of eco-labeled samples of this fish among their offer. These supermarkets chains are: Mercadona, Día, Coviran, Lidl, Spar, Eroski, Dani and Carrefour Express. Therefore, we have only four supermarkets chains with eco-labeled and non eco-labeled products. These supermarkets are: Alcampo (taken as basis), El Corte Inglés, Carrefour and Hipercor.

² Instead of stating one pair of hypotheses for each supermarket, an “other” supermarket category has been introduced. This pair of hypotheses should be checked for all the supermarket chains included in that regression.

The two hypotheses that might show the differences between the eco-labeled and non eco-labeled products at Alcampo are (H_{ACG}):

- H_{0ACG} : there is no statistical significant difference between the price of Alcampo non eco-labeled cod products and the price of Alcampo eco-labeled cod products.
- H_{1ACG} : there is a statistical significant difference between the price of Alcampo non eco-labeled cod products and the price of Alcampo eco-labeled cod products.

The hypotheses to compare the prices of non eco-labeled products among the different supermarket chains are (H_{BCG}):

- H_{0BCG} : There is no statistical significant difference between the price of Alcampo non eco-labeled cod products price and “other” supermarket chain non-eco labeled cod price.
- H_{1BCG} : There is a statistical significant difference between the price of Alcampo non eco-labeled cod price and “other” supermarket chain non-eco labeled cod price.

The hypotheses to calculate the difference among the eco-labeled products are (H_{CCG}):

- H_{0CCG} : There is no statistical significant difference between the price of Alcampo eco-labeled cod price and “other” supermarket chain eco-labeled cod price.
- H_{1CCG} : There is a statistical significant difference between the price of Alcampo eco-labeled cod price and “other” supermarket chain eco-labeled cod price.

4.2 Madrid

4.2.1 Salmon

The presence of salmon among the offer of products of the selected supermarkets in Madrid was scarce, being found only in 5 supermarkets. In order to calculate the difference between salmon prices, some supermarkets have been removed from the regression. This is because Gama and Simply only have eco-labeled products and Día and Lidl lack any eco-labeled products. Therefore, it is not possible to calculate the influence of the eco-label on the final product, since El Corte Ingles is the only one that has both eco-labeled and non eco-labeled products.

In this case I have considered one pair of hypotheses. The difference of the price among the different supermarkets is also calculated. Taken Gamma chain as basis, the hypotheses are (H_{SM}):

- H_{0SM} : There is no statistical significant difference between the price Gama salmon price and “other” supermarket chain salmon price.
- H_{1SM} : There is a statistical significant difference between the price Gama salmon price and “other” supermarket salmon price.

4.2.2 Hake

Despite the fact that hake could be found in all supermarkets, not all of the supermarkets have been included on the regression. There are some that have been removed from the regression due to the single appearance of eco-labeled hake products (Sp, Gama, Lidl and Proxim) or the total lack of these ones (Spar and Mini).

For these hypotheses, Carrefour Express has been taken as basis in order to calculate the other prices according to the prices from this supermarket.

The two hypotheses that I have to see the differences amongst the labeled and non-labeled products are (H_{AHG}):

- H_{0AHG} : there is no statistical significant difference between the price of Carrefour Express non eco-labeled hake and the price of the eco-labeled hake.
- H_{1AHG} : there is a statistical significant difference between the price of Carrefour Express non eco-labeled hake and the price of the eco-labeled hake.

The hypotheses to compare the price between Carrefour Express non eco-labeled hake and another supermarket chain are (H_{BHG}):

- H_{0BHG} : There is no statistical significant difference between the price at Carrefour Express of non eco-labeled hake and “other” supermarket chain non eco-labeled hake price.
- H_{1BHG} : There is a statistical significant difference between the price at Carrefour Express of non eco-labeled hake and “other” supermarket chain non eco-labeled hake price.

I have also set hypotheses to calculate the difference among the eco-labeled products (H_{CHG}):

- H_{0CHG} : There is no statistical significant difference between Carrefour Express eco-labeled hake price and “other” supermarket chain eco-labeled hake price.

- H_{1CHG} : There is a statistical significant difference between Carrefour Express eco-labeled hake price and “other” supermarket chain eco-labeled hake price.

4.2.3 Cod

In the same way as the former case, only El Corte Ingles has eco-labeled and non eco-labeled products and, therefore, it is not possible to study the influence of the eco-label in the final price. So, I have only considered one pair of hypotheses. The difference of the price among the different supermarkets will be checked with Spar as basis. These hypotheses are (H_{CM}):

- H_{0CM} : There is no statistical significant difference between the price Spar cod price and “other” supermarket.
- H_{1CM} : There is a statistical significant difference between the price Spar cod price and “other” supermarket price.

4.3 Both cities

4.3.1 Salmon

To calculate the difference on salmon prices between the cities, two regressions have been done, one for the eco-labeled products and another one for the non eco-labeled ones. Therefore, I have to consider two different pairs of hypotheses. The prices on the regression have been calculated taking Granada average prices as a basis.

The two hypotheses that show the differences among the eco-labeled salmon products are (H_{SE}):

- H_{0SE} : there is no statistical significant difference between eco-labeled salmon price in Granada and Madrid eco-labeled salmon price.
- H_{1SE} : there is a statistical significant difference between the salmon eco-labeled price in Granada and Madrid eco-labeled salmon price.

The two hypotheses that the differences among the non eco-labeled salmon products are (H_{SN}):

- H_{0SN} : there is no statistical significant difference between non eco-labeled salmon price in Granada and Madrid non eco-labeled salmon price.

- H_{1SN} : there is statistical significant difference between non eco-labeled salmon price in Granada and Madrid non eco-labeled salmon price.

4.3.2 Hake

To calculate hake differences on prices between the cities, two regressions have been calculated, one for the eco-labeled products and another one for the non eco-labeled ones.

I have to consider two different pair of hypotheses, ones to compare the prices of non eco-labeled products and the other one to compare eco-labeled products. The prices on the regression have been calculated taking as basis Granada average prices.

The two hypotheses that I have to see the differences among the eco-labeled hake products are (H_{HE}):

- H_{0HE} : there is no statistical significant difference between the hake eco-labeled price in Granada and Madrid eco-labeled hake price.
- H_{1HE} : there is statistical significant difference between eco-labeled hake price in Granada and Madrid eco-labeled hake price.

The two hypotheses that show the differences among the non eco-labeled hake products are (H_{HN}):

- H_{0HN} : there is no statistical significant difference between non eco-labeled hake price in Granada and Madrid non eco-labeled hake price.
- H_{1HN} : there is a statistical significant difference between non eco-labeled hake price in Granada and Madrid non eco-labeled hake price.

4.3.3 Cod

With the purpose of calculating the difference on cod prices between these cities, two regressions have been done, one for the eco-labeled products and another one for the non eco-labeled ones.

I have to consider different hypotheses, one to compare the prices of non eco-labeled products and another one to compare eco-labeled products. The prices on the regression have been calculated by taking Granada average prices as a basis.

The two hypotheses that highlight the differences among the eco-labeled cod products are (H_{CE}):

- H_{0CE} : there is no statistical significant difference between eco-labeled cod price in Granada and Madrid eco-labeled cod price.
- H_{1CE} : there is a statistical significant difference between eco-labeled cod price in Granada and Madrid eco-labeled cod price.

The two hypotheses that highlight the differences among non eco-labeled cod products are (H_{CN}):

- H_{0CN} : there is no statistical significant difference between non eco-labeled cod price in Granada and Madrid non eco-labeled cod price.
- H_{1CN} : there is a statistical significant difference between the non eco-labeled cod price in Granada and the of Madrid non eco-labeled cod price.

5 Results

The different regressions have been calculated for the three products, the results are going to be shown in this section. Granada

5.1.1 Salmon

For this regression, Alcampo prices have been used to compare with the prices of Carrefour. Table 3 shows the results of the regression.

Table 3: Salmon results for Granada where Alcampo has been taken as basis supermarket

ln(price)	Coefficient	Standard error	t	$p > t $
Eco basis supermarket	0.5137656	0.1579521	3.25	0.004
Carrefour	-0.0052490	0.2511278	-0.02	0.984
Eco carrefour	-0.0974506	0.3374714	-0.29	0.776
Basis supermarket	2.3383630	0.0985004	23.74	0.000

After seen the results on Table 3, for H_{ASG} , I reject the null hypothesis due to alpha (0.05) is higher than $p > |t|$ (0.004) and retain the alternative one, therefore, there is a statistical significant difference between prices of salmon products which are eco-labeled in Alcampo and prices of eco-labeled salmon products in Alcampo.

To calculate the average price at Alcampo, per kilo, of non eco-labeled Salmon I have used Equation 2. The obtained price is:

$$\exp(2.338363) = 10.36\text{€}$$

Using Equation 3, I have calculated the average price at Alcampo, per kilo, of eco-labeled salmon:

$$\exp(2.338363 + 0.5137656) = 17.32\text{€}$$

So, with the prices obtained, it is possible to say that eco-labeled salmon products cost 6.96€ more, per kilo, than products without it.

It is also possible to say with the results obtained on Table 3 that there are no differences on prices between Alcampo and Carrefour, neither for the non eco-labeled salmon prices (H_{BSG}), nor for the eco-labeled salmon prices (H_{CSG}).

5.1.2 Hake

El Corte Inglés is the supermarket chain used as a basis for hake regression; results are shown on Table 4.

Table 4: Hake results for Granada where El Corte Inglés has been taken as basis supermarket

ln(price)	Coefficient	Standard error	t	$p > t $
Eco basis supermarket	0.2575055	0.1229179	2.09	0.037
Carrefour express	0.0210898	0.1759917	0.12	0.905
Coviran	0.0322387	0.2162739	0.15	0.882
Dia	-0.2958532	0.1252934	-2.36	0.019
Lidl	-0.7491255	0.2849735	-2.63	0.009
Mercadona	-0.3379466	0.1233227	-2.74	0.006
Carrefour	-0.1356110	0.1344549	-1.01	0.314
Eroski	-0.1152216	0.1719204	-0.67	0.503
Hipercor	0.1322010	0.1662635	0.80	0.427
Alcampo	0.2597653	0.1514411	-1.71	0.088
Eco carrefour express	0.1008695	0.1362523	0.67	0.387
Eco coviran	0.1223507	0.2692607	0.45	0.650
Eco dia	0.1882169	0.1518545	1.24	0.216
Eco lidl	0.1811147	0.4708736	0.38	0.701
Eco mercadona	-0.1164195	0.2527696	-0.46	0.645
Eco carrefour	0.0310729	0.1564381	0.20	0.843
Eco eroski	0.0124724	0.2147109	0.06	0.954
Eco hipercor	-0.0932958	0.1895341	-0.49	0.623
Eco dani	0.2560507	0.4033480	0.63	0.526
Eco alcampo	0.1307709	0.1867811	0.70	0.484
Basis supermarket	2.0421610	0.1110805	18.38	0.000

Having seen the results on Table 4, for H_{AHG} , the null hypothesis is rejected, due to alpha (0.05) value being higher than $p > |t|$ (0.037) and retain the alternative one. Therefore, prices of the hake products which are non eco-labeled in El Corte Inglés are different than the prices of eco-labeled hake products in the same supermarket.

The average price at El Corte Inglés, per kilo, of non eco-labeled hake is calculated using Equation 2. The price is:

$$\exp(2.042161) = 7.71\text{€}$$

Using equation 3 average price at El Corte Inglés per kilo of eco-labeled hake has been calculated. The price is:

$$\exp(2.042161 + 0.2575055) = 9.97\text{€}$$

Therefore, the eco-labeled premium price is, on average, 2.26€.

For H_{BHG} , I reject the alternative hypothesis and retain the null one for Carrefour, Carrefour Express, Coviran, Eroski and Hipercor due to $p > |t|$ is higher than alpha (0.05) in all cases. Therefore, there is no statistical significant difference between El Corte Inglés' non-eco labeled hake prices and the mentioned supermarkets' non-eco labeled hake prices.

For the case of Día supermarket I reject the null hypothesis and retain the alternative one because alpha (0.05) is higher than $p > |t|$ (0.019) (Table 4). Hence, there is a statistical significant difference between El Corte Inglés' non-eco labeled hake price and Día' non eco-labeled hake prices. In that case, the average price for Día non eco-labeled hake can be calculated by using Equation 3:

$$\exp(2.042161 - 0.2958532) = 5.73\text{€}$$

For the case of Lidl supermarket I reject the null hypothesis and retain the alternative one because alpha (0.05) is higher than $p > |t|$ (0.009) (Table 4). Therefore, there is a statistical significant difference between El Corte Inglés' non-eco labeled hake price and Lidl non eco-labeled hake prices. In that case, the average price for Lidl non eco-labeled hake can be calculated by using Equation 3:

$$\exp(2.042161 - 0.7491255) = 3.64\text{€}$$

For Mercadona supermarket, I reject the null hypothesis and retain the alternative one because alpha (0.05) is higher than $p > |t|$ (0.006) (Table 4). Therefore, there is a statistical significant difference between El Corte Inglés' non-eco labeled hake price and Mercadona's non eco-labeled hake prices. In that case, the average price for Mercadona non eco-labeled hake can be calculated by using equation 3:

$$\exp(2.042161 - 0.3379466) = 5.50\text{€}$$

For H_{CHG} , I reject the alternative hypothesis in every one of the supermarkets chains as alpha (0.05) is higher than $p > |t|$ and, therefore, retain the null one. As a result, it is possible to say that there is no statistical significant difference between El Corte Inglés' eco-labeled hake price and "other" supermarkets' chains eco-labeled hake prices.

5.1.3 Cod

Table 5 shows the results of the regression using cod prices, using Alcampo as a basis, in order to calculate all prices compared with it.

Table 5: Cod results for Granada where Alcampo has been taken as basis supermarket

ln(price)	Coefficient.	Stdandard error	t	$p > t $
Eco basis supermarket	0.2816654	0.2284721	1.23	0.221
El corte ingles	0.2344901	0.1365382	1.72	0.089
Carrefour	0.1722337	0.0738894	2.33	0.022
Hipercor	0.1744186	0.1274589	1.37	0.174
Eco el corte ingles	-0.0728194	0.4118839	-1.37	0.174
Eco carrefour	-0.1158799	0.2693943	-0.43	0.668
Eco hipercor	-0.0587574	0.3419301	-0.17	0.864
Basis supermarket	2.295566	0.0431772	53.17	0.000

Eco-labeled cod products at Alcampo do not get any premium price (H_{ACG}) as alpha (0.05) is smaller than $p > |t|$ (0.221) (Table 5). The average cod non eco-labeled and eco-labeled products price at Alcampo, using equation 2 is:

$$\exp(2.295566) = 9.93\text{€}$$

With the obtained results at Table 5 is possible to say that there is no a statistical significant difference in prices for non eco-labeled cod products between Alcampo, El Corte Inglés and Hipercor (H_{BCG}).

For Carrefour supermarket chain, I reject the null hypothesis and retain the alternative one, since alpha (0.05) is higher than $p > |t|$ (0.022) (Table 5). Therefore, there is a statistical significant difference between the price Carrefour non-eco labeled cod price and Alcampo non eco-labeled cod price. In that case, by using equation 2, the average price for Carrefour non eco-labeled cod is:

$$\exp(2.295566 - 0.1744186) = 8.34\text{€}$$

With the obtained results at Table 5 is possible to say that there is no a statistical significant difference on prices for eco-labeled cod products between Alcampo, Carrefour, El Corte Inglés and Hipercor (H_{CCG}).

5.2 Madrid

5.2.1 Salmon

To calculate the difference on prices among different supermarkets, Gamma supermarket has been taken as a basis. The results are shown on Table 6.

Table 6: Salmon results for Madrid where Gamma has been taken as basis supermarket

ln(price)	Coefficient	Standard Error	t	$p > t $
Dia	-0.2996680	0.3032048	-0.99	0.339
El corte ingles	-0.1391582	0.2832535	-0.49	0.630
Lidl	-0.6687810	0.3321442	-0.20	0.843
Simply	-0.2284685	0.3321442	-0.69	0.502
Basis supermarket	2.9873640	0.2711946	11.02	0.000

With the obtained results in Table 6 and using Equation 2, the average salmon price at Gamma supermarket, per kilo, is:

$$\exp(2.987364) = 19.83\text{€}$$

Also, with the results in Table 6 it is possible to affirm that there is no a statistical significant difference on salmon prices (H_{SM}) for all the supermarkets included on the regression (Gamma, Día, El Corte Inglés, Lidl and Simly).

5.2.2 Hake

Table 7 shows the results for hake products using as a basis to compare all prices Carrefour Express.

Table 7: Hake results for Madrid where Carrefour Express is the basis supermarket

ln(price)	Coefficient	Stdandard Error	t	$p> t $
Eco basis supermarket	0.2616288	0.1141265	2.29	0.023
Coviran	0.1917557	0.2255833	0.85	0.396
Dia	-0.1177389	0.1066427	-1.10	0.271
El corte ingles	0.4785951	0.1246959	3.84	0.000
Simply	0.1817665	0.2255833	0.81	0.421
Vecino	0.4167514	0.2684978	1.55	0.122
Eco el corte ingles	-0.3573258	0.1511895	-2.36	0.019
Eco coviran	0.0398440	0.3450234	0.12	0.908
Eco dia	0.0726445	0.1410384	0.52	0.607
Eco vecino	-0.0570130	0.4515021	-0.13	0.900
Eco simply	-0.0986577	0.2528096	-0.39	0.697
Basis supermarket	1.9663970	0.0920940	21.35	0.000

By inspecting Table 7, for H_{AHM} , I reject the null hypothesis due to alpha (0.05) being higher than $p>|t|$ (0.023), and retain the alternative one. Therefore, there is a statistical significant difference in prices of the salmon products which are non eco-labeled in Carrefour Express and prices of eco-labeled salmon products in Carrefour Express.

The average price at Carrefour Express, per kilo, of non eco-labeled hake has been calculated by using equation 2:

$$\exp(1.966397) = 7.14\text{€}$$

To calculate the average price at Carrefour Express, per kilo, of eco-labeled hake the equation 3 has been used:

$$\exp(1.966397 + 0.2616288) = 9.28\text{€}$$

So, with the obtained results, it is possible to say that eco-labeled salmon products would cost, on average, 2.14€ more per kilo than products without it.

With the obtained results on Table 7, it is possible to confirm that there is no statistical difference on prices, per kilo, of non eco-labeled (H_{BHM}) and eco-labeled hake (H_{CHM}) between any of the different supermarkets used on the regression (Coviran, Día, Simply, Vecino and Carrefour Express) except El Corte Inglés.

For El Corte Inglés supermarket chain, I reject the null hypothesis and retain the alternative one because alpha (0.05) is higher than $p>|t|$ (0.000) (Table 7). Therefore, there is a

statistical significant difference between El Corte Inglés non-eco labeled hake price and Carrefour Express non eco-labeled cod prices. In that case, by using equation 2, the average price for El Corte Inglés non eco-labeled hake is:

$$\exp(1.966397 + 0.4785951) = 11.53\text{€}$$

For El Corte Inglés supermarket chain, I reject the null hypothesis and retain the alternative one (H_{CHM}) because alpha (0.05) is higher than $p > |t|$ (0.019) (Table 7). Therefore, there is a statistical significant difference between El Corte Inglés eco-labeled hake price and Carrefour Express eco-labeled cod prices. In that case, using equation 3, the average price for El Corte Inglés eco-labeled hake would be:

$$\exp(1.966397 + 0.4785951 - 0.3573258) = 8.06\text{€}$$

Therefore, it is possible to observe that prices at El Corte Ingles of eco-labeled products are, on average, 3.47€ cheaper than non eco-labeled products.

5.2.3 Cod

The results of the regression used for the cod in Madrid are shown on Table 8 where Spar has been taken as basis supermarket.

Table 8: Cod results for Madrid where Spar is the basis supermarket

ln(price)	Coefficient	Standard Error	t	$p > t $
Carrefour express	0.2855884	0.2724603	1.05	0.301
Dia	-0.0192262	0.2528952	-0.08	0.940
El corte ingles	0.3178291	0.2497140	1.27	0.211
Miniprecio	0.4494171	0.3446381	1.30	0.200
Proxim	0.3514439	0.2984653	1.18	0.247
Simply	0.2293091	0.2813958	0.81	0.420
Basis supermarket	2.3864670	0.2436959	9.79	0,000

Spar average cod price can be calculated using the results shown on Table 8 and equation 2. This price is:

$$\exp(2.386467) = 10.87\text{€}$$

Having seen the results on Table 8, it is possible to affirm that there is no statistical significant difference on the average price for cod among all supermarkets used for the regression (Carrefour Express, Día, El Corte Inglés, Miniprecio, Proxim, Simply and Spar) (H_{CM}).

To sum up, Table 9 shows for which product there have been found evidences of a premium price for at least one of the supermarkets

Table 9: Presence of a premium price from an eco-label on, at least, one supermarket

	Madrid	Granada
Salmon	✓	-*
Hake	✓	✓
Cod	✗	-*

* It was not possible to calculate the effect of the eco-labels on these products.

5.3 Both cities

Having seen the influence of the eco-label in the final product price on the different cities used for the study, now the study will focus on the influence of the city over the price.

5.3.1 Salmon

Two regressions have been calculated; one to study the difference of the eco-label (Table 10) and another one to see which city has the lowest prices on salmon products (Table 11).

Table 10: Comparison for eco-labelled salmon products between Granada and Madrid where Granada is the basis city

ln(price)	Coefficient	Standard Error	t	$p > t $
Madrid	0.0740979	0.0482565	1.54	0.140
Basis city	2.8213190	0.0362797	77.77	0.000

Table 11: Comparison for non eco-labelled salmon products midst Granada and Madrid where Granada is the basis city

ln(price)	Coefficient	Standard error	t	$p > t $
Madrid	0.3462665	0.1851464	1.87	0.078
Basis city	2.3375560	0.1095341	21.34	0.000

Having seen the results on Table 10, for H_{SE} , I reject the alternative hypothesis, as alpha (0.05) is smaller than $p > |t|$ (0.140), and retain the null one. Therefore, there is no

statistical significant difference between prices of the eco-labeled salmon products in Madrid and prices of eco-labeled salmon products in Granada. The average price, using equation 2, is:

$$\exp(2.821319) = 16.80\text{€}$$

On the other hand, for the non eco-labeled products (Table 11), in H_{SN} , I reject the alternative hypothesis due to alpha (0.05) being smaller than $p > |t|$ (0.078), and retain the null one. Therefore, there is no a statistical significant difference on prices of the salmon products which are not eco-labeled in Madrid and non eco-labeled salmon products in Granada.

The average price, per kilo, of non eco-labeled salmon has been calculated by using equation 2:

$$\exp(2.337556) = 10.36\text{€}$$

So, with the obtained results it is possible to say that eco-labeled salmon products would cost 6.44€ more per kilo than non eco-labeled products in Granada and Madrid.

5.3.2 Hake

The results for the regression calculated to study the difference on price among eco-labeled (Table 12) and non eco-labeled products (Table 13) are:

Table 12: Comparison for eco-labelled hake products between Granada and Madrid where Granada is the basis city

ln(price)	Coefficient	Standard Error	t	$p > t $
Madrid	0.0654572	0.3364530	1.95	0.078
Basis city	2.2126080	0.0213829	103.48	0.000

Table 13: Comparison for non eco-labelled hake products between Granada and Madrid where Granada is the basis city

ln(price)	Coefficient	Standard Error	t	$p > t $
Madrid	0.2142032	0.0646364	3.31	0.001
Basis city	1.8155850	0.3791740	47.88	0.000

Taking the results on Table 12 for H_{HE} , I reject the alternative hypothesis due to alpha (0.05) being smaller than $p > |t|$ (0.078) and retain the null one. Therefore, there is no statistical significant difference on prices of hake products which are eco-labeled in Madrid and prices of eco-labeled hake products in Granada.

Using equation 2, the average price, per kilo, of eco-labeled hake is:

$$\exp(2.212608) = 9.14\text{€}$$

On the other hand, for non eco-labeled products (Table 13), for H_{HN} , I reject the null hypothesis because the t-value ($p>|t|=0.001$) is below the alpha significance level (0.005) and retain the alternative one. Therefore, there is a statistical significant price difference between hake products which are not eco-labeled in Madrid and non eco-labeled hake products in Granada. The difference on prices has been calculated using equations 2 and 3.

Average price at Granada per kilo of non eco-labeled hake:

$$\exp(1.815585) = 6.56\text{€}$$

Average price at Madrid per kilo of non eco-labeled hake:

$$\exp(1.815585 + 0.2142032) = 7.61\text{€}$$

So, non eco-labeled hake products cost 1.05€ more per kilo in Madrid than non eco-labeled products in Granada.

5.3.3 Cod

Table 14 and Table 15 show the difference between Granada and Madrid of eco-labeled prices and non eco-labeled prices, respectively.

Table 14: Comparison for eco-labelled cod products between Granada and Madrid where Granada is the basis city

ln(price)	Coefficient	Standard Error	t	$p> t $
Madrid	-0.3656315	0.0908365	-4.03	0.000
Basis city	2.6436970	0.8705710	30.37	0.000

Table 15: Comparison for non eco-labelled cod products between Granada and Madrid where Granada is the basis city

ln(price)	Coefficient.	Standard Error	t	$p> t $
Madrid	-0.3442036	0.6167250	-5.58	0.000
Basis city	2.3739920	0.0423804	56.02	0.000

Having seen the results on Table 14, for H_{CE} , I reject the null hypothesis, as alpha (0.05) is higher than $p>|t|$ (0.000) and retain the alternative one. Therefore, there is a statistical significant difference on prices of cod products which are eco-labeled in Madrid and eco-

labeled cod products in Granada. This difference can be calculated by using equations 2 and 3:

Average price at Granada, per kilo, of eco-labeled cod using equation 2:

$$\exp(2.643697) = 14.07\text{€}$$

Average price at Madrid, per kilo, of eco-labeled cod using equation 3:

$$\exp(2.643697 - 0.3656315) = 9.76\text{€}$$

So, eco-labeled cod products would cost 4.31€ less per kilo in Madrid than eco-labeled products in Granada.

On the other hand, for the non eco-labeled products (Table 15), for H_{CN} , I reject the null hypothesis due to alpha (0.05) being higher than $p > |t|$ (0.000) and retain the alternative one. Therefore, there is a statistical significant difference on prices of the cod products which are not eco-labeled in Madrid and non eco-labeled cod products in Granada.

The average price in Granada, per kilo, of non eco-labeled cod using equation 2 is:

$$\exp(2.373992) = 10.74\text{€}$$

Average price in Madrid, per kilo, of non eco-labeled cod using equation 3 is:

$$\exp(2.373992 - 0.3442036) = 7.61\text{€}$$

So, non eco-labeled cod products cost 3.13€ less per kilo in Madrid than non eco-labeled cod products in Granada.

5. Discussion

With the obtained results shown on previous sections, the results that can be inferred for cod are:

- In Granada, eco-labeled products do not get any premium price. In Madrid, such difference cannot be calculated, as it is explained above, due to the scarceness of cod products.
- Cod products in Granada are, on average, 44% and 41% more expensive than in Madrid, for non eco-labeled and eco-labeled products, respectively.

For hake products, the results obtained are:

- In Granada, eco-labeled products only get a premium price in El Corte Inglés, where this premium price is a 29% above the non eco-label hake product price. In Madrid, this premium price can be seen at Carrefour Express which is 30%,

but at El Corte Inglés, in Madrid products with an eco-label are cheaper, around a 31%, than products without it.

- Non eco-labeled products in Granada are, on average, 16% cheaper than in Madrid while for eco-labeled products no price difference could be found.

The differences on prices shown for salmon are:

- In Granada an eco-label product gets premium price in Alcampo, on average, a 69% above non eco-labeled product price. In Madrid this difference on price cannot be calculated due to the lack of salmon products.
- Prices in Granada and Madrid are the same for salmon products, where eco-labeled products are more expensive than non eco-labeled products.

Some authors say that the premium price due to eco-labels is a myth (Washington 2008). However, the results obtained during the making of this thesis have proved that for some products and in some supermarkets there is indeed a substantial difference in Spain, in the same way as Roheim et al. (2011) and Sogn-Grundvåg et al. (2013) proved for the UK market. This premium price is manifested on the market and it can produce an increment of 70% on the price for some products. But how people react to these premium prices?

On Eurobarometer 2008, 75% of the people interviewed said that they are willing to pay more, to a certain extent, for eco-friendly products, but only a 17% declared that they have recently bought products with these characteristics (Eurobarometer 2008). In Norway, 54% of the population would be willing to pay a price premium (Roheim et al. 2011), but in Spain however, where this study was conducted, the results were different; only 20% of the surveyed people claimed that they would pay a premium price for eco-labeled products, and the difference on price that they would tolerate should not exceed a 14% of the total price of the product without the eco-label (Domínguez Jurado and Pérez Péculo 2011). Domínguez Jurado and Pérez Péculo (2011) also say that only 1.9% of the total budget used on a grocery store is used to buy eco-friendly seafood products. They also pointed that the demographic group that would be more inclined to pay for eco-friendly products is a young family with three members, where the parents have a higher education, on a medium-sized city with around 100.000 inhabitants. Another aspect to consider is the political ideology; green party supporters are more willing to pay for eco-friendly products. Also, the left-wing parties voters are more likely to accept the price rise than the right parties voters (Witzke and Urfei 2001). Income is also an important factor, the demand of eco-friendly products increases with income (Whitehead 1991).

Table 2 shows the difference in prices among the different supermarkets. However, this thesis shows that these differences cannot be attached to all seafood products examined. Some supermarkets (those considered to be more expensive) show no difference in prices for this specific market commodity; it has been proved that they have the same prices than those regarded as “cheap” and, in some cases, the examined products are even cheaper.

So, is it worthy for a company to implement an eco-label on a product in Spain? As stated above only a rather small sector of the country’s population would be willing to pay for it. In general, the rise of price should not exceed 14% of the total price of a similar, but non eco-labeled product. In this study, two different results were obtained:

- Products with an eco-label cost the same as one without it and hence there is no guarantee that the company will collect a premium price for such marketing strategy.
- Products with an eco-label get a premium price higher than the 14% that people would be willing to pay, that means that consumers will prefer to choose a commodity without eco-label rather than pay this difference on price for an eco-product.

The fishing market companies and fishermen investment have some additional costs in order to obtain the eco-label; there are expenses to cover in order to achieve the necessary conditions to get the certification. Fishermen claim that making these arrangements might constitute up to 250.000 USD (Fish 101: Eco-Labels) and also there is a cost to get the certification that is between 10.000 USD and 500.000 USD (MSC 2014). Is there a real financial advantage that would result from implementing such measures? Do they constitute a risky (and perhaps fatal) business decision to make? What effect would eco-labeling have for small and medium-sized companies?

6. Conclusion

It has been proved that eco-labeled products achieve a premium price for some products but not on every supermarket included on the study. Do people know what an eco-label is or they just buy a product without knowing the different attributes of the product? According to Domínguez Jurado and Pérez Péculo (2011) only a small population group would buy these products, but during the field work I saw that there are supermarkets where the majority of the products have eco-label and I suppose, that companies that want to get profits would offer the products that they are going to sell to most of the people and not only

for a small part of the population. When comparing the influence of the eco-labels on the different products price it is possible to observe that results change for one commodity to another. Therefore, it would be necessary to continue the research and study if these differences maintain when increasing sample size. Moreover, further research should be done in order to acknowledge the consumer's perception about this topic and compare that with the obtained results.

Most of the products that have eco-labels belong to large companies (Findus and Pescanova) present on most of the supermarkets visited. As describe before, eco-labels have an implicit cost. If people start changing their consumption habits and buying eco-labeled products, will the small and medium companies be able to assume the cost of getting an eco-label or, will they inevitably go bankrupt due to these changes? If this happen, is an external support necessary for small and medium companies to thrive and avoid generating an oligopoly?

By 2002, salmon, hake and cod fisheries were overexploited (FAO 2002). The eco-labeling programs were introduced on 2000 and therefore, catches should have decreased in order to preserve the sustainability of it, but data shown by FAO (2014a) claims that the catches on these fisheries have increased. Are these eco-labels preserving the fisheries stocks? Or should the governments find other ways to preserve not only the overexploited stocks but also other stocks to not reach these exploitations levels?

Is aquaculture a solution for these stocks? Global cod and salmon farming production has increased since 1990 (FAO 2014b, FAO 2014c) and it could be a good way to diminish fishing pressure and recover the overexploited fisheries.

To sum up, eco-labeling can be a beneficial means of ensuring fisheries' sustainability. However, according to the results obtained in this thesis, the pricing of such products exceeds the economical capabilities of the Spanish market. Thus, if we want to enhance the consumption of eco-labeled fish (for its environmental importance), we must optimize the profitability of these products, by either funding companies to acquire the eco-label conditions or decreasing the final market price, making eco-labeled commodities much more appealing to their potential buyers.

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8. Annex: Data collected for the study

Salmon observations in Granada

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Mercadona	Mascato	Filete de salmon salvaje	0	0	0	0	0	0.312	100	7.69
Mercadona	Hacendado	Salmon rebozado	0	0	0	0	0	0.300	60	6.63
Carrefour	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.300	100	14.67
Carrefour	Carrefour	Lomos de salmon keta del pacifico	0	0	0	0	0	0.480	100	10.31
El corte ingles	Pescanova	Centros de salmon	1	0	0	1	0	0.300	100	16.63
El corte ingles	Pescanova	Medallones de salmon	1	0	0	1	0	0.400	100	21.65
El corte ingles	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.300	100	18.20
Eroski	Pescanova	Medallones de salmon	1	0	0	1	0	0.400	100	14.98
Eroski	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.300	100	16.63
Día	Dia	Lomos de salmon	0	0	0	0	0	0.250	100	19.00
Día	Clavo	Filete salmon tempura	0	0	0	0	0	0.250	100	7.96
Dia	Clavo	Filete salmon tempura	0	0	0	0	0	0.250	100	7.96
Dia	Dia	Lomos de salmon	0	0	0	0	0	0.250	100	19.00
Mercadona	Mascato	Filete de salmon salvaje	0	0	0	0	0	0.312	100	7.71
Alcampo	Antonio y Ricardo	Rodaja de salmon	0	0	0	0	0	0.165	100	7.45
Alcampo	Pescanova	Medallones de salmon	1	0	0	1	0	0.400	100	16.88
Alcampo	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.300	100	17.00
Carrefour	Carrefour	Lomos de salmon keta del pacifico	0	0	0	0	0	0.480	100	10.31

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Carrefour	Pescanova	Centros de salmon	1	0	0	1	0	0.300	100	15.17
		Suprema de salmon de								
Carrefour	Findus	noruega	1	0	0	0	1	0.300	100	17.17
Lidl	Royal greenland	Filete de salmon sin piel	0	0	0	0	0	0.500	100	15.98
Lidl	Trawlic	Filete de salmon	0	0	0	0	0	0.250	100	17.96
Dia	Dia	Lomos de salmon	0	0	0	0	0	0.250	100	18.76
Mercadona	Mascato	Filete de salmon salvaje	0	0	0	0	0	0.312	100	7.71

Hake observations in Granada

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Carrefour	Findus	Filetes de merluza sin piel	1	0	1	0	1	0.40	100	9.88
Lidl	Admiral	Merluza en rodajas	1	0	1	0	0	0.60	100	5.65
Lidl	Admiral	Medallones de merluza	0	0	0	0	0	0.55	100	2.35
Lidl	Admiral	Filete de merluza del cabo	0	0	0	0	0	0.60	100	5.65
Mercadona	Mascato	Merluza cortada	0	0	0	0	0	1.00	100	5.19
Mercadona	Mascato	Medallones de merluza	0	0	0	0	0	0.50	100	6.60
Mercadona	Mascato	colas de merluza	0	0	0	0	0	1.00	100	2.95
Mercadona	Mascato	Filetes de merluza del cabo sin piel	0	0	0	0	0	1.00	100	6.40
Mercadona	Mascato	Lomos y centros de merluza	0	0	0	0	0	0.40	100	7.80
Mercadona	Pescanova	Nuggets de merluza	1	0	0	1	0	0.30	50	6.33
Mercadona	Mascato	Filetes de merluza argentina sin piel	0	0	0	0	0	0.60	100	6.17
Mercadona	Hacendado	Varitas de merluza	0	0	0	0	0	0.40	52	4.50
Mercadona	Hacendado	Merluza empanada	0	0	0	0	0	0.34	65	5.00
Mercadona	Hacendado	Palitos de merluza a la romana	0	0	0	0	0	0.40	35	3.50
Mercadona	Hacendado	Figuritas de merluza empanadas	0	0	0	0	0	0.40	60	4.00
Mercadona	Pescanova	Nuggets de merluza	1	0	0	1	0	0.30	50	6.33
Dia	Pescapuerta	Medallon de merluza	0	0	0	0	0	0.22	85	0.46
Dia	Fandicosta	Merluza argentina	0	0	0	0	0	0.80	100	4.69

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.40	100	9.00
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.40	100	7.60
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.42	100	8.57
Dia	Findus	Lingotes de merluza	1	0	1	0	1	0.40	100	10.63
Dia	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.50	100	9.48
Dia	Dia	Rodaja de merluza austral	0	0	0	0	0	0.30	100	11.00
Dia	Dia	Tronquitos de merluza	0	0	0	0	0	0.60	100	4.48
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.40	100	6.88
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.40	100	12.70
Dia	Pescanova	Merluza baby	1	0	1	1	0	0.40	100	8.00
Dia	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.40	100	10.83
Dia	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.41	100	8.90
Dia	Dia	Palitos de merluza	0	0	0	0	0	0.40	45	3.28
Dia	Dia	Filete de merluza empanado	0	0	0	0	0	0.40	60	4.20
Dia	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.40	58	7.63
Dia	Findus	Lingotes de merluza	1	0	1	0	1	0.40	100	10.63
Mercadona	Mascato	Merluza del cabo sin cabeza	0	0	0	0	0	0.79	100	4.90
Mercadona	Hacendado	Varitas de merluza	0	0	0	0	0	0.40	52	4.50
Mercadona	Hacendado	Palitos de merluza a la romana	0	0	0	0	0	0.40	35	4.50
Mercadona	Mascato	Filetes de merluza argentina sin piel	0	0	0	0	0	0.60	100	6.17
Mercadona	Mascato	Filetes de merluza del cabo sin piel	0	0	0	0	0	1.00	100	6.40
Mercadona	Mascato	Merluza cortada	0	0	0	0	0	1.00	100	5.19
Mercadona	Mascato	Lomos y centros de merluza	0	0	0	0	0	0.40	100	7.80
Mercadona	Mascato	Rodajas de merluza del cabo	0	0	0	0	0	0.60	100	6.58
Mercadona	Mascato	colas de merluza	0	0	0	0	0	1.00	100	2.95
Mercadona	Mascato	Medallones de merluza	0	0	0	0	0	0.50	100	6.60

Cod observations in Granada

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Mercadona	Maredeus food solutions	Filete de bacalao en su punto de sal	0	0	0	0	0	0.284	98	9.40
Mercadona	Maredeus food solutions	Lomo supremo de bacalao (en su punto de sal)	0	0	0	0	0	0.512	98	10.31
Mercadona	Cocinha pronta	Bacalao dorado	0	0	0	0	0	0.240	24	8.29
Mercadona	Maredeus food solutions	Tacos de bacalao (en su punto de sal)	0	0	0	0	0	0.250	98	7.60
Mercadona	Camos	Albondigas de bacalao	0	0	0	0	0	0.400	17	3.75
Carrefour	Pescanova	Bacalao rebozado a la marinera	0	0	0	0	0	0.320	70	12.34
Carrefour	Dimar	Bacalao en fritada	0	0	0	0	0	0.250	60	12.60
Carrefour	Findus	Bacalao rebozado	1	0	0	0	1	0.280	57	11.61
Carrefour	Dimar	Pavias	0	0	0	0	0	0.250	100	14.48
Carrefour	Dimar	Lomo bacalao congelado (desalado)	0	0	0	0	0	0.300	100	19.83
Carrefour	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.300	100	15.00
Carrefour	Dimar	Bacalao lomos seleccionados	0	0	0	0	0	0.300	100	15.33
Carrefour	Dimar	Trozeado de bacalao	0	0	0	0	0	0.400	100	7.38
Carrefour	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	14.55
Carrefour	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	7.16
Carrefour	Dimar	Filete de bacalao congelado sin piel	0	0	0	0	0	0.400	100	12.38
Carrefour	Findus	Lomo de bacalao del atlantico noreste	1	0	1	0	1	0.300	100	15.50
Carrefour	Carrefour	Filetes de bacalao	0	0	0	0	0	0.400	98	9.88
Carrefour	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	10.23
Carrefour	Barea	Lomo supremo de bacalao	0	0	0	0	0	0.480	100	10.31
Carrefour	Marvanejo	Bacalao dorado	0	0	0	0	0	0.240	17	10.63

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Carrefour	M. Barea	Tacos de bacalao	0	0	0	0	0	0.250	100	9.16
El corte ingles	Findus	Bacalao rebozado	1	0	0	0	1	0.280	57	12.00
El corte ingles	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.300	100	15.47
El corte ingles	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	14.85
El corte ingles	Royal	Delicias de bacalao	0	0	0	0	0	0.400	100	11.45
El corte ingles	Royal	Solomillo en rodajas	0	0	0	0	0	0.300	100	19.33
El corte ingles	Royal	Lomo desalado	0	0	0	0	0	0.400	100	20.38
El corte ingles	Aliada	Filetes de bacalao al punto de sal	0	0	0	0	0	0.400	100	10.40
El corte ingles	La cocinera	croquetas de bacalao	0	0	0	0	0	0.500	12	5.62
Mercadona	Maredeus food solutions	Tacos de bacalao (en su punto de sal)	0	0	0	0	0	0.250	98	7.60
Mercadona	Maredeus food solutions	Lomo supremo de bacalao (en su punto de sal)	0	0	0	0	0	0.512	98	10.31
Eroski	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	12.84
Eroski	Eroski	Filetes de bacalao	0	0	0	0	0	0.500	100	9.98
Eroski	Ecomsa	Porciones de bacalao	0	0	0	0	0	0.500	100	6.50
Eroski	Eroski	Lomos de bacalao	0	0	0	0	0	0.500	100	11.98
Eroski	Royal	Delicias de bacalao	0	0	0	0	0	0.400	100	9.98
Día	Día	Filete de bacalao	0	0	0	0	0	0.440	100	8.84
Día	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	7.39
Día	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	13.75
Día	Día	Filete bacalao rebozado	0	0	0	0	0	0.400	60	7.88
Coviran	NordKing	Lomo selecto	0	0	0	0	0	0.600	100	9.92
Coviran	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	18.12
Día	Día	Filete bacalao rebozado	0	0	0	0	0	0.400	60	7.88
Día	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	7.39

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Dia	Lomos de bacalao al punto de sal	0	0	0	0	0	0.300	100	11.50
Dia	Dia	Filete de bacalao	0	0	0	0	0	0.440	100	8.84
Dia	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	13.75
Dia	Dia	Lomos de bacalao	0	0	0	0	0	0.400	100	10.13
Hiperacor	Findus	Bacalao rebozado	1	0	0	0	1	0.280	57	14.11
Hiperacor	Terranov	Tortillitas de bacalao	0	0	0	0	0	0.400	13	6.03
Hiperacor	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	14.85
Hiperacor	Royal	Solomillo en rodajas	0	0	0	0	0	0.300	100	19.33
Hiperacor	Royal	Delicias de bacalao	0	0	0	0	0	0.400	100	11.60
Hiperacor	Royal	Lomo desalado	0	0	0	0	0	0.400	100	11.45
Hiperacor	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	13.50
Hiperacor	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.300	100	15.47
Hiperacor	Aliada	Filetes de bacalao al punto de sal	0	0	0	0	0	0.400	100	10.40
Dani	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	11.07
Dia	Dia	Filete de bacalao	0	0	0	0	0	0.440	100	8.84
Dia	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	7.39
Dia	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	13.75
Dani	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	11.07
Coviran	Coviran	Lomos de bacalao	0	0	0	0	0	0.400	100	11.13
Coviran	Coviran	Lomos de bacalao	0	0	0	0	0	0.400	100	16.75
Dani	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	11.07
Dani	Fripozo	Buñuelos de bacalao	0	0	0	0	0	0.500	7	3.94
Spar	Gourmet	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.400	100	9.88
Carrefour express	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	13.30
Coviran	Coviran	Lomos de bacalao	0	0	0	0	0	0.400	100	12.48

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Coviran	Coviran	Lomos de bacalao	0	0	0	0	0	0.400	100	12.48
Mercadona	Maredeus food solutions	Filete de bacalao en su punto de sal	0	0	0	0	0	0.284	98	9.42
Mercadona	Maredeus food solutions	Tacos de bacalao (en su punto de sal)	0	0	0	0	0	0.250	98	7.60
Alcampo	Findus	Bacalao rebozado	1	0	0	0	1	0.280	57	11.57
Alcampo	Royal	Ventrescas de bacalao	0	0	0	0	0	0.500	100	9.38
Alcampo	Dimar	Bacalao lomos seleccionados	0	0	0	0	0	0.300	100	14.83
Alcampo	Dimar	Trozeado de bacalao	0	0	0	0	0	0.400	100	7.08
Alcampo	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	10.11
Alcampo	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.300	100	14.97
Alcampo	Royal	Lomos de bacalao sin espinas	0	0	0	0	0	0.400	100	16.38
Carrefour	Pescanova	Bacalao dorado	0	0	0	0	0	0.220	6.5	10.68
Carrefour	Findus	Bacalao rebozado	1	0	0	0	1	0.280	57	11.61
Carrefour	Pescanova	Bacalao rebozado a la marinera	0	0	0	0	0	0.320	70	12.34
Carrefour	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.300	100	15.00
Carrefour	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	6.84
Carrefour	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	14.55
Carrefour	Pescanova	Filetes de bacalao	0	0	0	0	0	0.440	100	12.50
Carrefour	Dimar	Filete de bacalao	0	0	0	0	0	0.300	100	13.17
Carrefour	Findus	Lomo de bacalao del atlantico noreste	1	0	1	0	1	0.300	100	15.50
Carrefour	Dimar	Filete de bacalao congelado sin piel	0	0	0	0	0	0.400	100	12.38
Carrefour	Dimar	Bacalao lomos seleccionados	0	0	0	0	0	0.300	100	19.83
Carrefour	Dimar	Pavias	0	0	0	0	0	0.250	100	14.48
Carrefour	Dimar	Trozeado de bacalao	0	0	0	0	0	0.400	100	7.38
Carrefour	Marvanejo	Bacalao dorado	0	0	0	0	0	0.240	17	11.25

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Carrefour	Dimar	Super lomo	0	0	0	0	0	0.500	100	18.66
Carrefour	Barea	Lomo supremo de bacalao	0	0	0	0	0	0.480	100	10.31
Carrefour	Dimar	Bacalao en fritada	0	0	0	0	0	0.250	60	12.60
Lidl	Deluxe	Capricho de bacalao	0	0	0	0	0	0.100	76	24.90
Lidl	Admiral	Filete de bacalao	0	0	0	0	0	0.440	100	10.20
Dia	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.330	100	13.79
Dia	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.440	100	7.39
Dia	Dia	Filete de bacalao	0	0	0	0	0	0.440	100	8.84
Dia	Dia	Lomos de bacalao	0	0	0	0	0	0.400	100	10.13
Dia	Dia	Fileton de bacalao	0	0	0	0	0	0.500	100	9.98
Mercadona	Maredeus food solutions	Lomo supremo de bacalao (en su punto de sal)	0	0	0	0	0	0.512	98	10.31
Mercadona	Maredeus food solutions	Tacos de bacalao (en su punto de sal)	0	0	0	0	0	0.250	98	7.60
Mercadona	Maredeus food solutions	Filete de bacalao en su punto de sal	0	0	0	0	0	0.284	98	9.42

Salmon observations in Madrid

Supermarket	Brand	Product	eco-label	Andaluz	MSC	Pescanova	Findus	Weight	% fish	PR/kg
El corte inglés	Cuidate+	Rodaja de salmon keta	0	0	0	0	0	0.50	100	8.98
El corte inglés	Pescanova	Medallones de salmon	1	0	0	1	0	0.40	100	21.23
El corte inglés	Pescanova	Centros de salmon	1	0	0	1	0	0.30	100	16.63
El corte inglés	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.30	100	18.20
El corte ingles	Pescanova	Medallones de salmon	1	0	0	1	0	0.40	100	21.65
El corte ingles	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.30	100	18.20
El corte ingles	Pescanova	Centros de salmon	1	0	0	1	0	0.30	100	16.63
Dia	Clavo	Filete salmon tempura	0	0	0	0	0	0.25	100	7.96
Dia	Dia	Lomos de salmon	0	0	0	0	0	0.25	100	19.00
Dia	Dia	Lomos de salmon	0	0	0	0	0	0.25	100	16.24
Gama	Pescanova	Centros de salmon	1	0	0	1	0	0.30	100	19.83
Dia	Dia	Lomos de salmon	0	0	0	0	0	0.25	100	19.00
Lidl	Trawlic	Filete de salmon	0	0	0	0	0	0.25	100	19.16
Lidl	Trawlic	Filete de salmon	0	0	0	0	0	0.25	100	17.96
Simply	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.30	100	16.63
Simply	Pescanova	Medallones de salmon	1	0	0	1	0	0.40	100	14.98
El corte ingles	Findus	Suprema de salmon de noruega	1	0	0	0	1	0.30	100	18.20
El corte ingles	Pescanova	Centros de salmon	1	0	0	1	0	0.30	100	16.63
El corte ingles	Pescanova	Medallones de salmon	1	0	0	1	0	0.40	100	21.23
El corte ingles	Pescanova	Centros de salmon	1	0	0	1	0	0.30	100	16.63

Hake observations in Madrid

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Carrefour express	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	6.00
Carrefour express	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.75
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	10.61
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	0.600	100	7.67
El corte inglés	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.24
El corte inglés	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	7.50
El corte inglés	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.820	100	9.09
El corte inglés	El corte ingles	Filetes de merluza sin piel	0	0	0	0	0	0.420	100	8.31
El corte inglés	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	13.00
El corte inglés	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	14.51
El corte inglés	Pescanova	Centros de merluza	1	0	0	1	0	0.450	100	7.98
El corte inglés	Delfin	Cocochas de merluza	0	0	0	0	0	0.500	100	27.04
El corte inglés	Findus	Lingotes de merluza	1	0	1	0	1	0.400	100	11.43
El corte inglés	Findus	Lomo de merluza del cabo	1	0	1	0	1	0.350	100	12.83
El corte inglés	Pescanova	Lomos de merluza gigantes	1	0	0	1	0	0.800	100	17.31
El corte inglés	Aliada	Lomos y centros de merluza	0	0	0	0	0	0.400	100	8.20
El corte inglés	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.98
El corte inglés	Pescanova	Rodajas de merluza austral	0	0	0	0	0	0.400	100	24.20
El corte inglés	Pescanova	Redondos de merluza	1	0	0	1	0	0.410	100	7.29
El corte inglés	Pescanova	Solomillos de bacalao	1	0	0	0	0	0.550	98	23.00
El corte ingles	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	7.50
El corte ingles	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	13.00
El corte ingles	Pescanova	Redondos de merluza	1	0	0	1	0	0.410	100	7.29
El corte ingles	Findus	Lingotes de merluza	1	0	1	0	1	0.400	100	11.70
El corte ingles	El corte ingles	Filetes de merluza sin piel	0	0	0	0	0	0.420	100	8.31
El corte ingles	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.24

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
El corte ingles	Aliada	Lomos y centros de merluza	0	0	0	0	0	0.400	100	14.88
El corte ingles	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.820	100	9.09
El corte ingles	Pescanova	Rodajas de merluza austral	0	0	0	0	0	0.400	100	24.20
El corte ingles	Pescanova	Medallones de filete de merluza	1	0	0	1	0	0.400	100	14.28
El corte ingles	Pescanova	Centros de merluza	1	0	0	1	0	0.450	100	13.22
El corte ingles	Pescanova	Solomillos de bacalao	1	0	0	0	0	0.550	98	23.00
El corte ingles	Pescanova	Filetes de merluza al huevo	1	0	0	1	0	0.400	65	7.98
El corte ingles	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.400	58	7.30
El corte ingles	El corte ingles	Filete de merluza empanado	0	0	0	0	0	0.400	65	9.50
El corte ingles	Pescanova	Peskitos merluza empanada	0	0	0	1	0	0.400	40	5.98
El corte ingles	Pescanova	Lomos a la romana de merluza rebozada	1	0	0	1	0	0.300	78	11.63
El corte ingles	Aliada	Varitas de merluza empanadas	0	0	0	0	0	0.400	100	4.50
El corte ingles	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	10.47
El corte ingles	Pescanova	10 varitas de merluza con queso	1	0	0	1	0	0.300	33	11.20
El corte ingles	Pescanova	Palitos rebozados de merluza	1	0	0	1	0	0.300	35	5.67
El corte ingles	Pescanova	San Marinos de merluza empanada con jamon y queso	1	0	0	1	0	0.300	42	9.37
El corte ingles	Pescanova	Delicias de merluza rebozadas	1	0	0	1	0	0.250	50	9.16
El corte ingles	Findus	Porciones de merluza empanadas	1	0	1	0	1	0.400	57	9.88
El corte ingles	Findus	10 varitas de merluza	1	0	1	0	1	0.300	61	11.73
Dia	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	6.27
Dia	Pescanova	Filetes de merluza al huevo	1	0	0	1	0	0.400	65	7.48
Dia	Dia	Varitas de merluza vitaminada	0	0	0	0	0	0.450	45	4.18
Dia	Pescanova	Palitos de merluza rebozados	1	0	0	1	0	0.300	35	5.60
Dia	Pescanova	Filetes de merluza al huevo	1	0	0	1	0	0.400	65	7.48
Dia	Dia	Palitos de merluza	0	0	0	0	0	0.400	45	3.28
Dia	Dia	Filete de merluza empanado	0	0	0	0	0	0.400	60	4.20

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.48
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.70
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	6.88
Dia	Dia	Tronquitos de merluza	0	0	0	0	0	0.600	100	4.57
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.400	100	9.00
Dia	Dia	Ventrescas de merluza	0	0	0	0	0	0.400	100	7.75
Dia	Pescanova	Merluza baby	1	0	1	1	0	0.400	100	8.00
Dia	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Dia	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	10.83
Dia	Dia	Rodaja de merluza austral	0	0	0	0	0	0.300	100	11.00
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.420	100	8.57
Dia	Fandicosta	Merluza argentina	0	0	0	0	0	0.795	100	6.46
Dia	Pescapuerta	Medallon de merluza	0	0	0	0	0	0.216	85	4.61
Dia	Fandicosta	Filete de merluza argentina	0	0	0	0	0	0.118	100	4.83
Dia	Dia	Rodaja de merluza rebozada	0	0	0	0	0	0.320	55	6.34
Proxim	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	13.98
Proxim	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	11.25
Proxim	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	14.98
Proxim	Pescanova	Delicias de merluza rebozadas	1	0	0	1	0	0.250	50	14.36
Coviran	Coviran	Varitas de merluza	0	0	0	0	0	0.300	55	6.17
Coviran	Auchan	Filetes de merluza del cabo sin piel	0	0	0	0	0	0.420	100	7.98
Coviran	Pescanova	Centro de merluza en salsa verde	0	0	0	0	0	0.220	50	13.18
Coviran	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	11.10
Coviran	Pescanova	Centros de merluza	1	0	0	1	0	0.450	100	12.33
Dia	Fandicosta	Merluza argentina	0	0	0	0	0	0.795	100	5.00
Dia	Fandicosta	Filete de merluza argentina	0	0	0	0	0	0.118	100	5.52
Dia	Pescanova	Merluza baby	1	0	1	1	0	0.400	100	8.00
Dia	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Dia	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.48

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	9.55
Dia	Dia	Rodaja de merluza austral	0	0	0	0	0	0.300	100	11.00
Dia	Dia	Tronquitos de merluza	0	0	0	0	0	0.600	100	4.57
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.420	100	8.57
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.400	100	9.00
Dia	Dia	Ventrescas de merluza	0	0	0	0	0	0.400	100	7.75
Dia	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	10.83
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.70
Dia	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	6.33
Dia	Dia	Rodaja de merluza rebozada	0	0	0	0	0	0.320	55	6.34
Dia	Dia	Figuritas de merluza	0	0	0	0	0	0.400	52	3.88
Dia	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.400	58	7.63
Carrefour express	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	6.00
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.76
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.820	100	7.30
Miniprecio supermercado	Antonio y Ricardo	Filete de merluza con piel	0	0	0	0	0	0.500	100	5.20
Miniprecio supermercado	Antonio y Ricardo	Filete de merluza sin piel	0	0	0	0	0	0.500	100	7.40
Miniprecio supermercado	Pescanova	Rodajas de merluza austral	0	0	0	0	0	0.400	100	16.25
SP	Pescanova	San Marinos de merluza empanada con jamon y queso	1	0	0	1	0	0.300	42	11.67
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	6.88
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.420	100	8.57
Dia	Dia	Rodaja de merluza austral	0	0	0	0	0	0.300	100	11.00
Dia	Antonio y Ricardo	Filete de merluza sin piel	0	0	0	0	0	0.500	100	11.72
Dia	Dia	Tronquitos de merluza	0	0	0	0	0	0.600	100	4.57
Dia	Dia	Ventrescas de merluza	0	0	0	0	0	0.400	100	7.75

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.70
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.400	100	9.00
Spar	Spar	Filetes de merluza sin piel	0	0	0	0	0	0.400	100	6.63
Spar	Spar	Rodajas de merluza	0	0	0	0	0	0.400	100	6.88
Spar	Spar	Filetes de merluza empanado	0	0	0	0	0	0.400	55	5.00
Vecino	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	13.30
Vecino	Fripozo	Filetes de merluza sin piel	0	0	0	0	0	0.600	100	8.83
Vecino	Fripozo	Merluza con york y queso	0	0	0	0	0	0.300	30	13.30
Gama supermercado	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	14.88
Gama supermercado	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	9.97
Gama supermercado	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	7.37
Gama supermercado	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	6.23
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Carrefour express	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.38
Carrefour express	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	5.89
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.820	100	7.30
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	0.600	100	7.08
Dia	Mar de altura	Rodaja de merluza	0	0	0	0	0	0.109	100	4.40
Dia	Fandicosta	Merluza argentina	0	0	0	0	0	0.795	100	5.54
Dia	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.400	58	7.63
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	15.13
Dia	Pescanova	Merluza baby	1	0	1	1	0	0.400	100	8.00
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	11.38
Dia	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.10
Dia	Dia	Rodaja de merluza rebozada	0	0	0	0	0	0.320	55	10.31
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.420	100	8.57

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Dia	Ventrescas de merluza	0	0	0	0	0	0.400	100	7.75
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.400	100	9.00
Lidl	Admiral	Merluza en rodajas	1	0	1	0	0	0.600	100	5.65
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.27
Carrefour express	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.75
Carrefour express	Carrefour	Lomos de merluza	0	0	0	0	0	0.400	100	9.73
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	1.000	100	5.99
Carrefour express	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.38
Carrefour express	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	5.89
Carrefour express	Carrefour	Lomos de merluza	0	0	0	0	0	0.400	100	9.63
Carrefour express	Carrefour	Pescado empanado	0	0	0	0	0	0.434	72	4.95
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	0.600	100	7.08
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	1.000	100	5.99
Dia	Dia	Figuritas de merluza	0	0	0	0	0	0.400	52	3.88
Dia	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.400	58	7.63
Dia	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Dia	Pescanova	Merluza baby	1	0	1	1	0	0.400	100	8.00
Dia	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	10.83
Dia	Dia	Rodaja de merluza rebozada	0	0	0	0	0	0.320	55	6.34
Dia	Dia	Ventrescas de merluza	0	0	0	0	0	0.400	100	7.75
Dia	Dia	Tronquitos de merluza	0	0	0	0	0	0.600	100	4.57
Dia	Dia	Varitas de merluza	0	0	0	0	0	0.450	65	2.91
Dia	Dia	Filete merluza sin piel	0	0	0	0	0	0.420	100	8.57
Dia	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.48
Dia	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.70
Dia	Pescanova	Filete de merluza con piel	1	0	0	1	0	0.400	100	6.88
Dia	Dia	Filete de merluza empanado	0	0	0	0	0	0.400	60	4.20
Dia	Dia	Lomos de merluza	0	0	0	0	0	0.400	100	9.00

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
Dia	Mar de altura	Rodaja de merluza	0	0	0	0	0	0.109	100	6.81
Dia	Fandicosta	Filete de merluza argentina	0	0	0	0	0	0.118	100	4.82
Dia	Fandicosta	Merluza argentina	0	0	0	0	0	0.795	100	4.63
Simply	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.48
Simply	Pescanova	Corazones de filete de merluza	1	0	0	1	0	0.500	100	9.98
Simply	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	10.63
Simply	Pescanova	Centros de merluza	1	0	0	1	0	0.450	100	12.11
Simply	Findus	Filetes de merluza sin piel	1	0	1	0	1	0.400	100	11.38
Simply	Findus	Lingotes de merluza	1	0	1	0	1	0.400	100	13.13
Simply	Pescanova	Centro de merluza en salsa verde	0	0	0	0	0	0.220	50	13.18
Simply	Pescanova	Delicias de merluza rebozadas	1	0	0	1	0	0.250	50	11.24
Simply	Findus	Lomo de merluza del cabo	1	0	1	0	1	0.350	100	14.26
Simply	Auchan	Filete de merluza argentina sin piel	0	0	0	0	0	0.400	100	8.13
Simply	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.24
Simply	Pescanova	Palitos rebozados de merluza	1	0	0	1	0	0.300	35	5.97
Simply	Pescanova	Lomos a la romana de merluza rebozada	1	0	0	1	0	0.300	78	12.97
Simply	Pescanova	Peskitos merluza empanada	0	0	0	1	0	0.400	40	5.88
Simply	Pescanova	10 varitas popcorn pescanova	1	0	0	1	0	0.300	55	8.67
Simply	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	6.63
Simply	Pescanova	Filetes de merluza al huevo	1	0	0	1	0	0.400	65	10.88
Simply	Findus	Varitas de pescado	1	0	1	0	1	0.300	0.61	6.63
Carrefour express	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	12.38
Carrefour express	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	8.90
Carrefour express	Carrefour	Filete de merluza argentina	0	0	0	0	0	0.600	100	7.08
Carrefour express	Pescanova	15 varitas de merluza empanadas	1	0	0	1	0	0.450	55	5.89
El corte ingles	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.820	100	9.09
El corte ingles	Pescanova	Lomos de merluza	1	0	0	1	0	0.400	100	13.00
El corte ingles	Pescanova	Filetes de merluza sin piel	1	0	0	1	0	0.410	100	9.24

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
El corte ingles	El corte ingles	Filetes de merluza sin piel	0	0	0	0	0	0.420	100	8.31
El corte ingles	Delfin	Cocochas de merluza	0	0	0	0	0	0.500	100	26.92
El corte ingles	Pescanova	Solomillos de bacalao	1	0	0	0	0	0.550	98	23.00
El corte ingles	Pescanova	10 varitas de merluza empanadas	1	0	0	1	0	0.300	55	10.47
El corte ingles	Pescanova	Albondigas de merluza	1	0	0	1	0	0.240	24	9.13
El corte ingles	Aliada	Varitas de merluza empanadas	0	0	0	0	0	0.400	100	4.50
El corte ingles	Pescanova	10 varitas de merluza con queso	1	0	0	1	0	0.300	33	11.20
El corte ingles	Pescanova	10 varitas popcorn pescanova	1	0	0	1	0	0.300	55	8.47
El corte ingles	Pescanova	San Marinos de merluza empanada con jamon y queso	1	0	0	1	0	0.300	42	9.37
El corte ingles	Pescanova	Peskitos merluza empanada	0	0	0	1	0	0.400	40	5.98
El corte ingles	Pescanova	Delicias de merluza rebozadas	1	0	0	1	0	0.250	50	9.16
El corte ingles	Pescanova	Surfers merluza rebozada	1	0	0	1	0	0.400	58	7.40
El corte ingles	El corte ingles	Filete de merluza empanado	0	0	0	0	0	0.400	65	9.50
El corte ingles	Pescanova	Lomos a la romana de merluza rebozada	1	0	0	1	0	0.300	78	11.63
El corte ingles	Pescanova	Rodetes merluza rebozada	0	0	0	1	0	0.320	74	10.19
El corte ingles	Pescanova	Ventrescas de merluza	1	0	0	1	0	0.400	100	8.98
El corte ingles	Pescanova	Redondos de merluza	1	0	0	1	0	0.410	100	7.29
El corte ingles	Pescanova	Rodajas de merluza austral	0	0	0	0	0	0.400	100	24.20
El corte ingles	Pescanova	Centro de merluza a la riojana	0	0	0	0	0	0.220	50	27.05
El corte ingles	Pescanova	Medallones de filete de merluza	1	0	0	1	0	0.400	100	14.28

Cod observations in Granada

Supermarket	Brand	Product	eco-label	Andaluz	MSC	PESCANOVA	FINDUS	weight	% fish	PR/kg
El corte inglés	Aliada	Filetes de bacalao al punto de sal	0	0	0	0	0	0.40	100	10.40
El corte inglés	Royal	Filete bacalao premium	0	0	0	0	0	0.45	100	26.64
El corte inglés	Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
El corte inglés	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.33	100	14.85
El corte inglés	Royal	Filete bacalao premium	0	0	0	0	0	0.45	100	21.51
El corte inglés	Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.30	100	15.47
El corte inglés	Findus	Lomo de bacalao del atlantico noreste	1	0	1	0	1	0.30	100	19.57
El corte ingles	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.33	100	14.85
El corte ingles	Royal	Solomillo en rodajas	0	0	0	0	0	0.30	100	19.33
El corte ingles	Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
El corte ingles	Aliada	Filetes de bacalao al punto de sal	0	0	0	0	0	0.40	100	10.40
El corte ingles	Royal	Lomo desalado	0	0	0	0	0	0.40	100	20.38
El corte ingles	Royal	Delicias de bacalao	0	0	0	0	0	0.40	100	11.45
	Dia	Dia	Lomos de bacalao	0	0	0	0	0.40	100	10.13
	Dia	Dia	Lomos de bacalao al punto de sal	0	0	0	0	0.30	100	11.50
	Dia	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0.33	100	13.79
	Dia	Pescanova	Filetes de bacalao	0	0	0	0	0.44	100	13.75
	Proxim	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0.33	100	15.12
	Proxim	Pescanova	Filetes de bacalao	0	0	0	0	0.44	100	15.80
	Dia	Dia	Filete de bacalao	0	0	0	0	0.44	100	8.84
	Dia	Pescanova	Filetes de bacalao	0	0	0	0	0.44	100	13.75
Miniprecio supermercado	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.44	100	17.05

	Dia	Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.75
	Dia	Dia	Filete de bacalao	0	0	0	0	0	0.44	100	8.84
	Dia	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.44	100	7.39
	Spar	Gourmet	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.40	100	10.88
Carrefour express		Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
	Dia	Dia	Filete de bacalao	0	0	0	0	0	0.44	100	10.80
Carrefour express		Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.33	100	17.73
Carrefour express		Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
	Dia	Pescanova	Porciones de bacalao en su punto de sal	0	0	0	0	0	0.44	100	7.39
	Dia	Dia	Filete de bacalao	0	0	0	0	0	0.44	100	8.77
	Dia	Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.75
	Simply	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.33	100	15.12
	Simply	Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	12.84
	Simply	Findus	Bacalao rebozado	1	0	0	0	1	0.28	57	13.18
Carrefour express		Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
El corte ingles		Pescanova	Filetes de bacalao	0	0	0	0	0	0.44	100	13.52
El corte ingles		Royal	Lomos de bacalao sin espinas	0	0	0	0	0	0.40	100	20.38
El corte ingles		Findus	Filetes de bacalao al punto de sal	1	0	1	0	1	0.30	100	15.47
El corte ingles		Royal	Delicias de bacalao	0	0	0	0	0	0.40	100	11.45
	El corte ingles	Pescanova	Lomos de bacalao en su punto de sal	0	0	0	0	0	0.33	100	14.85
	El corte ingles	Aliada	Filetes de bacalao al punto de sal	0	0	0	0	0	0.40	100	10.40
	El corte ingles	Findus	Bacalao rebozado	1	0	0	0	1	0.28	57	12.00