

SCANNER DATABASE ON CURED HAM PURCHASES: BRANDS, FORMATS AND PRICES

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**TYPICAL FOOD PRODUCTS IN EUROPE:
CONSUMER PREFERENCE AND OBJECTIVE
ASSESSMENT**

TYPIC

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1. INTRODUCTION

This is a second working paper analysing the scanner data provided by Carrefour in Spain, which contains information on actual purchases of cured ham in two hypermarkets in the city of Zaragoza. This database has records only of those purchases made by customers with the card PASS, and not of the totality of sales of the firm. In the first working paper, a description of data was provided, focusing mainly in the relative weight of different categories of ham and some preliminary segmentation of consumers, according to the frequency of purchase and expenditure.

In the present working paper we will focus on three aspects of the data: prices, brands and formats. A brief description of average prices was included in the previous working paper, but disaggregated only across ham categories. We found this was not informative enough due to the high variability of prices across formats and brands within the same ham category. Furthermore, the database contains purchase information on 91 article references. A careful study has been done on them, in order to identify the commercial brand and the sale format. In this way, 67 different brands have been identified. The raw data provided information of the number of “units” sold at each purchase occasion and the “sales value” of those units. In order to get an accurate price, first it has been necessary to identify to what “units” is referring to or in other words how this variable is measured at each observation. A joint inspection of the article designation and the values of the variable “units” has been carried out, leading to 15 possible measurement units, which, in turn and in combination with the department at which the article is sold, has led to a total of 11 possible sale formats.

The working paper is structured as follows. In the first section, the procedures used to identify the brands, formats and unit measures are explained. In the second section, a general description of distribution of sales, both in quantitative and monetary terms, across categories, hypermarket sections or departments, product sale formats and commercial brands, is provided. In the third section, some descriptive statistics of prices across categories, formats and brands are exposed. Finally, some final remarks are presented.

1. PROCEDURES TO IDENTIFY BRANDS, FORMATS AND PRICES

The original database contains 19598 observations or actual customers' purchases (sales from the firm perspective), in the period April 2003-March 2004. For each of them, the following variables are available: month, year, hypermarket, customer code, ticket code, article reference, article designation, sales value (€) (or purchase value from the consumer's perspective) and the number of units sold (purchased).

There are two hypermarkets, coded as 850 (Actur) and 4000(Augusta). The database contains a total of 91 article references. These are codes, each of one related to an article designation. The latter, is a string that contains the name of the brand and sometimes a reference to the measure unit. In Table 1, an example of raw data, with the original variables available is shown (the ticket reference is a 20 digit reference which we have not included in Table 1 because no extra information to the one shown by the other variables can be obtained, and accordingly, it has not been used in the analysis of data). For instance, the code 262191 corresponds to the reference designation "CARREFOU TIRAS DE JAMON 150 GR". In this designation, we can identify, first, the brand "Carrefour", and second the format sale "tiras de jamon 150g".

Additionally to this database, the company gave as a list of "gestion codes" which is shown in Table A.1 in the Annex. These show the correspondence between the **section** at which the article is sold: delicatessen (or on request) and self-service (or shelves); the **article reference** and **designation**; and the **subfamily**, which stands partially for the type of ham, either white or Iberian, and partially to the format (package sliced or not). The subfamily codes and the meaning are the following:

15500: White ham. Sold at the self-service section. White refers to the white breeds of pork.

15501: Iberian ham. Sold at the self-service section. Iberian refers to Iberian breeds of pork.

15502: White *paleta*. Sold at the self-service section. *Paleta* is the front leg. Strictly speaking is different from ham (the rear leg) but it may

constitute an important substitute of ham at consumption. The curing process is similar to cured ham.

15503: Iberian *paleta*. Sold at the self-service section.

15504: Package sliced. Sold at the self-service section.

20000: White ham and *paleta*. Cut on request at the Delicatessen section

20001: Iberian ham and *paleta*. Cut on request at the Delicatessen section

Table 1. Example of the raw data in the scanner database

Month	Year	Hyper	Client	cod_article	Designation	sales(€)	units sold
3	2004	850	2005235838013	262191	CARREFOU TIRAS DE JAMON 150 GR	1.660	1.000
8	2003	4000	2779043743158	424383	CENTRO JAMON ALTA SERRANIA	3.170	0.244
10	2003	850	2417500605857	479930	J.BODEGA VILLAR, PIEZA	35.0	1.000
5	2003	4000	2417501692609	42877	JAMON CURADO LONC.ESPU.A 250G	10.350	3.000
6	2003	850	2789004657769	71567	JAMON CURADO MARTI	19.730	5.261
2	2004	4000	2417501519546	354449	JAMON CURADO S/P CARREFOUR	51.450	8.180
4	2003	850	2749004517678	430521	JAMON LONCHAS N1 100G	1.510	1.000
4	2003	850	2417500738167	8771	JAMON RESERVA EL POZO, KG.	47.200	6.059
6	2003	850	2417500779327	109525	TAQUITOS JAMON NAVIDUL 150GR	1.990	1.000
5	2003	4000	2719043713553	121649	C.JAMON TERUEL D.O.FORMICHE LS	7.500	0.300
5	2003	4000	2417502126023	80006	CENTRO JAMON IB.DESH.NAVIDUL	23.780	0.567
11	2003	850	2799004516263	454923	J. IB. LAMADOR PIEZA 7-8 KG.	75.510	1.000
4	2003	4000	2739059198281	430318	JAMON IB LONCH HUELVA DNT 100G	7.680	1.000
8	2003	850	2417500899640	207809	CENTRO PALETA SERRAN	2.270	0.210
5	2003	850	2417500081147	64694	JAMON BODEGA RUBIA, EL KG.	65.530	8.510
12	2003	850	2417500933784	392012	JAMON IBERICO RECEBO AL CORTE	11.940	0.230
7	2003	850	2417500039108	83392	Sin Marca - Teruel Bodega	3.810	0.187
2	2003	850	2417500070577	233227	Sin Marca - Teruel	6.400	0.270
11	2003	4000	2799004524831	197399	Sin Marca - Iberico	8.760	0.310
4	2003	4000	2417501589431	391945	Sin Marca - Iberico recebo	15.260	0.253

Combining the text in the designation, the article reference code, and the gestion codes, we can add some new identification variables to the original data base. First, from the subfamily and the article reference and designation we have classified each reference in one of the following 8 **categories** of ham:

1: Serrano: stands for any reference of white cured ham, without any collective quality certification, i.e., without Designation of Origin (DO),

Protected Geographical Identification (PGI), Traditional Speciality Guaranteed (TSG).

2: Teruel DO: stands for white cured ham, with Teruel DO. Only two European quality certifications exist in Spain: Teruel DO and Trevelez PGI. Teruel is located in the same administrative region as Zaragoza (Aragon).

3: Teruel no DO: stands for white cured ham, coming from the geographical area of Teruel, but without the certification DO

4: Iberian no DO: stands for Iberian cured ham, without DO (no reference of Iberian ham was found in the database carrying the DO certification despite that there are 3 DOs in Spain: Dehesa de Extremadura, Guijuelo and Huelva. None of these areas are located in the region of Aragon, or the nearby regions.

5: TSG Serrano: stands for white cured ham, carrying the European certification Traditional Speciality Guaranteed (TSG).

6: Iberian *paleta* no DO: stands for *paleta* (or front leg) of Iberian breed porks, and without Designation of Origin. (Both, Iberian hams and *paletas* are eligible for carrying the DO certification)

7: PGI Trevelez: stands for white cured ham with Protected Geographical Indication Trevelez.

8: Serrano(or white) *paleta*: stands for *paleta* obtained from white pork breeds.

Second, from the designation text, the **brand** is identified. The correspondence between article reference, article designation and brands is shown in Table A.2 in the Annex. At each brand, a code is assigned. When no explicit mention of any brand was included in the reference designation, we use the text “sin marca” which stands for “no brand” plus an identifier of the category and any extra possible differentiation indicator included in the designation: e.g. “Sin Marca -Teruel” and “Sin Marca - Teruel Bodega”, where “Bodega” might imply a longer curing process; or “ Sin Marca - Iberico” and “Sin Marca - Iberico recebo”, where “recebo” provides information on the type of feeding, (acorn plus compound feed) (see for instance the last four observations in Table 1).

The initial 91 article references have been reduced to 67 brands. This reduction is due to the fact that the same commercial brand may be sold at different sections or with different formats. For instance, the brand Carrefour is assigned to any of the following article references and designations (see also Table A.2 in the Annex):

Brand	Brand code	Designation	Article_code
Carrefour	1	CARREFOU TIRAS DE JAMON 150 GR	262191
Carrefour	1	CENTRO JAMON CARREFOUR INDIVID	497678
Carrefour	1	CENTRO JAMON DESHUESADO CARREF	262692
Carrefour	1	CENTRO JAMON LS CARREFOUR	233229
Carrefour	1	JAMON CURADO S/P CARREFOUR	354449
Carrefour	1	JAMON SERR.CURADO C/P CARREFOU	231391
Carrefour	1	LONCHAS DE JAMON CURADO CARREF	377435
Carrefour	1	TACO JAMON CARREFOUR 1/4	494059
Carrefour	1	TACO JAMON CARREFOUR 1/8	494028

Different epithets are used to differentiate quality range within the same brand. For instance, we may find a reference to “Carrefour” and also to “Carrefour Gran Reserva”, where Gran Reserva may suggest a longer curing process. We keep these additional description references as we understand that they are used by producers to differentiate quality ranges and accordingly charge a different price.

Also, the same producer may use a unique brand across categories of ham in order to gain notoriety although they add some specific information on the characteristics of the product. For instance, we find “3 Encinas Navidul” is a private commercial brand applied to Iberian ham and paletas. In the former case the designation says “IB. REC. 3 Encinas Navidul”, and in the latter “PAL. IB. REC. 3 Encinas Navidul”. We keep these designations to differentiate across categories and use the following abbreviations:

- IB: *Iberico* (Iberian)
- REC: *Recebo* (type of feed for porks of Iberian breed, composed of a mixture of acorn and compound feed)
- BELLO: *Bellota* (acorn), type of feed for Iberian breed porks
- PAL: *Paleta* (front pork leg)

Third, note that, in the original database, we only have information on two quantitative variables: sales(€) and units sold. The first one refers to the monetary value of the article purchased in each occasion (observation), and units to the number of items sold. In order to get the quantity (in kgs) sold at each occasion and price (€/kg), it is compulsory to identify how the variable “units” is measured. As a matter of fact, this changes across article references. For instance, sometimes the variable units takes an integer value (1,2); some a real number between 5 and 9; and sometimes, a real number less than one or around one. This information, in combination with the designation variable and the subfamily membership, has allowed as identify the measurement units of the variable “units sold” in each case. This outcome is shown in Table 2.

Table 2. Identification of measurement units used in the quantification of the original variable “units sold”.

Measurement unit	Code_measurement	Subfamily	Format [code_format]
Kg in leg	1	15500; 15501 20000; 20001	leg [4]
Kg in boneless leg	2	15500	boneless leg [5]
Number of legs (N legs)	3	15500; 15501	leg[4]; boneless leg [5]
Kg	4	15500; 15501	package weight [1];piece(<i>maza</i>) [2] small pieces (<i>tacos</i>) [3]
		20000; 20001	on request [10]
N packs 100g	5	15504	package sliced [11]
N packs 120g	6	15504	package sliced [11]
N packs 150g	7	15504	package sliced [11]
N packs 200g	8	15504	package sliced [11]
N packs 250g	9	15504	package sliced [11]
N packs 300g	10	15504	package sliced [11]
N pieces 100g	11	15504	piece (<i>maza</i>) [2]
Kg in <i>paleta</i>	12	15502; 15503	<i>paleta</i> [6]
N <i>paletas</i>	13	15503	<i>paleta</i> [6]
Kg <i>paleta</i>	14	15503	package weight <i>paleta</i> [7]
		20000	on request <i>paleta</i> [9]
N packs 100g <i>paleta</i>	15	15503	package sliced <i>paleta</i> [8]

Some rules followed to identify the **measurement unit** shown in Table 2 is found are the following:

a) If the variable “units sold” takes an integer value:

a.1) if a specific reference to the number of grams exists in the article reference and the subfamily indicates that this article is sold at the self-service section, then we understand the measurement unit is “number of packages of X grams”.

a.2) if the word “leg” (pata; C/P), “piece”(pieza) or “Kg” is in the article designation, we understand that the measurement unit is “number of legs”. Furthermore, if there is any reference in the article designation to “boneless”(sin hueso; S/H), we assign the measurement unit “number of boneless legs”; and any reference to “paleta”, we assign “number of paletas”.

b) If the variable “units sold” takes a real value:

b.1) values less than or around 1: we assign “Kg” as the measurement unit. Furthermore, some article designations also include the word “Kg”.

b.2) values greater than 4: in most cases, we understand that this is the weight of legs, either of ham (around 6-9 Kgs) or *paletas* (around 4 Kgs), and we assign “kg in leg” or “kg in *paleta*”, respectively. Moreover, the word “*paleta*” usually is in the article designation, confirming the previous assignment. Also, and to add criteria for assignment, and as in case a.2), we may find the words “Kg”, “piece”, “boned/boneless” (C/H; S/H) in the article designation. If a reference to “boneless” appears, we assign the measurement unit “Kg in boneless leg”.

We differentiate between “Kg” and “Kg in legs” in order to get more accurate prices. As we will see later, the prices per Kg are significantly lower when the whole leg is purchased instead of buying a specific quantity either on request, or pre-packed and sliced. Therefore, disaggregating we gain in homogeneity.

After identifying the measurement units, we have added three new variables: “Nlegs”, “grams per unit” and “format”. The former counts, for each observation, the number of whole legs, either of ham or *paleta*, sold. Grams per unit relates to the number of grams that each “unit sold” contains. This is a necessary variable as multiplying it by “units sold” we can get the quantity sold in

each occasion, and dividing the sales value by this product, we can get the price in €/kg. Format refers to the way in which the article is sold and presented to the consumer.

Nlegs

This variable will take values different from zero only when the measurement units are either Number of legs / N *paletas* or kg in leg / kg in boneless leg / kg in *paleta*. When the measurement unit is Number of legs or Number of *paletas* the new variable will take the same value as “units”. When the measurement unit is kg in leg, kg in boneless leg or kg in *paleta*, we need to look at the value of variable “units”, and apply the same criteria as above: figures around 4 in *paletas*, and between 6 and 9 in hams correspond to one leg; and accordingly, for bigger numbers, we look for close multiples, in order to find out how many legs the variable “units” represents.

Grams per unit

In some cases, the value of “grams per unit” is straightforward:

- If “units sold” are measured in Kg, in any of the different possibilities shown in Table 2 (“kg”, “kg in leg”, “Kg in boneless leg”, “ Kg *paleta*”, “Kg in *paleta*”) “grams per unit” is 1000 g.
- If “units sold” are measured in number of packages of alternative weights, the variable “grams per unit” will take that weight reference (e.g. if measurement unit is “N packs 150 g”, then “grams per unit” will be 150g).

When the unit is measured in “number of legs”, different strategies have been applied in order to get the “grams per unit” variable, and accordingly “price per kg”:

- If the same brand is also sold with a different measurement. For instance, the brand “Carrefour Gran Reserva”, is sold in “kg in leg” (article code 237906) and “number of legs” (article code 492007). In the first article, we have the exact information on quantity (it equals the weight of the leg or the number of units sold) and accordingly, on price per kg (the quotient between sales and units sold). Therefore, we have two options to complete the variable “grams per unit” in the second article. The most straightforward seems to fill the gap with the average

weight obtained from the article sold as “kg in leg”. However, probably because of the high variability of the weights of whole legs, even within the same brand, when calculating the price per kg, we obtained values not very close to the other article. This could lead to distortions in price, which is a very relevant variable in any consumer research study. For this reason, and in order to reduce distortion in prices, for the article measured in “number of legs” we assign the average price obtained from the article of the same brand but measured in “kg in leg”, and then calculate the value of the variable “grams per unit” as follows:

$$\text{grams per unit of article measured in "N legs"} = \frac{\text{sales(€) of article measured in "N legs"}}{\text{average price (€/kg) of article measured in "kg in leg"}}$$

This has been the procedure to fill the “grams per unit” and “price per kg” variables of the following brands/articles:

Brand 2. Carrefour Gran Reserva. Article: 492007

Brand 20. Bodega Villar. Article 479930

- If there are not more than one article per brand, as in Brand 16: Espigadero Bodega, article 493962. In this case, an average price of hams within the same category and same sale format of sale is assigned.

- In Brand 8: Lamador, article 454923, there was information of the weight of the leg in the “article designation” (7-8 kg), therefore, a midpoint weight (7500g) has been assigned to “grams per unit”.

- In the following brands, given the high disparity of prices found within the same category, we have considered more accurate to use the most frequent weight of the hams within the same category. These articles are:

Brand 34: Ib. Extra Aromas Encinar. Article 496474 (6500g)

Brand 46: Ib. Villar. Article 386388 (6500g)

Brand 17: Bodega Etiqueta Plata Natur. Article 475583 (6500g)

- Finally, in Brand 38. Pal. Ib. Sanchez Azuaga. Article 462760, the average weight of a different brand within the same category, although of the same producer, has been assigned (Brand 31. Pal. Ib. Sanchez Azuaga Recebo, Article 44738; 4500g).

The variable price (€/kg) is then easily obtained as (except of those cases mentioned above, where grams per unit are obtained after the assignment of an average price):

$$\text{Price (€/kg)} = \frac{\text{Sales (€)} \cdot 1000}{\text{Units sold} \cdot \text{Grams per unit}}$$

The procedure explained to obtain the measurement units, grams per unit and prices has been checked thoroughly across articles and brands in order to detect and correct any possible inconsistency or irregularity.

Format

The format or the way in which the article is sold and presented to the consumer is narrowly linked to the measurement units, as shown in Table 2, and to the section or department. In Table 3, the classification of formats within each sub-family and section is shown. Note that in the Table 3 only the possibilities found in the data are shown. In other words, for instance, in the data base we are dealing with, only white ham is sold in pieces, although either in other period of time or in other retail outlets, Iberian ham could also be sold in pieces, and not only in legs, packages in self-service, or on request.

There are some formats which could be considered the same although we keep the more disaggregated coding in order to differentiate between hams and *paletas*:

- leg / *paleta*
- package weight / package weight *paleta*
- package sliced / package sliced *paleta*
- on request / on request *paleta*

We reserve the format “on request” for those articles bought at the delicatessen section. The closest format in the self service section is “package weight”. The latter is a pack of ham, which normally (although not always) is sliced, and packed, but with not a constant weight across units. Package sliced, on the other hand, refers to those packs of slices sold also at the shelves or self service section, but that always contain exactly the same weight of ham. We use the English word piece for the Spanish *maza*, which stands for a part of the leg,

with lower fat and strong flavour. The Spanish *tacos* have been translated as small pieces, and refer to that part next to the bone that can not be easily sliced and accordingly is cut in very small irregular pieces.

The so called format categorization has a descriptive meaning, although, it is a bit more aggregated than “measurement units”. For this reason, in the next section, normally we will use the latter when trying to get information on several variables across ways of presentation of the product, and in particular on behaviour of prices.

Table 3. Classification of sale formats across sub-families and sections

Format	Code_format	Sub-family	Sub-family description
package weight	1	15500	Self service. White ham
		15501	Self service. Iberian ham
piece (<i>maza</i>)	2	15500	Self service. White ham
small pieces (<i>tacos</i>)	3	15500	Self service. White ham
leg	4	15500	Self service: white ham
		15501	Self service: Iberian ham
		2000	Delicatessen: white ham
		20001	Delicatessen: Iberian ham
boneless leg	5	15000	Self service: white ham
<i>paleta</i>	6	15502	Self service: white <i>paleta</i>
		15503	Self service: Iberian <i>paleta</i>
package weight <i>paleta</i>	7	15503	Self service: Iberian <i>paleta</i>
package sliced <i>paleta</i>	8	15503	Self service: Iberian <i>paleta</i>
on request <i>paleta</i>	9	20000	Delicatessen: white ham
on request	10	20000	Delicatessen: white ham
		20001	Delicatessen: Iberian ham
package sliced	11	15504	Self service: package sliced

2. DISTRIBUTION OF SALES ACROSS CATEGORIES, SECTIONS, FORMATS AND BRANDS

Categories

In Table 4 the distribution of sales value and quantity sold across categories is shown.

Table 4. Distribution of sales and quantity sold across categories

Category	Quantity (kgs)	sales (€)	%		N obs.
			Quantity (kgs)	sales (€)	
Serrano	14496.209	120278.61	81.53	72.26	16719
Teruel DO	942.668	13489.41	5.30	8.10	1030
Teruel no DO	619.055	9361.37	3.48	5.62	1078
Iberian no DO	1221.405	18965.91	6.87	11.39	465
STG Serrano	320.074	2230.09	1.80	1.34	49
Iberian Paleta no DO	94.288	1190.56	0.53	0.72	53
Trevez PGI	10.781	252.91	0.06	0.15	43
Serrano Paleta	75.849	689.29	0.43	0.41	161
Total	17780.329	166458.15	100	100	19598

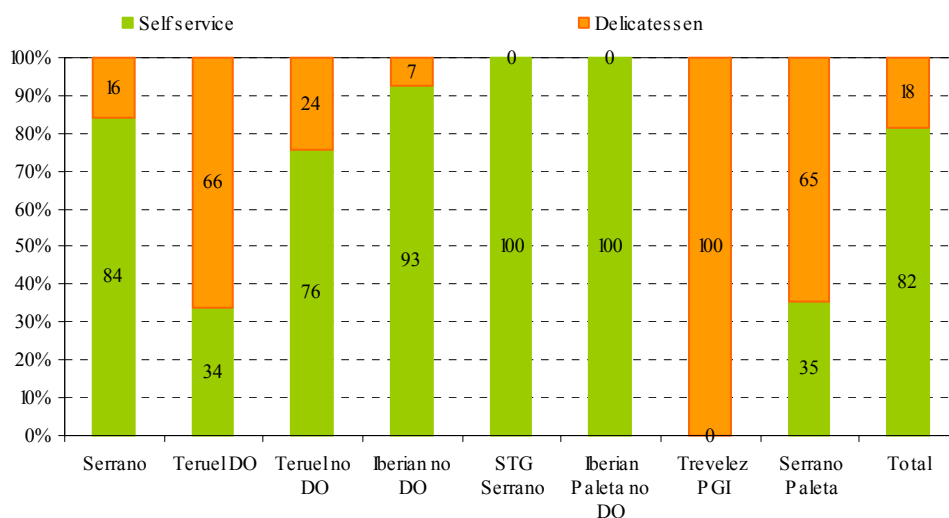
The sales registered in the database for the period of analysis amount to € 166458 and 17780 kgs. The most relevant category is Serrano, accounting for 81% of the total sales and 72% of the quantity sold. Teruel ham, with and without the DO certification, ranks second, with 13.7% of sales and 8.8% of the quantity sold. The third most sold category is Iberian ham: 11.4% of the total sales value, which in quantitative terms only represent 6.9%. In the 12 months period, 94288 kgs and 75849 kgs of Iberian and white *paleta*, respectively, were sold, what represents less than 1% of the total sales and quantity. The least sold category is PGI Trevelez, with only 10781 kgs and 43 observations.

Sections

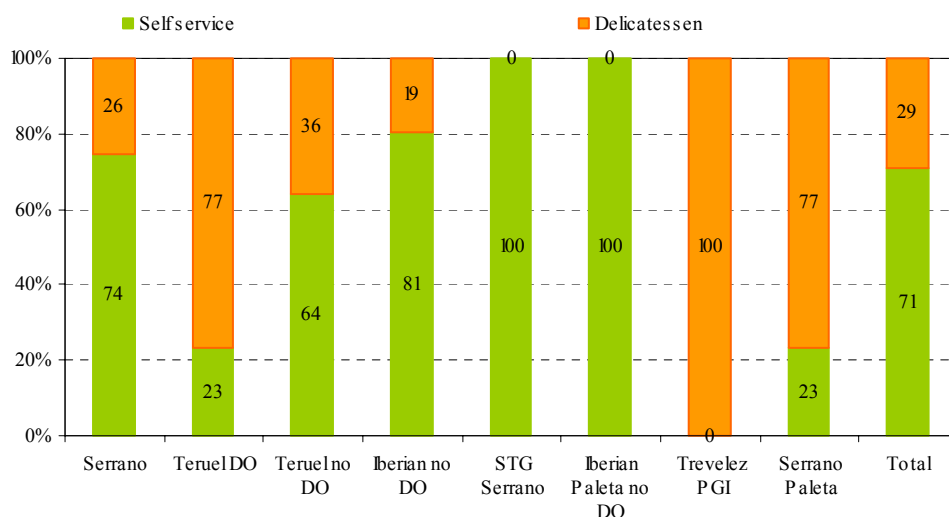
In Graph 1, the distribution of quantity sold and value of sales across sections (departments) is shown. The data on which this graph is based on, is presented in Table A.3 in the Annex.

Graph 1. Distribution of quantity sold and sales value across sections (%)

a) Quantity (kgs)



b) Sales (€)



In global terms, the self-service section is much more important than the Delicatessen or Cut on Request section: 82% of the total quantity sold by Carrefour in the period April 2003-March 2004 was sold on shelves, what in value terms accounts for 71% of the total sales of the period. TSG Serrano and Iberian *paletas* are only sold in the self-service section, while PGI Trevelez, is only sold in the Delicatessen section. Apart from the latter, the Delicatessen section is also more relevant in the sale of Teruel ham with Designation of Origin and Serrano(white) *paleta*. Around 65% of the quantity and 77% of the sales of these categories are distributed through the Delicatessen section.

Formats (measurement units)

In Table 5, the total sales are distributed across formats, or more precisely across the groups defined by the variable “measurement units”, as the latter is a bit more disaggregated. The description for each category of ham is shown in Table A.4 in the Annex.

Table 5. Distribution of sales and quantity sold across formats (all categories)

Measurement unit	Sale format	N obs.	Units	N legs	Sales (€)	Quantity (Kgs)	% sales	% quantity
kg in leg	leg	993	6949	1034	45230	7126	27.17	40.08
kg in unboned leg	leg	247	1659	254	9389	1659	5.64	9.33
N legs	leg on	451	478	478	24771	2736	14.88	15.39
kg	request/package weight/piece	13064	4873	0	69214	4873	41.58	27.41
N packs 100g	package sliced	335	402	0	1039	40	0.62	0.23
N packs 120g	package sliced	113	147	0	367	18	0.22	0.10
N packs 150g	package sliced	1847	2571	0	4161	386	2.50	2.17
N packs 200g	package sliced	1317	2215	0	6200	443	3.72	2.49
N packs 250g	package sliced	666	823	0	2839	206	1.71	1.16
N packs 300g	package sliced	342	412	0	1351	124	0.81	0.70
N pieces 100g	piece	9	10	0	16	1	0.01	0.01
Kg in pal	paleta	21	96	21	999	96	0.60	0.54
N pal	paleta on	3	4	4	144	18	0.09	0.10
kg pal	request/package weight paleta	158	52	0	549	52	0.33	0.29
N packs 100g pal	package sliced-paleta	32	37	0	187	3.7	0.11	0.02

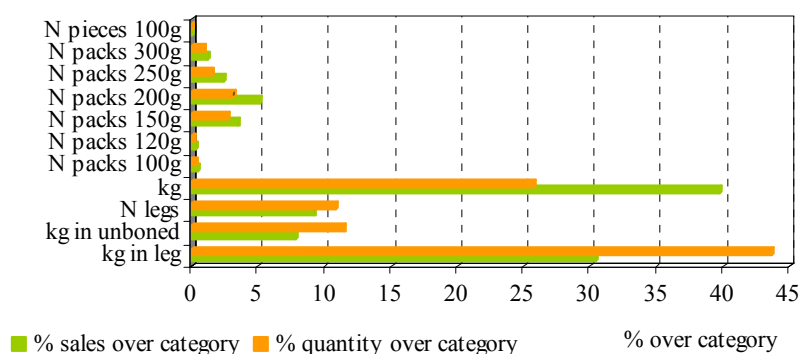
The maximum number of observations (13064) correspond to those articles measured as kg, either at the Delicatessen section (cut on request), or at the Self service section in pieces or packages of not specific weights. This format accounts for around 40% of the total value of sales and 27% of the total quantity sold. The sale of ham in whole legs, although gathers a less number of observations (1691) accounts for 48% of the sales value and 65% of the total quantity sold. A total of 1766 ham legs were sold. Sales of packages of specific weights account for 10% of the total, and the quantity for 7%. Amongst the packages of sliced ham, the sales of packages of 200g predominate, accounting for 3.7% and 2.5% of the total sales value and quantity sold, respectively. *Paletas* are mainly sold in whole pieces, and represent around 1% of the total value of sales and kg sold. Anyway, only 25 *paletas* in a piece were sold, and in total, only 214 observations are available.

In the next graphs we highlight the main formats in which the most relevant categories of ham, Serrano, Teruel DO and Iberian ham are sold. STG Serrano ham and Serrano *Paleta* are only sold in whole legs, while Teruel without DO and PGI Trevelez only in kgs (either on request or packaged in the self service section). The range of formats is much wider in Serrano ham than in the other categories. Amongst them, the most important are whole legs and articles measured in kg (on request or packaged): 66% of the total quantity of Serrano ham is sold in whole legs which accounts for 47% of the sales value. Sales on request at Delicatessen section and packaged in the self service (excluding sliced at specific weights) accounts for 40% of sales value and 26% of the quantity sold. Packages of slices, from 100g to 300g, account for 13% and 8% of sales and quantity, respectively.

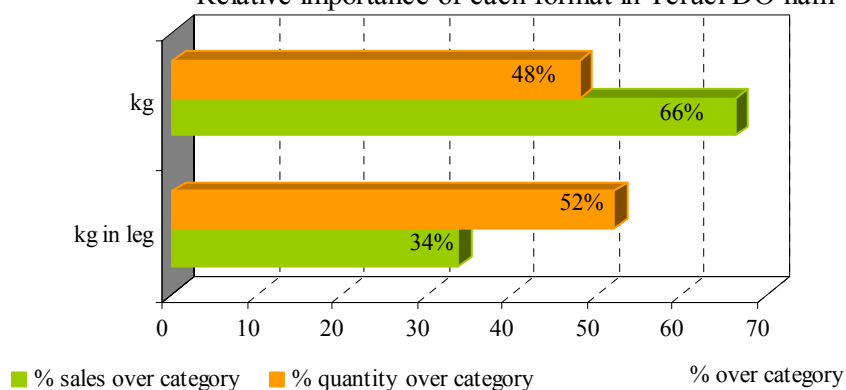
Teruel ham with Designation of Origin is only sold in two formats: whole leg or on request and weight (at both Delicatessen and Self service). The quantity sold in each format is similar but in value terms the second format (kg) is more relevant: 66% versus 34%. Iberian ham and paleta are mainly sold in whole legs: around 94% of the quantity and 83% of the sales value in ham; and 83% of both, sales and quantity, in *paletas*.

Graph 2. Distribution of formats within categories

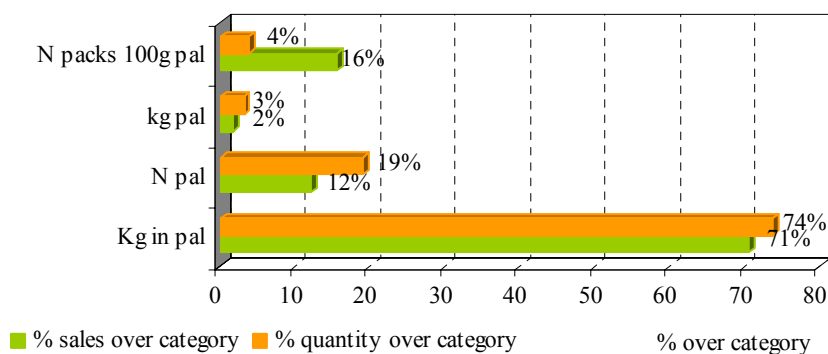
Relative importance of each format in Serrano ham



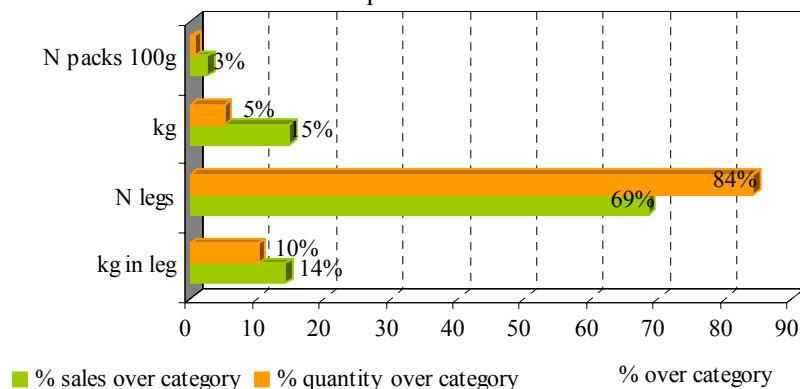
Relative importance of each format in Teruel DO ham



Relative importance of each format in Iberian Paleta



Relative importance of each format in Iberian ham



Brands

In Table A.2 in the Annex, the complete list of brands per category is presented. A total of 67 brands have been identified in the database, from which 29 belong to Serrano category; 2 to Teruel DO; 3 to Teruel no DO; 19 to Iberian no DO; 2 to TSG Serrano; 8 to Iberian Paleta no DO; 1 to PGI Trevelez; and 2 to Serrano (or white) *paleta*.

Brands may also be classified into own distributor brands or private brands, property of individual producers or firms. The own distributor brands found in the database with the corresponding assigned codes and the category in which they are classified are the following:

In Category Serrano:

- Carrefour [1]
- Carrefour Gran Reserva [2]. It has a longer curing process than the previous one.
- Carrefour Serrano -Calidad Tradición Carrefour (CTC) - [7]. Medium quality/price range
- Carrefour N1. First price brand.

In Category Iberian ham no DO:

- IB. Carrefour Huelva -De Nuestra Tierra (DNT)- [4]. DNT is the top range quality/price own price brand. De Nuestra Tierra stands for “from our land”, and Huelva is the region of origin.
- IB. Carrefour -Calidad Tradición Carrefour (CTC)- [5].

In Category Iberian *paleta* no DO:

- PAL. IB. BELLO. Carrefour Huelva -De Nuestra Tierra (DNT)- [3]. PAL stands for paleta; BELLO for bellota (acorn);

Also in Table A.2 the brands that have been sampled for the whole set of experiments in the project TYPIC are indicated. There are purchase records for 9 of the 21 Spanish hams sampled: 4 of the samples belong to category Serrano; 1 to Teruel DO; 1 to Teruel no DO; 2 to Iberian ham no DO, and 1 to TSG Serrano. Therefore, we will be able to cross reference actual purchase behaviour with the rest of experimental data for 9 samples.

In Tables 6 and 7 the most sold brands and the ones sampled within each category are shown. The brands are ranked according to the quantity sold, from more to less important. Sales information on all brands is shown in Table A.5 in the Annex.

The brand Carrefour (sample s20) is the leader, not only within the category Serrano ham, but also in the whole set of categories. Carrefour accounts for 21% of the total sales of ham, and 30% of the sales value of Serrano ham (26% of the Serrano quantity). The second most important brand in this category is Carnicas Gallego, accounting for 11% of the quantity and 8% of the sales value. Then, there is a group of 7 brands with sales over 3% each, that jointly represent 30% of sales value and 40% of the quantity. Two of these brands, Reserva el Pozo (s08) and 4 Estaciones Navidul (s07), have been sampled. Finally, the remaining 20 brands jointly account for 30% of sales value that is to say, the same as only the brand Carrefour. Within this final set of brands, we find s09 Gran Reserva la Alberca.

Three brands of Teruel ham with Designation of Origin exist. The most important is one without any explicit designation “no brand Teruel DO” that accounts for 47% of the sales. The second one in importance is the one sampled, Alto Mijares (s16), which amounts to 34% of quantity sold and 23% of the sales. Of the three brands within the category of Teruel ham without DO, two of them have not an explicit commercial name, and one has been sampled in the project. It is the last one, Ribera del Jiloca (s17) the most relevant, accounting for 76% of the total quantity of Teruel ham sold and 64% of the sales value.

The brand IB. Villar dominates the sales of Iberian ham (Table 6), accounting for 56% of the quantity and 48% of the sales value. The next five brands, together account for 40% of the sales, while the remaining 13 brands, are individually very marginal and jointly represent 9% of value and 3% of quantity sold of Iberian ham. Amongst the two brands sampled for experiments, the most important is 3 Encinas Navidul (s13), with around a 5% of the category sales and quantity. The brand of the STG Serrano category sampled in the experiments s05 Bodega Rubia, is the most important in the category, accounting for 63% of sales and 57% of quantity sold. Only one brand of the 9 available in the category Iberian *paleta*, 3 Encinas Navidul, represents half of the quantity of Iberian *paletas* sold. Finally, amongst

the two brands available in the category white *paleta*, the one without an explicit commercial name accounts for the most part of the sales of the category (77%).

Table 6. Distribution of sales value and quantity sold across brands: Serrano and Teruel ham

Category 1: Serrano						
Brand	Brand	N obs.	quantity (kgs)	Sales (€)	% sales over category	% quantity over category
1	Carrefour (s20)	6774	3780	35952	29.89	26.08
23	Carnicas Gallego	232	1668	9219	7.66	11.51
49	Marti	178	1347	5174	4.30	9.29
56	Villar	147	1040	3893	3.24	7.17
20	Bodega Villar	172	985	6907	5.74	6.79
52	Rerserva El Pozo (s08)	117	659	5148	4.28	4.55
12	Alta Serranía	1947	659	7769	6.46	4.55
2	Carrefour Gran Reserva	97	651	4498	3.74	4.49
11	4 Estaciones Navidul (s07)	86	513	4678	3.89	3.54
16	Bogdega Espigadero	68	335	2347	1.95	2.31
21	Campofrio	856	330	4538	3.77	2.28
29	Ges	802	257	3616	3.01	1.77
28	Espuña	779	223	3206	2.67	1.54
67	Sin Marca - Serrano	852	218	1923	1.60	1.50
22	Cantinera	248	204	2434	2.02	1.41
50	Navidul	795	198	3328	2.77	1.37
24	Casademont	29	188	1191	0.99	1.30
53	Rerserva Pedro Diego	608	186	3032	2.52	1.28
13	Añejo La Hoguera	148	180	1526	1.27	1.24
7	Carrefour Serrano Calidad Tradición Carrefour -CTC-	578	164	2803	2.33	1.13
9	Mayoral	125	154	1450	1.21	1.06
6	Carrefour N1	555	148	1670	1.39	1.02
47	La Colegiata	20	127	458	0.38	0.88
18	Bodega Campofrio	18	122	985	0.82	0.84
60	Sin Marca - Serrano Reserva	398	117	2016	1.68	0.81
30	Gran Reserva La Alberca (s09)	4	29	207	0.17	0.20
14	Argal	73	10	240	0.20	0.07
54	Rubia	4	3	53	0.04	0.02
27	El Pozo	9	1	16	0.01	0.01

.../ ...

... Cont.

Teruel DO						
62	Sin Marca -Teruel DO	333	449	6333	46.95	47.61
26	DO. Teruel Alto Mijares (s16)	63	320	3116	23.10	33.93
55	DO. Teruel Formiche	634	174	4041	29.96	18.45
Teruel no DO						
15	Ribera Del Jiloca (s17)	571	469	6001	64.11	75.77
59	Sin Marca - Teruel	443	136	3080	32.90	21.97
66	Sin Marca - Teruel Bodega	64	14	280	2.99	2.26

Table 7. Distribution of sales value and quantity sold across brands: Iberian ham, STG Serrano, Iberian paleta, PGI Trevelez and White *paleta*

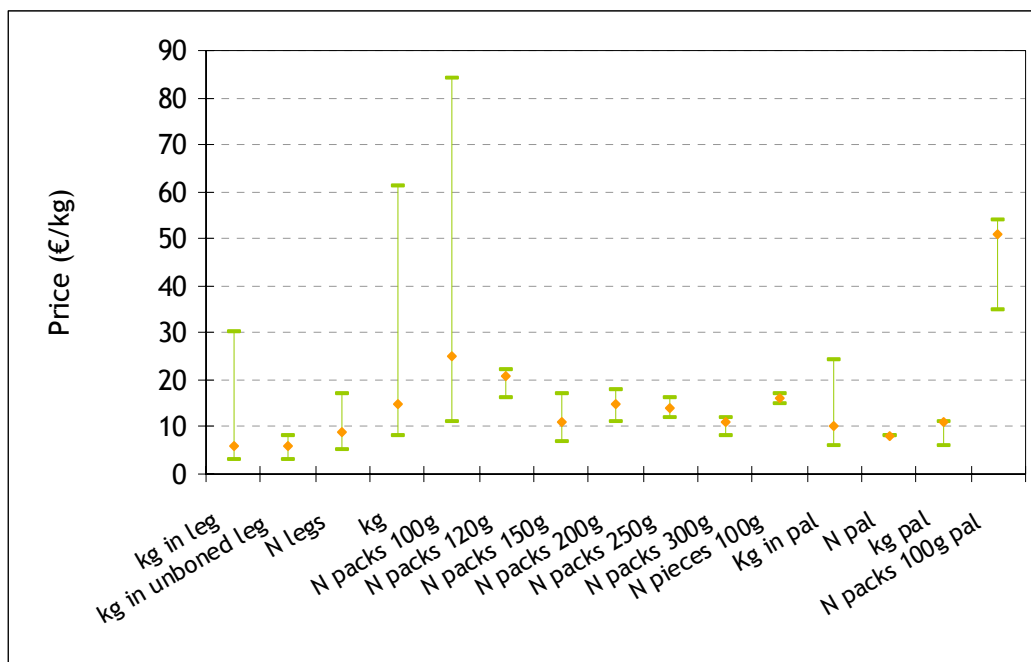
Brand	N observations	quantity (kgs)	Sales (€)	% sales over category	% quantity over category
46 IB. Villar	101	689	9071	47.82	56.34
34 IB. Extra Aromas Encinar	31	228	2781	14.66	18.64
8 IB. Lamador	15	113	1151	6.07	9.24
10 IB. REC. 3 Encinas Navidul (s13)	10	55	1009	5.32	4.50
36 IB. REC. Sanchez Azuaga	6	40	796	4.20	3.27
5 IB. Carrefour Calidad Tradición Carrefour -CTC-	105	35	1608	8.48	2.86
42 IB. Navidul	85	18	814	4.29	1.47
41 IB. Legado	48	9	332	1.75	0.74
33 IB. BELLO. Mafresa	1	8	252	1.33	0.65
37 IB. REC. Guillen	1	8	183	0.96	0.65
44 IB. Noblanza Osborne	1	7	188	0.99	0.57
4 IB. Carrefour Huelva De Nuestra Tierra -DNT- (s18)	40	5	416	2.19	0.41
39 IB. BELLO. 5J ODISA	2	2	97	0.51	0.16
43 IB. Noblanza	1	2	90	0.47	0.16
45 IB. Rubia	9	1	63	0.33	0.08
40 IB. BELLO. Pedro Diego	1	1	60	0.32	0.08
63 Sin Marca - Iberico	4	1	18	0.09	0.08
64 Sin Marca - Iberico recebo	3	1	35	0.18	0.08
65 Sin Marca - Iberico recebo Huelva Bodega Etiqueta Plata Natur	1	0.09	5	0.03	0.00
17 Jam	21	137	818	36.68	42.68
19 Bodega Rubia (s05)	28	184	1412	63.32	57.32
35 PAL. IB. REC. 3 Encinas Navidul	10	46	514	43.19	48.42
38 PAL. IB. Sanchez Azuaga	3	18	144	12.10	18.95
48 PAL. IB. Mafresa	2	11	121	10.17	11.58
32 PAL. IB. BELLO. 5 Encinas Navidul	1	5	65	5.46	5.26
3 PAL. IB. BELLO. Carrefour Huelva De Nuetra Tierra -DNT-	1	4	98	8.24	4.21
31 PAL. IB. REC.Sanchez Azuaga	1	4	42	3.53	4.21
57 PAL. IB. Rubia	32	4	187	15.71	4.21
51 PAL. REC. Villar	3	3	19	1.60	3.16
25 DE.Trevez Vallejo	43	11	253	100.00	100.00
61 Sin Marca - Paleta Serrano	155	49	530	76.92	64.47
58 PAL. Bodega Rubia	6	27	159	23.08	35.53

3. PRICES ACROSS CATEGORIES, FORMATS AND BRANDS

Prices vary depending on the format or the measurement unit of the article sold; the category of ham; and brands. In Table A.6, prices across formats within each category are presented. Average, minimum, maximum and standard deviation of prices are included in the above table.

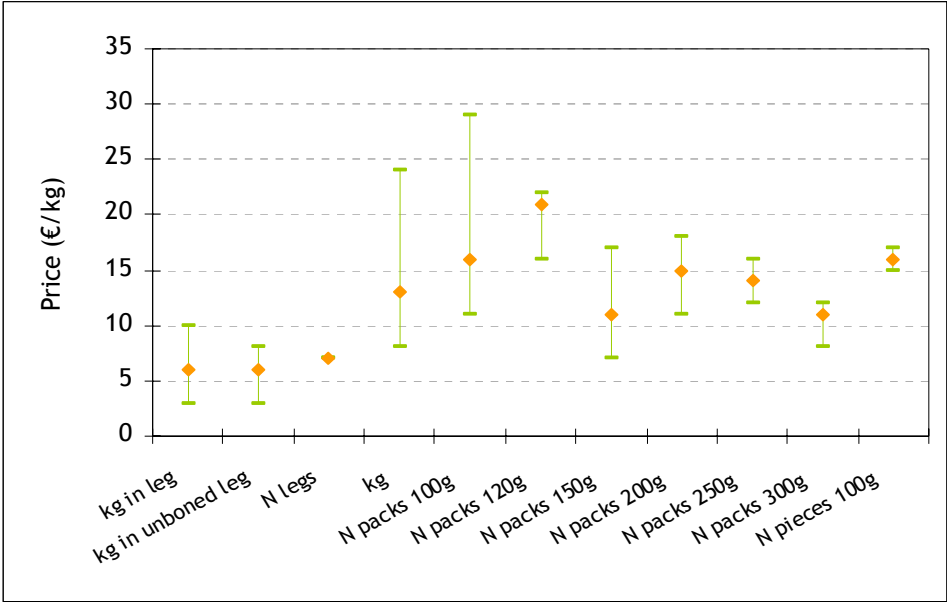
In Graph 3, average, minimum and maximum prices, across the different measurement units (formats) are shown, for all categories. This gives a first idea of variability in prices although it is not very accurate as prices vary sharply also between categories. In general, prices per kg are cheaper when the whole piece is sold (6€/kg in ham leg; 8€/kg in *paleta*), and more expensive when packages of specific weights are sold (25€/kg in packages of 100g). When ham is sold on request or at self service (but without specific weights), prices are mid-range (15€/kg). The same applies to *paletas*: the whole piece is cheaper (10€/kg) than when packaged with a specific weight (51€/kg), while on request or packaged without limit on the weight has a price in between (11€/kg). At this point, we can not really compare prices between *paleta* and ham given that all categories are being considered together.

Graph 3. Prices (average, minimum and maximum) of all categories, across measurement units or formats.



In Serrano ham (Graph 4), the lowest price sale format is the whole leg. The variability, however, is quite large in the first measurement unit of legs (kg in leg), in which the standard deviation is 4.1 over an average of 6 €/kg. Average prices of packages of sliced Serrano ham are usually higher than in the rest of formats (average prices range between 11 and 21€/kg), although only in the packages of 100g the variability is quite large (standard deviation is 5.8 over an average price of 16 €/kg). When Serrano ham is sold on request or packed at the self service section, prices fluctuate between a minimum of 8 and a maximum of 24 €/kg, with an average price of 13€/kg.

Graph 4. Prices (average, minimum and maximum) of Serrano ham, across measurement units or formats.

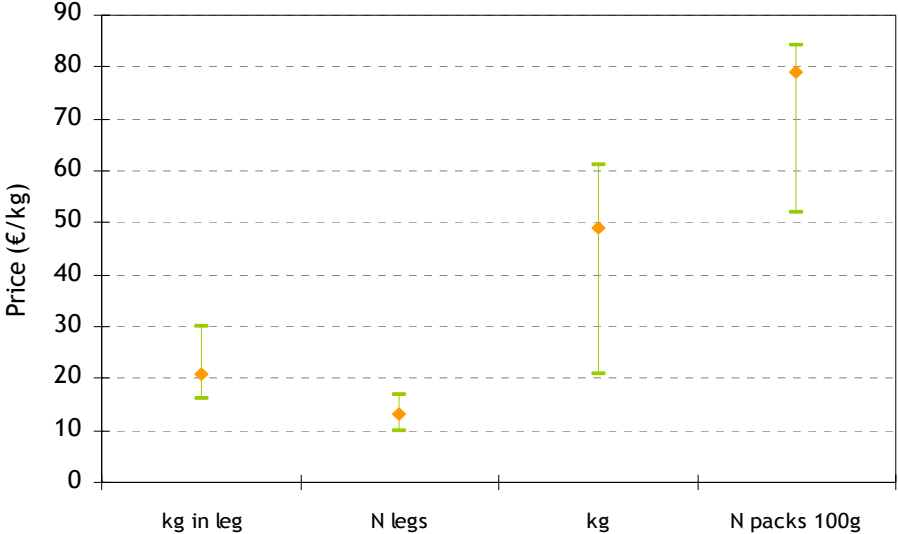


Teruel ham prices range between a minimum of 9€/kg when sold in leg, to a maximum of 26 €/kg when sold on request or weight. For the latter format, Teruel ham with Designation of Origin is cheaper than the equivalent format of Teruel ham without DO (17€/kg versus 21 €/kg) (Table A. 6 in the Annex). PGI Trevelez has an average price of 24€/kg, while TSG Serrano, as it is sold only in whole legs, has a lower price, around 8€, therefore slightly cheaper than Teruel ham with DO.

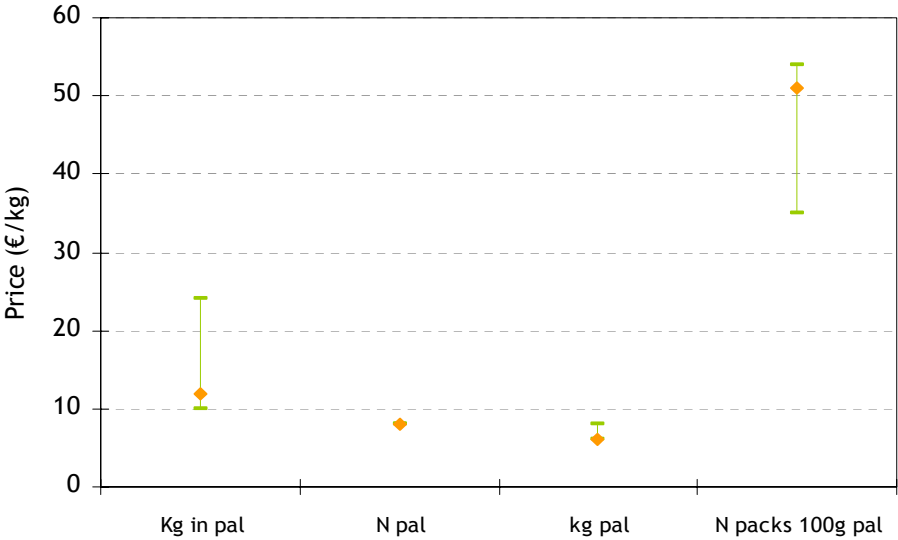
Iberian ham is sold in four different formats (Graph 5). The cheapest is as mentioned before, the whole leg, with an average price around 20€, that becomes 50 €/kg when sold on request or packed in the self-service section, and may go up

to 79€ when sliced in packages of 100g. In comparison to Iberian ham, for each format, Iberian *paleta* is sensitively cheaper, ranging between a minimum of 10€/kg when the whole piece is sold, and a maximum of 50 €/kg when sliced in packages of 100g (Graph 6).

Graph 5. Prices (average, minimum and maximum) of Iberian ham, across measurement units or formats.



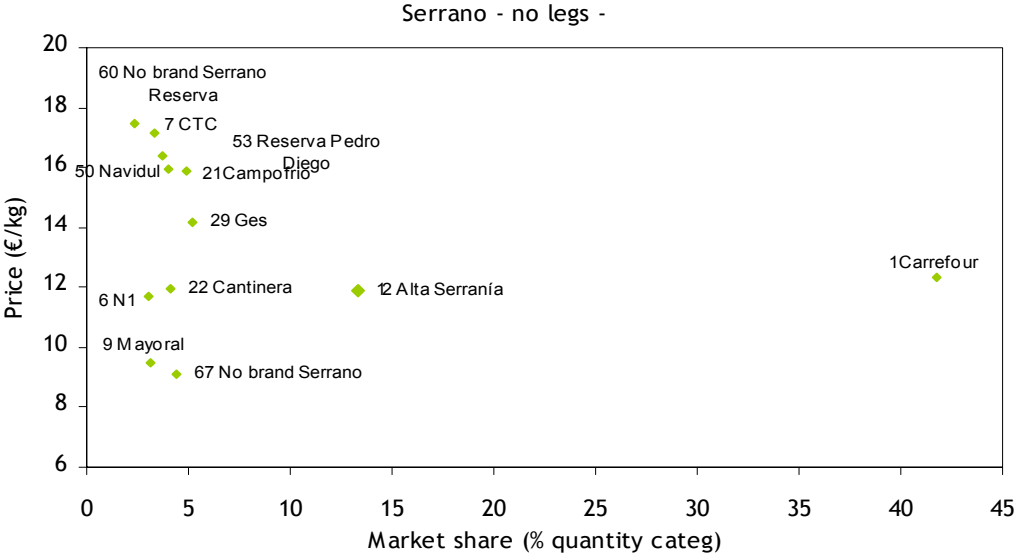
Graph 6. Prices (average, minimum and maximum) of Iberian paleta, across measurement units or formats



As the disparity of prices is very large, in particular when comparing legs with the rest of the possible format sales, in the next section we show prices for brands, disaggregating between legs and other formats. In Table A.7 in the Annex, prices across brands for articles sold as whole legs are shown. Average, minimum, maximum and standard deviation of prices are included together with quantity and sales. In Table A.8 the same information is provided but for articles sold in formats different from legs.

In Graph 7, average price and market share are displayed for each brand in category Serrano, excluding those purchases of whole legs. The market share is calculated with respect to the total quantity sold by the category. The objective with this representation is to have a graphical idea about the positioning of the different brands and about a possible inverse relationship between price and quantity. Only those brands with market shares bigger than 1% are included. The leader is Carrefour, with a market share around 40% and an average price around 12€, which is a mid-range price across brands. For prices over 14 € it seems to be an inverse relationship between price and market share.

Graph 7. Positioning of Serrano ham brands (whole legs excluded)

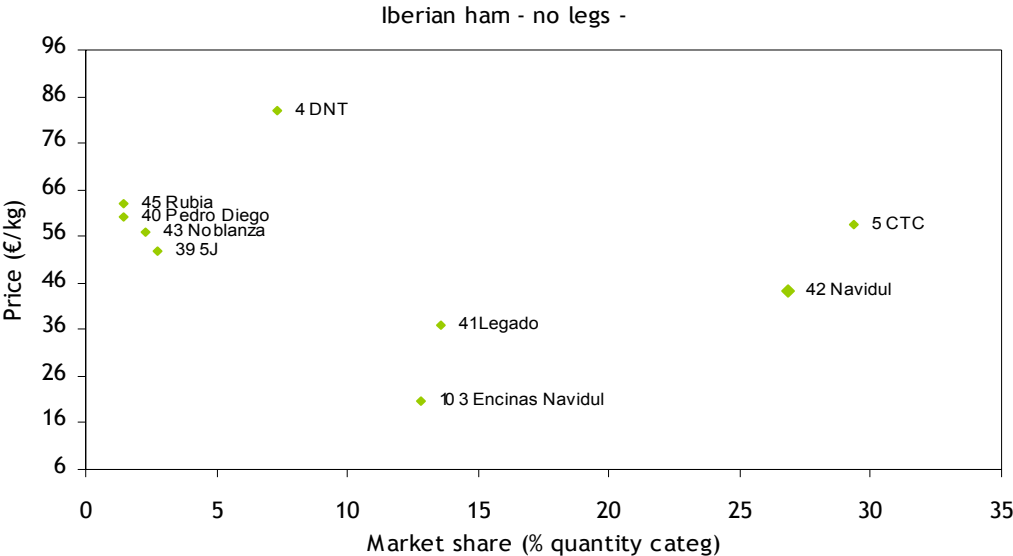


In the category Teruel ham there seems to be a normal demand function, although more clearly in Teruel ham with DO: the brand with the highest price (Alto Mijares, with a price of 26€) has the smallest market share (2%), while the

one with the lowest price (No brand, with a price of 14€) has the biggest market share (59%) (Table A.7).

In Graph 8, the positioning of Iberian ham brands is displayed, excluding articles sold in whole legs. The distributor brands are positioned at two different segments: DNT at the top price segment, and CTC at the middle. The latter is the leader of the category, and the first one has got a market share around 7%, which is bigger than several brands positioned at lower prices.

Graph 8. Positioning of Iberian ham brands (whole legs excluded)



4. CONCLUDING REMARKS

The main objective of this working paper was to explain in detail the contents of the original scanner data available and the different rules and procedures developed to complete the information provided by the raw data. In the process, new variables have been added, which are essential in order to accurately describe the actual purchases recorded in the database. These new variables can be classified into: identification variables of the article (category, brand, section); description of quantity purchased at each occasion (grams unit, Nlegs); description of the way the product is presented to consumer (measurement unit, format). Many of these variables have allowed to calculate two basic variables: quantity purchased and price. Lists of the identification variables are presented, together with some characteristics.

ANNEX

Table A.1. Gestion codes: correspondence between sections, article codes and designations

DELICATESSEN OR CUT ON REQUEST			SELF SERVICE		
Code_article	Designation	Subfamily	Code_article	Designation	Subfamily
773780000	JAMON IBERICO BELLOTA 5J ODISA	20001	28240000	JAMON BODEGA CAMPFRIO, EL KG.	15500
777220000	CENTRO JAMON NAVIDUL	20000	28250000	JAMON CURADO CAMPOFRIO, KG.	15500
800060000	CENTRO JAMON IB.DESH.NAVIDUL	20001	31200000	JAMON CURADO 4EST. NAVIDUL.KG	15500
833920000	JAMON TERUEL BODEGA	20000	31210000	J.IB.5 ENCINAS NAVIDUL, KG.	15501
970300000	JAMON D.O. TERUEL A.MIJARES	20000	31220000	JAMON IB.REC. 3 ENCI.NAVIDU,KG	15501
1052150000	CODILLO JAMON CAMPOFRIO	20000	87710000	JAMON RESERVA EL POZO, KG.	15500
1216490000	C.JAMON TERUEL D.O.FORMICHE LS	20000	221240000	PALETA IB.REC.3 ENC.NAVIDUL KG	15503
1254120000	CENTRO JAMON IBERICO	20001	428770000	JAMON CURADO LONC.ESPU.A 250G	15504
1387340000	JAMON I.B. BELLOTA	20001	447320000	JAMON IB.REC.S.AZUAGA, KG	15501
1711780000	JAMON C/P IBER RECEBO GUILLEN	20001	447380000	PALETA IB. RECEBO S.AZUAGA,KG.	15503
1718580000	JAMON IB.BELLOTA HUELVA	20001	447400000	LONCHAS PALETA IBER.100G RUBIA	15503
1718590000	JAMON IBERICO RECEBO HUELVA	20001	447750000	LONCHAS JAMON IBER.100GR RUBIA	15504
1973980000	JAMON IBERICO BELLOTA P.DIEGO	20001	463860000	JAM. CURADO CON PATA VILLAR,KG	15500
1973990000	JAMON IBERICO EXTRA	20001	511890000	JAMON CURADO CASADEMONT, KG.	15500
1974090000	JAMON RESERVA PEDRO DIEGO	20000	646940000	JAMON BODEGA RUBIA, EL KG.	15500
2078090000	CENTRO PALETA SERRAN	20000	646960000	L.JAMON .EXTRAFINO ESPU.A.120	15504
2332260000	CENTRO JAMON CAMPOFRIO L.S.	20000	656800000	JAMON BODEGA VILLAR, KG.	15500
2332270000	CENTRO DE JAMON TERUEL	20000	700430000	JAM. CURADO SIN PATA VILLAR,KG	15500
2332280000	CENTRO JAMON DESH.GES. L.S.	20000	715670000	JAMON CURADO MARTI	15500
2332290000	CENTRO JAMON LS CARREFOUR	20000	715720000	JAMON C/P D.O.TERUEL A.MIJARES	15500
2345930000	JAMON D.E.TREVELEZ VALLEJO 14M	20000	1095250000	TAQUITOS JAMON NAVIDUL 150GR	15504
2382900000	JAMON IBERICO CTC	20001	1704630000	PALETA BODEGA RUBIA, KG.	15502
2383530000	JAMON IB.BELLOTA MAFRESA L.S.	20001	2137400000	JAMON IB.RECEBO MAFRESA, KG	15501
2626920000	CENTRO JAMON DESHUESADO CARREF	20000	2313910000	JAMON SERR.CURADO C/P CARREFOU	15500
2637940000	JAMON IB.BELLOTA 5J CORTE	20001	2333520000	JAMON CURADO LA COLEGIATA, KG.	15500
2638870000	CENTRO JAMON DESH.CAMPOFRIO	20000	2340780000	JAMON G,RESERVA LA ALBERCA, KG	15500
2865500000	TACOS JAMON	20000	2379060000	JAMON GRAN RESERVA CARREFOUR	15500
3039300000	JAMON IBERICO CTC POR PIEZAS	20001	2382810000	TACOS JAMON CANTINERA 1/8, KG.	15500
3468710000	JAMON D.O.TERUEL C/PATA	20000	2382820000	TACOS JAMON CANTINERA 1/4, KG.	15500
3468840000	TACOS JAMON BLANCO JILOCA	20000	2383020000	PALETA IB. RECEBO MAFRESA, KG.	15503
3850000000	CENTRO JAM RESERVA LIMP/PELADO	20000	2621910000	CARREFOU TIRAS DE JAMON 150 GR	15504
3850050000	CENTRO JAMON RESERVA P. DIEGO	20000	3027540000	PAL.IB.BELLO.5ENC.NAVIDUL, KG.	15503
3919420000	JAMON IBERICO BELLOTA AL CORTE	20001	3032840000	JAMONETES 1/2 PIEZAS MAYORAL	15500
3919450000	JAMON IBERICO RECEBO AL CORTE	20001	3036060000	JAMON CARNICAS GALLEGO	15500
3919500000	JAMON IBERICO BELLOTA BARI	20001	3380890000	PALETA IBER BELL HUELV DNT PZA	15503
3919520000	JAMON IBERICA BELLOTA CORTE	20001	3525700000	PALETA BELLOTA JABUGO	15503
3919540000	JAMON IBERICO NOBLANZA CORTE	20001	3544490000	JAMON CURADO S/P CARREFOUR	15500
3919550000	JAMON IBERICO NOBLANZA OSBORNE	20001	3774350000	LONCHAS DE JAMON CURADO CARREF	15504
3919580000	JAMON IBERICO BELLOTA CORTE	20001	3863880000	JAMON IBERICO VILLAR PZA	15501

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3919590000	JAMON IBERICO BELLOTA CORTE	20001	3899490000	JAMON CURADO IBERSIERRA	15500
3919690000	JAMON IBERICO EXTRA CORTE	20001	4019970000	JAMON IB BELLOT HUELVA DNT PZA	15501
3920120000	JAMON IBERICO RECEBO AL CORTE	20001	4065290000	PALETA IB.RECEBO VILLAR, KG.	15503
4116740000	CENTRO DE JAMON IBERICO CTC	20001	4303180000	JAMON IB LONCH HUELVA DNT 100G	15504
4232020000	CENTRO JAMON ALTA SERRANIA L.S	20000	4305210000	JAMON LONCHAS N1 100G	15504
4243830000	CENTRO JAMON ALTA SERRANIA	20000	4382910000	JAMON CUR.LONC N.1 300 GR	15504
4533700000	JAMON IBERICO RECEBO CUYAR	20001	4401640000	JAMON IB.GUIJUELO DNT	15501
4693060000	CODILLO JAMON IBERICO EL POZO	20001	4439490000	PLATO J.CUR.ARGAL 100GR	15504
4728090000	JAMON SERRANO DESHUESADO CTC	20000	4549230000	J. IB. LAMADOR PIEZA 7-8 KG.	15501
4728150000	JAMON SERRANO S/H CTC LS	20000	4578120000	TACOS DE JAMON RUBIA, KG.	15504
4754070000	JAMON A.EJO 12-14 MESES LA HOG	20000	4578130000	LOTE PALETA IB. RUBIA REF 9954	15503
4915500000	JAMON IBERICO LEGADO L.S.	20001	4627600000	PALETA IBERICA S. AZUAGA, UND.	15503
4940280000	TACO JAMON CARREFOUR 1/8	20000	4636690000	JAMON RESERVA P.NEGRA IBERSIER	15500
4940590000	TACO JAMON CARREFOUR 1/4	20000	4720750000	J.IB. SIERRA AZUAGA POR PIEZA	15501
4940660000	JAMON IBERICO LEGADO TACO 1/8	20001	4755830000	J.BOD.ET.PLATA NATUR JAM,PZA	15500
4950460000	PALETA IBERICA NOBLANZA S.ROME	20001	4799300000	J.BODEGA VILLAR, PIEZA	15500
4976780000	CENTRO JAMON CARREFOUR INDIVID	20000	4920070000	JAMON PZA GRAN RESERVA CARREF	15500
5070300000	JAMON IBERICO TAQUITOS	20001	4939620000	J. BOD.ESPIGADERO POR PIEZAS	15500
5168920000	JAM.RVA.C/PATA PEDR.DIEG.PIEZA	20000	4964740000	J.IB.EXTRA AROMAS ENCINAR,	15501
5168940000	JAMON IBERI.BELLOTA D.O.G.M.PZ	20001	5124560000	J. RESERVA EL POZO, PIEZA	15500
			5198650000	CODILLO JAMON PRECOR POZO, PZA	15500
			5333040000	C.JAMON JES ARGAL 1/8,KG	15504

Table A.2. Correspondence between categories, article reference and designation, brands and brands codes.

Cod_cat	Category	Brand	Brand code	sample	Designation	Article_code
1	Serrano	Carrefour	1	s20	CARREFOU TIRAS DE JAMON 150 GR	262191
1	Serrano	Carrefour	1	s20	CENTRO JAMON CARREFOUR INDIVID	497678
1	Serrano	Carrefour	1	s20	CENTRO JAMON DESHUESADO CARREF	262692
1	Serrano	Carrefour	1	s20	CENTRO JAMON LS CARREFOUR	233229
1	Serrano	Carrefour	1	s20	JAMON CURADO S/P CARREFOUR	354449
1	Serrano	Carrefour	1	s20	JAMON SERR.CURADO C/P CARREFOU	231391
1	Serrano	Carrefour	1	s20	LONCHAS DE JAMON CURADO CARREF	377435
1	Serrano	Carrefour	1	s20	TACO JAMON CARREFOUR 1/4	494059
1	Serrano	Carrefour	1	s20	TACO JAMON CARREFOUR 1/8	494028
1	Serrano	Carrefour Gran Reserva	2	no	JAMON GRAN RESERVA CARREFOUR	237906
1	Serrano	Carrefour Gran Reserva	2	no	JAMON PZA GRAN RESERVA CARREF	492007
1	Serrano	Carrefour N1	6	no	JAMON CUR.LONC N.1 300 GR	438291
1	Serrano	Carrefour N1	6	no	JAMON LONCHAS N1 100G	430521
1	Serrano	Carrefour Serrano Calidad Tradición Carrefour - CTC-	7	no	JAMON SERRANO DESHUESADO CTC	472809
1	Serrano	Carrefour Serrano Calidad Tradición Carrefour - CTC-	7	no	JAMON SERRANO S/H CTC LS	472815
1	Serrano	Mayoral	9	no	JAMONETES 1/2 PIEZAS MAYORAL	303284
1	Serrano	4 Estaciones Navidul	11	s07	JAMON CURADO 4EST. NAVIDUL.KG	3120
1	Serrano	Alta Serranía	12	no	CENTRO JAMON ALTA SERRANIA	424383
1	Serrano	Alta Serranía	12	no	CENTRO JAMON ALTA SERRANIA L.S	423202
1	Serrano	Añejo La Hoguera	13	no	JAMON A.EJO 12-14 MESES LA HOG	475407
1	Serrano	Argal	14	no	PLATO J.CUR.ARGAL 100GR	443949
1	Serrano	Bodega Espigadero	16	no	J. BOD.ESPIGADERO POR PIEZAS	493962
1	Serrano	Bodega Campofrio	18	no	JAMON BODEGA CAMPFRIO, EL KG.	2824
1	Serrano	Bodega Villar	20	no	J.BODEGA VILLAR, PIEZA	479930

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1	Serrano	Bodega Villar	20	no	JAMON BODEGA VILLAR, KG.	65680
1	Serrano	Campofrio	21	no	CENTRO JAMON CAMPOFRIO L.S.	233226
1	Serrano	Campofrio	21	no	CENTRO JAMON DESH.CAMPOFRIO	263887
1	Serrano	Campofrio	21	no	JAMON CURADO CAMPOFRIO, KG.	2825
1	Serrano	Cantinera	22	no	TACOS JAMON CANTINERA 1/4, KG.	238282
1	Serrano	Cantinera	22	no	TACOS JAMON CANTINERA 1/8, KG.	238281
1	Serrano	Carnicas Gallego	23	no	JAMON CARNICAS GALLEGO	303606
1	Serrano	Casademont	24	no	JAMON CURADO CASADEMONT, KG.	51189
1	Serrano	El Pozo	27	no	CODILLO JAMON PRECOR POZO, PZA	519865
1	Serrano	España	28	no	JAMON CURADO LONC.ESPU.A 250G	42877
1	Serrano	España	28	no	L.JAMON .EXTRAFINO ESPU.A.120	64696
1	Serrano	Ges	29	no	CENTRO JAMON DESH.GES. L.S.	233228
1	Serrano	Gran Reserva La Alberca	30	s09	JAMON G,RESERVA LA ALBERCA, KG	234078
1	Serrano	La Colegiata	47	no	JAMON CURADO LA COLEGIATA, KG.	233352
1	Serrano	Marti	49	no	JAMON CURADO MARTI	71567
1	Serrano	Navidul	50	no	CENTRO JAMON NAVIDUL	77722
1	Serrano	Navidul	50	no	TAQUITOS JAMON NAVIDUL 150GR	109525
1	Serrano	Rerserva El Pozo	52	s08	J. RESERVA EL POZO, PIEZA	512456
1	Serrano	Rerserva El Pozo	52	s08	JAMON RESERVA EL POZO, KG.	8771
1	Serrano	Rerserva Pedro Diego	53	no	CENTRO JAMON RESERVA P. DIEGO	385005
1	Serrano	Rerserva Pedro Diego	53	no	JAMON RESERVA PEDRO DIEGO	197409
1	Serrano	Rubia	54	no	TACOS DE JAMON RUBIA, KG.	457812
1	Serrano	Villar	56	no	JAM. CURADO CON PATA VILLAR,KG	46386
1	Serrano	Villar	56	no	JAM. CURADO SIN PATA VILLAR,KG	70043
1	Serrano	Sin Marca - Serrano Reserva	60	no	CENTRO JAM RESERVA LIMP/PELADO	385000
1	Serrano	Sin Marca - Serrano	67	no	TACOS JAMON	286550

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2	Teruel DO	DO. Teruel Alto Mijares	26	s16	JAMON C/P D.O.TERUEL A.MIJARES	71572
2	Teruel DO	DO. Teruel Alto Mijares	26	s16	JAMON D.O. TERUEL A.MIJARES	97030
2	Teruel DO	DO. Teruel Formiche	55	no	C.JAMON TERUEL D.O.FORMICHE LS	121649
2	Teruel DO	Sin Marca -Teruel DO	62	no	JAMON D.O.TERUEL C/PATA	346871
3	Teruel no DO	Ribera Del Jiloca	15	s17	TACOS JAMON BLANCO JILOCA	346884
3	Teruel no DO	Sin Marca - Teruel	59	no	CENTRO DE JAMON TERUEL	233227
3	Teruel no DO	Sin Marca - Teruel Bodega	66	no	JAMON TERUEL BODEGA	83392
4	Iberian no DO	IB. Carrefour Huelva De Nuestra Tierra -DNT-	4	s18	JAMON IB LONCH HUELVA DNT 100G	430318
4	Iberian no DO	IB. Carrefour Calidad Tradición Carrefour -CTC-	5	no	CENTRO DE JAMON IBERICO CTC	411674
4	Iberian no DO	IB. Carrefour Calidad Tradición Carrefour -CTC-	5	no	JAMON IBERICO CTC	238290
4	Iberian no DO	IB. Carrefour Calidad Tradición Carrefour -CTC-	5	no	JAMON IBERICO CTC POR PIEZAS	303930
4	Iberian no DO	IB. Lamador	8	no	J. IB. LAMADOR PIEZA 7-8 KG.	454923
4	Iberian no DO	IB. REC. 3 Encinas Navidul	10	S13	JAMON IB.REC. 3 ENCI.NAVIDU,KG	3122
4	Iberian no DO	IB. BELLO. Mafresa	33	no	JAMON IB.BELLOTA MAFRESA L.S.	238353
4	Iberian no DO	IB. Extra Aromas Encinar	34	no	J.IB.EXTRA AROMAS ENCINAR,	496474
4	Iberian no DO	IB. REC. Sanchez Azuaga	36	no	JAMON IB.REC.S.AZUAGA, KG	44732
4	Iberian no DO	IB. REC. Guillen	37	no	JAMON C/P IBER RECEBO GUILLEN	171178
4	Iberian no DO	IB. BELLO. 5J ODISA	39	no	JAMON IBERICO BELLOTA 5J ODISA	77378
4	Iberian no DO	IB. BELLO. Pedro Diego	40	no	JAMON IBERICO BELLOTA P.DIEGO	197398
4	Iberian no DO	IB. Legado	41	no	JAMON IBERICO LEGADO L.S.	491550
4	Iberian no DO	IB. Navidul	42	no	CENTRO JAMON IB.DESH.NAVIDUL	80006
4	Iberian no DO	IB. Noblanza	43	no	JAMON IBERICO NOBLANZA CORTE	391954
4	Iberian no DO	IB. Noblanza Osborne	44	no	JAMON IBERICO NOBLANZA OSBORNE	391955
4	Iberian no DO	IB. Rubia	45	no	LONCHAS JAMON IBER.100GR RUBIA	44775
4	Iberian no DO	IB. Villar	46	no	JAMON IBERICO VILLAR PZA	386388
4	Iberian no DO	Sin Marca - Iberico	63	no	JAMON IBERICO EXTRA	197399
4	Iberian no DO	Sin Marca - Iberico recebo	64	no	JAMON IBERICO RECEBO AL CORTE	392012
4	Iberian no DO	Sin Marca - Iberico recebo Huelva	65	no	JAMON IBERICO RECEBO HUELVA	171859

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5	TSG Serrano	Bodega Etiqueta Plata Natur Jam	17	no	J.BOD.ET.PLATA NATUR JAM,PZA	475583
5	TSG Serrano	Bodega Rubia	19	s05	JAMON BODEGA RUBIA, EL KG.	64694
6	Iberian Paleta no DO	PAL. IB. BELLO. Carrefour Huelva De Nuetra Tierra -DNT-	3	no	PALETA IBER BELL HUELV DNT PZA	338089
6	Iberian Paleta no DO	PAL. IB. REC.Sanchez Azuaga	31	no	PALETA IB. RECEBO S.AZUAGA,KG.	44738
6	Iberian Paleta no DO	PAL. IB. BELLO. 5 Encinas Navidul	32	no	PAL.IB.BELLO.5ENC.NAVIDUL, KG.	302754
6	Iberian Paleta no DO	PAL. IB. REC. 3 Encinas Navidul	35	no	PALETA IB.REC.3 ENC.NAVIDUL KG	22124
6	Iberian Paleta no DO	PAL. IB. Sanchez Azuaga	38	no	PALETA IBERICA S. AZUAGA, UND.	462760
6	Iberian Paleta no DO	PAL. IB. Mafresa	48	no	PALETA IB. RECEBO MAFRESA, KG.	238302
6	Iberian Paleta no DO	PAL. REC. Villar	51	no	PALETA IB.RECEBO VILLAR, KG.	406529
6	Iberian Paleta no DO	PAL. IB. Rubia	57	no	LONCHAS PALETA IBER.100G RUBIA	44740
7	Trevez IGP	DE.Trevez Vallejo	25	no	JAMON D.E.TREVELEZ VALLEJO 14M	234593
8	Serrano Paleta	PAL. Bodega Rubia	58	no	PALETA BODEGA RUBIA, KG.	170463
8	Serrano Paleta	Sin Marca - Paleta Serrano	61	no	CENTRO PALETA SERRAN	207809

Table A.3. Distribution of Quantity and Sales value across Sections: Self-service and Delicatessen

Category	Quantity (kgs)			sales (€)		
	Self service	Delicatessen	Total	Self service	Delicatessen	Total
Serrano	12173.47	2322.74	14496.21	89596.25	30682.36	120278.61
Teruel DO	319.65	623.02	942.67	3115.82	10373.59	13489.41
Teruel no DO	469.06	149.99	619.06	6001.37	3360	9361.37
Iberian no DO	1130.02	91.39	1221.41	15286.45	3679.46	18965.91
STG Serrano	320.07	0.00	320.07	2230.09	0	2230.09
Iberian Paleta no DO	94.29	0.00	94.29	1190.56	0	1190.56
Trevez PGI	0.00	10.78	10.78	0	252.91	252.91
Serrano Paleta	26.82	49.03	75.85	159.4	529.89	689.29
Total	14533.37	3246.96	17780.33	117579.94	48878.21	166458.15
N observations	10967	8631	19598	10967	8631	19598

Category	Quantity (kgs)			sales (€)		
	Self service (%)	Delicatessen (%)	Total	Self service (%)	Delicatessen (%)	Total
Serrano	83.98	16.02	100	74.49	25.51	100
Teruel DO	33.91	66.09	100	23.10	76.90	100
Teruel no DO	75.77	24.23	100	64.11	35.89	100
Iberian no DO	92.52	7.48	100	80.60	19.40	100
STG Serrano	100.00	0.00	100	100.00	0.00	100
Iberian Paleta no DO	100.00	0.00	100	100.00	0.00	100
Trevez PGI	0.00	100.00	100	0.00	100.00	100
Serrano Paleta	35.35	64.65	100	23.13	76.87	100
Total	81.74	18.26	100	71	29	100

Table A.4. Distribution of Quantity and Sales value across formats per category

Category	measure	sale format	N observations	Units	N legs	Sales (€)	Quantity (Kgs)	% sales over category	% quantity over category
Total	kg in leg	leg	993	6949	1034	45230	7126	27.17	40.08
Total	kg in unboned leg	leg	247	1659	254	9389	1659	5.64	9.33
Total	N legs	leg	451	478	478	24771	2736	14.88	15.39
Total	kg	on request / weight / piece	13064	4873	0	69214	4873	41.58	27.41
Total	N packs 100g	packed sliced	335	402	0	1039	40	0.62	0.23
Total	N packs 120g	packed sliced	113	147	0	367	18	0.22	0.10
Total	N packs 150g	packed sliced	1847	2571	0	4161	386	2.50	2.17
Total	N packs 200g	packed sliced	1317	2215	0	6200	443	3.72	2.49
Total	N packs 250g	packed sliced	666	823	0	2839	206	1.71	1.16
Total	N packs 300g	packed sliced	342	412	0	1351	124	0.81	0.70
Total	N pieces 100g	piece	9	10	0	16	1	0.01	0.01
Total	Kg in pal	leg-paleta	21	96	21	999	96	0.60	0.54
Total	N pal	leg-paleta	3	4	4	144	18	0.09	0.10
Total	kg pal	on request / weight paleta	158	52	0	549	52	0.33	0.29
Total	N packs 100g pal	packed sliced-paleta	32	37	0	187	3.7	0.11	0.02

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Category	measure	sale format	N observations	Units	N legs	Sales (€)	Quantity (Kgs)	% sales over category	% quantity over category
Serrano	kg in leg	leg	886	6150	926	36589	6327	30.42	43.65
Serrano	kg in unboned leg	leg	247	1659	254	9389	1659	7.81	11.45
Serrano	N legs	leg	283	301	301	10951	1570	9.10	10.83
Serrano	kg	on request / weight / piece	10723	3729	0	47856	3729	39.79	25.72
Serrano	N packs 100g	packed sliced	286	342	0	560	34	0.47	0.24
Serrano	N packs 120g	packed sliced	113	147	0	367	18	0.31	0.12
Serrano	N packs 150g	packed sliced	1847	2571	0	4161	386	3.46	2.66
Serrano	N packs 200g	packed sliced	1317	2215	0	6200	443	5.15	3.06
Serrano	N packs 250g	packed sliced	666	823	0	2839	206	2.36	1.42
Serrano	N packs 300g	packed sliced	342	412	0	1351	124	1.12	0.85
Serrano	N pieces 100g	piece	9	10	0	16	1	0.01	0.01
Teruel DO	kg in leg	leg	61	491	61	4548	491	33.71	52.06
Teruel DO	kg	on request / weight / piece	969	452	0	8942	452	66.29	47.94
Teruel no DO	kg	on request / weight / piece	1078	619	0	9361	619	100.00	100.00
Iberian no DO	kg in leg	leg	18	124	19	2681	124	14.14	10.17
Iberian no DO	N legs	leg	147	156	156	13003	1029	68.56	84.25
Iberian no DO	kg	on request / weight / piece	251	62	0	2803	62	14.78	5.09
Iberian no DO	N packs 100g	packed sliced	49	60	0	479	6	2.53	0.49
STG Serrano	kg in leg	leg	28	184	28	1412	184	63.32	57.35
STG Serrano	N legs	leg	21	21	21	818	137	36.68	42.65

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Category	measure	sale format	N observations	Units	N legs	Sales (€)	Quantity (Kgs)	% sales over category	% quantity over category
Iberian paleta no DO	Kg in pal	leg-paleta	15	70	15	840	69.588	70.59	73.80
Iberian paleta no DO	N pal	leg-paleta	3	4	4	144	18	12.10	19.09
Iberian paleta no DO	kg pal	on request / weight paleta	3	3	0	19	3	1.60	3.18
Iberian paleta no DO	N packs 100g pal	packed sliced- paleta	32	37	0	187	3.7	15.71	3.92
PGI Trevelez	kg	on request / weight / piece	43	11	0	253	11	100.00	100.00
Paleta Serrano	Kg in pal	leg-paleta	6	27	6	159	27	23.08	35.35
Paleta Serrano	kg pal	on request / weight paleta	155	49	0	530	49	76.92	64.65

Table A.5. Distribution of Quantity and Sales value across brands per category

Category	Brand	N obs.	quantity (kgs)	Sales (€)	% sales over total	%quantity over total	% sales over category	% quantity over category
1	1 Carrefour	6774	3780	35952	21.60	21.26	29.89	26.08
1	2 Carrefour Gran Reserva	97	651	4498	2.70	3.66	3.74	4.49
1	6 Carrefour N1	555	148	1670	1.00	0.83	1.39	1.02
	Carrefour Serrano Calidad Tradición Carrefour							
1	7 -CTC-	578	164	2803	1.68	0.92	2.33	1.13
1	9 Mayoral	125	154	1450	0.87	0.87	1.21	1.06
1	11 4 Estaciones Navidul	86	513	4678	2.81	2.88	3.89	3.54
1	12 Alta Serranía	1947	659	7769	4.67	3.71	6.46	4.55
1	13 Añejo La Hoguera	148	180	1526	0.92	1.01	1.27	1.24
1	14 Argal	73	10	240	0.14	0.06	0.20	0.07
1	16 Bogdega Espigadero	68	335	2347	1.41	1.88	1.95	2.31
1	18 Bodega Campofrio	18	122	985	0.59	0.69	0.82	0.84
1	20 Bodega Villar	172	985	6907	4.15	5.54	5.74	6.79
1	21 Campofrio	856	330	4538	2.73	1.86	3.77	2.28
1	22 Cantinera	248	204	2434	1.46	1.15	2.02	1.41
1	23 Carnicas Gallego	232	1668	9219	5.54	9.38	7.66	11.51
1	24 Casademont	29	188	1191	0.72	1.06	0.99	1.30
1	27 El Pozo	9	1	16	0.01	0.01	0.01	0.01
1	28 Espuña	779	223	3206	1.93	1.25	2.67	1.54
1	29 Ges	802	257	3616	2.17	1.45	3.01	1.77
1	30 Gran Reserva La Alberca	4	29	207	0.12	0.16	0.17	0.20
1	47 La Colegiata	20	127	458	0.28	0.71	0.38	0.88
1	49 Marti	178	1347	5174	3.11	7.57	4.30	9.29
1	50 Navidul	795	198	3328	2.00	1.11	2.77	1.37
1	52 Rerserva El Pozo	117	659	5148	3.09	3.71	4.28	4.55

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Categ	Brand	N observations	quantity (kgs)	Sales (€)	% sales over total	%quantity over total	% sales over category	% quantity over category
1	53 Rerserva Pedro Diego	608	186	3032	1.82	1.05	2.52	1.28
1	54 Rubia	4	3	53	0.03	0.02	0.04	0.02
1	56 Villar	147	1040	3893	2.34	5.85	3.24	7.17
1	60 Sin Marca - Serrano Reserva	398	117	2016	1.21	0.66	1.68	0.81
1	67 Sin Marca - Serrano	852	218	1923	1.16	1.23	1.60	1.50
2	26 DO. Teruel Alto Mijares	63	320	3116	1.87	1.80	23.10	33.93
2	55 DO. Teruel Formiche	634	174	4041	2.43	0.98	29.96	18.45
2	62 Sin Marca -Teruel DO	333	449	6333	3.80	2.52	46.95	47.61
3	15 Ribera Del Jiloca	571	469	6001	3.61	2.64	64.11	75.77
3	59 Sin Marca - Teruel	443	136	3080	1.85	0.76	32.90	21.97
3	66 Sin Marca - Teruel Bodega	64	14	280	0.17	0.08	2.99	2.26
4	4 IB. Carrefour Huelva De Nuestra Tierra -DNT-	40	5	416	0.25	0.03	2.19	0.41
4	5 IB. Carrefour Calidad Tradición Carrefour -CTC-	105	35	1608	0.97	0.20	8.48	2.86
4	8 IB. Lamador	15	113	1151	0.69	0.64	6.07	9.24
4	10 IB. REC. 3 Encinas Navidul	10	55	1009	0.61	0.31	5.32	4.50
4	33 IB. BELLO. Mafresa	1	8	252	0.15	0.04	1.33	0.65
4	34 IB. Extra Aromas Encinar	31	228	2781	1.67	1.28	14.66	18.64
4	36 IB. REC. Sanchez Azuaga	6	40	796	0.48	0.22	4.20	3.27
4	37 IB. REC. Guillen	1	8	183	0.11	0.04	0.96	0.65
4	39 IB. BELLO. 5J ODISA	2	2	97	0.06	0.01	0.51	0.16
4	40 IB. BELLO. Pedro Diego	1	1	60	0.04	0.01	0.32	0.08
4	41 IB. Legado	48	9	332	0.20	0.05	1.75	0.74
4	42 IB. Navidul	85	18	814	0.49	0.10	4.29	1.47
4	43 IB. Noblanza	1	2	90	0.05	0.01	0.47	0.16
4	44 IB. Noblanza Osborne	1	7	188	0.11	0.04	0.99	0.57

... / ...

.../ cont.

Categ	Brand	N observations	quantity (kgs)	Sales (€)	% sales over total	%quantity over total	% sales over category	% quantity over category
4	45 IB. Rubia	9	1	63	0.04	0.01	0.33	0.08
4	46 IB. Villar	101	689	9071	5.45	3.87	47.82	56.34
4	63 Sin Marca - Iberico	4	1	18	0.01	0.01	0.09	0.08
4	64 Sin Marca - Iberico recebo	3	1	35	0.02	0.01	0.18	0.08
4	65 Sin Marca - Iberico recebo Huelva	1	0	5	0.00	0.00	0.03	0.00
5	17 Bodega Etiqueta Plata Natur Jam	21	137	818	0.49	0.77	0.00	0.00
5	19 Bodega Rubia	28	184	1412	0.85	1.03	0	0.00
6	3 PAL. IB. BELLO. Carrefour Huelva De Nuetra Tierra -DNT-	1	4	98	0.06	0.02	8.24	0.00
6	31 PAL. IB. REC. Sanchez Azuaga	1	4	42	0.03	0.02	3.53	0.00
6	32 PAL. IB. BELLO. 5 Encinas Navidul	1	5	65	0.04	0.03	5.46	0.00
6	35 PAL. IB. REC. 3 Encinas Navidul	10	46	514	0.31	0.26	43.19	0.00
6	38 PAL. IB. Sanchez Azuaga	3	18	144	0.09	0.10	12.10	0.00
6	48 PAL. IB. Mafresa	2	11	121	0.07	0.06	10.17	0.00
6	51 PAL. REC. Villar	3	3	19	0.01	0.02	1.60	3.16
6	57 PAL. IB. Rubia	32	4	187	0.11	0.02	15.71	4.21
7	25 DE.Trevelez Vallejo	43	11	253	0.15	0.06	100.00	100.00
8	58 PAL. Bodega Rubia	6	27	159	0.10	0.15	23.08	35.53
8	61 Sin Marca - Paleta Serrano	155	49	530	0.32	0.28	76.92	64.47

Table A.6. Average, Minimum and Maximum Prices across formats within categories

Category	measure	sale format	Average	Min	Max	Std Dev.
Total	kg in leg	leg	6	3	30	2.8
Total	kg in unboned leg	leg	6	3	8	1.1
Total	N legs	leg	9	5	17	2.9
Total	kg	on request / weight / piece	15	8	61	6.5
Total	N packs 100g	packed sliced	25	11	84	23.3
Total	N packs 120g	packed sliced	21	16	22	1.2
Total	N packs 150g	packed sliced	11	7	17	1.6
Total	N packs 200g	packed sliced	15	11	18	2.1
Total	N packs 250g	packed sliced	14	12	16	0.5
Total	N packs 300g	packed sliced	11	8	12	1.1
Total	N pieces 100g	piece	16	15	17	0.4
Total	Kg in pal	leg-paleta	10	6	24	4.1
Total	N pal	leg-paleta	8	8	8	0
Total	kg pal	on request / weight paleta	11	6	11	0.6
Total	N packs 100g pal	packed sliced-paleta	51	35	54	3.9
Serrano	kg in leg	leg	6	3	10	4.1
Serrano	kg in unboned leg	leg	6	3	8	0
Serrano	N legs	leg	7	7	7	0.6
Serrano	kg	on request / weight / piece	13	8	24	3.9
Serrano	N packs 100g	packed sliced	16	11	29	5.8
Serrano	N packs 120g	packed sliced	21	16	22	1.1
Serrano	N packs 150g	packed sliced	11	7	17	1.6
Serrano	N packs 200g	packed sliced	15	11	18	2.1
Serrano	N packs 250g	packed sliced	14	12	16	0.5
Serrano	N packs 300g	packed sliced	11	8	12	1.1
Serrano	N pieces 100g	piece	16	15	17	0.4
Teruel DO	kg in leg	leg	9	9	10	0.3
Teruel DO	kg	on request / weight / piece	21	8	26	5.7
Teruel no DO	kg	on request / weight / piece	17	12	25	5.1
Iberian no DO	kg in leg	leg	21	16	30	4.8
Iberian no DO	N legs	leg	13	10	17	1.61
Iberian no DO	kg	on request / weight / piece	49	21	61	10.1
Iberian no DO	N packs 100g	packed sliced	79	52	84	8.7
STG Serrano	kg in leg	leg	8	6	9	1.1
STG Serrano	N legs	leg	6	5	7	0.3
Iberian paleta no DO	Kg in pal	leg-paleta	12	10	24	3.5
Iberian paleta no DO	N pal	leg-paleta	8	8	8	0
Iberian paleta no DO	kg pal	on request / weight paleta	6	6	8	1.1
Iberian paleta no DO	N packs 100g pal	packed sliced-paleta	51	35	54	3.9
PGI Trevelez	kg	on request / weight / piece	24	12	26	3.5
Paleta Serrano	Kg in pal	leg-paleta	6	6	6	0.0
Paleta Serrano	kg pal	on request / weight paleta	11	11	11	0.0

Table A.7. Quantity (kg), sales (€) and prices across brands for articles sold in whole legs

Categ	Brand	Brand	N obs	quantity (kgs)	sales (€)	Average price	Minimum price	Maximum price	Std dev price	% quantity over category	% sales over category
1	1	Carrefour (s20)	6515	2061.77	25163.7	12.31	6.62	17.9	2.32	41.74	39.72
1	6	Carrefour N1	555	148.3	1670.17	11.7	8.23	15.1	1.6	3.00	2.64
1	7	Carrefour Serrano Calidad Tradición Carrefour -CTC-	578	163.67	2803.39	17.13	14.9	18.08	0.63	3.31	4.43
1	9	Mayoral	125	154.2	1450.43	9.48	8.69	10.49	0.79	3.12	2.29
1	11	4 Estaciones Navidul (s07)	17	14.67	133.69	9.12	9.07	9.24	0.04	0.30	0.21
1	12	Alta Serranía	1947	658.73	7769.41	11.88	9.02	14.11	1.36	13.34	12.26
1	13	Añejo La Hoguera	134	72.23	605.85	8.39	8.38	8.41	0.01	1.46	0.96
1	14	Argal	73	9.5	240.19	25.39	19.8	29.4	3.2	0.19	0.38
1	21	Campofrio	842	240.85	3822.42	15.9	7.93	18.91	2.3	4.88	6.03
1	22	Cantineria	248	204.23	2433.8	11.95	10.95	13.01	0.73	4.13	3.84
1	27	El Pozo	9	1	16.47	16.46	15.3	16.6	0.43	0.02	0.03
1	28	España	779	223.39	3206.5	14.9	12.4	21.75	2.52	4.52	5.06
1	29	Ges	802	256.98	3615.66	14.18	11.95	19.06	2.63	5.20	5.71
1	50	Navidul	795	198.07	3327.7	15.95	10.67	21.11	3.18	4.01	5.25
1	52	Rerserva El Pozo (s08)	22	8.43	66.21	7.87	7.65	8.02	0.13	0.17	0.10
1	53	Rerserva Pedro Diego	608	185.5	3032.44	16.41	13.5	23.53	3.08	3.76	4.79
1	54	Rubia	4	3.22	53.41	16.59	16.4	16.66	0.13	0.07	0.08
1	60	Sin Marca - Serrano Reserva	398	117.36	2015.58	17.46	13.9	23.5	3.69	2.38	3.18
1	67	Sin Marca - Serrano	852	217.6	1922.91	9.12	7.6	12.26	1.89	4.41	3.04
2	26	DO. Teruel Alto Mijares (s16)	25	9.61	249.71	26.01	25.94	26.1	0.04	2.13	2.79
2	55	DO. Teruel Formiche	634	173.96	4041.08	23.15	17.9	25.09	2.44	38.49	45.19
2	62	Sin Marca -Teruel DO	310	268.36	4651.06	14.75	8.49	21.9	6.18	59.38	52.01

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... / cont.

Categ	Brand	Brand	N obs	quantity (kgs)	sales (€)	Average price	Minimum price	Maximum price	Std dev price	% quantity over category	% sales over category
3	15	Ribera Del Jiloca (s17)	571	469.06	6001.37	12.8	11.99	13.22	0.56	75.77	64.11
3	59	Sin Marca - Teruel	443	136.28	3079.72	22.59	17.9	25.11	2.8	22.01	32.90
3	66	Sin Marca - Teruel Bodega	64	13.71	280.28	20.46	20.37	20.61	0.05	2.21	2.99
4	4	IB. Carrefour Huelva De Nuestra Tierra -DNT- (s18)	40	5	415.96	83.14	76.8	83.5	1.48	7.34	12.68
4	5	IB. Carrefour Calidad Tradición Carrefour -CTC-	103	20.03	1173.6	58.56	49.03	60.5	3.48	29.39	35.76
4	10	IB. REC. 3 Encinas Navidul (s13)	3	8.75	179.89	20.55	20.55	20.55	0	12.84	5.48
4	39	IB. BELLO. 5J ODISA	2	1.89	97.02	52.9	50.96	54.84	2.74	2.77	2.96
4	40	IB. BELLO. Pedro Diego	1	0.99	59.54	59.96	59.96	59.96	0	1.45	1.81
4	41	IB. Legado	48	9.27	331.53	37.07	29.91	40.71	4.51	13.60	10.10
4	42	IB. Navidul	85	18.31	814.12	44.21	37.92	52.98	2.75	26.86	24.81
4	43	IB. Noblanza	1	1.58	90	56.96	56.96	56.96	0	2.32	2.74
4	45	IB. Rubia	9	1	63.16	63.01	51.8	71	8.26	1.47	1.92
4	63	Sin Marca - Iberico	4	0.63	17.69	27.83	27.36	28.26	0.45	0.92	0.54
4	64	Sin Marca - Iberico recebo	3	0.62	34.57	54.83	51.91	60.32	4.76	0.91	1.05
4	65	Sin Marca - Iberico recebo Huelva	1	0.09	4.57	49.14	49.14	49.14	0	0.13	0.14
6	51	PAL. REC. Villar	3	3	19.21	6.4	5.52	7.69	1.14	44.78	9.30
6	57	PAL. IB. Rubia	32	3.7	187.32	51.38	34.53	53.5	3.88	55.22	90.70
7	25	DE.Trevelez Vallejo	43	10.78	252.91	23.55	11.77	25.75	3.53	100.00	100.00
8	61	Sin Marca - Paleta Serrano	155	49.03	529.89	10.81	10.78	10.89	0.02	100.00	100.00

Table A.8. Quantity (kg), sales (€) and prices across brands for articles sold in formats different from legs

Categ	Brand	Brand	N obs	quantity (kgs)	sales (€)	Average price	Minimum price	Maximum price	Std dev price	% quantity over category	% sales over category
1	1	Carrefour (s20)	6515	2061.77	25163.7	12.31	6.62	17.9	2.32	41.74	39.72
1	6	Carrefour N1	555	148.3	1670.17	11.7	8.23	15.1	1.6	3.00	2.64
1	7	Carrefour Serrano Calidad Tradición Carrefour - CTC-	578	163.67	2803.39	17.13	14.9	18.08	0.63	3.31	4.43
1	9	Mayoral	125	154.2	1450.43	9.48	8.69	10.49	0.79	3.12	2.29
1	11	4 Estaciones Navidul (s07)	17	14.67	133.69	9.12	9.07	9.24	0.04	0.30	0.21
1	12	Alta Serranía	1947	658.73	7769.41	11.88	9.02	14.11	1.36	13.34	12.26
1	13	Añejo La Hoguera	134	72.23	605.85	8.39	8.38	8.41	0.01	1.46	0.96
1	14	Argal	73	9.5	240.19	25.39	19.8	29.4	3.2	0.19	0.38
1	21	Campofrio	842	240.85	3822.42	15.9	7.93	18.91	2.3	4.88	6.03
1	22	Cantinera	248	204.23	2433.8	11.95	10.95	13.01	0.73	4.13	3.84
1	27	El Pozo	9	1	16.47	16.46	15.3	16.6	0.43	0.02	0.03
1	28	Espuña	779	223.39	3206.5	14.9	12.4	21.75	2.52	4.52	5.06
1	29	Ges	802	256.98	3615.66	14.18	11.95	19.06	2.63	5.20	5.71
1	50	Navidul	795	198.07	3327.7	15.95	10.67	21.11	3.18	4.01	5.25
1	52	Rerserva El Pozo (s08)	22	8.43	66.21	7.87	7.65	8.02	0.13	0.17	0.10
1	53	Rerserva Pedro Diego	608	185.5	3032.44	16.41	13.5	23.53	3.08	3.76	4.79
1	54	Rubia	4	3.22	53.41	16.59	16.4	16.66	0.13	0.07	0.08
1	60	Sin Marca - Serrano Reserva	398	117.36	2015.58	17.46	13.9	23.5	3.69	2.38	3.18
1	67	Sin Marca - Serrano	852	217.6	1922.91	9.12	7.6	12.26	1.89	4.41	3.04
2	26	DO. Teruel Alto Mijares (s16)	25	9.61	249.71	26.01	25.94	26.1	0.04	2.13	2.79
2	55	DO. Teruel Formiche	634	173.96	4041.08	23.15	17.9	25.09	2.44	38.49	45.19
2	62	Sin Marca -Teruel DO	310	268.36	4651.06	14.75	8.49	21.9	6.18	59.38	52.01

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.../cont.

Categ	Brand	Brand	N obs	quantity (kgs)	sales (€)	Average price	Minimum price	Maximum price	Std dev price	% quantity over category	% sales over category
3	15	Ribera Del Jiloca (s17)	571	469.06	6001.37	12.8	11.99	13.22	0.56	75.77	64.11
3	59	Sin Marca - Teruel	443	136.28	3079.72	22.59	17.9	25.11	2.8	22.01	32.90
3	66	Sin Marca - Teruel Bodega	64	13.71	280.28	20.46	20.37	20.61	0.05	2.21	2.99
4	4	IB. Carrefour Huelva De Nuestra Tierra -DNT- (s18)	40	5	415.96	83.14	76.8	83.5	1.48	7.34	12.68
4	5	IB. Carrefour Calidad Tradición Carrefour -CTC-	103	20.03	1173.6	58.56	49.03	60.5	3.48	29.39	35.76
4	10	IB. REC. 3 Encinas Navidul (s13)	3	8.75	179.89	20.55	20.55	20.55	0	12.84	5.48
4	39	IB. BELLO. 5J ODISA	2	1.89	97.02	52.9	50.96	54.84	2.74	2.77	2.96
4	40	IB. BELLO. Pedro Diego	1	0.99	59.54	59.96	59.96	59.96	0	1.45	1.81
4	41	IB. Legado	48	9.27	331.53	37.07	29.91	40.71	4.51	13.60	10.10
4	42	IB. Navidul	85	18.31	814.12	44.21	37.92	52.98	2.75	26.86	24.81
4	43	IB. Noblanza	1	1.58	90	56.96	56.96	56.96	0	2.32	2.74
4	45	IB. Rubia	9	1	63.16	63.01	51.8	71	8.26	1.47	1.92
4	63	Sin Marca - Iberico	4	0.63	17.69	27.83	27.36	28.26	0.45	0.92	0.54
4	64	Sin Marca - Iberico recebo	3	0.62	34.57	54.83	51.91	60.32	4.76	0.91	1.05
4	65	Sin Marca - Iberico recebo Huelva	1	0.09	4.57	49.14	49.14	49.14	0	0.13	0.14
6	51	PAL. REC. Villar	3	3	19.21	6.4	5.52	7.69	1.14	44.78	9.30
6	57	PAL. IB. Rubia	32	3.7	187.32	51.38	34.53	53.5	3.88	55.22	90.70
7	25	DE.Trevezal Vallejo	43	10.78	252.91	23.55	11.77	25.75	3.53	100.00	100.00
8	61	Sin Marca - Paleta Serrano	155	49.03	529.89	10.81	10.78	10.89	0.02	100.00	100.00

PROGRAMS IN GAUSS

```

@-----
Brands.gau
-----@
new;
/* read full data set organized by purchase act */
loadm dat[19599,19]=c:\ana\typic\scanner\datos\scan_jan.txt;
dat = trimr(dat,1,0);

year = dat[.,1];      month= dat[.,2];      hyper=dat[.,3];
      client=dat[.,4];
article =dat[.,5];    subfamil=dat[.,6];    section=dat[.,7]; formato =
dat[.,8];
hampal = dat[.,9];    categ=dat[.,10];    brand = dat[.,11];
      sample=dat[.,12];
sales=dat[.,13];      units=dat[.,14];    eurunit=dat[.,15];
      gramunit = dat[.,16];
price=dat[.,17];      nlegs=dat[.,18];    measure=dat[.,19];

/* calculos por marca */
/* load list of categories and brands. Aggregated by brand. not including
articles */
loadm l_brand[67,3]=c:\ana\typic\scanner\datos\onlybran.txt;
/* order of series:  category brand sample */

cantidad = zeros(rows(l_brand),1);
pr_medio = zeros(rows(l_brand),1);
pr_min = zeros(rows(l_brand),1);
pr_max = zeros(rows(l_brand),1);
pr_dt = zeros(rows(l_brand),1);
valor = zeros(rows(l_brand),1);
nobs = zeros(rows(l_brand),1);
unidad = zeros(rows(l_brand),1);

/* delete (keep) nlegs.==0 for including (excluding) legs */
i=1;
do while i<=rows(l_brand);
      datos = selif(dat, nlegs.== 0 .and brand.==l_brand[i,2]);
      /**/ if scalmiss(datos).==0; /* no hay nulos */
      Nobs[i,1] = rows(datos);
      cantidad[i,1]= sumc(datos[.,14].*datos[.,16]);
      valor[i,1]=sumc(datos[.,13]);
      pr_medio[i,1] = meanc(datos[.,17]);
      pr_min[i,1]= minc(datos[.,17]);
      pr_max[i,1] = maxc(datos[.,17]);
      pr_dt[i,1] = stdc(datos[.,17]);
      /**/ endif;
      i=i+1;
endo;

total = l_brand~nobs~cantidad./1000~valor~pr_medio~pr_min~pr_max~pr_dt;

output file = c:\ana\typic\scanner\salidas\brands reset;
screen off;
ncol = cols(total);
mask = ones(1,ncol);
fmt = ("*. *lf"~20~2)+ZEROS(ncol,1);
CALL PRINTFM(total,mask,fmt);

```



```

@-----
Format.gau
Listado de marcas; valor total de ventas; cantidad vendida;
-----@

new;
/* read full data set organized by purchase act */
loadm dat[19599,19]=c:\ana\typic\scanner\datos\scan_jan.txt;
dat = trimr(dat,1,0);

year = dat[.,1];      month= dat[.,2];      hyper=dat[.,3];
      client=dat[.,4];
article =dat[.,5];    subfamil=dat[.,6];    section=dat[.,7]; formato =
dat[.,8];
hampal = dat[.,9];    categ=dat[.,10];    brand = dat[.,11];
      sample=dat[.,12];
sales=dat[.,13];      units=dat[.,14];    eurunit=dat[.,15];
      gramunit = dat[.,16];
price=dat[.,17];      nlegs=dat[.,18];    measure=dat[.,19];

/*calculos por formato: 15 tipos segun measure, dentro de cada categoria */
cantidad = zeros(15,1);
pr_medio = zeros(15,1);
pr_min = zeros(15,1);
pr_max = zeros(15,1);
pr_dt = zeros(15,1);
valor = zeros(15,1);
nobs = zeros(15,1);
unidad = zeros(15,1);
npatas = zeros(15,1);

j=8; " Category j= " j;
      i=1;
      do while i<=15;
          datos = selif(dat, measure.==i ); /* removing categ.==j, se
calcula el total */
          /**/ if scalmiss(datos).==0; /* no hay nulos */
              unidad[i,1] = sumc(datos[.,14]);
              npatas[i,1] = sumc(datos[.,18]);
              Nobs[i,1] = rows(datos);
              cantidad[i,1]= sumc(datos[.,14].*datos[.,16]);
              valor[i,1]=sumc(datos[.,13]);
              pr_medio[i,1] = meanc(datos[.,17]);
              pr_min[i,1]= minc(datos[.,17]);
              pr_max[i,1] = maxc(datos[.,17]);
              pr_dt[i,1] = stdc(datos[.,17]);
          /**/ endif;
          i=i+1;
      endo;

total =
j.*ones(15,1)~nobs~unidad~npatas~cantidad~valor~pr_medio~pr_min~pr_max~pr_d
t;

output file = c:\ana\typic\scanner\salidas\formato reset;
screen off;
ncol = cols(total);
mask = ones(1,ncol);
fmt = ("*.*lf"~20~2)+ZEROS(ncol,1);
CALL PRINTFM(total,mask,fmt);

```

```

@-----
Section.gau
Listado de marcas; valor total de ventas; cantidad vendida;
-----@

new;
/* read full data set organized by purchase act */
loadm dat[19599,19]=c:\ana\typic\scanner\datos\scan_jan.txt;
dat = trimr(dat,1,0);

year = dat[.,1];      month= dat[.,2];      hyper=dat[.,3];
      client=dat[.,4];
article =dat[.,5];   subfamil=dat[.,6];   section=dat[.,7]; formato =
dat[.,8];
hampal = dat[.,9];   categ=dat[.,10];      brand = dat[.,11];
      sample=dat[.,12];
sales=dat[.,13];     units=dat[.,14];     eurunit=dat[.,15];
      gramunit = dat[.,16];
price=dat[.,17];     nlegs=dat[.,18];     measure=dat[.,19];

cantidad = zeros(8,2);
ventas = zeros(8,2);
nobs = zeros(8,2);

j=1;
do while j<=2;
  i=1;
  do while i<=8;
    datos = selif(dat,section.==j .and categ.==i);
    if scalmiss(datos).==0;
      nobs[i,j] = rows(datos);
      cantidad[i,j] = sumc(datos[.,14].*datos[.,16]);
      ventas[i,j] = sumc(datos[.,13]);
    endif;
    i=i+1;
  endo;
  j=j+1;
endo;

total = seqa(1,1,8)~nobs;
@total = seqa(1,1,8)~cantidad~ventas;@

output file = c:\ana\typic\scanner\salidas\section reset;
screen off;
ncol = cols(total);
mask = ones(1,ncol);
fmt = ("*. *1f"~20~2)+ZEROS(ncol,1);
CALL PRINTFM(total,mask,fmt);

```

