# Consumer's buying decision process for nuts in Spain

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**Abstract**

Spain is the second almond producer and exporter in the world. The consumption of walnuts (mainly imported fro USA) is higher than almonds. Home consumption of walnuts and almonds has decreased by 50% and 64% respectively from 1987 to 1997. Nut consumption at home, although losing share in relation to total nut consumption, is still important and the consumer's behaviour at home is very relevant. The present study provides some interesting results for decision makers, in the public and in the private sector, to design appropriate advertising and promotion campaigns with the aim of enhancing nut consumption at home. Walnuts and almonds are highly substitutive. Expenditure and prices have a great influence on buying decision, and socio-demographic characteristics on how much to buy. Those signals should be used adequately for promotion purposes.

**Résumé**

*Spain is the second almond producer and exporter in the world. The consumption of walnuts (mainly imported fro USA) is higher than almonds. Home consumption of walnuts and almonds has decreased by 50% and 64% respectively from 1987 to 1997. Nut consumption at home, although losing share in relation to total nut consumption, is still important and the consumer's behaviour at home is very relevant. The present study provides some interesting results for decision makers, in the public and in the private sector, to design appropriate advertising and promotion campaigns with the aim of enhancing nut consumption at home. Walnuts and almonds are highly substitutive. Expenditure and prices have a great influence on buying decision, and socio-demographic characteristics on how much to buy. Those signals should be used adequately for promotion purposes.*

## 1. Introduction

Spain is the second almond producer in the world (227.3 thousand tons, in 1996, after the USA whose production reached 386 thousand tons) and the second almond exporter. However, Spanish walnuts production is considerably low and Spain is a net importer, mainly from the USA (95% of total walnuts imports).

Nuts consumption in Spain is relatively high in comparison to other countries because the largest producers used to be the highest consumers. Moreover, nut is a typical product in the Mediterranean diet and Spain is traditionally a high consumer among nuts producing countries. However, in the last years, nut consumption has decreased by 20% and while in 1987, per capita nut consumption accounted for 2.2 kg per year, in 1997, it reached 1.75 kg per year. In addition, per capita nut consumption at home has decreased by 31% which means that nut consumption is shifting away from home. In 1987, the consumption at home of walnuts (0.5 kg per capita year) and almonds (0.3 kg per capita year) shows the highest values followed by peanut consumption (0.23 kg per capita year). However, the consumption of walnuts and almonds has sharply decreased by 50% and 64%, respectively, while peanut consumption has slightly increased (4%) in this decade. In general terms, nut consumption is decreasing, specially almonds and walnuts.

Thus, both products are facing difficult consumption perspectives but while almond is a typical product cultivated in Spain, walnut is a mainly imported product. In addition, another important consideration is that nuts are considered in Spain typical Christmas products and while average per capita nuts consumption during the first eleven months accounts for 0.1 kg, in December this figure is multiplied by three. However, nut consumption in December is also decreasing, as it reached 0.4 kg per capita in 1992, and went down to 0.26 in 1997.

The objective of this paper is to analyze almonds and walnuts consumption, at home, in Spain in December. In particular, the effects of economic factors (price and income) and household socio-demographic characteristics on nuts consumption are studied. It should provide some information to promote nuts consumption, namely almonds and walnuts, in family gathering as typical ingredients of the Mediterranean diet.

A limited number of articles have studied the demand for nuts products. Some of them have used time series data to estimate different single equation specification (Murua, 1991 for Spain; Alston et al. 1993, for EE.UU, Germany, Netherlands, France, Great Britain, Italy and Japan). Green et al. (1991) analyzed the effect of advertising on the demand for nuts in EE.UU using the AIDS demand system with time series data. More recently, Laajimi (1995) also estimated an AIDS model for the demand for nuts in Spain. In this paper, the main difference with previous works is that cross-sectional data from a Spanish survey was used. In this case, the effect of socio-

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demographic household characteristics on consumption can be measured.

When cross-sectional data are used for demand analysis of desegregated products, a large number of zero purchases are reported, due to different reasons. In this case, ordinary least squares estimation, based on all or positive observations, generates biased parameter estimates (Amemiya, 1985). In addition, excluding the zero observations also causes efficiency losses. Therefore, a model which takes into account the censored nature of data must be used. The appropriated model depends on the reasons of zero purchases. These reasons are mainly three: i) the survey period is too short to allow consumers to report any purchase of a specific product (infrequency of purchase), ii) consumers are not willing to buy the product (abstention) and, iii) consumers do not purchase the product at current price and income levels (corner solution).

The Tobit model has been widely used in early consumption analysis, but it is only appropriated if zero observation is a corner solution, because it assumes that all households consume the product. In more recent studies other models have been used whose main property is that zero purchase is the result of a consumer decision. Those models can be classified into the infrequency of purchase and the double-hurdle models. The first model is appropriate if infrequency of purchase is the cause of a zero observation. The second model takes into account zero observations resulting from true non-consumption responses both determined by economic factors (corner solution) or conscientious abstentions.

In our case, since we are analyzing a product which is mainly purchased in a specific period of time, and therefore, with a high frequency of purchase in this time of the year, if some zero is recorded in December it is not due to infrequency of purchase. Therefore, the Double-Hurdle specification seems the most reasonable in our case. Several specifications of the Double-Hurdle model has been used to analyze the demand for almonds and walnuts, in December, in Spain. Different versions of this model have been broadly used in the last few years ( Lin and Milon, 1993; Burton et al., 1994; Yen, 1994; Gao et al, 1995; Yen and Su., 1995; Burton et al.,1996; Jensen and Yen, 1996; and Yen and Jones, 1997).

The paper is structured as follows. Section two briefly shows the methodology. Data used and variables are described in section three and results are given in section four. Finally, the discussion of the results is summarized and some remarks are presented.

## 2. Methodology

The idea behind the Double-Hurdle model is that a consumer has to overcome two hurdles before recording a positive expenditure: participating in the market (potential consumer) and actually consuming. Another advantage of this model is that both decisions, to buy and how much to buy, can depend on different sets of exogenous variables. In addition, these decisions can be modeled jointly, if they are taken simultaneously by the consumer, independently, if decisions are taken separately, or sequentially, if one decision is taken first and affects the other decision (dominance model).

A positive consumption yi is observed if both latent variables d*i (participation decision) and y*i (consumption decision) are positive. Therefore yi is such that:

$y_i = y^*_i$ if $d^*_i > 0$ and $y^*_i > 0$

$y_i = 0$ otherwise

where $d^*_i$ and $y^*_i$ are determined as follows:

$$d_i^* = z_i\alpha + u_i \qquad (1)$$

$$y_i^* = x_i\beta + v_i \qquad (2)$$

being,

- $y_i$: the observed consumption
- $d_i^*$: a latent participation variable which takes the value 1 if the consumer decides to buy and 0 otherwise
- $y_i^*$: a latent consumption variable
- $z_i$: the explicative set of variables in the participation equation
- $x_i$: the explicative set of variables in the consumption equation
- $u_i$ and vi the error terms with different probability distributions depending on how

both, participation and consumption decisions, are considered.

If both decisions are taken independently (Independent Double-Hurdle) error terms are distributed as follows:

$u_i \sim N(0,1)$
$V_i \sim N(0, \sigma^2)$
and the logarithm of the likelihood function is:

$$\log L = \sum_0 \log\left(1 - \Phi(z_i\alpha)\,\Phi\left(\frac{x_i\beta}{\sigma_i}\right)\right) + \sum_+ \left(-\log\sigma_i + \log\varphi\left(\frac{y_i - x_i\beta}{\sigma_i}\right) + \log\Phi(z_i\alpha)\right) \qquad (3)$$

where $\Phi(.)$ and $\nu(.)$ are the univariate standard normal distribution and density function, respectively.

If both decisions are jointly adopted (Dependent Double-Hurdle) error terms can be defined as follows:

$$(u_i, v_i) \sim BVN(0,\Gamma) \text{ where } \Gamma = \begin{matrix} 1 & \rho\sigma \\ \rho\sigma & \sigma 2 \end{matrix}$$

where $\rho$ is a correlation coefficient and the log of the likelihood function can be expressed as:

$$\log L = \sum_{0} \log\,(1 - \Phi(z_i\alpha, \frac{x_i\beta}{\sigma_i}, \rho)) + \sum_{+} (-\log\,\sigma_i + \log\,\varphi(\frac{y_i - x_i\beta}{\sigma_i}) + \log\,\Phi(\frac{x_i\alpha + \frac{\rho}{\sigma}(y_i - x_i\beta)}{\sqrt{(1-\rho^2)}})) \qquad (4)$$

where Φ(.) and ν(.) represent the bivariate standard normal cumulative and density functions, respectively.

As a particular case, if participation decision dominates consumption, it means that this decision is taken first. In other words, once a consumer has decided to buy the product, consumption will be positive. In this case, the commonly used Heckman model (Cheng and Capps, 1988) is appropriate.

## 3. Data and variables

Data are taken from the "Encuesta de Presupuestos Familiares" (Spanish National Expenditure Survey) from a stratified random sample of 21,155 households in Spain from April 1990 to March 1991. Information on expenditure and quantity purchased of different food products during one week has been collected. There are also data on a limited number of household characteristics including age and sex of family members, geographical location, household income, level of education and activity of the head of the household. Only those households interviewed in December (443 households) have been selected.

The dependent variables are total household expenditure on almonds and walnuts. The logarithm of total nut expenditure has been used to measure purchasing power. Relevant socio-demographic variables have been added to the model (1) and (2) (variables are shown in Table 1). Prices are not recorded and unit values have been taken as proxies of market prices. The problem of using unit values as prices is that unit values not only account for price variation but also for quality choices. A positive relationship between the unit value and the income level is expected because as income rises, consumers not only buy more but they also consume a different quality (Deaton, 1987). In this context, quality is considered as an aggregation phenomenon since commodities are heterogenous and show quality variations. However, if a product can be considered homogeneous, quality effects are close to zero and unit value is an appropriate approximation of the market price. In this case, different nuts products can be considered homogeneous enough to assume that quality variation is close to zero and the logarithm of unit values has been used for almond, walnut, hazelnut and peanut.

Table 1. *Names and description of variables*

| Variables | Description |
|---|---|
| Dependent | Almond and walnut expenditure |
| Independent (quantitative) | |
| Nut expenditure | Log of total nut expenditure |
| Prices (4) | Log of almond, walnut, hazelnut and peanut prices |
| Nper | Number of income earners in the household |
| Young | Number of household members aged 1-20 |
| Adult | Number of household members aged 21-60 |
| Elderly | Number of household members aged 61 or older |
| Independent (Dummy) | |
| TS1 | Household in towns less than 10,000 |
| TS2 | Household in towns between 10,000 and 100,000 |
| TS3 | Household in towns between 100,000 and 500,000 |
| TS4 | Household in towns more than 500,000 (reference) |
| Educ1 | Household head without studies |
| Educ2 | Household head has at least primary school |
| Educ3 | Household head has at least secondary school |
| Educ4 | Household head has university degree (reference) |

## 4. Results

Firstly, the two-step Heckman procedure was used and secondly, the Double-Hurdle model was estimated by maximizing the logarithm of the likelihood function. Both, independent and dependent versions of the Double-Hurdle model were calculated. The Dependent Double-Hurdle model was chosen because it fits best the data. In addition, to accommodate heterocedasticity of the error terms, the standard deviation si was defined as follows:

$$\sigma_i = \exp\,(w_i\gamma) \qquad (5)$$

where, $w_i$ is a vector of exogenous variables and γ is a parameter vector. Nut expenditure and family size were used separately to test for homocedasticity and the null hypothesis was not rejected in all the cases.

Estimated parameters of the Dependent Double-Hurdle model for almonds and walnuts demand in Spain are shown in Table 2. Most of the estimated parameters in the consumption equation for both products are individually significant (93% and 85% for almonds and walnuts, respectively). However, in the participation equation only 50% and 43% of the estimated parameters are significantly different from zero, for almonds and walnuts, respectively. Nut expenditure estimated parameters are positive and significant in both equations, participation and consumption, and for the two products. Moreover, own price parameters (almonds and walnuts) are negative as expected, and individually significant. In the demand for almonds equations, hazelnuts price is not significant in both decisions while walnuts price is significant in both; and peanuts price only in the consumption decision. However, in the walnut equations, almonds, peanuts and hazelnuts prices are statistically significant in both equations. All socio-demographic variables are statistically significant in the consumption decision for both products

Table 2. *Dependent Double-Hurdle estimate parameters for almonds and walnuts demand*

| | Almonds | | | | Walnuts | | | |
|---|---|---|---|---|---|---|---|---|
| | Participation decision | | Consumption decision | | Participation decision | | Consumption decision | |
| Variables | Parameter | t-ratio | Parameter | t-ratio | Parameter | t-ratio | Parameter | t-ratio |
| Constant | 1,14 | -1,89** | -3,72 | -3,64* | 1,23 | 1,01 | 12,37 | 12,19* |
| Lnut expenditure | 0,10 | 3,74* | 0,78 | 31,79* | 0,56 | 2,18** | 1,46 | 61,69* |
| Lpalmond | -0,71 | -1,76** | -2,10 | -17,31* | 0,18 | 1,62*** | 0,52 | 5,03* |
| Lphazelnut | -0,03 | -0,30 | 0,008 | 0,09 | -0,29 | -2,62** | -0,27 | -2,85* |
| Lpwalnut | 0,90 | 2,24** | 1,24 | 11,84* | -0,20 | -3,04* | -3,56 | -28,91* |
| Lppeanut | 0,90 | 0,72 | 0,73 | 6,51* | 0,37 | 1,46*** | -0,72 | -6,51* |
| Nper | 0,09 | 1,03 | 0,93 | 8,16* | -0,004 | -0,04 | -0,32 | -2,68** |
| TS1 | 0,16 | 1,41*** | -1,32 | -14,14* | 0,03 | 0,35 | 0,03 | 0,34 |
| TS2 | 0,07 | 1,75** | -1,74 | -15,58* | 0,02 | 0,32 | -0,17 | -1,95** |
| TS3 | -0,05 | -1,39** | -1,18 | -11,99* | 0,02 | 0,34 | 0,05 | 0,52 |
| Young | -0,04 | -0,22 | 0,95 | 7,71* | -0,13 | -0,38 | -0,08 | -0,62 |
| Adult | -0,05 | -0,68 | -0,06 | -0,58 | -0,08 | -0,31 | 0,19 | 2,00* |
| Educ1 | -0,02 | -0,40 | 0,24 | 2,57* | 0,04 | 0,52 | 0,71 | 7,40** |
| Educ2 | -0,03 | -0,73 | 0,45 | 5,71* | 0,06 | 1,11 | 0,53 | 6,73* |
| Educ3 | -0,53 | -1,17 | 0,54 | 4,90* | -0,16 | -1,79** | -0,47 | -4,37* |
| Rho(P) | | | 0,05 | 5,08* | | | 0,11 | 8,76* |

LogLalmond = 6,462.3 and LogLwalnut = - 12,780.5
* 0,01, ** 0,05 and *** 0,10 significant level

and only town size in the participation equation for almonds (at 10% significant level). It means that socio-demographic household characteristics do not determine the decision to buy almond and walnuts but they have an influence on the decision about how much to buy.

The mentioned parameters only measure the effect of the different variables on participation and consumption decisions separately. However, the effect of the variables on the probability and level of consumption can be calculated. Therefore, the elasticity of participation, the elasticity of probability of consumption, the elasticity of the conditional level of consumption and the elasticity of the unconditional level of consumption (total elasticity) will give a broad picture of income and price effects.

Elasticity of participation measures the effect of a variable on the likelihood to participate in the market $P(d^*_1 > 0)$, whereas the elasticity of probability of consumption reflects the effect of the variable on the probability to actually consume $P(y_1 > 0)$ (Yen and Su, 1995). They can be calculated from the marginal effect of the set of exogenous variables on the probability of participation and on the probability of consumption respectively as follows:

$$\frac{\partial P(d^*_i > 0)}{\partial z_{ij}} = \frac{\partial \Phi(z_i\alpha)}{\partial z_{ij}} = \phi(z_i\alpha)\alpha_j \qquad (6)$$

$$\frac{\partial P(y_i > 0)}{\partial x_{ij}} = \frac{\partial \Phi(z_i\alpha, \frac{x_i\beta}{\sigma}, \rho)}{\partial x_{ij}} \qquad (7)$$

The elasticity of the conditional level of consumption measures the effect of a variable on consumption once the decision to consume has been made. It is calculated from the conditional mean:

$$E(y_i / y_i > 0) = \int_0^\infty y_i f(y_i / y_i > 0)\, dy_i \qquad (8)$$

in the following way:

$$\frac{\partial E(y_i / y_i > 0)}{\partial x_{ij}} \qquad (9)$$

Finally, the elasticity of the unconditional level of consumption or total elasticity assesses the total effect of a variable on consumption and is calculated as above from the following unconditional mean:

$$E(y_i) = P(y_i > 0) \quad E(y_i / y_i > 0) \qquad (10)$$

The latter can be also calculated summing up the elasticity of probability and the elasticity of the conditional level of consumption. These elasticities were calculated at the sample means of income, prices and quantitative socio-demographic variables (Table 3 and Table 4). Also, the effects of socio-demographic dummy variables were measured as the changes from zero to one of the analysis variable, holding constant the remaining ones (Table 5 and Table 6).

All expenditure elasticities are positive for both products which means that as nut expenditure increases the probability of participation and consumption as well as the level of consumption also increases. However, the elasticity of the probability of participation is 0.04 and 0.45 for almonds and walnuts, respectively. Almonds total elasticity is greater than 1 (1.3) which means that almonds can be considered a luxury good in relation to nuts con-

Table 3. *Demand for almond: Elasticities*

| Variable | Participation | Probability of consumption | Conditional level of consumption | Unconditional level of consumption |
|---|---|---|---|---|
| Expenditure | 0,04 | 0,48 | 0,82 | 1,30 |
| Price | | | | |
| Almond | -0,30 | -0,58 | -1,80 | -2,38 |
| Hazelnut | 0,001 | -0,005 | 0,07 | 0,065 |
| Walnut | 0,39 | 0,76 | 1,29 | 2,05 |
| Peanut | 0,39 | 0,59 | 0,53 | 1,12 |
| Nper | 0,04 | 0,31 | 0,81 | 1,12 |
| Young | -0,02 | 0,47 | 0,60 | 1,07 |
| Adult | -0,02 | -0,08 | 0,03 | -0,05 |

Table 4. *Demand for walnut: Elasticities*

| Variable | Participation | Probability of consumption | Conditional level of consumption | Unconditional level of consumption |
|---|---|---|---|---|
| Expenditure | 0,45 | 0,58 | 0,43 | 1,01 |
| Price | | | | |
| Walnut | -0,08 | -0,43 | -1,25 | -1,68 |
| Almond | 0,06 | 0,10 | 0,67 | 0,77 |
| Hazelnut | -0,13 | -0,03 | 0,24 | 0,21 |
| Peanut | 0,11 | 0,12 | -0,11 | -0,23 |
| Nper | -0,03 | -0,03 | -0,10 | -0,07 |
| Young | -0,05 | -0,05 | -0,09 | -0,04 |
| Adult | 0,03 | 0,03 | 0,06 | 0,09 |

Table 5. *Demand for almond: dummy variable effects*

| Variable | Participation | Probability of consumption | Conditional level of consumption | Unconditional level of consumption |
|---|---|---|---|---|
| TS1 | -0,02 | 0,10 | 0,30 | 0,40 |
| TS2 | -0,17 | -0,20 | -0,48 | -0,68 |
| TS3 | -0,12 | 0,10 | 0,51 | 0,61 |
| Educ1 | 0,002 | -0,003 | 0,58 | 0,57 |
| Educ2 | 0,04 | -0,006 | 0,59 | 0,58 |
| Educ3 | 0,06 | -0,008 | 0,59 | 0,58 |

Table 6. *Demand for walnut: dummy variable effects*

| Variable | Participation | Probability of consumption | Conditional level of consumption | Unconditional level of consumption |
|---|---|---|---|---|
| TS1 | 0,007 | 0,03 | 0,03 | 0,06 |
| TS2 | 0,02 | 0,13 | 0,20 | 0,33 |
| TS3 | -0,01 | 0,04 | 0,04 | 0,08 |
| Educ1 | 0,04 | 0,14 | 0,35 | 0,49 |
| Educ2 | 0,03 | 0,8 | 0,24 | 0,32 |
| Educ3 | -0,05 | -0,22 | -0,26 | -0,48 |

sumption while walnuts consumption increases in the same proportion (elasticity equals 1). The decomposition of the two components of this elasticity shows that once the consumer decides to buy, an increase in nut expenditure will induce an increase in almond consumption of 0.82% and in walnut consumption of 0.43% (elasticity of the conditional level of consumption) while the probability to consume increases 0.48% and 0.58%. This means that, for instance in the almond case, an increase in total nut expenditure is not likely to induce many new consumers to buy but that additional consumption is expected for the existing consumers.

All own-price elasticities (almonds and walnuts) are negative as expected and total price elasticities (in absolute terms) are greater than 1 (2.4 and 1.7, respectively) that indicates that almonds and walnuts demands are price elastic, so that changes in own prices will produce large changes in purchases. However, the influence of own price on the probability to participate is very small. The elasticities of the probability of consumption are lower than 0.5 for both products meaning that own price decreases will not induce marginal consumers to buy either almonds or walnuts. Therefore, an own price decrease will increase almonds and walnuts consumption because the level of consumption of the existing consumers will increase (elasticities of the conditional level of consumption are -1.8 and -1.25, respectively).

In the almonds demand equations, hazelnuts price elasticities are close to zero, so hazelnuts price changes do not affect almonds consumption. However, walnuts and peanuts price elasticities are positive and higher than 1 (total elasticity), which means that both products are substitutes to almonds. Moreover, an increase in walnuts and peanuts prices of 1% will produce an increase of the probability to buy almonds of 0.4%. In the walnuts equations, hazelnuts and peanuts elasticities are small meaning that prices have not much influence on walnuts consumption. However, one percent almonds price increase will induce 0.8% walnuts consumption rise, so that, they are substitutes. The effect of almonds prices on the probability to participate in the walnuts market is almost null.

An increase in the number of working members in the family will produce an increase in almonds consumption because total elasticity is 1.12. However, the probability to participate in the market will increase only by 0.04%. As the number of people under 20 years increases, the probability to buy almonds decreases slightly while they will actually consume more quantity (total elasticity is 1.07). However, the number of working members does not influence walnuts consumption because all the elasticities are almost zero.

The effect of dummy variables on consumption can be interpreted in relation to the reference category. For the almonds demand, it can be observed that households living in villages with less than 500,000 inhabitants, are be-

tween 0.02 to 0.17 percent less likely to participate in the market and 0.1 more likely to consume almonds (except for those living in towns between 10,000 to 100,000 inhabitants, which are less likely to consume) than households living in larger towns. No differences in the probability of participation and consumption have been found according to the education level of the head of the household because dummy effects are close to zero for all categories. Sociodemographic effects on walnuts demand are very limited.

## 5. Concluding remarks

The Mediterranean diet consists of a set of products traditionally cultivated in the Mediterranean countries. Those products are considered healthy and they prevent some degenerative diseases. Nuts are part of the Mediterranean diet and, in Spain, per capita consumption has been traditionally high. However, nuts lost their good consideration because of their high calorie contents. However, they provide non-saturated fat that has been proved to have beneficial effects on heart diseases. Public institutions and nuts producers need to take advantage of this and design marketing campaigns to communicate nuts health benefits in order to enhance their consumption.

In Spain, walnuts and almonds consumption is relatively high, specially in December because of the Christmas season consumption peak. Almonds have been traditionally cultivated in Spain and consumed along centuries, while walnuts had not that tradition because they are mainly imported from the USA, although their consumption is greater than almonds. In both cases, it is very appealing to know why consumers buy those products and which are the main buying determinants. Consumption in December has been selected because nuts are a typical Christmas product, with a high consumption in that period, when the proportion of households buying those products is also higher. At home consumption is losing ground but home surveys provide a good data bank to study consumers' behavior .

This work provides some interesting results to be taken into account for public institutions and nuts producers' organizations. Spanish consumers take jointly the decision to buy the product and how much to buy of it. To a great extent, consumers buying decisions are taken mainly based on impulse, hence promotion in shopping areas may be very effective. Almonds and walnuts are substitute products which means that they compete in the supermarket shelves and consumers will decide to buy one of them depending on their relative prices. If total nut expenditure increases, almonds consumption will increase more than walnuts consumption. However, the European Union is funding a jointly promotion campaign in its territory for almonds, walnuts and hazelnuts to preserve Spanish, French and Italian interests. Joint promotion of all nuts should increase the expenditure devoted to these products and will have a neat impact on both almonds and walnuts consumption.

Sociodemographic characteristics have a great influence on how many products consumers buy. There are distinctive features for almonds and walnuts. Promotion on sales point should take into consideration these differences. Prices do not seem to be a great marketing tool to increase the number of consumers. More probably, a good communication campaign of the healthy benefits of consuming almonds and walnuts should be used to spur new consumers.

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