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Research Article

EFFECT OF THE MARKETING MIX ON THE COMPETITIVENESS OF LOCAL HARDWARE STORES

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ABSTRACT

Retail trade has become increasingly competitive and hardware stores are no exception. This is a very important sales channel for the economy of a country, since it moves many national and international companies, as well as complementary service providers. The hardware centers in Mexico are growing rapidly and setting in places with great potential of development. For each opening of a hardware store, local hardware stores lose 50% of their sales. The objective of this paper was to measure the effect of each of the elements of the marketing mix on local hardware competitiveness in the municipality of Nextlalpan. The methodology consisted in the estimation of multiple regression models with data obtained from a survey applied to hardware administrators in Nextlalpan, Mexico. It was reported that the elasticity lower than 1 shows that there is strong competition between local hardware stores in the municipality of nextlalpan. This means that each of the elements of the marketing mix has a weak impact on sales. It was found that the assortment and specialization of products; the low, adequate and strategic prices; the good location and the friendly treatment in the store; advertising and promotions, influenced in a positive and inelastic way in the competitiveness of local hardware stores. However, the right prices (0.589), the advertising (0.419), the assortment of products (0.405) and the location (0.381) were the most prominent.

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INTRODUCTION

Retail trade has become increasingly competitive (Adams *et al.*, 2002) and hardware stores are no exception. This is a very important sales channel for the economy of a country, since it moves many national and international companies, as well as complementary service providers. However, retail chains such as Home Depot and Lowes have provided consumers with purchase alternatives (Hernandez, 2003). Between 1997 and 2002 in the United States of America (USA), the hardware industry experienced an increase in sales of more than 10.9 percent, while the number of stores that sold these products decreased by 6 percent (US Census, 2004), which reflects the closure of numerous small hardware stores and the growth of large hardware centers. The National Hardware Association in the United States expects these trends to continue (Tenatensek

and Jensen, 2005) since it is almost impossible for a small hardware store to compete with chains based on price (Darrow *et al.*, 2001). In Mexico, the hardware sector, which is made up of large chains, supermarkets and local hardware stores, sells between 35 and 40% of the national and foreign products and tools demanded by the construction industry. The growth of the hardware sector for 2013 and 2016 was 3.3% and 4.5%, respectively (INEGI, 2016). Most hardware stores are small and medium enterprises that are managed through a family organization. The National Institute of Statistics and Geography INEGI (2016), reports that people in times of crisis opt for repairs instead of replacements of complete pieces such as a change, for example, locks or doors, or, making use of various DIY techniques (Figure 1).

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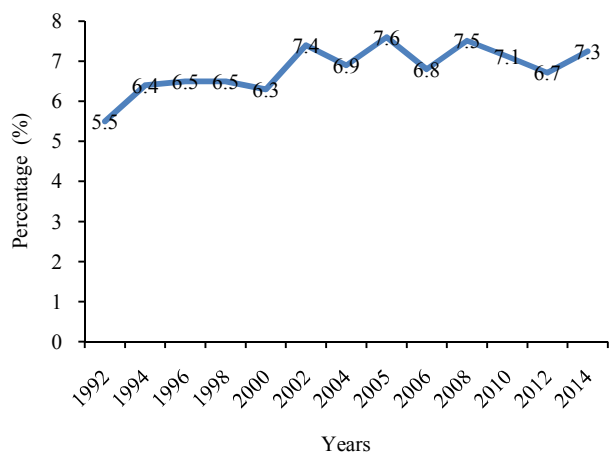


Figure 1 Percentage growth of repairs and replacements within the home

SOURCE: Own elaboration with data from INEGI (1992-2014)
^a (Repair expense / total housing expense) * 100

In Mexico, the construction industry acquires its tools and materials, first, from small local hardware stores and then from department stores and hardware centers (Gameros, 2017). However, the latter are growing rapidly and establishing themselves in areas of high development potential, diminishing clientele by up to 50% to small local hardware stores (Brennan and Lundsten, 2000, Burns and Warren, 1995). So, the research question raised in the present work was as follows: To what extent do the elements of the marketing mix affect the competitiveness of local hardware stores in the municipality of Nextlalpan? Thus, the objective of this paper was to measure the effect of each of the elements of the marketing mix on the competitiveness of local hardware stores in the municipality of Nextlalpan.

Business competitiveness and measurement factors

According to Licona and Turner (2014); Demuner, *et al.* (2010) and Franco *et. to the.* (2014), competitiveness is the ability to obtain profitability and maintain a prominent position over time. However, this must be addressed through a systemic model, that is, involving the government regarding the generation of infrastructure, competition and industrial policies (aspects: macro, meta and meso), as well as the administrative management skills that must own the owners of the company (micro aspects). Thus, factors of financial performance, costs and technology, should be considered in the study of business competitiveness at the micro level.

1. Financial performance: A competitive company needs to have a high level of financial performance, that is, short-term financial planning to avoid a liquidity problem and thus have a solid financial base (Aragón, 2005). The sales and profits in this area are considered.
2. Costs: Costs are understood as "the set of elements that aim to achieve the most appropriate calculation of the cost of the outputs of the system in accordance with the objectives of planning and control" (García, Marín and Martínez, 2006), importance is that, the prices of the products offered by the company, allow to cover the costs and in turn a return on the invested capital, then, the profitability will be reflected and there will be a greater presence in the market (Licona, *et al.* , 2014). Fixed and variable costs are considered in this section.

3. Technology: All companies regardless of their size make use of technology, whether rudimentary or cutting-edge methods (Demuner and Mercado, 2011). Technology will be reflected in routine production and administration (Demuner and Mercado, 2011). In this sense, SMEs must keep abreast of technology and implement it with previously necessary knowledge, because this will help them improve their products, increase productivity and thus increase economic benefits (Arroyo, Quezada and Vásquez, 2012). The development of services and information technologies, among others, is contemplated at this point.

In the present work, sales were considered as a proxy variable of competitiveness because the local hardware stores studied were relatively similar in terms of size, costs and technology.

Marketing mix

According to the literature, marketing is a human activity whose purpose is to satisfy a need better than competition through exchange (Kotler and Armstrong 2013). Marketing mix variables (Figure 2) are considered to be the set of controllable variables that the company uses to generate sales and thus be able to create a positioning and influence in its target market, with the optimal marketing strategy being the one that tunes the levels of the variables of the marketing-mix with the market that is taken as a goal. The literature includes 4 variables that are: the product, the price, the place and the promotion

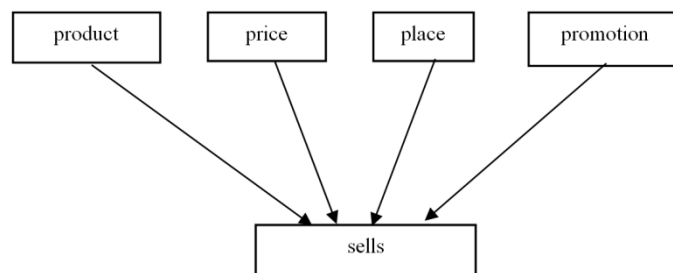


Figure 2 Effect of the marketing mix on sales

A review of the state of the art (Table 1) regarding the effect of the marketing mix on the sales of different goods and services, shows that the impact or elasticity of the different elements that comprise it is less than 1; that is, it is a very competitive market. It is observed that most of the works consulted were carried out in the United States between 1994-2015 for different business sectors and that the order of the elasticities depends on the type of product and the region. However, these works did not analyze in a disaggregated manner the effect of each of the elements of the marketing mix on sales; that is, they did not contemplate separately, for example, the product in terms of quality, assortment and competitiveness, or; the square, in terms of its location and environment. The present work did carry out such analysis as will be seen later.

Table 1 Some empirical marketing mix works consulted: 1994-2015

Authors	Year	Región	Industry	Promotion	Product	Place	Price
Aaker y Jacobson	1994	USA	Mixed	0.128	-	-	-
Fosfurri y Giarratana	2009	USA	NotDurable	1.309	0.165	-	-
Kang Lee y Yang	2011	USA	Services	-	-	-	0.192
Kim y McAlister	2011	USA	Mixed	0.003	-	0.063	-
Lee y Grewal	2004	USA	Services	-	-	0.054	-
Keating, Lys y Magee	2003	USA	Services	0.254	-	-	-
Fang, Palmatier y Steenkamp	2008	USA	Durable	-	0.054	-	-
Dotzel	2009	USA	Mixed	-	0.003	-	-
Dotzel, Shankar y Berry	2008	USA	Mixed	-	0.029	-	-
Aguilera <i>et al.</i>	2015	México	Durable	0.038	0.457	0.420	0.474
Ortiz <i>et al.</i>	2014	México	Mixed	0.232	0.221	0.169	0.10
Edeling y Fisher	2015	USA	Mixed	0.04	-	-	-

Source: Various articles of JCR journals

Product

A product is a good or service with tangible and intangible characteristics through which it can meet the needs and desires of customers. The tangible or physical characteristics of the products are, for example, their weight, size, etc. (Serrano 2012). For Van Leatham (2014), there are three levels of a product that are: the core, the tangible product and the intangible. Authors such as Verbeke *et al.* (1998), Kristensen *et al.* (2001), Angerer (2004), Corsten and Gruen (2004) and Gruen and Corsten (2002) consider that the availability of a mix of assortments is a factor that directly affects customer satisfaction and loyalty. In this sense, the assortment of products is an important factor that directly affects the competitiveness of small hardware stores (Darrow *et al.*, 2001, Fonda *et al.*, 2002, Hernandez, 2003). Studies like that of Broniarczyk *et al.* (1998), Krum (1994) and Dreze *et al.* (1994) show that there is a tolerance threshold for missing products as long as they occur in brands that are not the ones with the highest demand. However, it is risky that a local hardware store does not have a good assortment of products as people from small towns can outshoot in large cities, causing sales in their stores of origin to decrease by 50% (Hozier and Stem, 1985; Samli *et al.*, 1983; Burns and Warren, 1995). It is for this reason that some retail chains attract customers from great distances, even when there are small local stores better located (Brennan and Lundsten, 2000).

Price

It is the only component of the marketing mix that generates income for the company, being the main element that determines the value of the client (Biswas *et al.*, 2015). As a rule, consumers agree to pay a higher price in exchange for a higher quality or innovation of the product (Xevelonakis 2008). It is also necessary to consider that a bad positioning of the price to the downside, can affect the perception of the quality of the product (Shampanier *et al.*, 2007). One of the most significant elements in the competitiveness of a company is its price. According to Devoto (2010), obtaining a cost position relatively lower than that of competitors, allows to sell at lower prices and achieve greater turnover. The foregoing is the importance of recognizing the price variables, which, like the elements of the product, can also be broken down into: list price, discounts, supplements, payment period and credit

conditions. Finally, a greater volume of product purchases by a customer will represent a discount on the list price. In this regard Darrow *et al.* (2001), Fonda *et al.* (2002) and Hernández (2003) affirm that the competitiveness of hardware stores also depends on the management of their prices. Medrano (2012) points out that the price is not only the monetary value of the product, but also represents all the costs invested to acquire it. That is, if the hardware store is near the customer's place of residence, the price of buying a product will be lower than if it were traveling outside the city (outshopping) to be able to purchase it.

Place

Arredondo (2003), points out that the mobility of a brand in a territory is assigned to a specific vendor, branch or distributor, which has a simple and profitable coverage. There is a relationship between market orientation and customer loyalty to a commercial establishment (Chen and Quester 2006). Several studies establish a relationship between the environment of a commercial establishment and increased sales and repetitions of purchase in it (Sherman *et al.* 1997, Kaltcheva and Weitz 2006, Cano and Gallo 2014). Outshopping is the process of purchasing outside the local area (Jarratt, 2000). In this sense, David *et. to the.* (2007) points out that outshoppers are characterized by being richer regardless of the other variables. People who do not perform outshopping prefer local retailers (Miller and Kean, 1997). This has been related to store loyalty, a key factor in the retailer's long-term success (Ou *et al.*, 2006; Seiders and Tigert, 1997). For David *et. to the.* (2007), the most important variables regardless of whether it is a large hardware center or small hardware stores are the attention of the staff and the customer's shopping experience. Ehrenfeld (1995) and Von Bergen (1998) suggest that small hardware stores offer more convenience than chains, as they are often closer to the homes of customers. Likewise, Stewart (1997) states that when customers do not perceive significant differences between competing alternative stores, loyalty is built through the results of a series of many small meetings with company personnel. The convenience and time savings, due to the good location of the hardware stores, are often recognized as the main reasons to buy in them (Darrow *et al.*, 2001, Fonda *et al.*, 2002). There is a better shopping experience in small hardware stores due to the good attention of their employees, unlike shopping centers (Karjaluo *et al.* 2015, Barber and Tietje, 2004).

Promotion

The promotion mix is a fundamental part of marketing strategies, because product differentiation, positioning, market segmentation and brand management, among others, require effective promotion to inform, persuade and remember the characteristics, advantages and benefits of the product (Socatelli 2011). Kotler and Armstrong (2013) consider that the promotion consists of the specific combination of advertising tools, sales promotion, public relations, personal sales and direct marketing that the company uses to achieve its advertising and marketing objectives. The company must understand the value generated by employees with the service they provide and how customers perceive and react (Chen and Quester 2006). On the other hand, client-employee contacts fulfill the double duty of delivering a quality service and

generating loyalty (Wong, 2004). Recent studies indicate that consumer loyalty depends to a great extent on personalization of service and personal contact management (Ruiz-Molina, 2009). The benefit of a promotion is the perceived value in addition to the shopping experience (Chandon *et al.*, 2000). Lewis (2006) points out that promotions increase price sensitivity and destroy the value of the brand both for the consumer and for the distributor. However, the lack of promotions or permanent low prices could end the experience of value for the client (Biswas *et al.*, 2015).

Experimental Section

A quantitative, descriptive-correlational and cross-sectional study was applied to a sample of 50 micro-enterprises in the local hardware sector of the municipality of Nextlalpan, Mexico. First, it was decided to apply a survey to gather the information, thus elaborating an instrument used by Aguilera, et. to the. (2015) and that was adapted to the study, obtaining, in this way, information of the marketing mix that the managers have implemented in the last three years in the local hardware stores of Nextlalpan. The survey was personal, and the respondent was precisely the manager of these hardware stores. Subsequently, through the Eviews computer program, multiple regression models were estimated with the ordinary least squares OLS method, obtaining the corresponding elasticities. The geographic market considered, as already said, was the municipality of Nextlalpan, which will be described below.

Context

In the northeastern part of the State of Mexico, some of the industries with the highest added value are located. For example, the productivity of construction and paper manufacturing in this area is almost four times higher than that of Mexico City. (Government, 2011-2017). Nextlalpan is located in this area and has an area of 6,087.03 hectares. It is a node of regional connectivity, to be located in the path of regional road infrastructure, which allows the mobilization of the inhabitants who work in the agglomeration of Mexico City, making it a pole of attraction for housing sets and for precarious human settlements and informal, in which workers of medium and low income reside (López, 2016). Nextlalpan is immersed in a delay not only economic, but also urban development; reason why there are only small hardware stores, while in the outskirts there is a great variety of hardware stores and 5 Home Depot, located in: Cuautitán Izcalli, Coacalco de Berriozabal, Tultitlán and Tecámac (Figure 3). It should be noted that in total the number of Home Depot in this area represents almost 50% of Home Depot of the State of Mexico (12 Home Depot) and 6% of the National Home Depot. Likewise, Nextlalpan is adjacent to important industrial centers and municipalities that are less than 30 minutes away thanks to good communication channels.

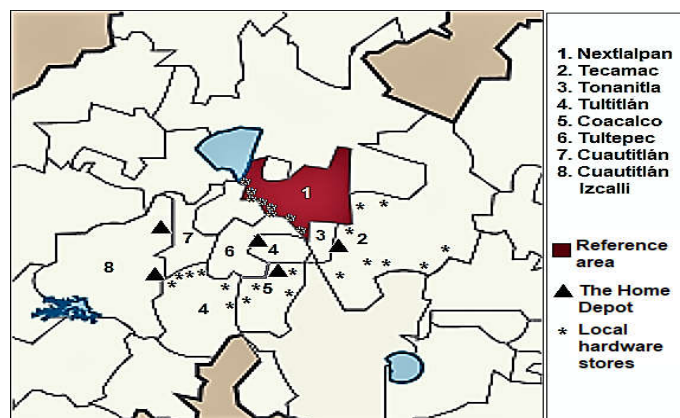


Figure 3 Local Hardware Stores and Hardware Centers located in Nextlalpan and surrounding areas

Source: Own elaboration with Google Maps data

Sample

The target population was made up of local hardware stores with very similar sizes, costs and technologies. The sample was estimated for a finite population through the following formula:

$$n = \frac{NpqZ^2}{(N - 1)\epsilon^2 + pqZ^2}$$

Where:

N = 96, which is the number of hardware stores that exist in the municipality of Nextlalpan, Mexico

P = 0.5, probability of success

q = 0.5, probability of failure

z = 95% confidence level (1.96)

ε = error accuracy of 10% (0.1)

Data

The local hardware stores studied were relatively similar, in terms of size, fixed costs and technology. In addition, it was found that the variable costs of the products were practically the same because they bought from the same suppliers. Therefore, the variable sales were defined as the proxy variable of the competitiveness of the sector, *ceteris paribus*, that is, keeping costs and technology constant. This allowed us to capture the effects that the 4 pes of marketing had on the competitiveness of Nextlalpan Mexico's small hardware stores to identify those that worked best.

A survey was designed (Aguilera, *et al.*, 2015), with 22 items, of which 21 corresponded to the independent variables (Table 2) and one for the dependent variable, SALES, which was the proxy variable of competitiveness due that the local hardware stores studied were relatively similar, in terms of size, costs and technology. The questions were structured as follows: for the product, price, place and promotion, 5, 6, 6 and 4 items were used, respectively, with responses obtained through a Likert scale of 5 items, ranging from 1 = never, up to 5 = always. The surveys were applied to 50 administrators according to the formula for calculating the sample.

Table 2 Description of each variable of the marketing mix

Variable	Description
prod1	My company has a wide range of products
prod2	Compared to the competition, my company is the first to introduce new products
prod3	My business is distinguished by the quality of the products
prod4	My business is characterized by the specialization of the products
prod5	My company focuses on satisfying the needs of its customers in terms of their requirements
pric1	The prices of our products are lower than those of the competition
pric2	The prices of our products are appropriate to the products we sell (competitive)
pric3	Prices vary depending on the quantity of products purchased by customers.
pric4	We apply a discount policy for prompt payment.
pric5	We apply a pricing strategy
pric6	We regularly negotiate the price of our products with the customer.
plac1	The service offered is adequate
plac2	Our place is well located.
plac3	The deliveries of our products are adequate.
plac4	There is good customer treatment.
plac5	The products are transported directly to the customer or the freight service is subcontracted
plac6	There is a computer service that controls orders and tickets.
prom1	It has a slogan.
prom2	Agreements are made with local companies.
prom3	Advertising is done.
prom4	Promotions for products are constantly being launched.

The instrument allowed to capture the effects that the 4 pes of marketing had on the competitiveness of the small hardware stores of Nextlalpan Mexico in the last 3 years.

Analysis procedure

In order to cover the analysis objectives, set in the study, the procedure followed consisted of performing the following steps: a reliability analysis that was addressed through the calculation of the Alpha coefficients. Subsequently, the multiple regression estimation methods were applied, and the corresponding elasticities were obtained, which served to verify the hypotheses formulated, as well as the predictive validity of the independent variables of the model.

Empirical model

The proposed models (1, 2, 3, 4, 5, 6, 7, 8), with estimators $\alpha_1 \dots \alpha_n$ for each of the items (Table 2) and with perturbation values ϵ , explained each one of them the behavior of the variable SALES.

For the product:

$$SALES = \alpha_0 + \alpha_1 \text{ prod1} + \alpha_2 \text{ prod2} + \alpha_3 \text{ prod3} + \alpha_4 \text{ prod4} + \alpha_5 \text{ prod5} + \epsilon \text{ -----1}$$

For the price:

$$SALES = \alpha_0 + \alpha_1 \text{ pric1} + \alpha_2 \text{ pric2} + \alpha_3 \text{ pric3} + \alpha_4 \text{ pric4} + \alpha_5 \text{ pric5} + \alpha_6 \text{ pric6} + \epsilon \text{ -----2}$$

For the square:

$$SALES = \alpha_0 + \alpha_1 \text{ plac1} + \alpha_2 \text{ plac2} + \alpha_3 \text{ plac3} + \alpha_4 \text{ plac4} + \alpha_5 \text{ plac5} + \alpha_6 \text{ plac6} + \epsilon \text{ -----3}$$

For the promotion:

$$SALES = \alpha_0 + \alpha_1 \text{ prom1} + \alpha_2 \text{ prom2} + \alpha_3 \text{ prom3} + \alpha_4 \text{ prom4} + \epsilon \text{ -----4}$$

For the promotion + square:

$$SALES = \alpha_0 + \alpha_1 \text{ prom1} + \alpha_2 \text{ prom2} + \alpha_3 \text{ prom3} + \alpha_4 \text{ prom4} + \alpha_7 \text{ plac1} + \alpha_8 \text{ plac2} + \alpha_9 \text{ plac3} + \alpha_{10} \text{ plac4} + \alpha_{11} \text{ plac5} + \alpha_{12} \text{ plac6} + \epsilon \text{ -----5}$$

For the promotion + product:

$$SALES = \alpha_0 + \alpha_1 \text{ prom1} + \alpha_2 \text{ prom2} + \alpha_3 \text{ prom3} + \alpha_4 \text{ prom4} + \alpha_7 \text{ prod1} + \alpha_8 \text{ prod2} + \alpha_9 \text{ prod3} + \alpha_{10} \text{ prod4} + \alpha_{11} \text{ prod5} + \epsilon \text{ -----6}$$

For the promotion + price

$$SALES = \alpha_0 + \alpha_1 \text{ prom1} + \alpha_2 \text{ prom2} + \alpha_3 \text{ prom3} + \alpha_4 \text{ prom4} + \alpha_7 \text{ pric1} + \alpha_8 \text{ pric2} + \alpha_9 \text{ pric3} + \alpha_{10} \text{ pric4} + \alpha_{11} \text{ pric5} + \alpha_{12} \text{ pric6} + \epsilon \text{ -----7}$$

For the total marketing (Mkt) mix

$$SALES = \alpha_0 + \alpha_1 \text{ prod1} + \alpha_2 \text{ prod2} + \alpha_3 \text{ prod3} + \alpha_4 \text{ prod4} + \alpha_5 \text{ prod5} + \alpha_7 \text{ pric1} + \alpha_8 \text{ pric2} + \alpha_9 \text{ pric3} + \alpha_{10} \text{ pric4} + \alpha_{11} \text{ pric5} + \alpha_{12} \text{ pric6} + \alpha_{13} \text{ plac1} + \alpha_{14} \text{ plac2} + \alpha_{15} \text{ plac3} + \alpha_{16} \text{ plac4} + \alpha_{17} \text{ plac5} + \alpha_{18} \text{ plac6} + \alpha_{19} \text{ prom1} + \alpha_{20} \text{ prom2} + \alpha_{21} \text{ prom3} + \alpha_{22} \text{ prom4} + \epsilon \text{ -----8}$$

As already mentioned, these were estimated through the Eviews software with the ordinary least square's method.

Elasticity

It is an analysis tool that can be defined as the measure of sales sensitivity to a change in any element of the marketing mix. To obtain independent dimensionless values of any unit of measure y; so that, compared with other scientific works, the elasticities for each element of the marketing mix were calculated by means of the following formula:

$$\epsilon = \frac{\partial y}{\partial x} * \frac{\bar{x}}{\bar{y}}$$

Where:

\bar{x} = Mean of the dependent variable: sales

\bar{y} = Mean of the independent variable: prod1, prod2, prod4

$\frac{\partial y}{\partial x}$ = The partial derivative or slope in each model

ϵ = Elasticity

It is expected that the 10% increase in any of the elements of the marketing mix, increase competitiveness by less than 10%; that is, behave inelastic.

RESULTS

With the SPSS program, the internal consistency for the product, price, place and promotion was evaluated, with an Alpha of Cronbach higher than 0.70 (Table 3) that, according to George and Mallery (2003), was acceptable.

Table 3 Cronbach's alphas in the Marketing Mix

Marketing Mix	Alfa de Cronbach	Numerofoelements
Product	0.779	5
Price	0.704	6
Place	0.780	6
Promotion	0.787	4

Source: Own elaboration with outputs of SPSS

Table 4 shows that for all models the assumptions of normality and non-multicollinearity are met, since the Jarque -Bera probabilities are greater than 0.05 and the Variable Inflation Factor Tests (IVF) are less than 10, respectively. With respect to homoscedasticity, all models comply with it except promotion and promo + prod since their probabilities are less than or equal to 0.05. On the other hand, for all models, except for the full model and promo-square, there is autocorrelation, since the Durbin Watson test is much less than 2. However, according to tables 5 and 6, it is observed that R2 for product models, price, place, promotion, promo + prod and promo + price are also small, so it is rather a specification bias (Gujarati, 2010).

Table 4 Statistical tests for the assumptions of the Ordinary Least Squares model (OLS)

Modelo	Normalitytest ¹	Homoedasticitytest ²	Multicollinearity test ³	Autocorrelation test ⁴
Product	0.72 (0.69)	0.69	<2.00	1.15
Place	1.52 (0.46)	0.61	<3.09	1.55
Price	0.14 (.93)	0.21	<2.05	1.51
promotion	3.23 (0.2)	0.03	<5.60	1.42
promo+prod	2.72 (0.26)	0.05	<7.50	1.71
promo+price	1.86 (0.40)	0.9	<7.75	1.51
promo+place	1.16 (0.56)	0.69	<6.10	1.92
TotalMktmix	0.12 (0.94)	0.97	<7.55	2.03

Source: Own elaboration with Eviews outputs.

¹ It was obtained with the Jarque-Bera test. Their probabilities are in parentheses

² Obtained with Breusch-Pagan-Godfrey test

³ FIV variance inflation test

⁴ Durbin Watson test

Tables 5 and 6 show the results of the OLS regressions that explain the variable SALES. In column A, the results obtained are shown taking each of the indicators independently. It is observed that the promotion, the price, the place and the product, in descending order, retain a significant proportion of the explained variance, being the promotion, the dominant indicator with 52.6%. In column B, we find the base model of the study, formed solely by the Promotion with a statistically significant a3 predictor at 1%. The contribution of the remaining indicators was determined through successive subtractions of the determination coefficients. In columns C, D and E, the effect on the sales of the model's prom + prod, prom + pric and prom + plac, respectively, appear. The largest contribution appears with the model prom + plac (column E) and with the complete model (column F), with an increase in R2, compared to the base model, of 0.165 and 0.254, respectively. In column F of table 6, the results obtained for the complete model are presented, with the following statistically significant predictors: prod1, prod4, pre1, pric2, pric5, plac2, plac4, prom3 and prom4.

Likewise, according to tables 5 and 6 it was observed that most of the variables that affected sales had 1 and 5% significance. However, because it was considered that according to the marketing theory some variables were important in the model and could not be left out, they were accepted with a significance of 10%. The following models being the following:

$$\text{SALES} = -3.866 + 0.708 \text{ prod1} + 0.547 \text{ prod2} + 0.596 \text{ prod5} + \dots -1$$

$$\text{SALES} = -1,692 + 0.653 \text{ pric2} + 0.420 \text{ pric3} + 0.674 \text{ pric5} + \dots -2$$

$$\text{SALES} = -0.674 + 0.976 \text{ plac2} - 0.609 \text{ plac3} + 0.341 \text{ plac4} + 0.261 \text{ plac5} + \dots -3$$

$$\text{SALES} = 1.412 + 0.536 \text{ prom3} + \dots -4$$

$$\text{SALES} = -1,993 + 0.542 \text{ pric2} + 0.238 \text{ pric3} + 0.386 \text{ pric5} + 0.362 \text{ prom3} + \dots -5$$

$$\text{SALES} = -0.613 + 0.425 \text{ plac1} + 0.626 \text{ plac2} + 0.258 \text{ plac4} + 0.180 \text{ plac5}$$

$$+ 0.452 \text{ prom3} + \dots -6$$

$$\text{SALES} = -3.849 + 0.386 \text{ prod1} + 0.306 \text{ prod5} + 0.400 \text{ prom3} + 0.318 \text{ prom4} + \dots -7$$

$$\text{SALES} = -5.269 + 0.337 \text{ prod1} + 0.244 \text{ prod4} + 0.252 \text{ pric1} + 0.459 \text{ pric2} +$$

$$0.174 \text{ pric5} + 0.320 \text{ plac2} + 0.196 \text{ plac4} + 0.451 \text{ prom3} + 0.313 \text{ prom4} + \dots -8$$

Finally, the elasticities of each element of the marketing mix for each model are reported (Table 7), observing that they are all inelastic (<1), except for the one corresponding to plac2 that is elastic (> 1) for the individual model of the plaza, which means, for example, that if advertising effort is increased by 10%, sales will increase by less than 10%. On the other hand, if you try to relocate the hardware store to a better place, more traveled and with greater visibility; that is, if a 10% effort were made for that purpose, sales would increase by more than 10%.

Table 5 Estimated coefficients in each regression equation

Variable	A	B	C	D	E	F
	Individualized series	Model Base promotion	Model + product	Model + price	Model + place	Model total
PRODUCT						
R2 Adjusted= 0.360						
prod1 : My company has a wide range of products	0.708**		0.386*			0.337*
prod2: Compared to the competition, my company is the first to introduce new products	0.547**					
prod3: My business is distinguished by the quality of the products						
prod4: My business is characterized by the specialization of the products						0.244*
prod5: My company focuses on satisfying the needs of its customers in terms of their requirements	0.596***		0.306*			
Productintercept	-3.866					
PRICE						
R2 Adjusted= 0.508						
pric1: The prices of our products are lower than those of the competition						0.252**
pric2: The prices of our products are appropriate to the products we sell (competitive)	0.653**			0.542**		0.459***
pric3: Prices vary depending on the quantity of products purchased by customers	0.420***			0.238*		
pric4: We apply a discount policy for prompt payment.						
pric5: We apply a pricing strategy	0.674***			0.386***		0.174*
pric6: We regularly negotiate the price of our products with the customer.						
Price intercept	-1.692					

Source: Own elaboration with Eviews outputs

Significance: <0.10 *, <0.05 **, <0.01 ***

Table 6 Estimated coefficients in each regression equation (continued)

Variable	A	B	C	D	E	F
	Individualized series	Model Base promotion	Model +product	Model + price	Model + place	Model total
PLAZA						
R2 Adjusted= 0.419						
plac1: The service offered is adequate					0.425*	
plac2: Our place is well located.	0.976***				0.626***	0.320**
plac3: The deliveries of our products are adequate.	-0.609*					
plac4: There is good customer treatment.	0.341*				0.258*	0.196*
plac5: The products are transported directly to the customer or the freight service is subcontracted	0.261**				0.180**	
plac6: There is a computer service that controls orders and tickets.						
Place intercept	-0.674					
PROMOTION						
R2 Adjusted= 0.526						
prom1: It has a slogan.						
prom2: Agreements are made with local companies.						
prom3: Advertising is done.	0.536***	0.536***	0.400**	0.362**	0.452***	0.451***
prom4: Promotions for products are constantly being launched.			0.318*			0.313**
Promotionintercept	1.412					
R2 Adjusted of the models		0.526	0.638	0.675	0.691	0.780
Variation of R2 adjusted on the base model			0.112	0.149	0.165	0.254
Intercepts		1.412	-3.849	-1.993	-0.613	-5.269

Source: Own elaboration with Eviews outputs
Significance: <0.10 *, <0.05 **, <0.01 ***

Table 7 Marketing mix elasticities for each model

Modelo	prod1	prod2	prod4	prod5	pric1	pric2	pric3	pric5	plac1	plac2	plac4	plac5	prom3	prom4
producto	0.850	0.583		0.719										
place										1.161	0.145	0.178		
price					0.838	0.482	0.714							
promotion													0.498	
promo+prod	0.386			0.306									0.372	0.275
promo+price					0.542	0.238	0.386						0.336	
promo+place									0.425	0.626	0.258	0.180	0.420	
TotalMktmix	0.405		0.287		0.280	0.589		0.184		0.381	0.084		0.419	0.270

Source: Own elaboration with data from Tables 5 and 6 and questionnaire answers

DISCUSSION

Regarding the relative importance of the product mix (Table 5) for the individual model, the variables: prod1, prod5 and prod2, affected sales in that order. For the promo + prod model (Tables 5 and 6), the variables that affected the sales were: prod1 and prod5. For the final model of the product mix, the variables: prod4 and prod1 affected sales in that order. It should be noted that the variable prod1, referring to the assortment of products appeared in the three models, a result that coincides with that reported by David, et.al. (2007); Darrow *et al.* (2001); Fonda *et al.* (2002); Hernandez (2003); Verbeke *et al.* (1998); Kristensen *et al.* (2001); Angerer (2004); Corsten and Gruen (2004); Gruen and Corsten (2002); Erosa M., et. to the. (2011); Hozier and Stem (1985); Burns and Warren (1995); Brennan and Lundsten (2000), in that the variety of products offered influences customer satisfaction and consequently sales and competitiveness of the local hardware store; therefore, a shortage of product would cause customers to migrate to other hardware stores even outside the municipality (outshopping) because of the proximity and ease of transportation. Regarding the price element mix (Table 5), for the individual model, the variables: pric5, pric2 and pric3, affected sales in that order; while, for the promo + pric model (Tables 5 and 6), the variables: pric2, pric5 and pric3 affected them in this way. For the final model, the variables: pric2, pric1 and pric5 affected sales in this order.

From the above, it can be deduced that in the three models the pric2 and pric5 variables referring to the appropriate and strategic prices are repeated, respectively; result that coincides with that reported by Xevelonakis (2008); Shampanier *et al.* (2007); Darrow *et al.* (2001); Fonda *et al.* (2002); Hernández (2003); Medrano (2012) and David, et.al. (2007), since they declare that good price management allows sales to increase by sending signals to consumers that they are paying the fair price. That is, if a product is sold anywhere, it would be talking about its demand being elastic, so the strategy would be to lower the price. On the other hand, if the product is new, its demand would be inelastic, which would suggest increasing the price. As for the mixture of the square element (Table 6), the variables of the individual model: plac2, plac4 and plac5 affected sales in that order. It should be noted that the variable plac3 did not have the expected sign, so it was not considered in said model. For the promo + place model and the final model, the variables: plac2, plac1, plac4 and plac5, and the variables plac2 and plac4, affected sales in that order. It should be noted that the variables plac2 and plac4, referring to the good location and friendly treatment of the hardware store personnel, respectively, appeared in all three models. The above coincides with that reported by Ehrenfeld (1995); Von Bergen (1998); Stewart (1997); Darrow *et al.* (2001); Fonda *et al.* (2002); Karjaluoto *et al.* (2015); Barber and Tietje (2004) say that a good location of the hardware store and a good service of its staff increase sales and loyalty by reducing the cost of change and move to other places (outshopping). As for the mix of the promotion element (Table 6), for the individual

model, the variable prom3 is the only one that affected sales. For the promo + prod model, the variables: prom3 and prom4 affected sales in that order. For the prom + pric model, the variables: prom3 was the only one that affected sales. In the prom + plac model, the variable prom4 was the only one that affected sales. Finally, in the total model the variables prom3 and prom4 affected the sales variable in that order. The foregoing corresponds to that reported by Lewis (2006); Biswas *et al.* (2015); Chandon *et al.* (2000) and Kotler and Armstrong (2013), who in this regard comment that advertising and sales promotion are effective tools to reach an increasing number of people, even outside the municipality, generating business opportunities with potential customers such as companies, specialized clients and the general public, through social networks and traditional promotion. Finally, the elasticities of the elements of the marketing mix obtained in the present work, coincide in their inelasticity (<1), with that reported by Aaker and Jacobson (1994); Fosfurri and Giarratana (2009); Kang Lee and Yang (2011); Kim and McAlister (2011); Lee and Grewal (2004); Keating, Lys and Magee (2003); Fang, Palmatier and Steenkamp (2008); Dotzel (2009); Dotzel, Shankar and Berry (2008); Aguilera, et. to the. (2015), Ortiz, *et. al.*, (2014) and Edeling and Fisher (2015), which means that the market is very competitive. Regarding the magnitude of the elasticities, Aguilera, et. to the. (2015) reports a very low elasticity for promotion (0.038) in relation to the obtained in this work (0.451), probably due to the fact that local retailers were not studied but rather manufacturing SMEs. However, if it coincides with that reported by Ortiz, *et. al.*, (2014) which is 0.232, since its study was carried out in the area of La Purisima, municipality of Aguascalientes, where MSMEs are predominant marketers.

CONCLUSIONS

The elasticity lower than 1 ($\epsilon < 1$) shows that there is strong competition between local hardware stores in the municipality of nextlalpan. This means that each of the elements of the marketing mix has a weak impact on sales. It was found that the assortment and specialization of products; the low, adequate and strategic prices; the good location and the friendly treatment in the store; advertising and promotions, had a positive and inelastic impact on the competitiveness of local hardware stores. However, the most outstanding marketing mix was made up of the right prices (0.589), advertising (0.419), the assortment of products (0.405) and the location of the hardware store (0.381). Based on this information, managers must consider this marketing mix to make their hardware stores competitive. Within the limitations of the present investigation, some distrust of the hardware store managers was found to provide information. It is intended that future research will study the state hardware sector.

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