

Extended Abstract

Paper Title	The Effect of promotions on purchasing behaviour before, during and after COVID-19 using a quantile regression
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	<i>200 words max</i>
<p>Spain has been the 6th European country affected by COVID 19. To face the increase of the number of cases and prevent the health system from collapsing, the Spanish government declared an official lockdown from March 13 to June 21, 2020. However, sectors such as, fast moving consumer goods (FMCG) have been influenced by this decision. This study explores the differential effects of promotions on low, moderate, and high spenders. Using home-scan panel data from Kantar WorldPanel covering the period from January 1, 2019, to December 30, 2021. The methodological approach followed is a quantile regression. Preliminary results revealed positive effects of both prices and promotions on household expenditures over the three years, with diminishing effects at higher expenditure levels. However, few significant differences between years were observed.</p>	
Keywords	COVID-19, promotions, purchasing behaviour
JEL Code	Household behaviour and family economics (D1)
Introduction	<i>100 – 250 words</i>
<p>On 11 March 2020, the World Health Organization (WHO) declared the public health emergency caused by COVID-19 to be an international pandemic. The rapid pace of spread, both nationally and internationally, required immediate and effective measures to be taken to address this situation. In Spain, the government declared the state of alarm on 14 March 2020 where, with the exception of people of an occupation categorized as essential, all the Spanish population was obliged to remain at home except for buying products considered as basics. After several extensions, the lockdown remained in force until 21 June. The declaration of this lockdown created a hoarding phenomenon and panic buying. The objective of this study is to examine whether sales promotions have differential effect on low-moderate- and high spenders purchasing households. In this context, high purchasers are defined by higher quantiles of conditional purchase distributions, and likewise low purchasers by lower quantiles. The study gives insights into consumer behaviour during a crisis, shedding light on the dynamics of promotions and prices in the context of a global pandemic.</p>	
Methodology	<i>100 – 250 words</i>
<p>Home-scan panel data for Kantar Worldpanel company have been used. These data cover purchases in fast moving consumer goods sector dedicated for in house consumption for a sample of households living in Spain. The dataset runs from January</p>	

1st 2019 to December 30th 2021. Knowing that in Spain the lockdown started in March 14th 2020 and has been extended continuously by 14 days until June 21st 2020, three time periods have been created (Pre-lockdown, lockdown and post- lockdown). Taking into account these time periods, data from 2019 and 2021 were aggregated to compare between periods of these years. The sample was constituted of 831 households, selected in a way that they make at least one shopping trip in each time period of the three years leading to (51,890 observations).

13 food categories have been created. We aggregated the data at the weekly level. The methodological part is divided into two main sections: First, we run some descriptive statistics: expenditures per category, price per category and promotional sales. Second, we consider the quantile regression, where the total expenditure is divided into three levels (0.25,0.50 and 0.75) is regressed on the prices and promotions of the different food categories as follows:

$$Qy_{it}(\tau|x_{it}) = \alpha_i + x_{it}(\beta_\tau) \quad t = 1, \dots, T, \quad i = 1, \dots, n.$$

Where the following model for the conditional quantile functions of the response of the expenditures y of ith individual at time t . The α 's has pure location shift effect on the conditional quantiles of the response. The covariates x_{ij} , which are prices and promotions are permitted to depend upon the quantile τ , of interest, but the α 's does not.

Results	100 – 250 words
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Descriptive statistics: The dataset is constituted of 881 households that make. The majority of households have 2, 3, or 4 members, with around 31.14%, 28.02%, and 27.55%, respectively. Smaller and larger households (1 member and +5 members) constitute just 7.44% and 5.85%, respectively. 70.90% of the households have children while households without children and independent households account for 23.55%. The age distribution of household heads is skewed towards the older age groups; 36.21%, 43.39% for 35-49 years and 50-64 years, respectively. Households of 0-34 years represent 3.21%.

Purchasing behaviour: The prices of the majority of the food categories raised during 2020 compared to 2019 for the different time periods. Similarly for 2021 the prices are higher than 2019. However, the degree that prices raised are higher during 2020, except for some categories. In relation to promotions, there higher percentage of purchases involving promotion during 2020 and 2021 compared to 2019 during January to march. For the two remaining periods, the percentage of promotions is higher during 2020 and lower during 2021.

Quantile regression: Both prices and promotions have positive effects on household expenditures for the three years. The effect of promotions and prices decrease with the highest levels of expenditures. However, few significant differences are observed between years.

Discussion and Conclusion	100 – 250 words
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We found that food prices increased during the year of COVID for the majority of the categories compared to the previous year. This finding may suggest that due to panic buying behaviour and higher demands during COVID prices raised up.

Purchases involving promotions increased during lockdown period and post-lockdown periods in 2020 probably to higher frequency to purchase food and consequently higher exposure to offers. While in 2021, there a decrease in promotional use for the same period, probably due to inflation during this year in Spain and fewer promotions.

Although prices and promotion usage increased during the year of COVID, especially during lockdown, we did not observe any significant difference between the different quantiles. That shows that the consumer became insensitive to price changes no matter the amount of money that they spent. Similar behaviour has been revealed for promotions. When comparing the same period through the years, few significant differences are worth to be mentioned.