Consumer purchase of *terroir* products in tough macro-economic conditions: A panel data investigation

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Abstract

- ***Objectives***

The aim of this study is to examine the effects of store image factors on customer behavior toward *terroir* store brand products during periods of economic expansion (vs. contraction).

- ***Methodology***

This study combines store perception data with observed purchase behavior data provided by Marketing Scan's Behavior Scan panel (GFK & Mediametrie). A typical period in France, consisting of an expansion year (2007) followed by a contraction period (2008), was chosen to assess the impact of the macroeconomic situation.

- ***Results***

Low store prices, store display promotions, feature promotions, and store variety image positively influence *terroir* store brand product consumption, while brand quality image generally negatively influences it. During economic contraction, store brand quality image increases *terroir* store brand product choice, while low store prices, display promotions, variety, and layout image decrease it. In addition, store brand quality image increases purchase quantities. Conversely, display promotions, feature promotions, low store prices, and store variety image reduce them.

- ***Originality***

This study adds to the local product literature by examining the relationships between *terroir* store brand products and store image under different macroeconomic conditions. It highlights that low store prices, store display promotions, feature promotions, store variety image, and store brand quality image are central in explaining the choice of *terroir* store brand products during contractionary periods.

- ***Keywords:*** Brand choice, *terroir* store brand products, store image, macroeconomic conditions, purchasing behavior.

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Inflation is currently a critical issue that is eroding consumer purchasing power. In France, consumer price inflation is estimated at 5.1% year-on-year in May 2023. This is well above the European Central Bank's target of 2.0%. In order to cope with such an economic situation, customers are either reducing the amount of national brands they purchase (manufacturer brands) or they are buying cheaper brands such as store brands (retailer brands).

Terroir store brands products are of strategic interest because they support both purchasing power and the local economy. In line with Charters et al. (2017), Lacœuilhe et al. (2017) and Ertus (2023), we define *terroir* products as those that originate from a particular region because of its history, know-how, or traditions. According to Charters et al. (2017), *terroir* represents a more precise designation than Protected Designation of Origin in that it encompasses more place-related dimensions: the physical raw materials, philosophy and traditions related to a specific place and human capital. An example is "Palets bretons" (Breton palets). They can be branded with the retailer's name (*terroir* store brand product) or the manufacturer's name (*terroir* national brand product). Previous studies have investigated the impact of economic contraction on customer purchasing behavior (Dekimpe and Deleersnyder, 2018; Ngobo and Ingarao, 2017). These products have gained popularity in recent years due to their participation in the local economy (Denver et al., 2019) and authenticity (Pasquinelli et al., 2021).

Terroir products promise to meet consumer needs based on their origin and link to local culture, traditions, and know-how (Denver et al., 2019; Yang and Leung, 2020), as well as address consumer concerns and lack of trust in standard products. The strategic role of *terroir* products has even increased since the COVID-19 pandemic. According to Kantar's COVID-19 Barometer, COVID-19 has led to a surge in "localism" around the world, with two-thirds (65%) of consumers now preferring to buy goods and services from their own country.[1]

Previous studies on local products examine constructs such as natural environmental performance, psychological and geographic distance (Meyerding et al., 2019), collective norms and symbolic boundaries (Dubuisson-Quellier and Gojard, 2016), and value perceptions (Jodice and Norman, 2020; Diallo and Kaswengi, 2016). For example, in a study on locally produced food, Meyerding et al. (2019) examined consumers' preferences for different labeling strategies for local products. The results helped to define the meaning of local products for fresh and processed foods, and revealed the highest part-worth utilities for the generic "locally grown," "within state," "within 30 km," and "within 50 km" labels. Jensen et al. (2019) conducted a study on Danish consumers and identified five consumer clusters, three of which are particularly focused on organic or local food. Furthermore, the results show that these consumers understand local food mainly in terms of geographical proximity. However, other factors such as history, know-how and traditions are also important for consumers (Charton-Vachet and Lombart, 2015; Lacoeuilhe et al., 2017).

Despite these studies on local products, there has been little focus on *terroir* products. Two critical research gaps remain. First, despite the growing importance of retail assortments, *terroir* store brands are neglected in existing studies, which instead focus on organic or fair trade products (Jensen *et al*., 2019). Previous studies also highlight the importance of store image (Merle and Piotrowski, 2012) in the consumption of local products. However, the effect of store image factors

1/ Source: Kantar Barometer (May 2020): https://www.kantar.com/uki/company-news/covid-19-barometer-the-three-consumer-trends-defining-the-next-new-normal

(e.g., price, promotion, assortment) on consumers' decision to choose *terroir* store brand products remains unknown. Second, consumers often switch from more expensive to cheaper products (e.g., store brands) during economic contractions (Boutsouki, 2019). However, prior research has not clarified whether the effect of store image factors on customers' choice of *terroir* store brands products changes under different macroeconomic conditions. Nevertheless, the effect of store image on the purchase behavior of *terroir* products may differ across macroeconomic situations. Existing research highlights dynamic changes in brand/product consumption in relation to economic context (Boutsouki, 2019; Calvo-Porral et al., 2016).

To address these research gaps, this article examines how store image attributes and macroeconomic conditions (expansion vs. contraction) influence consumer purchase behavior of *terroir* store brand products. The current research combines store image data, which reflects consumer perceptions of stores, with behavioral market data (household behavior). The contribution of this research is to show how store image attributes (e.g., display promotion, low store price, product availability) and macroeconomic conditions affect the purchase behavior of *terroir* store brand products. In doing so, it contributes to a better understanding of how to manage such products in difficult economic times.

In the following sections, we review previous studies on local products and present the relationships examined. After presenting the research methodology, we analyze the results. Finally, we discuss the implications of the findings and offer avenues for further research.

Theoretical framework

Theoretical and conceptual background

According to Vasudeva et al. (2018), signaling theory specifies the conditions under which information asymmetry can be resolved and firms can convey information about an unobservable attribute (e.g., product quality, firm reputation) to customers through some observable traits (cues or signals). Thus, depending on market conditions, customers may use certain observable characteristics (e.g., respect for moral norms, laws, traditions, know-how) to infer an unobservable attribute (e.g., trust, store image, reputation). One of the key functions of signaling theory is to

Box 1: Definition of *terroir* products

The term "local products" implies geographic proximity (e.g., 50 or 100 mile radius), but it could also imply a foodshed framework, a term used to describe the flow of food from areas where it is grown to places where it is consumed (Jensen et al., 2019; Meyerding et al., 2019). In particular, Meyerding et al. (2019) showed that most consumers consider food to be local if it is sold in the same country where it is grown. In line with previous studies (Feldmann and Hamm, 2015; Jensen et al., 2019; Meyerding et al., 2019), this study takes a broad view and defines "*terroir* products" as those that originate from a specific region characterized by local traditions, know-how, and values. Thus, *terroir* evokes a geographic location, history, tradition, and culture that consumers are aware of and recognize (e.g., Aurier and Fort, 2005; Charton-Vachet and Lombart, 2015; Lacoeuilhe et al., 2017; Ertus, 2023). In this respect, there are two different segments of local store brands in France: the premium segment (e.g., *Nos regions ont du talent*, *Reflets de France*) and the standard segment (e.g., store brands with the retailer's name, such as Carrefour's "Palets bretons"). The premium segment is well known because it has been heavily promoted as a relevant alternative to manufacturer brands. It seduces consumers attracted by quality products (natural ingredients, authentic recipes, ...) and local products, responding to their expectations of reassurance or even ethnocentrism (Lacœuilhe et al., 2018). The standard segment is much less known as it uses the retailer's name, but has a similar positioning (authentic recipes, history, local know-how).

reduce information asymmetries (Kharouf et al., 2020). In this context, *terroir* products are related to trust/reputation building and perceived risk reduction. According to this theory (Li et al., 2019), customers may perceive their environment as more uncertain and risky during contraction periods. Therefore, they may rely on perceived proximity (geographic, historical, ...) and store brands (as cheaper alternatives) to reduce the different types of perceived risk (psychological, safety, and financial) when making a purchase decision (Kaswengi, 2013; Merle and Piotrowski, 2012).

Without an official definition or standardized regulations, it is difficult for consumers to identify local/*terroir* products, and they have no guarantee that products labeled as local meet their expectations (Feldmann and Hamm, 2015) in terms of geographic history, know-how, and traditions. Box 1 presents the main characteristics of local/localized/ *terroir* products.

Determinants of purchase behavior for *terroir* store brand products

Effects of store image factors

Store image refers to the way a store is perceived in the minds of shoppers, which includes functional qualities and psychological attributes. The focus of the current article is on three key image dimensions that have been closely related to store brand purchases in previous studies (Ngobo and Ingarao, 2017; Prediger et al., 2019): product quality, price/promotion, and store assortment. For example, Gendel-Guterman and Levy (2017) examine the effects of service, quality, variety, price, and convenience and show that these store image factors are not related to the retailer's store brand image. However, store image is positively associated with both value for money and frequency of purchase of store brands. It is expected that attributes related to these dimensions will influence both the choice and the quantity of *terroir* store brand products purchased.

First, the quality of a store's merchandise has a positive effect on consumers' attitudes toward its store brands (Gendel-Guterman and Levy, 2017). Bosworth et al. (2015) find that local brand names, paired with local labels, increase willingness to pay. Pasquinelli et al. (2021) report a relationship between quality and consumption of local products. Therefore, we expect quality perceptions to positively affect the choice and quantity of *terroir* store brand products. Second, price and promotion are important determinants of brand purchase behavior (Diallo and Kaswengi, 2016; Gendel-Guterman and Levy, 2017; Rivière et al., 2018). As a result, price and promotion perceptions are expected to positively influence the choice and quantity of purchase of *terroir* store brand products. Third, store assortment image, which refers to store product variety, is an important determinant of purchase decisions (Kaswengi and Ramaroson, 2016; Ngobo and Ingarao, 2017; Prediger et al., 2019). Previous studies have shown that product variety (e.g., size, texture, taste) has a positive effect on purchase behavior for locally grown products. Thus, we expect that customer perceptions of store product variety will have a positive effect on the purchase of *terroir* store brand products.

Moderation effects of macroeconomic conditions

Previous studies show that economic crises are caused by various factors (capitalism and globalization, moral failings, stupidity and lack of professionalism of financial decision-makers, etc.) (Boutsouki, 2019; Calvo-Porral et al., 2016) and affect consumption. Specifically, in times of contraction, consumption patterns change when people face hardship due to a decline in household income (Boutsouki, 2019), leading to a reallocation of household spending.

Previous research also shows that marketing variables influence customer purchase behavior for store brands during economic expansions and contractions (Calvo-Porral and Lévy-Mangin, 2015). Millet et al. (2012) show that consumption of products associated with positive economic sentiment (e.g., manufacturer brand products) increases during expansions, while consumption of products associated with negative economic sentiment (e.g., store brand products) increases during economic contractions. Because *terroir* store brand products have a price advantage over *terroir* manufacturer brand products, consumers are more likely to purchase them during contractions. Calvo-Porral and Lévy-Mangin (2015) investigate the antecedents and relationships of store brand equity in times of crisis and economic recession. They show that store image affects the sources of equity of store brand products (perceived quality, brand loyalty, brand awareness/associations). In the same perspective, Boutsouki (2019) finds a low positive correlation between in-store displays and impulse purchases during an economic crisis. Conversely, their analysis shows no relationship between staff service and purchases. Hence, the results are mixed. Thus, it is crucial to further our understanding of how store image influences the purchase behavior of *terroir* store brand products, which aim to offer products rooted in the local environment (history, know-how, etc.) and good price.

We expect that price, promotions, and product image attributes will have different effects on the purchase behavior of *terroir* store brand products during economic expansions and contractions. The marketing literature reports that the success of store brand products is countercyclical, with their share increasing during economic downturns and decreasing during expansions. However, asymmetries in the magnitude and speed of store brand share change during economic upturns and downturns. Specifically, consumers switch more extensively to store brands during economic downturns than they switch back to manufacturer brands in the subsequent recovery (Dekimpe and Deleersnyder, 2018).

Research methodology and model

This study uses purchase records from the BehaviorScan panel of Marketing Scan (GFK & Mediametrie). To assess the impact of the macroeconomic situation, a typical period in France is selected, consisting of an expansion year (2007) followed by a contraction period (2008). The contraction/expansion periods are defined on the basis of official figures from INSEE (French National Institute for Statistics). 2007 (January to December) is used as the expansion period and 2008 as the contraction period. Each period (year) consists of 52 weeks (364 days). INSEE (equivalent to the US Census Bureau) defines a contraction as a decline in GDP growth for two consecutive quarters. An expansion is defined as a period of increasing GDP growth along with an increase in purchasing power and inflation.

Because some of our data (the perception data) is only measured once a year by MarketingScan, a full year is considered for each period. MarketingScan collects consumer perceptions (store image) in early January (before the behavioral market data is collected). The dataset is from stores based in Angers/ Le Mans. The questionnaire is sent to all panelists, who respond using the same system that is used to send the behavioral data. This allows us to combine perceptual data with behavioral data. Consumers rate the specific store in which they shop. The same is true for other perceptual measures. Panel members have a unique ID to ensure they are responding for their specific store. This research uses store image attributes (e.g., display promotions, low store price, product availability) and macroeconomic conditions to not only identify the factors that influence the selection and volume of

terroir store brand products, but also to better understand how consumers behave during difficult economic times.

A sample of 6,002 purchases is used. It comes from a sample of 733 households that shopped in Carrefour hypermarkets (department stores) and bought *terroir* store brand products at least once during the period. The sample is restricted to Carrefour hypermarkets to avoid heterogeneity issues related to the retail chain's pricing, assortment policy and local private label products. Two *terroir* store brand products were examined: a manufacturer's brand (*Paysan Breton*) and a store brand (*Carrefour*, *terroir* products only). This choice was made to avoid heterogeneity problems and to provide a relevant comparison. While *Paysan Breton* is a brand owned by the Laïta cooperative and sells a limited number of product categories in 90 countries around the world, the Carrefour brand covers a wide range of food, drugstore and hygiene products to meet the needs of the whole family. These two brands were chosen because they are well known to customers and benefit from high

Box 2: Model estimation and measurement

A logistic regression is used to model the choice probability of choosing a *terroir* store brand product *i*, in store *s*, by household *h*, on shopping occasion *t,* in year *y*:

(1)
$$P(y_{ishty} = 1) = \alpha + \beta_1 QUAL_{sy} + \beta_2 PRICE/PROMO_{sy} + \beta_3 ASSORT_{sy} + \beta_4 QUAL_{sy} \times MEC_y + \beta_5 PRICE/PROMO_{sy} \times MEC_y + \beta_6 ASSORT_{sy} \times MEC_y + \beta_7 RPRICE_{ist} + \beta_8 DISP_{ist} + \beta_9 FEAT_{ist} + \beta_{10} POSIT_{st} + \beta_{11} HOUSE_h + \beta_{12} CATEG_{ist} + \beta_{13} STORE_{st} + \beta_{14} MEC_y + \epsilon_{ijt}$$

Where:

α refers to general constants, category-specific constants (butter, cookies, yogurt), and store-specific constants to control for heterogeneity.

$QUAL_{sy}$ refers to the product quality image components for store *s*: image of store brand quality (*QUAL1sy*) and low-end SB ($QUAL2_{sy}$), measured at the beginning of year *y*.

$PRICE/PROMO_{sy}$ refers to the store's perceived regular low prices ($PRI1_{sy}$), perceived display promotional advantages ($PRI2_{sy}$), and perceived attractive features ($PRI3_{sy}$), all measured at the beginning of year *y* where *t* occurs, using five-point Likert scales.

$ASSORT_{sy}$ refers to the store's perceived product variety ($ASSORT1_{sy}$), clear product layout ($ASSORT2_{sy}$), and product availability ($ASSORT3_{sy}$), all measured at the beginning of year *y* in which *t* occurs, using five-point Likert scales.

$RPRICE_{ist}$ refers to the regular price of brand *i* observed in the store *s* on occasion *t*.

$DISP_{ist}$ refers to the product display of brand *i* in store *s* on occasion *t*, measured using dummies (0=no display, 1=display).

$FEAT_{ist}$ is the product feature of brand *i* in store *s* on occasion *t*, measured using dummies (0=no feature, 1=feature).

$POSIT_{st}$ is the price index of store *s* on occasion *t*, which is the category-weighted index of the average price in store *s* divided by the average price across all stores.

$HOUSE_h$ refers to the characteristics of household *h*, including age (age of household head), income (total household income), and family size.

$CATEG_{ist}$ refers to the product category of brand *i* in store *s* in *t* (coded as a dummy).

$STORE_{st}$ refers to the store *s* where the household buys the product in *t* (coded as a dummy).

MEC_y is a dummy variable reflecting the macroeconomic situation in year *y* (0 = expansion, 1 = contraction).

ϵ_{ijt} is the random disturbance of the model.

Appendix 1 presents the items' formulations. Table 1 presents the measurement variables.

sales. The focus is on three product categories, butter, cookies and yogurt, because they are commonly purchased in *terroir* product segments. For example, for butter, we analysed butter "breton" from Paysan Breton and butter "breton" from Carrefour. The choices made also allows the study of both low and high penetration categories, as suggested by Dhar et al. (2001): although all categories are frequently purchased, they may have different levels of penetration within the segment studied. Typically, yogurt is a low-penetration category, while butter is a high-penetration category in the panel analyzed.

Table 1: Definition and measurement of the variables

Variables	Definition
	Dependent variables
$P(y_{isht})$	Probability of a *terroir* store brand *i* being purchased, in store *s*, by household *h* during shopping occasion *t* in year *y*
QUANT (y_{isht})	Quantity of *terroir* store brand *i* purchased in store *s*, by household *h*, on occasion *t*
	Explanatory focal variables
$QUAL_{sy}$	Product quality image components for store *s* in year *y*
$PRICE/PROMO_{sy}$	Image of price and promotion in store *s* in year *y*, Likert scale (1 to 5)
$FEATURE_{sy}$	Image of feature attractiveness in store *s* in year *y*, Likert scale (1 to 5)
$DISPLAY_{sy}$	Image of display promotional advantages in store *s* in year *y*, Likert scale (1 to 5)
$LOWPRICE_{sy}$	Image of regular low prices in store *s* in year *y*, Likert scale (1 to 5)
$ASSORT_{sy}$	Image of assortment in store *s* in year *y*, Likert scale (1 to 5)
$VARIETY_{sy}$	Image of product variety in store *s* in year *y*, Likert scale (1 to 5)
$LAYOUT_{sy}$	Image of product layout in store *s* in year *y*, Likert scale (1 to 5)
$AVAILABILITY_{sy}$	Image of product availability in store *s* in year *y*, Likert scale (1 to 5)
	Store control variables
$RPRICE_{ist}$	Regular price of brand *i* observed in store *s* on occasion *t*
$DISP_{ist}$	Actual product display of brand *i* in store *s* on occasion *t*, measured using dummies (0 = no display, 1 = display)
$FEAT_{ist}$	Actual product feature of brand *i* in store *s* on occasion *t*, using dummies (0 = no feature, 1 = feature)
$POSIT_{st}$	Store *s* price index on occasion *t*, which is the category-weighted index of average price in store *s* divided by the average price across all stores
$CATEG_{ist}$	Product category of brand *i* in store *s* in *t* (coded as dummy)
$STORE_{st}$	Store *s* where the household buys the product in *t* (coded as dummy)
	Household control variables
$HOUSE_h$	Household *h*'*s* characteristics, including age, income, and size
AGE_h	Age of head of household *h*
$INCOME_h$	Income of household *h*
$SIZE_h$	Size of household *h*
	Instrumental variables
$RECEP_{sy}$	Perceptions of in-store reception for store *s*, year *y* when *t* occurs, measured on five-point Likert scales. It corresponds to the item: "The cashiers are nice"
$WAIT_{sy}$	Image of the queues in store *s*, year *y* when *t* occurs, on five-point Likert scales. It corresponds to the item: "There are short queues"
	Moderator
MEC_y	Dummy reflecting the macroeconomic situation during year *y* (0 = expansion, 1 = contraction)

Analyses and results

Descriptive statistics, endogeneity, and common method variance issues

The two brands and their market shares are *Paysan Breton* (26%) and *Carrefour* (74%). The product categories in the sample are distributed as follows: butter (83.2%), cookies (16.6%) and yogurt (0.2%). The market shares of the store brand in these categories are 90.1%, 9.7% and 0.2% respectively. On average, households bought 1.36 (SD=0.86) items per shopping trip for 2.31 (SD=1.34) euros per item. The attributes of the store image are generally well rated by

Table 2: Socio-demographic statistics

Variable	Category	% of respondents		
Brand		Overall	Carrefour	Paysan Breton
Age	18 – 24	0.10	0.11	0.06
	25 – 29	2.95	3.11	2.50
	30 – 34	8.45	10.22	3.40
	35 – 39	9.35	9.43	9.11
	40 – 44	12.76	14.49	7.83
	45 – 49	15.38	16.93	10.97
	50 – 54	13.06	13.59	11.55
	55 – 59	11.95	10.29	16.68
	60 – 64	6.76	5.11	11.48
	65 – 69	6.00	5.54	7.31
	>=70	13.25	11.19	19.11
Total		100.00	100.00	100.00
Income	< € 990	4.40	4.57	3.91
	€ 990 – € 1 295	8.80	7.86	11.48
	€ 1 295 – € 1 830	13.65	15.15	9.36
	€ 1 830 – € 2 285	21.79	22.17	20.72
	€ 2 285 – € 2 745	13.93	14.65	11.87
	€ 2 745 – € 3 350	18.41	18.66	17.70
	€ 3 350 – € 3 810	6.26	4.93	10.07
	>= € 3 810	12.76	12.02	14.88
Total		100.00	100.00	100.00
Family size	1 person	10.65	10.80	10.20
	2 persons	32.22	27.19	46.57
	3 persons	19.11	19.78	17.19
	4 persons	20.76	24.15	11.10
	5 persons	14.83	14.97	14.43
	6 persons	2.38	3.04	0.51
	>=7 persons	0.05	0.07	0.00
Total		100.00	100.00	100.00

Box 3: Robustness checks

Two instruments were used to correct for potential endogeneity issues: RECEPT (reception quality, measured from 1 to 5) and WAIT (perceived waiting time, measured from 1 to 5). Both appear to be strong, as their correlations with the endogenous variables (store brand quality and low-end store brand image) are significant at the 1% level (see Table 4).

A well-known potential limitation of perceptual data is the common method variance bias that can result from having the same respondent or rater as the source for both the independent and dependent variables in an instrument. To test for the presence of this bias, the smallest correlation-based marker variable technique is used (Malhotra et al., 2006). The results (the differences between the original and corrected correlations) showed no evidence of common method bias (all differences are not significant at 0.05).

these households, although the image of store variety (M=4.26, SD=0.67) has the highest rating and the image of store availability the lowest (M=3.31, SD=1.02). Table 2 shows the socio-demographic profile of the panel, and Table 3 presents the correlations between the variables analyzed.

Effect of image factors

Following previous studies (Leenheer et al. 2007), the effects of image factors are tested using the generalized method of moments (GMM) estimator suitable for multiple instrumental variables (IVs). This model produced robust results. Several hierarchically nested models were tested, including those with and without the three image components (Akaike information criterion [AIC] = 5388.077, Bayesian information criterion [BIC] =5535.201; AIC=6395.797, BIC=6491.114, respectively). Including the store image significantly improved the fit. A model in which economic periods interacted with all other variables provided a better fit (AIC=2522.301, BIC=2642.268) than the same model without these interaction effects (AIC=5388.077, BIC=5535.201).

Following Leenheer et al. (2007), we tested a model with RECEP and WAIT as instruments and store brand choice and purchase quantity as dependent variables. The results in Table 5 show that RECEP increases store brand quality (β=0.170, p<0.001) and low-end store brand quality image (β=0.079, p<0.001) in the model with *terroir* store brand choice as the outcome. WAIT also increases these variables (β=0.210, p<0.001) and (β=0.199, p<0.001), respectively. Table 6 reports similar results on the relationships between the two instruments and the purchase quantities of *terroir* store brand products.

As Table 5 shows, perceived store brand quality negatively relates to consumer choice of *terroir* store brand products (β=–1.208, p<0.001). Perception of low-end store brands and product availability image have no direct influence on consumer choice of store brands (p>0.10). Store price/promotion image attributes have positive effects on store brand choice in the *terroir* store brand products: low store prices (β=0.330, p<0.001), store display promotions (β=0.295, p<0.001) and perceptions of feature promotions (β=0.186, p<0.001). Assortment factors also have positive effects on customer choice of *terroir* store brand products: store product variety (β=0.293, p<0.001) and store layout (β=0.091, p <0.001).

Regarding the effect of macroeconomic conditions (0 = expansion, 1 = contraction), the interaction of this factor with perceived store brand product quality (Table 5) is positive (β=0.317, p<0.001). This result means that perceived quality becomes a positive driver of store brand choice in times of contraction. Low-end store brand image does not affect consumer choice of *terroir* store brand products (p> 0.05). In contrast, price/

Table 3: Correlations between the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Store brand choice	1													
2. Regular price	-0.140***	1												
3. Display promotion	-0.001	0.061***	1											
4. Feature promotion	-0.150***	0.123***	-0.023	1										
5. Store brand quality image	0.055***	0.007	-0.003	0.000	1									
6. Perceptions of reception	0.017	0.022	-0.001	-0.026*	0.202***	1								
7. Perceptions of queues	0.058***	0.029*	-0.006	-0.012	0.298***	0.366***	1							
8. Low-end store brand quality image	-0.017	0.045***	-0.005	-0.013	0.475***	0.136***	0.220***	1						
9. Low price image	0.035**	-0.002	-0.001	-0.007	0.499***	0.139***	0.239***	0.436***	1					
10. Display promotions image	0.079***	0.0208	0.0039	0.0097	0.397***	0.280***	0.254***	0.339***	0.394***	1				
11. Feature promotion image	0.096***	0.017	0.015	0.024	0.348***	0.195***	0.225***	0.244***	0.316***	0.445***	1			
12. Variety (choice) image	0.058***	0.041***	0.005	-0.014	0.319***	0.197***	0.186***	0.193***	0.311***	0.254***	0.198***	1		
13. Layout image	0.066***	0.041***	0.018	-0.009	0.275***	0.249***	0.227***	0.267***	0.297***	0.368***	0.284***	0.454***	1	
14. Availability image	-0.024*	0.022	-0.001	-0.022	0.190***	0.227***	0.245***	0.331***	0.271***	0.262***	0.191***	0.445***	0.415***	1
VIF		1.61	N.A.	N.A.	1.75	1.22	1.27	1.53	1.01	1.56	1.31	1.53	1.49	

Notes: * < 0.01. ** < 0.001. *** < 0.0001. N.A Not Available

promotion factors have negative effects on it: low store price image (β=−0.374, $p<0.001$), store display promotion image (β=−0.215, $p<0.05$) and feature promotion image (β=−0.143, $p<0.1$). Finally, assortment image factors have different effects. Store variety image (β=−0.265, $p<0.001$) and store layout image (β=−0.093, $p<0.001$) increase store brand choice, while store availability image does not ($p>0.05$) in contraction periods.

Table 4: Correlations between instruments and endogenous variables

	Store brand quality image	Low-end store brand image	Perceptions of reception	Perceptions of queues
Store brand quality image	1			
Low-end store brand image	0.484***	1		
Perceptions of reception	0.213***	0.139***	1	
Perceptions of queues	0.297***	0.221***	0.371***	1

Note: ***$p< 0.001$

Table 5: Effects of store image on consumer choice of terroir store brand products with recep and wait as instruments

Independent Variables	Effects on *terroir* store brand choice	
Marketing variables	Coef.	z-statistics
Main effects		
Store product quality image		
Qual1. Store brand quality image	−1.208***	−3.28
Qual2. Low-end store brand quality image	0.107	0.24
Store price/promotion image		
Price1. Store low price image	0.330***	3.43
Price2. Store display promotion image	0.295***	2.82
Price3. Store feature promotion image	0.186***	2.61
Store assortment image		
Assort1. Store variety image	0.293***	3.41
Assort2. Store layout image	0.091***	3.19
Assort3. Store product availability image	−0.099	−1.04
Moderating effects: store image and MEC		
Store product quality image × MEC		
Qual1. Store brand quality image × MEC	1.317***	3.60
Qual2. Low-end store brand quality image × MEC	0.116	0.27
Store price/promotion image × MEC		
Price1. Store low price image × MEC	−0.374***	−4.10
Price2. Store display promotion image x MEC	−0.215**	−2.01
Price3. Store feature promotion image x MEC	−0.143*	−1.92
Store assortment image × MEC		

Independent Variables	Effects on *terroir* store brand choice	
Marketing variables	Coef.	z-statistics
Assort1. Store variety image × MEC	–0.265***	–3.20
Assort2. Store layout image × MEC	–0.093***	–3.62
Assort3. Store availability image × MEC	0.047	0.49
Control variables		
Product price	0.246	0.93
Product display promotion	–0.058	–0.73
Product feature promotion	–0.269***	–6.06
Store price positioning	–0.034	–0.77
Age	–0.022	–0.96
Income	–0.011	–0.94
Family size	0.024	1.27
Intercepts		
Butter	–0.257	–0.96
Biscuit	–0.482	–1.84
Yoghurt	0.178	1.00
Store	–0.086**	–1.99
MEC	0.001	0.07
Constant	*–3.851***	*–3.07*
Chi2=1263.29***		
	Effects on store brand quality image	*Low-end store brand quality image*
Wait	0.210(18.40)***	0.199(13.05)***
Recep	0.107(6.60)***	0.079(3.66)***
Constant	0.007	-0.026*
N. Obs. = 5.320		

Note: * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Effect of image factors on purchased quantities

The estimated model fit the data well: Wald Chi2 (df) (481.70 (28), $p<0.001$), Durbin (score) (Chi2(2) = 2.080, $p>0.05$), Wu-Hausman (F(2,1249) = 1.018, *$p>0.05$*). In particular, the endogeneity tests confirm that the instrumental variables are not exogenous. Following Leenheer et al. (2007), the model was also estimated with RECEP and WAIT as instruments to account for potential endogeneity issues.

Table 6 summarizes the findings. Perceptions of store brand quality (β=–2.880, $p<0.001$) negatively relate to the quantity of *terroir* store brand products purchased, while low-end store brand image does not ($p>0.05$). Concerning price/promotion variables, low store prices (β=0.472, $p<0.05$), perceptions of display promotions (β=0.401, $p<0.001$), and feature promotion image (β=0.431, $p<0.001$) have positive effects on purchase quantities of *terroir* store brand products. Regarding the perception of store assortment, store variety (β=0.401, $p<0.1$) increases purchased quantities of *terroir* store brand products.

Store layout image has no effect on them. In contrast, the image of store product availability decreases them (β=−0.344, p<0.1).

Regarding the effects of macroeconomic conditions (0 = expansion, 1 = contraction), the interaction with perceptions of store brand quality is significant (β=2.728, p<0.001), while that with low-end store brand quality image is not (p>0.05). The interactions with the perception of low store prices (β=−0.543, p<0.001), display promotions (β=−0.397, p<0.001), and feature promotion image (β=−0.415, p<0.001) are negative, which means that these factors decrease purchased quantities of *terroir* store brand products in a contraction period. Finally, among the factors related to perceptions of store assortment, only the interaction with store variety image is significant and negative (β=-0.683, p<0.001).

Table 6: Effects of store image on quantity of terroir store brand purchases with recep and wait as instruments

Independent Variables	Effects on purchase quantities	
Marketing variables	Coef.	z-statistics
Store product quality image		
Qual1. Store brand quality image	−2.88***	−3.87
Qual2. Low-end store brand quality image	1.104	1.21
Store price/promotion image		
Price1. Store low price image	0.472**	2.42
Price2. Store display promotion image	0.401*	1.89
Price3. Store feature promotion image	0.431***	2.99
Store assortment image		
Assort1. Store variety image	0.706***	4.08
Assort2. Store layout image	−0.007	−0.12
Assort3. Store product availability image	−0.344*	−1.77
Moderating effects: store image and MEC		
Store product quality image × MEC		
Qual1. Store brand quality image × MEC	2.728***	3.69
Qual2. Low-end store brand quality image × MEC	−0.348	−0.40
Store price/promotion image × MEC		
Price1. Store low price image × MEC	−0.543***	−2.94
Price2. Store display promotion image × MEC	−0.397*	−1.84
Price3. Store feature promotion image × MEC	−0.415***	−2.76
Store assortment image × MEC		
Assort1. Store variety image × MEC	−0.683***	−4.11
Assort2. Store layout image × MEC	−0.042	−0.84
Assort3. Store product availability image × MEC	0.278	0.153
Control variables		
Product price	0.978*	1.90
Product display promotion	-0.345**	-2.21

Independent Variables	Effects on purchase quantities	
Marketing variables	Coef.	z-statistics
Product feature promotion	0.200**	2.30
Store price positioning	-1.172***	-13.19
Age	-0.043	-0.94
Income	0.056**	2.32
Family size	-0.006	-0.18
Intercepts		
Butter	-0.808	-1.54
Biscuit	-0.841	-1.64
Yoghurt	-0.751**	-2.16
Store	-0.130	-1.49
MEC	-0.177***	-4.40
Constant	-5.937**	-2.36
Chi2=2325.50***		
	Effects on store brand quality image	***Low-end store brand quality image***
Wait	0.210(18.40)***	0.199(13.05)***
Recep	0.107(6.60)***	0.079(3.66)***
Constant	0.007(0.74)	-0.026(-2.02)*
N. Obs. = 5 320		

Note: * $p < 0.1$ ** $p < 0.05$. *** $p < 0.01$.

Discussion and implications

Implications for theory

Compared to existing research on store brands (Gendel-Guterman and Levy, 2017; Prediger et al., 2019), this article shows that several factors affect customers' choice and quantity of purchases of *terroir* store brand products under different macroeconomic conditions. The results show that the factors increasing/decreasing choice and purchase quantities are sometimes different in periods of contraction and expansion. From this perspective, this article brings several contributions.

First, the research shows that perceptions of store brand quality decreases both the choice and quantity of *terroir* store brand products. Previous studies have emphasized critical food safety concerns in retail markets and highlighted various response mechanisms (Ellison et al., 2016). This article enriches these studies by finding a significant relationship between perceived store brand product quality and both the choice and purchase quantity of *terroir* store brand products. Furthermore, it shows that perceived store product quality increases the choice of *terroir* store brand products during contraction periods. This change in customer behavior may be related to customers' commitment to local consumption during hard times and their willingness to support *terroir* brand products.

Second, perceived price/promotion factors affect the choice and quantity of *terroir* store brand product purchases in different ways. Indeed, different signals may be provided by *terroir* store brand products depending on the outcome variable. This research indicates that perceptions of low

Table 7: Summary of results on moderation effects of macroeconomic conditions

	Incidence of *terroir* store brands	Quantity of *terroir* store brands
Store product quality image		
Qual1. Store brand quality image × MEC	+	+
Qual2. Low-end store brand quality image × MEC	=	=
Store price/promotion image × MEC		
Price1. Store low price image × MEC	–	+
Price2. Store display promotion image × MEC	–	–
Price3. Store feature promotion image × MEC	–	–
Store assortment image × MEC		
Assort1. Store variety image × MEC	–	–
Assort2. Store layout image × MEC	–	=
Assort3. Store product availability image × MEC	=	=

Note: + positive effect, – negative effect, = non-significant/no effect

store prices, in-store display promotions, and feature promotion image increase choice and purchase quantities of *terroir* store brand products. These findings can be explained by signaling theory. Promotional tactics provide a signal of the accessibility of *terroir* store brand products in normal times. Therefore, they may send positive signals to customers. However, as the results of this research show, the interactions between these factors and the consumption of *terroir* store brand products are negative. Again, customers' willingness to support the consumption of *terroir* store brand products may explain this change in behavior. Thus, the results of this study enrich previous studies on local products (Ingarao et al., 2020; Gendel-Guterman and Levy, 2017).

Third, perceptions of store assortment have different effects on purchase choice and quantity. Perceived store variety positively affects choice of *terroir* store brand products. Store layout increase choice of *terroir* store brand products, but not purchase quantities. Image of store product availability decreases purchase quantity, but not brand choice. These findings highlight the importance of considering both positive and negative signals/cues (Diallo and Kaswengi, 2016) in understanding the purchase of *terroir* store brand products. The analyses further show that the interactions between perceived store product variety, store layout image, and macroeconomic conditions decrease the choice of *terroir* store brand products, while product availability image does not. Similar results are found for purchased quantities of *terroir* store brand products. These results suggest that perceptions of assortment may reduce consumption of *terroir* store brand products, probably because customers seek alternative merchandising for *terroir* store brand products in times of crisis. Thus, this article extends previous studies on local product consumption (Ellison et al., 2016) and helps to understand the specificity of *terroir* store brand products offered by retailers in different macroeconomic conditions.

Implications for practice

This research provides key guidelines for avoiding negative (and achieving positive) outcomes for managing *terroir* store brand products during periods of expansion and contraction.

First, retail companies should manage their *terroir* store brand products by focusing on low store prices, in-store display promotions, feature promotions, and the image of variety in the store. These factors not only increase brand choice, but also the purchase volume of *terroir* store brand products. It appears that these brands can be used to compete with national brands. In fact, by heavily promoting them, retailers are increasing their market share in categories where national brands previously had a strong advantage. However, as the macroeconomic situation worsens (from expansion to contraction), our results show that marketing techniques become less effective. Retail communication strategies should evolve accordingly, relying less on marketing and more on transparency. As resources are limited in turbulent times, customers need to make informed choices about the consumption of local products. The results suggest that the economic situation is a factor that has the ability to change consumer behavior. Marketing managers are encouraged to emphasize store brand quality, especially the benefits that store brand consumers should enjoy.

Second, quality inferences or associations with *terroir* private label products should be made carefully, as they may harm *terroir* store brand products in normal times. However, a product quality image is very effective in increasing purchases of *terroir* store brand products when the economy begins to contract. In this case, retailers should rely less on marketing techniques (display promotions, features, etc.) and more on quality association to increase sales of *terroir* store brand products. They could specifically show their support for local production by communicating strongly about the quality of *terroir* store brand products. Indeed, retailers wishing to increase their *terroir* store brand product choice during economic downturns should invest in improving their store brand quality image, as this factor positively influences consumer preference for *terroir* store brand products, which are perceived as more trustworthy and reliable than foreign brands. Since contraction tends to create price elasticity and increase price sensitivity, retailers should also avoid competing on price or offering display promotions for their own brands, as these factors negatively affect consumers' perceptions of the retailer's and manufacturer's *terroir* store brand products.

Third, perceptions of store assortment factors can help or hinder the purchase of *terroir* store brand products and need to be managed carefully. In fact, in normal times, variety and layout image positively affect the consumption of *terroir* store brand products, while availability does not. Thus, merchandising factors can promote *terroir* store brand products to a certain extent. Therefore, retailers should use them to promote the purchase of these products. In contrast, during contraction periods, both variety and layout image become factors that reduce the consumption of *terroir* store brand products. Because they are related to marketing, they are seen as communication techniques designed to get consumers to buy at any cost. This means they should be used sparingly if all retailers want to increase retail sales in turbulent times. In addition, retailers should consider segmenting their customers by economic situation and shopping orientation, as these variables moderate the effects of store image and store brand quality image on *terroir* store brand product choice. By doing so, retailers can tailor their marketing strategies to different customer groups and increase their store brand loyalty and profitability.

Fourth, retailers should focus on improving the quality image of their *terroir* store brand products, as this factor increases consumer purchase volume. This can be achieved by investing in product development, packaging design, quality certification and communication strategies that highlight the benefits and attributes of *terroir* store brand products. In addition, retailers should be careful with the use of promotional tools such as display and feature promotions, as these have a negative impact on consumer purchase volume. These tools can lower consumers' perceptions of the quality and value of *terroir* store brand products, causing them to switch to other brands or postpone purchases. Retailers should also avoid competing on price or offering low prices for their own brands, as these factors also reduce consumer purchase volumes. Low prices can signal low quality and reduce consumers' willingness to pay for store brand products. It could be interesting for retailers to emphasize regional origin, which contributes to improve quality perceptions. Retailers should also consider reducing the variety of products in their stores, as this strategy will reduce consumer purchase volumes. In difficult times, consumers tend to avoid buying multiple products. High variety can increase consumer choice difficulty and confusion and, as a result, reduce consumer satisfaction and loyalty.

Fifth, in line with the reduction of variety assortment, especially in contraction periods, retailers can reduce the referencing of national brands in the short term. This action will leave more room for *terroir* brand products to increase their credibility and give them greater prominence compared to the expansion period. During the contraction period, retailers can act as a link between the producers of *terroir* store brand products and their consumers, for example by organizing events such as agricultural workshops. Such an operation can have the advantage not only of increasing the legitimacy of *terroir* store brand products based on history and know-how, but also of creating a strong attachment between producers, retailers and consumers in the long term.

Limitations and further research

This article has some limitations. First, the analysis conducted was limited to one country; its generalizability could be enhanced by replications in other countries. As disruption, particularly at the digital level, is currently occurring and affecting all types of businesses, including retail, it is important for future research to deepen our understanding of cross-cultural similarities and differences between countries (Hesse et al., 2020). Countries can be compared in terms of the values that characterize them. In this sense, consumers' purchasing behavior may be driven by core values and those of their home country. As a result, an interesting avenue for future research is to assess whether consumer values determine local store brand choice across cultures and countries.

Second, the model tested focused on perceptual variables (store image factors). Further research could include specific marketing programs (e.g., online price promotions, online [non-price] communication, advertising expenditures). For example, further research should examine how customers make choices about *terroir* store brand products by balancing their trade-offs between local products as a quality attribute and other attributes (e.g., safety concerns, damage/risk aversion, taste, appearance) to build on previous studies (Gallen, 2005). In addition, financial pressure is another variable that should be included or at least controlled for in the research model. Similarly, a variety of variables could be included in the model to understand choice: price consciousness, shopping enjoyment, mavenism, legitimacy, etc. (see Ailwadi et al., 2001; Lacœuilhe et al., 2018). Moreover, the aim of this article was to combine

perceptual store data and behavioral data to understand store brand choice in two different macroeconomic conditions. However, it could be interesting to use consumers' own evaluations of the current economic conditions. Using experiments could a relevant research method to use in this sense.

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Appendix

Appendix 1: Questionnaire measurement items

Construct	Code	Scale items
Store product quality image	QUAL1	The store brands are of good quality
	QUAL2	The low-end store brands are of good quality
Store price/promotion image	PRICE	The store regularly has low prices
	FEATURE	The store has attractive feature
	DISPLAY	The display promotional advantages offered in the store are attractive
Store assortment image	VARIETY	In general, the store has a large variety of products
	AVAILABILITY	The products I need are never out of stock
	LAYOUT	Products are clearly displayed and it is easy to find what you want
Instrumental variables	RECEP	The cashiers are nice
	WAIT	There are short queues

Note: The items are measured on a 5-point Likert scale: 1 Totally disagree to 5 Totally agree and are based on Kaswengi (2013) and Kaswengi and Ramaroson (2016).