Do private labels evoke customer loyalty in food retailing?

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Executive summary

The increase of private labels in the food market and retailers' high expenditures for establishing them raise one central question: Do consumers really consider private labels as "real" brands and develop loyalty towards them. In this paper, we analyse a four year household panel data set on frozen pizza purchases to study differences in consumers' repurchase behaviour between two strong national brands on the one hand and private labels on the other hand. In sum, our results show significant differences between national brand and private label buyers. First of all, we find that suppliers of national brands are more capable of keeping consumers loyal to their brands than retailers are. Moreover, we find that the effects of several household characteristics on repurchasing behaviour differ between national brands and private labels. In doing so, we recommend that retailers' marketing strategies have to address their target group. But we are cautious with giving managerial implications because, as defined in the marketing literature, brand loyalty is only one source of repeated purchasing behaviour. Some researchers point out that it is also important to consider the underlying attitude. Thus, the definition of true brand loyalty includes both a behavioural and an attitudinal component. Subsequently, this attitudinal component needs to be tested. But this attitudinal component of brand loyalty can not be observed directly by using panel data. This might be a challenge for further research. We think that analyzing cross-buying effects or consumers’ tolerance towards price increases could be a possibility for future research.

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Abstract

The increase of private labels in food retailing and retailers' high expenditures for establishing them raise one central question: Do consumers really consider private labels as "real" brands and develop loyalty towards them. We analyse a four year panel data set on frozen pizza purchases to study differences in consumers' repurchasing behaviour between two strong national brands and private labels. In sum, our results show significant differences. However, the observable repurchase behaviour can not fully reflect the attitudinal component of brand loyalty. So subsequently, we present potential approaches to identify the underlying attitudinal component.

Keywords: food retailing, private labels, brand loyalty, panel data, hazard analysis

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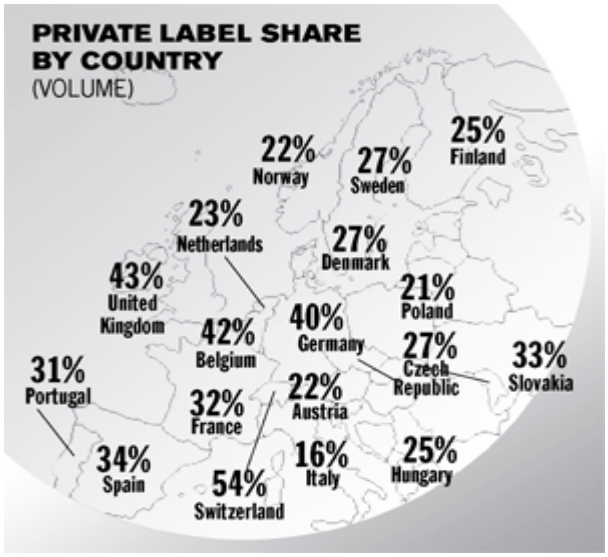
Introduction

In most industrialised countries the food retail industry has been subject to great alterations in the last two or three decades. During the 1970's food retailing companies could be largely qualified as acting as the vicarious agents of the food processors. Over the course of time, retailers were able to emancipate themselves, changing from being the extended arm of the processors to being on equal footing with them (Nieschlag et al. 1994). Today, to some extent retailers dominate the agri-food business. A major determinant for this development is the concentration process on the retail level. In 2006 the top ten German retailers had a cumulative market share of about 87 percent. This is comparable to other European countries, for instance, Sweden, France, Belgium, and Switzerland. The top ten retailers in all these countries had a cumulative market share of more than 90 percent (BVL 2008). This concentration indicates that retailers face fierce competition. Due to the fierce competition in the retail sector, retailers have to increase their endeavours to distinguish themselves from their rivals to create loyal consumers who do not switch to competing retailers. In this context a key concept is retail branding, i.e., many retail firms establish retail brands (private labels) and convert their shop name to a brand itself. Thus, for some years retailers have been using the instrument of retail branding more intensively, mirroring a steady increase in the market share of private labels. As figure 1 demonstrates, private labels play a major role in almost all European countries.

Figure 1: Private labels by share in total volume of non-durable goods by country, PLMA 2008



During the past ten years, even growth of private labels is observable in the premium segment, and nowadays in Germany retailers spend several hundred million euros annually on marketing. These endeavours are aimed at achieving loyal consumer behaviour because loyal consumers, for instance, are less likely to switch to competitors and they are more tolerant to increases in price than non-loyal consumers (e.g., Reichheld and Sasser 1990, Reichheld and Teal 1996).

Gaining market share and simultaneously investing so much money into branding raise the question of whether consumers consider private labels to be a “real” brand. In this paper we address this question by analysing whether retailers are able to commit customers to their private labels. More specifically, we use a panel data analysis to study whether we can identify significant differences in consumers’ repurchase behaviour between strong national brands and private labels. To conduct our research aim, we proceed as follows. First we develop hypotheses of how household characteristics influence repeat purchases of private labels as an indicator for brand loyalty. The subsequent analysis is conducted for the German frozen pizza market. Over ten years this market has experienced a dramatic increase in volume (Deutsches Tiefkühlinstitut 2008). The paper is finalised by discussing our results and presenting an outlook for further research.

Consumer patterns of loyal behaviour

In recent years it has been observed that consumers develop more heterogeneous demands for sensory, health, process, and convenience qualities. As Gianluigi Zenti, executive director of Academia Barilla, suggests, "The overall product quality is a problem. However, in the future the quality of food will split into different directions: there will be one consumer segment that is looking for higher quality and one bigger segment that is looking for lower quality at a lower price. Before market was very homogenous and the overall quality was going up. To serve this development is to segment … there will be also a big segmentation on the retailers' level. So overall we are in a situation, where consumers are changing dramatically, because their expectations are changing." (Hartl 2006). These changes in consumer behaviour lead to new markets with specific consumer segments and new opportunities for providers of brands – national brands and private labels – to capture these new markets as a result. Thus, it will be more and more important to understand the characteristics of such a special consumer segment and which of these characteristics influence brand choice and lead to repurchase. For instance, which characteristics influence repurchase of private labels?

Several researchers (e.g., Allenby and Rossi 1991; Chiang 1991; Gupta and Chintagunta 1994) have investigated this question. They have incorporated demographic characteristics in brand choice models estimated using scanner panel data. Unfortunately, a general finding across existing studies is that the impact of demographic variables on brand choice is neither strong nor consistent. These findings are puzzling given that one would expect certain demographic variables, such as income, to have some influence on brand choice behaviour. In their empirical study Baltas and Doyle (1998) investigate the effects of several consumer characteristics, preference heterogeneity, and choice dynamics on private label buying behaviour. This research is the first to examine all these issues using panel data. Panels provide data on the actual purchasing behaviour of consumers.

The empirical identification of permanent inter-individual differences suggests that there exist two market segments of consumers interested in national brands and private labels, respectively. The private label consumer is likely a "switcher" and not a "shopper" with a stable, narrow brand repertoire. Examining the reasons for buying a private label, Baltas and Doyle (1998) note that private label buyers shop more frequently. This finding leads to our first hypothesis.

H1: Frequent frozen pizza consumers have a higher tendency to repurchase private labels.

Furthermore, Baltas and Doyle (1998) have found that both price and consumer preferences affect choices. Despite the common conjecture that a private label product is purchased solely based on price, they find that some consumers buy private labels because they prefer them. This no doubt reflects the serious quality improvements made by retailers in recent years as well as the introduction of premium private labels. The study suggests that the private label consumer is a price cautious but not promotion sensitive consumer. This leads us to our second hypotheses.

H2: Households with lower incomes have a higher tendency to repurchase private labels.

The lower price of private labels and a lack of advertising create an image that appeals to particular consumers. Moreover, the promise of good quality at a reasonable price leads to our third hypothesis.

H3: Larger household sizes have a higher tendency to repurchase private labels.

These hypotheses, derived from Baltas and Doyle's (1998) findings, lead to the implications that managers can exploit this propensity by introducing bigger family sizes and bundle offers. The results of Baltas and Doyle (1998) also show the limited sensitivity of private label consumers to promotional price cuts. In this respect, managers of national brands should target price promotions to their regular consumers since it is difficult to reduce the price advantage of private labels and make private label consumers switch (Baltas and Doyle 1998).

Subsequently, we test these hypotheses by using household panel data, which include information on household characteristics and their purchase behaviour. Hence, as suggested by Richardson et al. (1996), we are able to employ a behavioural measure, so that the results will be an approximation of real repurchase behaviour.

In this paper we consider repurchase behaviour as an approximate indicator of brand loyalty because repurchase behaviour is a necessary condition of brand loyalty (Jacoby 1971), and those consumers who repeatedly buy the same brand are less likely to switch to competitors. Therefore, such a behaviour goes hand in hand with higher profit and success. As Assael (1984) suggests, "Success depends not on the first purchase but on repurchase." For instance, those consumers spread positive word-of-mouth advertising, and it has been shown that referrals are a very important source of new consumers. Furthermore, they are more tolerant to increases in price than non-loyal consumers, so firms can achieve a price premium (Reichheld and Sasser

1990, Reichheld and Teal 1996). Thus, there is no doubt that achieving loyal consumer behaviour is one of the central goals for all firms.

Empirical analysis

In our analysis of German households' repurchase behaviour with regard to frozen pizza, we focus on *repurchase periods*, i.e., periods of repeated purchases, of individual brands as approximate indicators of brand loyalty. After introducing the data, we present our analytical approach. It focuses on the question of whether the duration of repurchase periods as well as this duration's determinants differ systematically between private labels and national brands. Results are presented and discussed at the end of the section.

Data

We use a panel data set on household food purchase in Germany over the period from January 2000 to December 2003. It is compiled from the 'ConsumerScan' panel of the GfK market research group (GfK 2008). The 14.000 households in the sample are representative of the German population, and they report purchases via scanner technique and by manual input of additional information. The data reflect real purchase behaviours of individual households over extended periods. Compared to qualitative interviews, these data have the advantage of reflecting actual behaviour rather than consumers' statements on their attitudes, which often produces biased measures. So, this panel data set is a good basis for measuring the repurchase behaviour as an indicator for brand loyalty. Variables include prices and quantities of products and brands bought, respectively as well as some information on the display and promotion of brands in the store. In addition, the data set contains some demographic information on the household such as household size, household income, and the age of the household head.

Our focus is on households that are frequent buyers of frozen pizza.[1] Two producers of frozen pizza dominate the German market. In our sample 53 percent of packing units purchased carry one of the national brands "Dr. Oetker" or "Wagner". Around 20 percent are products carrying

[1] Households remaining in the panel for less than 3 quarters and households that purchased less than 6 frozen pizzas per quarter on average during their lifetime in the panel are excluded from the analysis .

private labels (retailer-owned brands). Although speaking of brands is not exact with respect to the group of private labels, we will speak about three "brands" in this paper.

Analytical approach

We analyse the length of repurchase periods as an indicator of loyalty to each of these brands, highlighting the similarities and differences between them. We define a repurchase period as a period (in days) spanned by at least two purchases of the brand with no purchases of any other brand in between.[2] Observed repurchase periods range from one day to nearly the total observation period of four years, but very long periods are rare: for the three brands considered, 97 percent of observed periods are below one year. Statistical analysis of the repurchase periods observed needs to account for their nature as duration data. Their distribution can not be assumed to be normal, and for many of the periods considered, we do not know their total length because the beginning or the end or both could not be observed in the survey period (censored observations). Hence, inference on the distribution of these duration data based on standard measures of location and distribution (means, percentiles, variance, etc.) as well as regressions using the duration as endogenous variable would yield biased results (e.g., Cleves et al. 2004). Therefore, we use techniques of hazard analysis (survival analysis), which are appropriate in this context.[3]

In particular, we estimate hazard functions $h(t,\boldsymbol{x})$, which express the instantaneous probability that a repurchase period ends after a duration of t, conditional on having lasted for that duration. This conditional probability (hazard rate) is modelled as depending on duration t and a number of household characteristics $\boldsymbol{x}$, the covariates. From the information embedded in the hazard function, we derive expected values of the duration of repurchase periods as well as time (and covariate-) dependent probabilities of switching between brands. The hazard function provides a convenient definition of duration dependence. In our context we speak of positive duration

[2] We consider periods of uninterrupted choice of the same brand as a reasonable proxy for periods of brand loyalty. An alternative definition has been tried defining terms of loyalty as those periods (of *a* days) in which at least *n* pizzas of the respective brand were bought and these represented at least *p* percent of all frozen pizzas purchased during that term. A period of loyalty is then understood as the time span incorporating consecutive terms of loyalty to the same brand. The definition we choose is superior in terms of clarity.

[3] For an exhaustive description of the methodology, see Kalbfleisch and Prentice (2002).

dependence if $h(t,\boldsymbol{x})$ increases with the length of the repurchase period ($\partial h(t,\mathbf{x})/\partial t > 0$) and vice versa. For the hazard function $h(t,\boldsymbol{x})$ we choose the popular specification

$$h(t,\mathbf{x}) = h_0(t)\exp(\mathbf{x}\boldsymbol{\beta}_{\neq 0}) \qquad (1)$$

where $h_0(t)$ represents the baseline hazard, i.e., the hazard rate after duration t with the covariates x_j at a reference level, usually their mean.[4] We speak of a proportional hazard model because levels of x carry over to $h()$ proportionally, i.e., independent of t. For the functional form of the baseline hazard, we use the Weibull specification:

$$h_0(t) = pe^{\beta_0}t^{p-1} \qquad (2)$$

The shape parameter p indicates duration dependence: A value below (above / equal to) unity indicates negative duration dependence (positive / no duration dependence). The baseline hazard is jointly determined by p and the location parameter β_0.[5]

From the information available in the data source, we have selected six household characteristics x_i to test their relationship with repurchase behaviour as an indicator for brand loyalty (Table 1).[6]

[4] This means that non-binary covariates are scaled to have a mean of zero.

[5] The Weibull specification restricts $h(t,\boldsymbol{x})$ to follow a path over the total range of t, which is uniformly determined by p and β. In particular it can not reflect any change from positive to negative duration dependence or vice versa. We find this restriction to be justifiable for our data by comparison with a less restrictive (semiparametric) Cox proportional hazard specification. Visual inspection of plots of the Cox functions indicate that the hazards are almost perfectly monotonous (decreasing). Moreover, the covariates' parameters do not differ much between the Cox and Weibull specifications. Approximating a Cox model by the parametric Weibull specification yields a gain in efficiency (provided the distributional assumptions are justified) and facilitates prediction of durations and hazard rates for the entire domain of t.

[6] Since cardinally scaled characteristics like net income or the age of the main earner are coded as categories in the data set and not all of these categories have the same width, their use as cardinal variables is inappropriate. We have recoded the strata to binary variables to achieve an appropriate yet parsimonious specification.

Table 1: Household characteristics used as explanatory variables

Characteristic	Variable	Type	Definition
Household size	HSIZE	numeric	Number of household members
Per Capita monthly net household income	LOWINC	binary	Under 500€ per household member
Age of main earner	YOUNG	binary	Under 30 years
Frequency of pizza consumption	PPPQ	continuous	Number of pizzas (packaging units) purchased per quarter
Family Type	FAM	binary	Family with adolescent children
	MACOUPLE	binary	Middle aged couple/family without children

The relative preference for a highly processed convenience product like frozen pizza likely depends on economies of scale in consumption and on home time available. Hence, the household size (HSIZE) and three variables specifying a household's position in the family life cycle have been included as explanatory variables: the binary variables YOUNG indicating a main earner aged below 30, as well as FAM and MACOUPLE, which indicate specific family types. These variables can be used to test hypotheses about the influence of specific household characteristics on repurchase behaviour, as our hypothesis 3 exemplifies. Per capita income is considered a potential determinant of the choice between national brands and the usually lower priced private labels (e.g., Dölle 2001), which will be used to test hypothesis 2. Finally, a behavioural characteristic likely to be relevant for brand choice is the frequency of purchase of frozen pizza (PPPQ), which can be used to test hypothesis 1. It ranges in the sample between the set minimum of six and 80 pizzas per quarter with a mean of 12. Baltas and Doyle (1998) have found the purchase frequency of tea to be related with the probability of choice of private labels.

We estimate three separate models for the three brands. Using the sample of all periods of repurchasing Dr. Oetker pizza, we estimate the hazard function for ending Dr. Oetker repurchase periods and proceed analogously with the two other brands.

Results and Discussion

The overall explanatory power of the models is confirmed by likelihood ratio tests. The null hypothesis of a constant-only alternative is rejected at the .01 percent significance level. Results on individual parameters are presented in table 2a. The deviation of the estimated parameters *p* from unity signals the extent of duration dependence, which is significantly negative for the three brands. The ending of a repurchase period, which usually means switching to a different brand, becomes less likely the longer a consumer purchases a brand. The *p*-parameters for the two national brands, Dr. Oetker and Wagner, are very similar (0.74 and 0.72) and indicate considerable negative duration dependence. The value for the private labels (0.83) is considerably closer to one, which means that the hazard rate decreases less rapidly with duration compared to the national brands.

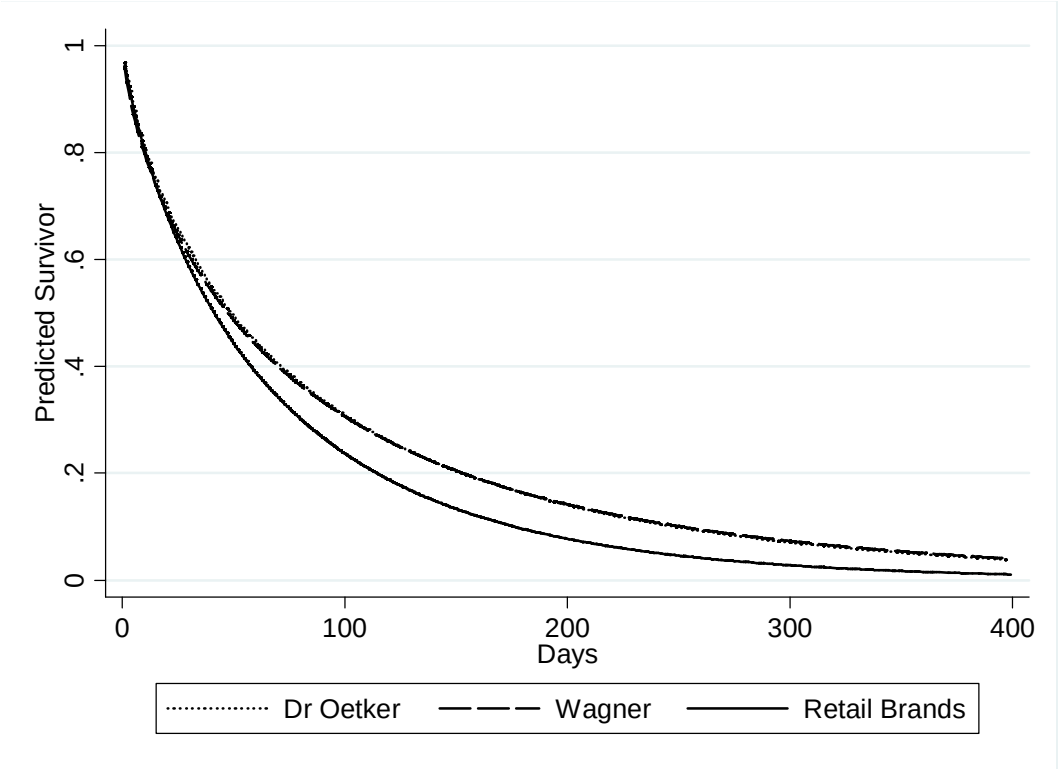
Table 2: Estimation results (Source: own computations from GFK ConsumerScan data)

	Dr. Oetker		**Wagner**		**Private labels**	
NOBS	11061		7681		5281	
a) Parameter estimates						
	Coef	Std err	Coef	Std err	Coef	Std err
Constant (β_0)	**-3.23**	.0576	**-3.147**	.067	**-3.447**	.080
P	**.737**	.0111	**.720**	.0128	**.828**	.0163
HSIZE	.021	.0186	**-.104**	.023	**-.113**	.0220
FAM	**.127**	.0646	.104	.0702	**-.115**	.0470
MACOUPLE	**-.218**	.0897	**-.035**	.0105	-.230	.1666
LOWINC	**-.181**	.0946	-.115	.1249	-.037	.0862
YOUNG	**.286**	.0670	.039	.0775	.030	.0854
PPPQ	**.021**	.0025	**.042**	.0032	**.055**	.0040
b) Predicted survivor function values after alternative durations						
One day	96.1%		95.8%		96.9%	
One week	84.7%		84.0%		60.5%	
One month	63.0%		62.2%		28.7%	
Six months	17.7%		17.8%		10.9%	
One year	4.7%		4.9%		1.5%	
c) Predicted durations						
Median of pred. durations	47	10,0	49	11,7	45	11,4
Mean of pred. durations	94	19,8	100	23,9	77	19,7

Note: Coefficients in **bold types** are significantly different from zero (from one in the case of *p*) at 10% level.

However, instead of further discussing baseline hazard rates, we now switch to (baseline) survivor functions, which reflect the same information in an intuitively more accessible form. The survivor function indicates the probability that a repurchase period lasts for longer than a given duration *t*.[7] Figure 2 depicts the survivor functions for the three brands and durations up to 400 days. The survivor function is downward sloping by definition; hence, this property does not tell us about duration dependence. However, this is reflected by its curvature: a concave survivor ($\partial^2 h / \partial t^2 < 1$) signals negative duration dependence and vice versa.

Figure 2: Survivor function: Probability of repurchase periods exceeding a given duration



The probability of repurchase periods longer than one day is around 96 percent for the three brands. The decrease over duration follows a virtually identical pattern for the two national brands, Dr. Oetker and Wagner. After six months the survivor decreases to 18 percent (see Table 2b). Experts consider a repurchase period of six months to be the minimum duration to speak of loyal behaviour (survey among 19 practitioners in food retailing, which we conducted

[7] For the Weibull specification the baseline survivor function is $S(t) = \exp\left(-\exp \beta_0 t^p\right)$.

on the "European Food Talk," Duesseldorf in October 2008). Hence, according to this definition, 18 percent of the national brand buyers can be considered loyal. In contrast, this figure is only 11 percent for private label consumers. While there is no difference for short durations, long periods of repeated purchases are more likely for buyers of the national brands than for consumers buying private labels. We can conclude that suppliers of national brand pizza can expect their customers to show more brand loyalty than suppliers of private labels can. Such a striking difference means that suppliers of national brands are more capable of keeping consumers loyal to them than retailers are. A possible explanation could be that they better address their target group in marketing strategies.

Another informative description of repurchase periods, carrying the same parametric information, is their expected duration (see Table 2c). It reflects the approximate length of a typical period of loyalty to a brand and is computed as median/mean value (over all spells) of durations predicted from the estimated hazard functions. (Arithmetic means are roughly twice the value of the median because very few very long periods exert a strong positive bias. They are, hence, no values to be typically encountered in the sample.) The expected duration of repurchase periods (median) is 45 days for the private labels and 47 (Dr. Oetker) and 49 (Wagner) days for the national brands, reflecting the same ranking as the survivor functions. Again we find that median (and mean) durations are longer for national brands than for private labels.

The impact of household characteristics on the repeated purchase behaviour of pizza buyers is reflected in the coefficient estimates shown in Table 2a. In the proportional model hazards at all durations are shifted proportionally by changes in the characteristics variables. The coefficients of the binary variables (FAM, MACOUPLE, LOWINC, YOUNG) represent a factor shifting the hazard for the particular group relative to the baseline hazard. For the cardinal variables (HSIZE, PPPQ) coefficients refer to a one-unit change of the variable. To give an example, the parameter value of 0.127 for “families with adolescent children” (FAM) in the Dr. Oetker column indicates that those households among the Dr. Oetker consumers belonging to this group have a 13 percent higher hazard to switch to other brands than the average of the population not belonging to this group.[8] To ease interpretation and comparison between household types and brands, we can say

[8] To be exact, in the case of our proportional specification the hazard ratio hr_i for covariate x_i is $\mathrm{hr}_i = d\ln h(x,\beta)/dx_i = \exp(\beta_i)$.

that the higher a positive coefficient is, the higher is the tendency to switch brands and the lower is loyalty to the brand originally patronized. That means in our example, among the buyers of Dr. Oetker pizza, families with adolescent children are significantly less loyal to stick with this brand than the average of the other households is.

Regarding our research objective, we can say that the estimated coefficients allow us to identify differences between national brands and private labels in respect of the impact of household characteristics on repurchase behaviour.[9] In clear contrast to the aforementioned national brand buyers (Dr. Oetker), we find that among the private label buyers the "families with adolescent children" (FAM) are more loyal (coefficient -0.115) to these brands than other household types. Part of this effect is possibly due to the larger size of these households; the corresponding variable (HSIZE) also has a significantly negative coefficient for private label buyers. This result conforms with what Baltas and Doyle (1998) found for British tea consumers: larger households have higher repurchase tendencies to buy private labels than smaller households, which led to our third hypothesis. However, our study also finds such tendency for buyers of Wagner so that we can not make a clear cut distinction between national brands and private labels regarding loyalty behaviour based on household size.

Middle-aged couples/families without children (MACOUPLE) consuming either of the national brands are more loyal to these brands than other households. These smaller households typically above the age average may have found what meets their preferences and consequently reduced brand switching. This also conforms with the only significant coefficient for the variable YOUNG identifying households with a head below the age of 30. Among Dr. Oetker customers, switches to other brands are significantly more likely for these households than for households with heads above 30. In contrast, no significant effect of these household characteristics can be established for consumers of private labels.

Regarding our second hypothesis, the household income, we specified a group below a monthly net per capita income of 500 Euro (LOWINC), and while negative coefficient estimates generally suggest higher repurchase tendencies of this group compared to better-off households, only the coefficient for Dr. Oetker is significant. Among the households patronizing this premium brand, the low-income segment is more likely to stick to it than other households. A

[9] The comparison is based on those 11 (out of 18) coefficients, which are significantly different from zero (Wald test, 10 percent significance level).

possible explanation of this finding is that for low-income households selecting premium brands is a conscious decision for a clearly preferred product while for part of the higher income households, for which budget considerations concerning food play a smaller role, buying premium brands may sometimes be more arbitrary, resulting from a less clear determination. However, the group we consider here (low income national brand loyalists) is relatively small: Baltas and Doyle (1998) find that preference of low income households for private labels relative to national brands is higher than those of higher income households.

The only *behavioural* household characteristic considered here is the frequency of frozen pizza purchases (PPPQ) (see H1). The coefficients show that the tendency to switch to other brands significantly increases with increasing number of purchases per quarter. Each additional pizza per quarter increases the hazard of ending a repurchase period on any given day by 2 percent for Dr. Oetker, 4 percent for Wagner, and 6 percent for the private labels. In other words, frequent buyers are less loyal to the brand they used to choose. A high purchase frequency reduces the repurchase tendency even more among private label consumers than among national brand consumers.

This last finding suggests the kind of implications for management that we can draw from our results. For marketing of private labels it could mean that for large size packages the threat of losing customers to national brands is particularly high. This has specific implications for pricing these packages targeted at frequent consumers. Also if certain products are known to be purchased typically by certain household types, the knowledge on type specific differences in repurchase or brand switching tendencies can help to identify successful marketing strategies and pricing considerations.

Summary and Outlook

This paper seeks to determine whether consumers consider private labels to be a “real” brand and develop loyalty towards them. First of all, to understand what influences consumers' repurchase behaviour toward a brand, we develop three hypotheses. We predict that frequent frozen pizza buyers, larger household sizes, and households with lower income have a higher tendency to repurchase private labels.

To test these hypotheses, we use a panel data analysis on household food purchases over a four year period to analyse the length of repurchase periods as an indicator of loyalty to national brands and private labels of frozen pizza in Germany.

In sum, our results show significant differences between national brand and private label buyers. First of all, we find that suppliers of national brands are more capable of keeping consumers loyal to their brands than retailers are. Accordingly, we can say that private labels are not considered as "real" brands as are national brands. In doing so, we recommend that retailers' marketing strategies have to address their target group. If certain products are known to be typically purchased by certain household types, the knowledge of type specific differences in repurchase or brand switching tendencies can help to identify successful marketing strategies and pricing considerations.

However, considering the term brand loyalty as a source of repeated behaviour for achieving profit and growth is, perhaps, not enough to analyse the length of repurchase periods. As Jacoby (1971) suggests, repurchase is a necessary condition of brand loyalty. But as defined in the marketing literature, the term brand loyalty is not synonymous with a repurchase behaviour. Some researchers (e.g. Day 1969; Jacoby and colleagues 1971, 1973, 1978; Dick and Basu 1994; Oliver 1997, 1999) emphasize that brand loyalty is only one source of repeated purchasing behaviour. It is important to consider consumers' purchasing pattern as well as their underlying attitudes. Thus, brand loyalty includes both a behavioural (purchase) component, which results in repeated purchases, and an attitudinal component, which results in a dispositional commitment to a brand and associates a unique value to it. However, this attitudinal component of brand loyalty can not be observed directly by using panel data. This might be a challenge for further research. Our preliminary thoughts on this subject show that analyzing cross-buying effects or consumers' tolerance towards price increases could be a possibility for future research. For example, if being a repeated buyer of a pizza brand is found to have a significant impact on becoming a buyer of frozen vegetables of the same brand, this could be interpreted as an indicator of loyalty towards that brand. Likewise, a consumer who repeatedly buys the same brand while the price has increased and/or the prices of other alternative brands have decreased can probably be regarded as a loyal consumer.

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