Quantitative analysis of variety seeking behaviour in the organic fruit yogurt market

Quantitative Analyse von Variety Seeking Behaviour im Bio-Fruchtjoghurtmarkt

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Summary

When consumers seek variety in their brand choice they show limited brand loyalty. This has an impact on the competitiveness of a brand. Organic products gain increasing importance in the food market. Thus, this study provides an insight into the significance of variety seeking behaviour (VSB) in the organic fruit yoghurt market. It is shown that VSB has an influence on the response to price promotions especially in the organic market. Accordingly, marketing strategies should include VSB.
Keywords: consumer behaviour, brand switching, variety seeking

Zusammenfassung

KonsumentInnen, die in ihrer Markenwahl nach Abwechslung suchen, weisen eine beschränkte Markentreue auf. Dieses Verhalten hat Auswirkungen auf die Wettbewerbsfähigkeit einer Marke. Die Bedeutung von Bioprodukten nimmt im Lebensmittelmarkt zu. Daher gibt diese Studie einen Einblick in die Bedeutung der Suche nach Abwechslung (Variety Seeking Behaviour, VSB) im Bio-Fruchtjoghurt-Markt. Es wird gezeigt, dass VSB vor allem im Biobereich Einfluss auf die Reaktion auf Preisaktionen hat. Dementsprechend sollten Marketingstrategien VSB als bestimmenden Faktor einbeziehen.
Schlagworte: Konsumentenverhalten, Markenwechsel, Suche nach Abwechslung

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Erschienen 2012 im *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie*, Band 21(1): 33-42. On-line verfügbar: http://oega.boku.ac.at.

1. Introduction

There are many reasons why consumers switch between brands. If they derive a utility from the switch itself it is called variety seeking behaviour (VSB) (GIVON, 1984, 2f). JOHNSON et al. (1995, 236) states that VSB occurs between familiar brands, which are part of a certain portfolio a consumer has (LATTIN and MCALISTER, 1985, 331). The importance of VSB for marketers is its influence on the ability to compete in a market based on its impact on demand elasticities (CHINTAGUNTA et al., 2001, 112). Moreover, VSB influences the response to price promotions (TRIVEDI, 1999, 47), and consumers' reaction to retention programs (BERNÉ et al., 2001, 343). Our research is a combination of two approaches: From the consumer's research perspective, our research helps to better understand consumer behaviour based on real shopping data. From the marketing perspective, this knowledge of VSB helps to plan and coordinate marketing instruments more efficiently.
In comparison to other product categories in the organic market, fruit yoghurt is of sixth importance in terms of volume as well as value. The consumption of organic fruit yoghurt is increasing since 2008, in 2010 organic fruit yoghurts had a value based market share of 11.9% (AMA, 2011a, s.p.; see table 1).

Tab. 1: Fruit yogurt market 2007- 2010

	2007	**2008**	**2009**	**2010**
Non-organic fruit yoghurt (1,000€)	89,869	99,648	97,346	96,601
Organic fruit yoghurt (1,000€)	11,221	10,339	11,909	13,048
Non-organic fruit yoghurt (tons)	39,049	40,73	39,38	40,083
Organic fruit yoghurt (tons)	4,435	3,832	4,669	5,005
Organic/total market (value %)	11.1%	9.4%	10.9%	11.9%

Source: Adapted from AMA, 2011a, s.p. and AMA, 2011b, s.p.

In this study Austrian scanner household panel data on fruit yogurt purchases were used to estimate households' VSB. The relationship between VSB and pricing of organic brands in comparison to non-organic brands is analysed and implications for marketing and brand management are presented.

2. Materials and Methods

2.1 Data

Panel data are used in numerous studies analysing VSB (e.g. GIVON, 1984; TANG and CHIN, 2007). Here too, the analysis was done with scanner household panel data collected by GfK Austria from 2007 to 2008 including 3,922 households (with 140,677 purchase acts). Confirming GIVON (1984, 10), these were limited to the consumers showing at least 20 purchase acts. The limitation to 20 is arbitrary. However, increasing or decreasing this number, is not influencing the basic results significantly. Therefore, we decided to follow GIVON's (1984) approach. To limit the dataset to a minimum number of purchases is necessary, because some households are part of the panel for a short time period only. In addition, specific households are buying these products quite seldom. These households, too, were eliminated from the further analysis as their shopping behaviour is not really relevant for the market. Accordingly the dataset was limited to 1,788 households including 125,048 purchase acts (these are 88.9% of all purchases). By use of this dataset the VSB coefficient described in the next chapter was approximated. The data was further limited in context of the purchased brands. The value based market share of the brands was calculated. The top 27 brands (four organic brands and 23 non-organic brands) accumulated about 90% of the (value based) market share. In total, the analyses were restricted to those 111,297 purchase acts concerning the selected brands (79% of the original dataset).
To differentiate between organic products and non-organic brands a dummy variable was introduced (numeric value 1 for organic brands and 0 for non-organic brands). All organic brands included in the analysis are private labels (of three different retailers).

2.2 VSB model

To approximate VSB the "Switch of Brands" model (*SB*) confirming MEIXNER and KNOLL (2012, s.p.) was expanded by price promotions to SB_{PR}. Formally, the coefficient SB_{PR} is calculated confirming formula (1):

$$SB_{PR} = \sqrt{\frac{(n-1)\cdot(n_{ij} - n_{ijPR})}{(Max_{k=1}^{m}(n_k)-1)\cdot(N-1)}} \quad (1)$$

The SB_{PR} coefficient aggregates the number of brands (n), the number of switches from one purchase occasion to the next (n_{ij}), the number of purchases (N), the maximum number of purchased brands of any household in the panel ($Max(n_k)$), and the number of direct switches based on price promotion (n_{ijPR}). In brief, SB_{PR} is a further development of two basic models approximating VSB: The SWITCH-model (MENON and KAHN, 1995), where VSB is assumed to be higher if a household has more brands within its shopping basket. The original VSB-index S = n/N was modified to $S_{max} = (n - 1)/(Max(n_k) - 1)$ as S delivered unrealistic results which are far from valid approximations of VSB (MEIXNER und KNOLL, 2012). Another basic model, the SUCESSIVE SWITCH, defines a switch n_{ij} as a different choice after the preceding choice (MENON and KAHN, 1995). Both models are quite crude. By combining both coefficients S and SS multiplicatively to the Switch of Brands model SB, improved approximations of VSB can be gathered. With including price promotions, leading to SB_{PR}, even more realistic approximations can be obtained as one of the most important marketing variables is considered within the model. Including the variable price promotions (n_{ijPR}) is based on two assumptions:

- A switch to another brand because of a price promotion is not based on the so-called variety drive but because of the attraction of the price. "True" VSB may not be assumed.
- Each switch presumes a certain willingness to switch and the price promotion is an enhancing factor.

Thus, SB_{PR} includes the number of direct switches towards products on price promotion (n_{ijPR}) but does not eliminate them totally (see formula 1; for further details see MEIXNER and KNOLL, 2012).

A value of $SB_{PR} = 0$ indicates absolute variety avoidance, i.e. absolute brand loyalty. Confirming BLOEMER and KASPER (1995, 313) brand loyalty needs not necessarily be correlated with repeated purchase behaviour. However, the assumption of absolute brand loyalty if very few or only one brand is bought, seems to be sufficient for the analysis of panel data. In contrast, $SB_{PR} = 1$ indicates absolute VSB, i.e. a household

switched on all purchase acts and purchases in total the maximum number of available brands.

3. Results

In this chapter specific results of the analysis using scanner household panel data are presented. Based on the restrictions mentioned above the dataset consists of 1,788 households responsible for 111,297 purchase acts of the top 27 brands. 88.9% of the purchase acts concern one of the 23 non-organic brands, 11.1% one of the four organic brands.

3.1 Relationship between organic brands and VSB

To analyse the relationship between organic brands and VSB, the share of purchases of organic brands per household was calculated. This metric value was used in Spearman correlation analysis with SB_{PR}. The results (ρ=0.185 and p=0.000) prove that there is a significant positive relationship between the share of purchased organic brands and VSB, i.e. the lower the VSB the lower is the share of organic brands. However, the association is not very strong with ρ=0.185.

3.2 Results within the market of organic fruit yogurt

To analyse the difference between the mean values of SB_{PR} of the brands, a one-way ANOVA was conducted. The individual means by brand are calculated. ANOVA implicates that the SB_{PR} coefficient is brand-specific. Accordingly, cross-tables of the classified SB_{PR} coefficient (with 1: $0 \leq SB_{PR} \leq 0.1$ to 10: $0.9 < SB_{PR} \leq 1$) and the brands were calculated. Brands with a higher market share show more purchases from variety avoiding households than brands with a lower market share. Brand loyalty may be assumed to be higher. However, there is no significant association between the variables (Cramer's V = 0.152). Moreover the dummy variable for price promotions was used for cross-tables with the classified VSB coefficients. The cross-tables show a weak trend that the higher the SB_{PR} value is, the less purchases are based on price promotions. Again, Cramer's V (V=0.156) indicates no significant association. Therefore, independence between brands and VSB and between brands and price promotions has to be assumed for organic brands (This is only valid for the selected top brands, of course).

3.3 Results within the market of non-organic fruit yogurt

To analyse mean values of non-organic brands with respect to SB_{PR}, a one-way ANOVA was done like described above. Again, ANOVA implicates that the SB_{PR} coefficient is brand-specific. However, the analysis of cross-tables of the classified VSB coefficient and the brands showed, that there is no significant association between the variables (Cramer's V = 0.121). Moreover, cross-tables with the price promotion dummy and the classified VSB coefficient are indicating no significant association (Cramer's V = 0.096) like with organic brands. In both submarkets for fruit yogurt, organic and non-organic, the analysed brands are therefore comparable with respect to VSB. No significant difference may be assumed.

3.4 Comparison of the markets

For a comparison of markets of organic with non-organic brands, the share of price promotions in the whole dataset was calculated. As there are no significant differences between the brands and SB_{PR} within one market, the aggregation is not connected to a significant loss of information. Table 2 shows that in the organic market significantly more purchases on price promotions occurred than in the non-organic market.

Tab. 2: Share of purchases on a regular price and on price promotions

	Regular price	**Promotion price**
Non-organic brands	76.73%	23.27%
Organic brands	65.19%	34.81%
Total	75.45%	24.55%

Source: Austria 2007-2008 panel data for fruit yogurt, top 27 brands

The share of purchases in each market for each VSB class can be taken from Figure 1. It is clearly visible that there are differences between the non-organic (left graph) and the organic brands (right graph). Concerning price promotions, in the non-organic market there is no significant difference between variety seeking and the variety avoiding households (the slight differences in the left graph between the SB_{PR}-classes and the share of price promotions are not significant). In contrast, in the organic market a correlation between SB_{PR} and price promotions

may be assumed: The more a household seeks variety, the less it is influenced by price promotions. Households that tend to avoid variety do much more purchases due to price promotions.

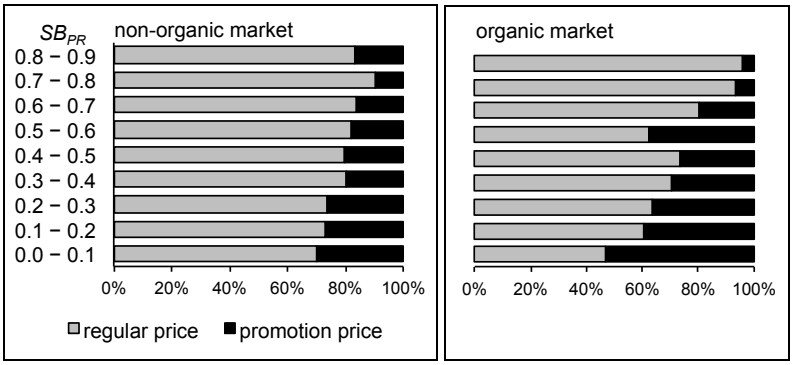

Fig. 1: Price-promotions vs. regular price and VSB in the organic and the non-organic fruit yogurt market
Source: Austria 2007-2008 panel data for fruit yogurt, top 27 brands [$SB_{PR} > 0.9$ not included (no cases)]

In the organic fruit yogurt market price promotions seem to be one of the most important factors influencing the purchase decision of households. This is especially valid for households usually avoiding brand switches based on VSB. However, we have to consider that in the organic market much fewer brands are available. This could also influence the analytical results and will be discussed later (see chapter 5).

4. Discussion

The analysis of the relationship between the share of purchased organic brands and VSB shows that a lower SB_{PR} implicates a higher share of organic brand purchases based on price promotions. Therefore, price promotions seem to be an adequate marketing instrument if those households should be motivated to switch to another brand, that usually try to *avoid switching*. This relation could not be found within non-organic brands. Probably, this is one reason for the significantly higher proportion of purchases based on price promotions in the organic fruit yogurt market compared to the non-organic one.

This result is rather surprising and was not expected. However, the differences between the two markets are significant of nature and a further explanation for this behaviour shall be found. Probably, these differences are due to the fact that most organic brands are more expensive compared to conventional brands. Another reason could be found in the fact, that all organic brands are private labels. In Austria the majority of the sales of organic products (67.5% in 2010) are distributed through retailers (BIO AUSTRIA, 2011, s.p.). As the food trade sector is highly concentrated and very competitive in Austria, price promotions could be one of the core marketing instruments to attract new customers.

In general, households are more likely to avoid variety (confirming analytical results based on this dataset in MEIXNER and KNOLL, 2012, s.p.). The attraction of variety avoiding households is limited because they rather intend to stay with one or only few brands. However, price promotions seem to be adequate especially in the organic fruit yogurt market to attract even variety avoiding households to switch. Households seeking variety are switching anyway. Only few purchases are therefore done based on price promotions. In addition price promotions seem to be also adequate in this market to prevent brand loyal consumers from switching. If consumers, who are rather brand loyal, have the possibility to purchase their favourite brands on price promotions from time to time, it may be assumed that they will stay with these brands.

5. Conclusions

In the organic market brand loyalty is paramount. Variety avoiding households seem to positively influence the market share of an organic brand. Thus, organic brands should concentrate to maintain their consumers. Therefore price promotions are a paramount influence in the organic market. According to BLOEMER and KASPER (1995, 313) this means that households that stay with an organic fruit yogurt brand are not specifically brand loyal. This suggests that the limited number of organic brands and the wish to buy organic products is the main reason why households stay with a brand. Thus, a new organic brand may focus on households showing a certain tendency towards variety seek-

ing as well as organic products to gain publicity and further concentrate on consumer retention.

Limitations that should be considered are that the results are only valid for the Austrian fruit yogurt market. The results for another country or other product categories may be different. Moreover the SB_{PR} coefficient offers a reliable approximation of VSB but is still limited to a few variables. Thus, future research should be done on other products, in other countries and further develop the SB_{PR}.

In general, the analysis of panel data is not providing further insights concerning consumers' motivations. Consequently, further research could be done to gain insights by use of consumer surveys. Out of panel data real shopping behaviour can be analysed. Motivations and justification of purchase behaviour can only be provided by personal interviews with consumers. However, some attitudinal variables are already included within household panel data available e.g. by GfK. The consideration of these variables could further improve the value of panel data analysis.

Acknowledgements

The authors would like to thank the Austrian National Bank, which promoted this study with funds from the "ÖNB Jubiläumsfonds" and Tobias Schediwy from GfK Austria who made it possible to work with the original consumer tracking panel data.

References

AMA (Agrarmarkt Austria Marketing GmbH) (2011a): Marktentwicklung Bio. URL: http://www.ama-marketing.at/home/groups/7/Marktentwicklung_bio.pdf (23.09.2011).

AMA (2011b): Marktentwicklung Mopro. URL: http://www.ama-marketing.at/home/groups/7/Marktentwicklung_Mopro.pdf (23.09.2011).

BERNÉ, C.; MÚGICA, J. M. and YAGÜE, M. J. (2001): The effect of variety-seeking on customer retention in services. Journal of Retailing and Consumer Services, 8, 6, 335-345.

BIO AUSTRIA (2011): Bio-Umsätze in Österreich 2010. URL: http://www.bio-austria.at/partner/markt_1/markt daten_von_bio_austria (23.09.2011).

BLOEMER, J. M. M. and KASPER, H. D. P. (1995). The complex relationship between consumer satisfaction and brand loyalty. Journal of Economic Psychology, 16, 2, 311-329.

CHINTAGUNTA, P., KYRIAZIDOU, E. and PERKTOLD, J. (2001): Panel data analysis of household brand choices. Journal of Econometrics, 103, 1-2, 111-153.

FOXALL, G. R. (1981): Strategic Marketing Management. Surrey: Biddles, Ltd.

GIVON, M. (1984): Variety Seeking Through Brand Switching. Marketing Science, 3c, 1, 1-22.

JOHNSON, M. D., HERRMANN, A. and GUTSCHE, J. (1995): A within-attribute model of variety-seeking behaviour. Marketing Letters, 6, 3, 235-243.

LATTIN, J. M. and MCALISTER, L. (1985): Using a variety-seeking model to identify substitute and complementary relationships among competing products. Journal of Marketing Research, 22, August, 330-339.

MEIXNER, O. and KNOLL, V. (2012): An expanded model of variety seeking behaviour in food product choices. British Food Journal, 114, 11.

MENON, S. and KAHN, B. E. (1995): The Impact of Context on Variety Seeking in Product Choices. Journal of Consumer Research 22, 285-295.

TANG, E. P. Y. and CHIN, I. O. K. (2007): Analysing variety seeking behavior using panel data. Journal of International Consumer Marketing, 19, 4, 7-31.

TRIVEDI, M. (1999): Using Variety-Seeking-Based Segmentation to Study Promotional Response. Journal of the Academy of Marketing Science, 27, 1, 37-49.

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