Product Variety and Loyalty to National Brands
– a Combined Measurement of Purchase Sequence and Coverage of Demand

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Overview

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1. Research Questions

- How can **customer brand loyalty** be measured?

- Which **factors** influence the **customer brand loyalty**?

- Should the measurement of **customer brand loyalty** consider **purchase sequences** and **coverage of demand**?

2. Theoretical Background

brand loyalty	
attitudinal component	**behavioural component**
questionnaires to investigate pre-purchase constructs	actual purchases of consumers
brand loyalty or the quality of the consumer-brand relationship	actual purchase behavior
(Nolte 1976)	

➢ This study focuses on the **behavioural component**

➢ Here, the **concept of purchase sequence (Brown 1952)** and the concept of **coverage of demand (Cunningham 1956)** are commonly used

2. Theoretical Background

brand loyalty		
...	**behavioural component**	
...	***concept of purchase sequence (Brown 1952)***	**concept of coverage of demand (Cunningham 1956)**
...	**–** comparison of brand loyalty of consumers not possible	**+** possibility to directly compare brand loyalty of consumers
...	**+** time/period of purchases is considered	**–** time/period of the purchases is not considered
...	**+** the frequency of purchases is considered	**–** the frequency of purchases is neglected

➢ There are **disadvantages** for both concepts

➢ **overcome disadvantages** by combining the two concepts (Farley 1964a, 1964b)

3. Theoretical Background
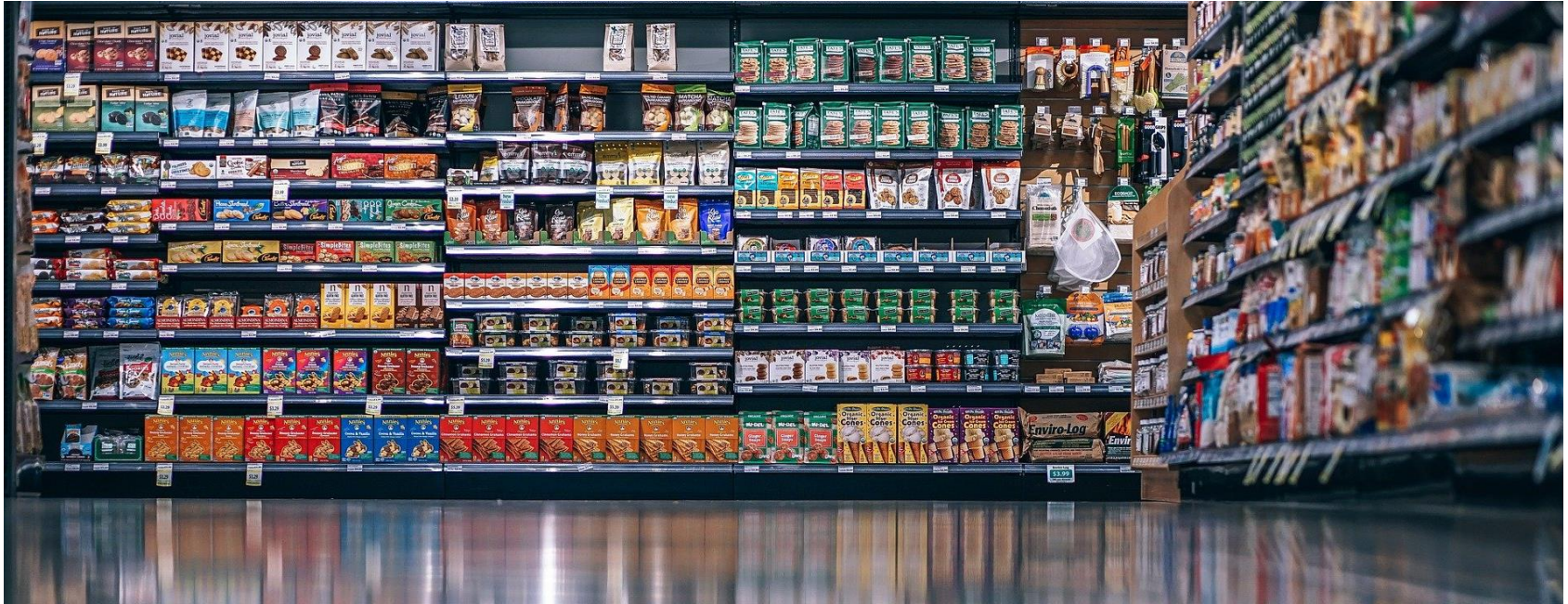
- When is a customer **loyal**?
  - high **coverage of demand** with a brand?
 - **several purchases** over longer period of time?

both!

3. Hypotheses Overview

	Hypothesis	Literature
H1	The higher the price of a NB, the lower the number of loyal households of this NB.	Krishnamurthi/Raj 1991; Möser 2001;
H2	The negative effect of the price of a NB on the number of loyal households of this NB is moderated by leading NBs (top 10).	Pindyck/Rubinfeld 2009; Olbrich et al. 2017; Brüggemann et al. 2020
H3	The higher the purchase frequency of chocolate bars, the lower the number of loyal households of the observed NB.	Casteran et al. 2019
H4	The more product variety provided by competing manufacturers, the lower the number of loyal households of the observed NB.	Faison 1977; Raju 1980; Hoyer/Ridgway 1984; Diller and Goerdt 2005
H5	The more product variety of a NB is offered, the higher the number of loyal households of this NB.	van Trijp and Steenkamp 1992; Mason and Milne 1994; Koppelmann et al. 2001; Koppelmann et al. 2002

4. Research Model
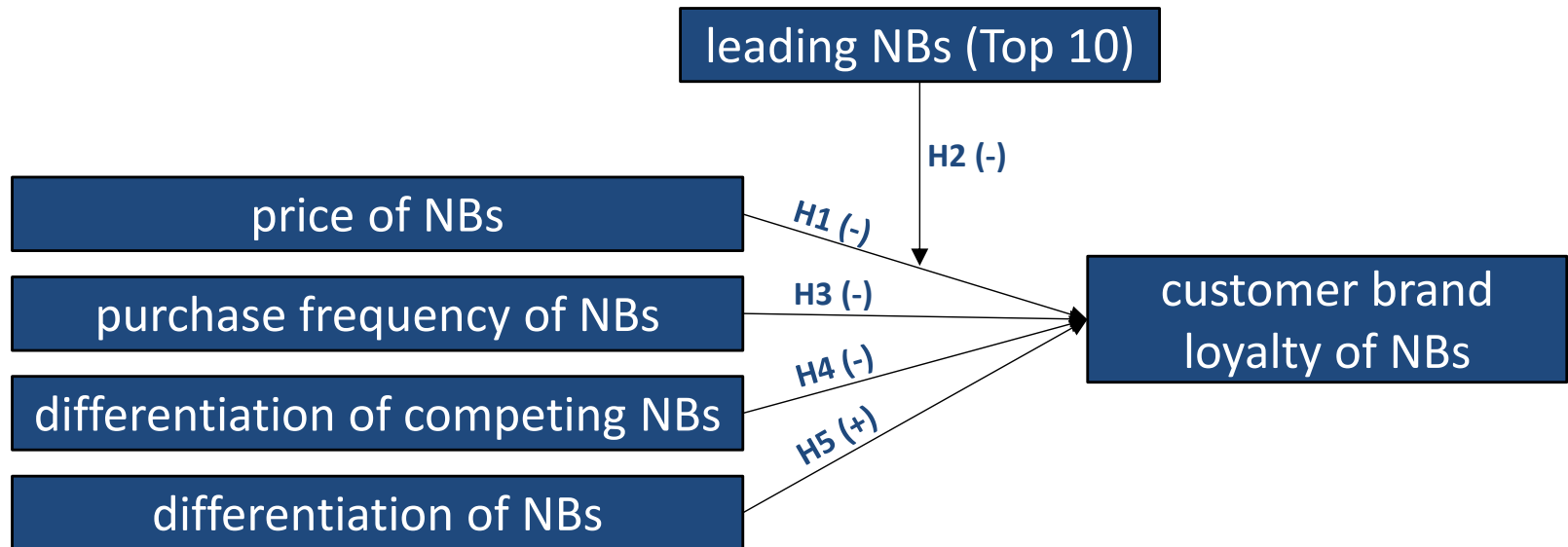
4. Research Model

$$loyal_m = c + \beta_1 p_m + \beta_2 p_m * leader_m + \beta_3 purchase + \beta_4 pvc_m + \beta_5 pv_m + \varepsilon_m$$

with

$loyal_m$	= number of loyal households towards the NB m,
c	= constant term,
p_m	= price of the NB m,
$leader_m$	= binary classification of the NB m as market leader,
$purchase$	= purchase frequency of NBs in the product group,
pvc_m	= competing product varieties with the NB m,
pv_m	= product variety of the NB m,
$\beta_j, (j = 1, ..., 5)$	= regression coefficients, and
ε_m	= error term.

5. Empirical Analysis – Operationalisation

Number of loyal households ($loyal_m$):

$$CoD_{i,t-2} > 0{,}5; \; CoD_{i,t-1} > 0{,}5; \; CoD_{i,t_0} > 0{,}5$$

with

$$CoD_{i,t} = \frac{purchased \; quantity \; of \; the \; NB_{i,t}}{total \; purchased \; quantity \; in \; the \; product \; group_{i,t}}$$

and

CoD: coverage of demand
i: household i
t: year t.

5. Empirical Analysis – Operationalisation

Photo: Philipp Brüggemann

Example: household A, year 2015

purchase quant. of NB$_{A,2015}$ = 50 kg
$\sum$ purchase quant. prod group$_{A,2015}$ = 90 kg

$$CoD_{A,2015} = \frac{50}{90} = 0.56 = 56\ \%$$

$$CoD_{i,t} = \frac{purchased\ quantity\ of\ the\ NB_{i,t}}{total\ purchased\ quantity\ in\ the\ product\ group_{i,t}}$$

and

CoD: **coverage of demand**
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<div style="writing-mode: vertical">Photo: Philipp Brüggemann</div>

Example: household A, years 2013-2015

$CoD_{A, 2013}$ = **58 %**; $CoD_{A, 2014}$ = **51 %**; $CoD_{A, 2015}$ = **56 %**

→ **Number of loyal households + 1**
(at least for 2013, 2014, and 2015)

5. Empirical Analysis – Data Collection

- household panel data from **2006 to 2015**

- **3,943,199 sales** from about **30,000 households** at same time

- product group: **chocolate**

- aggregated data:

  - 227 NBs and 104 PLs (for this study **166 NBs** are used)

  - **standardized prices** per 100 grams

  - for product variety the **Global Trade Item Numbers (GTIN)** are used

  - top 10 brands: **highest turnover**

GfK Growth from Knowledge

5. Empirical Analysis – Results

- **pooled-OLS** with **R package plm**

- $R^2 = 0.371$

Independent variable	Hypo-theses	Standardization coefficient	p-value	Hypothesis supported
price of NBs	- (H1)	-0.116	< .001	no
price of leading NBs (top 10)	- (H2)	-0.221	< .001	yes
purchase frequency of NBs	- (H3)	-0.042	< .001	no
product variety of competing NBs	- (H4)	0.029	< .001	no
product variety of NBs	+ (H5)	0.749	< .001	yes

6. Discussion

- moderating effect of **leading NB**

  - dominance of **market-leading NBs**

  - **price of not leading NBs** has no relevant influence

- weak influence of **purchase frequency**

  - Possiblie explanation: high **purchase frequency** of loyal households for habitualized purchases

    → high level of loyalty despite high purchase frequency

6. Discussion

- no relevant influence of **product varieties of competing NBs**
  - explanation: **assortment of chocolate bars** may be large
    - → possibly confuse consumers
    - → canceling a purchase
    - → or reverting to familiar products

- strong positive effect of **product variety of NBs**
  - **strongest impact** on loyalty
  - manufacturer can **increase loyalty** with **product variety**

7. Limitation and Further Research

Limitation

- **threshold value** of 50%

- focus on **chocolate bars**

- **communication** and **distribution strategies** not considered

- **shelf positioning** not considered

- Other factors may influence loyalty (**brand image** or **in-store promotions**)

Further Research

- **Comparison** of this approach with other models for loyalty measurement

- **long term price effects**

- effects of **price promotions**

- consideration of **other product groups**

- consideration of **PLs**

8. Conclusion

(1) combination of the concept of **purchase sequence** and the concept of **demand coverage** is useful

(2) new insights for loyalty towards NBs:

- **loyalty** can predominantly be influenced by the **product variety of NBs**

→ manufacturers can increase **brand loyalty** by increasing **product variety**

- influence of the **price of NBs** is moderated by leading NBs

→ prohibition of retail price maintenance

Photo: Philipp Brüggemann

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Comments, Proposals or
Ideas for Collaboration?

→ Contact Me!

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