

# Till death do us part. Do customers cheat on brands?

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**Abstract:** Some companies, based on the beliefs of their managers, aim to obtain solely loyal customers in the hope that these customers will always buy only one brand and never cheat by buying a competitor's brand. However, a growing body of empirical research suggests that this may be an overly positive expectation and that this marketing strategy can run counter to the nature of the consumer. To scrutinize the sole loyal buyer idea, this study empirically examines the phenomenon of duplication of purchase, which suggests that customers not only buy from repertoire but also that brands share customers in proportion to their market share. Data were drawn from two consumer packaged goods categories: beer (10 brands), soft drinks (6 brands), and eight NUTS2 regions. Using a robust sample of 3,488 customers from a consumer panel and many sets of data approach, the research replicated significant patterns of duplication of purchase in both categories studied and across all regions. The findings support the notion that while consumers are likely to repurchase a brand previously purchased, they also frequently diversify their choices between competing brands. Therefore, the study confirms the generalisability of duplication of purchase behaviour in different categories and geographies, providing critical information for marketing strategy and brand management. It is a strategy that goes against the principles of how buying behaviour works to try to persuade customers to buy from one single brand for the rest of their lives. A great deal of corporate resources will be wasted in the pursuit of sole loyalty.

**Keywords:** Brand, customer loyalty, duplication of purchase, natural monopoly, marketing strategy.

**JEL Classification:** M31, L66, L22.

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## Introduction

Imagine a bustling supermarket. Among his other purchases, John regularly picks up his favourite beer brand, appearing to be a loyal customer. The following week, enticed by a different offer, he selected an alternative brand that diverged from his last choice. Should a marketer be angry and write off John forever? Some authors consider this to be a marketing failure, but there is a growing body of empirical

evidence that temporary customer defection does not necessarily mean that the customer is no longer loyal. In fact, it seems to be more of a normal switching behaviour than a signal of relationship-ending cheating. This could be explained by the broader phenomenon of duplication of purchase (DoP), wherein consumers typically select brands habitually from a pre-existing repertoire. This idea challenges the traditional belief in exclusively loyal consumers,

instead emphasising that individuals generally maintain a portfolio of brands they patronise rather than remaining devoted to just one.

Marketers who understand the DoP make altered decisions and allocate resources differently to those who do not (Kennedy & McColl, 2012). They view their competition more widely and do not focus much on any specific competitor brand. Moreover, they understand that brands usually compete with all other brands in the market, approximately in line with the size of the other brands (Dawes, 2008). If there is a deviation from the pattern called partition, then this information provides valuable insight into competitive positioning. Partitions tend to indicate amplified competition and can inform pricing, communication, and distribution tactics. It can also provide a basis for category definition based on buying behaviour rather than product features. Some marketers might build their marketing strategy based on their own assumptions about target market and product feature fit. But the DoP analysis can show who the real competition is and which brands make up a category. Overall, empirical knowledge of customer choices provides marketers with an understanding of market structure and the competitive environment.

### 1. Theoretical background

Duplication of purchase is based on the theory of stochastic preference introduced and described by Bass (1974). Stochastic preference suggests a probability distribution over options rather than a clear-cut ranking. For instance, an individual may slightly prefer option A over B, but there is still a possibility of selecting B due to random factors. This theory is reflected in NBD-Dirichlet model which among other things explains the DoP in more detail and assumes that customers choose from a small portfolio of the available options (Scriven et al., 2017). This split loyalty is then observable in consumer behaviour, where the customer selects stochastically from a repertoire of brands (Dawes, 2008; Naami et al., 2022; Romaniuk & Dawes, 2005). Consequently, each brand shares its customer base with other brands in the category in line with the size of those other brands.

Patterns of DoP were initially observed in the media consumption behavior. The observation of these patterns first occurred in the context of magazines, as noted by Agostini (1962). Subsequently, this phenomenon was also

detected in television programmes and channel viewing, with Barwise and Ehrenberg (1988), and Jardine et al. (2016) providing evidence of this. Furthermore, DoPs have been identified in the realm of listening to radio stations, as evidenced by studies conducted by Lees and Wright (2013) and Winchester and Lees (2013). Interestingly, the manifestation of DoP extends beyond traditional sectors of consumer behaviour and has been observed in areas such as gaming and gambling, as explored by Lam and Ozorio (2013), leisure activities (Scriven et al. 2015) as well as in the consumption of arts, as demonstrated by Hand and Riley (2016). Surprisingly, DoP has even been detected in the field of sports, as described by Fujak et al. (2018). Recent studies have also shed light on DoP patterns in music consumption, specifically in relation to genres, artists, albums, and songs (Anesbury et al., 2023). In addition, there have been investigations into DoP in the context of mobile app usage, as conducted by Graham et al. (2021), and its presence in the non-profit sector (Faulkner et al., 2023).

Most research conducted in this field has predominantly focused on the domain of fast-moving consumer goods (FMCG), which is a logical choice considering the sector's significant business impact. Studies covering a range of 12 categories, ranging from rice to cat food, in both the US and UK markets have discovered instances of duplication in every category, as revealed by Dawes (2016). Furthermore, Graham (2009) provides a dynamic perspective on the DoP phenomenon in the instant coffee market by comparing its development over a six-year period. This analysis is invaluable as it sheds light on the temporal evolution of the metric in relation to market share. Tanusondjaja et al. (2016) took a comprehensive approach by examining entire categories and the co-purchase of products within them, revealing some intriguing pairs that were bought in a manner different from what was expected. Evidently, the DoP pattern serves as a framework for not only analysing the competitive dynamics between brands, but also for understanding the synergistic or antagonistic interactions among different product categories. In a study conducted by Trinh et al. (2019), DoP was detected when analysing the relationship between the country of origin within the category of wine and butter products. Most buyers were found to purchase wines or butter

from multiple countries, and popular countries tend to exhibit a higher level of DoP than less popular countries. Dawes (2014) focused on examining the cigarette market in the USA. His analysis revealed a strong correlation between brand penetration and average brand cross-purchasing over all investigated years. This finding suggests that brands with higher penetration rates also tend to have a higher level of cross-purchases with other brands.

Research on duplicated purchases has touched on the category of beverages, both alcoholic and nonalcoholic. One of the first to describe purchase duplication in the soft drink category was Bass (1974). The study demonstrated that the rate at which consumers switched from soft drink Brand A alternative brands (B, C, D, etc.) was in line with the market penetration of these respective alternative brands. Dubé (2004, 2005) empirically showed that households regularly select multiple soft drink products and multiple units on a given trip, thus seeking variety. Sjostrom et al. (2014) analysed cola and other flavoured carbonated beverages to compare light (or diet) and regular versions. Their results suggest that both light and regular brands are similar in terms of market performance, which implies that typical behavioural patterns, such as DoP, appear for light brands, as they appear for regular brands.

Moderate research on DoP in the alcohol product category has been carried out. Dawes (2008) conducted an interesting research study involving a sample of 620 individuals who consumed beer. The purpose of this investigation was to identify and analyse purchasing behaviour patterns among these beer drinkers. Interestingly, the study findings not only revealed the existence of DoP, but also shed light on the concept of double jeopardy. It was observed that larger brands in the beer industry not only have a larger customer base, but also boast a higher number of loyal customers. This implies that these larger brands enjoy a double advantage in terms of customer acquisition and retention. Romaniuk and Dawes (2005) discovered the occurrence of DoP across various wine price tiers. Furthermore, it was observed that price tiers with higher penetration rates also exhibited a higher level of sharing with other price points, thereby indicating the presence of a pattern. Cohen and Tataru (2011) later examined the structure of the French wine market with a sample size of 300 participants.

Their findings echoed those of Romaniuk and Dawes (2005), who also identified similar patterns among price tiers. Wilson and Winchester (2019) conducted research on 25,000 wine customers from a customer panel. Their findings demonstrated the presence of a DoP pattern among the top 20 leading brands in the category, with only a few exceptions that suggested the existence of market partitions. These market partitions represent brands that, while similar in terms of usage, possess distinctive characteristics that set them apart from the rest of the market (Romaniuk & Dawes, 2005).

Understanding variations in the form of market partitioning is useful to understand circumstances in which the DoP principle does not apply. In their study of television viewing, Barwise and Ehrenberg (1988) found significant differences in projected patterns for Spanish-language and religious programmes. Many years later, another partition has been discovered. Consumers who prefer goods associated with free trade can show a stronger preference for brands within the free trade domain than implied by the DoP (Winchester et al., 2015). Lees et al. (2016) found minimal partitions in the limited choice of banking products across banks in Australia and New Zealand. Furthermore, recent evidence suggests that these partitions tend to persist over time (Anesbury et al., 2021). Scriven et al. (2017) observed partitions in both the UK butter and spread market and the sugar confectionery market. Naami et al. (2022) reviewed 33 DoP studies, of which 39% were conducted in the US, 36% in the UK, 21% in Australia and 6% in France, New Zealand and Japan. India, Macau, Singapore, and an anonymous European country were involved in 3% of the studies. This clearly shows that this line of research is prevalent in developed countries and that, apart from France and one English-speaking European country, no studies have been conducted within Europe.

In light of the lack of research within the beverage industry (especially in the category of beer and soft drink category) and the complete lack of studies targeting the Central European market, this study is designed to address these research gaps. With a focus on beverages category in small Central European country, two key research questions have been asked:

*RQ1: Do brands share customers consistent with duplication of purchase?*

*RQ2: Based on the duplication of purchase analysis, are there any meaningful deviations?*

Once these questions are answered, one can ask further if there are more patterns of consumer behaviour. Another empirical generalisation comes in handy for this type of analysis: natural monopoly (not to be confused with the natural monopoly in microeconomics). Natural monopoly in marketing context describes how often category buyers purchase multiple brands and how these increase when market share decreases (Sjostrom et al., 2014). Simply put, smaller brands have more cheating customers than large brands. The pattern occurs generally because the leading item of choice is more likely to attract light users of a category, and heavier users duplicate their activities more (Scriven et al. 2015). This analysis uncovers the power of brands with higher market share and great market power.

## 2. Research methodology

Despite the tendency of academics to prioritise novelty, some have called for ongoing replication or extensions (Bergkvist et al., 2023; Lehmann & Bengart, 2016). The dissemination of replications and extensions safeguards the literature against the uncritical acceptance and promotion of erroneous and questionable findings (Hubbard & Armstrong, 1994). An individual study conducted in isolation is essentially devoid of meaning and utility (Bettis et al., 2016). Replication or extension calls have also been observed in the field of marketing (Easley et al., 2000; Evanschitzky et al., 2007; Sharp et al., 2017). Due to the lack of replication, a significant portion of the knowledge base in marketing may be based on unsubstantial evidence (Zinkhan et al., 1990). The range of conditions under which a result holds must be examined and expanded regularly. Makel and Plucker (2014) asserted that although the replication approach may potentially impede creativity, factual accuracy supersedes novelty. In essence, excessive emphasis has been placed on techniques and novelty, overshadowing the importance of valuable and practical knowledge (Sharp et al., 2017).

Methods of replication go hand in hand with the many sets of data (MSOD) approach, which is, in fact, an inbuilt replication. Inbuilt replication refers to the practice of including replication within a series of experiments to assess

the stability of the results (Gernsbacher, 2018). The same applies outside the laboratory conditions. In the real world, the use of more than one data set provides a solid foundation for marketing researchers to build their knowledge (Wind et al., 2013). Due to MSOD and its potential for generalisation, marketers can understand the market mechanisms they need to manage a brand. Thus, if the study design allows, it is desirable to use multiple datasets for validation across time, country, region, product category, or industry. Uncles and Kwok (2013) described three dimensions in which the stability of the phenomenon can be verified. These are the content (product), spatial (space), and temporal (time) dimensions. This study uses content and spatial dimensions to test the presence of DoP in two product categories and eight NUTS2 regions.

Data were provided by Behavio Labs, a private market research company, using their consumer panel database. Consumer panels have been used regularly for this type of study (Dawes, 2016; Trinh et al. 2023; Wilson & Winchester, 2019). Data were exported for research purposes in March 2022. In total, 3,488 were available for analysis, of which 1,742 were women. In terms of age distribution, the largest group falls within the range of 30 to 44 years, constituting 1,233 consumers, closely followed by the 45 to 64 years age group with 1,214 respondents. The 18 to 29 years and 65+ years categories are less represented, with 691 and 350 individuals, respectively. Observing the educational background, most of the customers completed high school (2,471). The sample included 841 university graduates and 176 individuals with only an elementary school education. The town sizes varied: 1,049 respondents were from towns with over 50,000 residents, and 941 were from towns with up to 2,000 residents. The other categories fell between these extremes. Respondents were proportionally distributed among regions, as can be seen in the table below (Tab. 1). Lastly, the marital status of the respondents showed a significant number of singles (705) and those living unmarried (514). The divorced category included 483 individuals, while the widowed category was the least represented, with 175 individuals.

Let us now define the variables used in this study: brand penetration, duplication, and estimated duplication. Penetration is measured as the proportion of panel buyers

Tab. 1: NUTS 2 regions representation in the sample

	Central Bohemia	Central Moravia	Moravia-Silesia	Northeast	Northwest	Prague	Southeast	Southwest
Respondents	445	392	397	490	367	438	557	402

Source: own

who drink beverages from a particular brand at least occasionally. Additionally, duplication is the proportion of buyers of one brand who buy another brand. The estimated duplication has been calculated from the DoP law (Dawes, 2016; Tanusondjaja et al., 2016), expressed as:

$$b_{x|Y} = D \times b_x \quad (1)$$

where:  $b_{x|Y}$  – the proportion of brand Y buyers who also buy X;  $D$  – the duplication coefficient, the average of the observed duplications divided by the average penetration of all brand;  $b_x$  – brand X's penetration.

### 3. Results and discussion

#### 3.1 Results

The results show that there is a higher degree of co-occurrence between large brands and a lower degree with a smaller brand. This finding is consistent with brand sharing patterns, as predicted by the duplication of purchase law: sharing is in line with brand size. The phenomenon is observable in the scatter

plots in Fig. 1, each representing one category. As brand penetration increases, so does average duplication. A detailed duplication matrix is available in Tabs. 2–3.

Deviations from the expected levels of sharing can denote the presence of a partition where brands share at an unusually higher or lower rate than expected (Ehrenberg et al., 2004). In Tab. 2, values that deviate more than 10% points from average are marked in bold. There are a few examples of this that are worthy of comment. Brand F is a traditional Czech beer brand with an international reputation and a higher price. It has a lower than expected co-occurrence with brands G, D, and H, which are local beers with lower to medium prices. Consumers of brand H buy brands D and C more than expected. Similarly, buyers of brand D buy beer brand C, indicating that these brands are jointly in the buyers' choice repertoire, forming a possible competitive segment. However, when considering this partition, one should proceed with caution. The deviation has been small (11% or 12%, respectively).

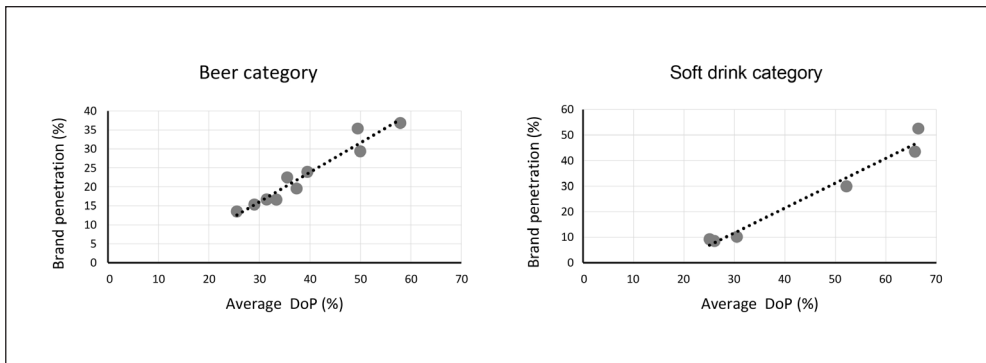


Fig. 1: Penetration and duplication of purchase link in beer and soft drink category

Source: own

Tab. 2: Duplication of purchase in the beer category

% of buyers	Who also bought									
	B	F	A	G	J	C	D	H	I	E
Brand B		50	46	39	32	31	28	30	24	20
Brand F	52		44	<b>29</b>	29	29	<b>19</b>	<b>22</b>	24	22
Brand A	58	53		37	34	36	31	34	29	20
Brand G	60	43	46		31	34	30	31	25	28
Brand J	52	45	45	33		33	27	27	25	28
Brand C	59	52	54	42	38		41	41	32	25
Brand D	62	41	55	43	37	<b>48</b>		41	32	25
Brand H	67	47	60	44	37	<b>49</b>	<b>42</b>		34	30
Brand I	58	56	56	39	36	41	34	37		32
Brand E	55	59	44	49	46	36	31	37	36	
Average duplication	58	49	50	40	36	37	31	33	29	26
Penetration	37	35	29	24	22	20	17	17	15	14
Estimated duplication	62	60	50	41	38	33	28	28	26	23

Note: Co-occurrence values deviating more than 10% points from average are shown in bold.

Source: own

Furthermore, previous studies propose to consider only deviations greater than 20% that are managerially viable to act effectively (Tanusondjaja et al., 2016).

In the soft drink category, in contrast to the beer category, more significant partitions were observed (Tab. 3). First, there is an interesting pattern within the most popular brand 2, with the highest market penetration of 53%. Consumers of this brand buy other brands significantly less than expected. To be precise, their co-occurrence deviation is higher than 10% points from the average. Brands with unusually high duplication generally share functional similarity. For example, in an analysis of switching among soft drinks, it was found that there was a greater tendency for individuals to switch between different types of diet soda than there was for them to switch from diet sodas to regular sugar-sweetened soft drinks (Bass, 1974). Therefore, the unusual pattern of duplication for brand 2 could be explained by several facts. First, this brand is representative of the traditional national brand in the cola type category. It also has a lower sugar content compared to two competing brands (1 and 3) that have almost the same

level of sugar. Additionally, it has a significantly different composition from liquoricelitract that other brands of cola do not contain.

In addition, brands 4, 5 and 6 show significantly higher co-occurrence (bottom right quadrant). This can be easily explained by the types of brands that represent this subsegment. There are brands of functional drinks or so-called energy drinks. The other three brands 1, 2 and 3 represent carbonated cola-type drinks. We have separated the table by quadrants to explain duplication among the subsegments. Energy drink users also buy cola-type drinks intensively (bottom left quadrant) but it is not that extensive in the other way around (top right quadrant). For example, 67% of energy drink brand 5 consumers buy cola brand 2. In contrast, only 13% of cola brand 2 buyers buy energy drink brand 5.

There are also two brands in the energy drink category that share more than the expected number of customers. Exactly, more than 20% points from the average duplication. Both brands are selling their drinks at a very similar price point. These brands are national compared to international brand 4. Not only is

Tab. 3: Duplication of purchase in the soft drink category

% of buyers	Who also bought					
	Brand 2	Brand 1	Brand 3	Brand 5	Brand 4	Brand 6
Brand 2		<b>49</b>	<b>39</b>	<b>13</b>	<b>12</b>	<b>11</b>
Brand 1	59		52	<b>15</b>	16	<b>13</b>
Brand 3	69	75		<b>19</b>	18	16
Brand 5	67	65	56		<b>39</b>	<b>52*</b>
Brand 4	66	75	58	<b>43</b>		<b>38</b>
Brand 6	71	65	56	<b>62*</b>	<b>41</b>	
Average duplication	66	66	52	30	25	26
Penetration	53	43	30	10	9	8
Estimated duplication	91	75	52	18	16	15

Note: Co-occurrence values deviating by more than 10% points from the mean are shown in bold; values deviating by more than 20% are shown with \*; sub-segment quadrants are shown in grey in the cells.

Source: own

brand 4 global and slightly more expensive, but it typically sells in 0.25 l cans, compared to two national brands sold in 0.5 l cans. Clear functional and price differences distinguish these brands from the third competitor. All three brands enjoy a similar level of distribution and are available in most typical retail outlets across the country.

To test the predictive power of the duplication model (1), the estimated duplications ( $b_{x|y}$ ) were counted for both categories (last row in Tab. 2 and Tab. 3). We started by calculating the  $D$  – duplication coefficient, which reflects the total amount of purchase duplication that occurs in the product category. In the category of beer, the coefficient is  $D = 1.694$  and in the category of soft drinks it is  $D = 1.729$ . Finally, the  $D$ -coefficient is multiplied by each brand's observed penetration, providing the expected duplication. Now, we can analyse the correlation between average duplication and estimated duplication. It was  $r = 0.969$  in the beer category and  $r = 0.984$  in the soft drink category. However, the correlation is not a sole indicator of the predictive power of the model. To prove its weak ability to show power, we must mention that the correlation between average duplication and penetration is the same ( $r = 0.969$  in the beer category and  $r = 0.984$  in the soft drinks category). This is because the estimated

duplication is just multiplied by  $D$ . For this reason, most authors use more than one method of evaluating goodness-of-fit. Driesener et al. (2017) proposed several ways from which one is the calculation of mean absolute deviations (MAD). MAD measures the accuracy of the prediction by averaging the alleged error or the absolute value of each error (Khair et al., 2017) and is expressed as:

$$MAD = \frac{\sum |y_1 - y'_i|}{n} \quad (2)$$

where:  $y_1$  – the observed values;  $y'_i$  – the model;  $n$  – number of observations.

The mean absolute deviation for estimated duplication and average duplication in the beer category is 0.037 and 0.113 in the soft drink category. This indicates the solid predictive power of the DoP law Formula (1).

To confirm the existence of DoP across regions (spatial dimension), a further analysis has to be applied. The original data sheet was segmented by NUTS2 regions, and for each region, the DoP was calculated, as well as the penetration of the brands in the region. The correlation between these two variables was then calculated to demonstrate the relation of duplication with penetration, as predicted by the DoP law (Tab. 4).

**Tab. 4: Duplication of purchase in the soft drink category**

Code	NUTS2	Beer	Soft drinks
CZ01	Prague	0.932	0.971
CZ02	Central Bohemia	0.978	0.960
CZ03	Southwest	0.989	0.987
CZ04	Northwest	0.982	0.985
CZ05	Northeast	0.970	0.994
CZ06	Southeast	0.954	0.992
CZ07	Central Moravia	0.969	0.975
CZ08	Moravia Silesia	0.976	0.951

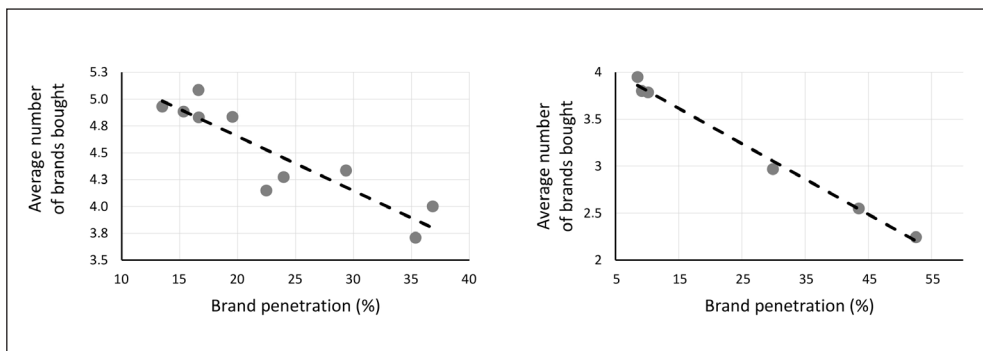
Note: Correlation for brand penetration and average duplication.

Source: own

Once we know the customers naturally cheat on brands, we can further discuss with whom are they cheating the most. One perspective to consider is to analyse consumer loyalty in a specific category and their affinity toward brands of varying sizes and assess the existence of natural monopoly. The available data do not provide information on how intensively customers buy in the category. Thus, we cannot identify the light or heavy category buyer. However, we can observe how larger brands attract customers who select from a smaller repertoire. In Fig. 2, there are plots of the average number of brands bought and the brand penetration. The correlation is evident to the naked eye: the smaller the beer brand, the more switching

buyers it attracts (Fig. 2 – left). The same story can be illustrated in the soft drink category (Fig. 2 – right). The largest brand with a market penetration of 53% has customers buying 2.2 brands on average. On the contrary, customers of the smallest brand with a penetration of 8% are buying 3.9 brands on average.

This phenomenon can be tested on a spatial dimension similar to that of the DoP. In Tab. 5 there are correlations for brand penetration and average number of brands bought in each investigated regional market. The results show a high negative correlation between brand penetration and the average number of brands bought by customers. In short, the larger the brand in the penetration metrics, the higher



**Fig. 2: Natural monopoly in beer (left) and soft drink (right) category**

Source: own



Tab. 5: Natural monopoly in the soft drink category

Code	NUTS2	Beer	Soft drinks
CZ01	Prague	-0.945	-0.988
CZ02	Central Bohemia	-0.972	-0.952
CZ03	Southwest	-0.968	-0.997
CZ04	Northwest	-0.917	-0.971
CZ05	Northeast	-0.904	-0.980
CZ06	Southeast	-0.879	-0.981
CZ07	Central Moravia	-0.880	-0.969
CZ08	Moravia Silesia	-0.911	-0.988

Note: Correlation for brand penetration and average number of brands bought.

Source: own

the chances that the brand customers have a smaller brand repertoire.

### 3.2 Discussion

We asked if brands share customers consistent with DoP and the results support the positive answer to this research question. We found the pattern previously observed in many research settings outside and inside the fast-moving consumer goods category. It holds across two product categories and eight regions. The correlation of brand penetration and average duplication indicates that smaller brand customers duplicate their purchases with larger brands more extensively than vice versa.

The second research question asked whether there are any meaningful deviations. With the help of average duplication, we found small deviations from expected values in some beer brands, but these differences are more or less negligible. Conversely, in soft drink category there is a market leader with unusual deviation, which could be explained by its large availability in shops as well as in restaurants in tap form. Another factor is its local origin and the fact that this drink is part of the national history. Furthermore, a significant partition has been found to divide the category into cola drinks and energy drinks. This is in line with previous research. Products or brands with unusually high duplication generally share functional similarity (Dawes, 2016). Duplication of more than 20% points was found for two brands of energy drinks, suggesting a partition within a partition, which may be informative for brand

managers responsible for these two highly competitive brands. It is worth considering what threshold should be used to distinguish between significant and negligible differences. In our case, we used 10% to spot the difference between the cola and energy drink category, which would be impossible to see when the 20% rule is applied. We suggest future researchers to apply both on same data set to see layers of competition in duplication purchase data.

Another phenomenon worth discussing is the fact that the estimated duplication model overestimated the duplication of the leader and follower brands, then accurately estimated the duplication of the third largest brand, and then more or less slightly underestimated the rest of the brands. This is surprising, as this slight inaccuracy has also been observed in previous research (Anesbury et al., 2018; Mecredy et al., 2021; Winchester et al., 2015). This should be a focus of future research. It is possible to look for ways to adjust the slope of the line for a more accurate way of modelling the DoP law.

This paper provides solid empirical evidence of the validity of the duplication of purchase and natural monopoly phenomenon, which is linked to the NBD-Dirichlet, which builds its logic on the theory of stochastic preferences. It is yet another agreement with the theory supporting the idea that stochastic models provide a good description of the reality of customer behaviour. The cycle of confirming theoretical foundations with real-world data is important in terms of advancing our knowledge of brand choice and consequent market structure. The results show that

theories based on the idea of super-customer loyalty may be in need of revision.

Every study has limitations, and this one is no exception. First, the temporal dimension of the replication design is omitted. It would be useful to follow the development of the DoP over time and see if this law is permanent. Another considerable limitation is the absence of real retail transaction data, which is only represented by survey data. These data are naturally subject to weaknesses, such as inaccurate memory of the respondent. Furthermore, data on the frequency of brand and category purchases is missing. Therefore, it is impossible to explain the real reason for the smaller repertoire size of the largest brand buyers. Data on category intensity would answer if there is a loyalty on play or light category buyers behind this reduced repertoire. The only possibility is to use an analogy with other studies and estimate the cause. Another limitation coming from the absence of purchase frequency is the inability to calculate market share when analysing natural monopoly. However, while market penetration used in this study is not the same metric as market share, a number of studies show their close relation (Graham, 2009; Romaniuk et al., 2018). All of these limitations represent future opportunities for research in this field.

### Conclusions

Understanding the basics of consumer behaviour is essential for any successful marketing manager. It provides the foundation for sound marketing strategies that leave no room for misconceptions that could lead the company astray. The research presented here corrects the delusional idea of the sole buyer. These single-brand loyal shoppers are almost non-existent in the marketplace. Moreover, it is not an imperfect behaviour that should be corrected by marketing efforts. Rather, it is the norm for customers to change brands, as John did in our hypothetical story at the beginning of this article. The results provide valuable information to marketers. First, there is no need to exhaust resources trying to change natural customer behaviour. Second, competition is much broader, and unless there is an evident partition in the analysis, the focus should be on the whole competitive landscape. To be more specific, in the beer market there are no significant partitions that would signal the need for specific segmentation.

On the other hand, in the soft drink category, there is a strong partition dividing the market into two smaller segments, cola drinks and energy drinks. Third, it is okay for the brand to have customers who also buy other brands, and this is normal for large and small brands. The idea of nurturing loyalty is worth pursuing but should not be pushed to extremes. Rather than forcing some customers to buy only one brand all year, nudging other customers to make a purchase twice a year instead of once is a more realistic strategy.

Since replication and extension are essential for the development of generalised knowledge, this research helps to achieve this. DoP has been extended and verified to be useful for mapping competing brands in the categories of beer and soft drinks in the Central European country market, categories and regions largely under-researched in current literature. Furthermore, the data presented evidence supporting the existence of the second empirical generalization, natural monopoly pattern. Our results suggest that popular brands are more likely to attract consumers with a smaller brand repertoire in the respective product category, in contrast to less popular brands. Hence, the theoretical contribution of this study lies in its beneficial role in supporting empirical generalization of DoP and also with all the limitations in mind, natural monopoly.

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