
LOYALTY LIMITS FOR REPERTOIRE MARKETS

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Abstract

Sharp, Wright and Goodhardt (2002) (SWG) discovered that competitive repeat-purchase markets are polarised into two types: (1) “repertoire markets”, where consumers have repertoires so the typical brand is bought by its average customer less than half the time (an average share of category requirements of less than 50%) and few of its customers are 100% loyal, and (2) “subscription markets” where consumers have very small repertoires so brand loyalty metrics are all higher, e.g. the typical brand enjoys high levels of 100% loyal buyers. The time independent NBD-Dirichlet model parameter S elegantly describes these differences in loyalty metrics. Based on a very limited number of data sets Sharp, Wright and Goodhardt estimated that repertoire markets have an S value no lower than 0.6. To check this estimate we calculated S values for 468 packaged goods data sets from a TNS consumer panel. The vast majority of categories showed S values above 1.0 and only 4% of the data sets showed an S value slightly below 0.6. These categories with unusually high brand loyalty appear to be declining ‘old fashioned’ product categories with low penetration rates and a greater reliance on older buyers. This raises an interesting question for marketing theory - is high loyalty more usually a reflection of failure to acquire new consumers ?

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Introduction

Competitive repeat purchase markets are polarised into two quite different forms termed ‘repertoire’ and ‘subscription’ markets (Sharp and Wright 2000; Sharp et al. 2002). These markets have very different brand metric scores, with no ‘in between’ markets. In repertoire markets buyers are seldom 100% brand loyal even over quite small runs of category purchases, nor are they entirely dis-loyal, but rather they hold personal repertoires of favoured brands. The variation in repertoire composition across buyers is predictable hence repertoire markets demonstrate well documented patterns in marketing metrics (e.g. Ehrenberg and Goodhardt 2002; Ehrenberg 1972; Ehrenberg et al. 2004), with brands showing very low levels of 100% buyers, and where a brand’s average buyer buys it less than half the time (ie less than 50% share of category requirements). In comparison subscription markets show very high levels of loyalty as observed in the brands’ metrics: high proportion of 100% loyal buyers, high share of category requirements, and very small repertoires (Sharp et al. 2002).

This polarisation in brand metrics is captured by the NBD-Dirichlet model’s loyalty parameter, S (Goodhardt et al. 1984). The Dirichlet’s parameter of S is a time independent metric that can be validly compared between categories and is thus an appropriate metric for classifying categories. Theoretically S ranges from zero to infinity, and can be seen as a measure of heterogeneity in buyer choice propensity. For any particular level of average choice propensity, the greatest heterogeneity between buyers’ choice propensity is when S is zero; this is when each individual is completely loyal always choosing the same brand (although the choices vary between individuals). Heterogeneity in choice probabilities decreases as S increases, as individuals’ choice propensities are spread out more and more evenly amongst the available brands. Thus consumers’ repertoire sizes increase as S increases.

Sharp, Wright and Goodhardt (2002), hereafter SWG, noted that in the real world the S parameter took values of either less than 0.2 (subscription markets) or greater than 0.6 (repertoire markets), with a discontinuity between these values. The values marking this discontinuity are of practical importance because it is between these values that the great change occurs in brand loyalty metrics – indeed most of the variation in category specific brand loyalty occurs between these two points.

SWG’s discovery was based on a very limited unspecified number of data sets (only very few were shown in the article), and SWG called for further research to determine if the discontinuity was simply an artifact of their limited data or an empirical phenomenon. In this article we take up this call by examining the S parameter values for repertoire markets.

Data and Methodology

We fitted the Dirichlet model to 78 product categories in six different years in order to estimate the S parameter for each. The 468 data sets covered a wide range of packaged good categories from analgesics to automatic washing machine powder, from body-sprays to vodka. These data come from the TNS Superpanel in the UK which is that company’s premier consumer panel product and widely used by business. The time

period of analysis in each case is for one year, with the year of analysis ranging between 2000 and 2005

The TNS SuperPanel data is collected from a panel of respondents in London, the Midlands, the North East, Yorkshire, Lancashire, the South, Scotland, East England, Wales and the West, and the South West of England and has been running since 1991. The data were not available at the individual level, but rather were obtained using the TNS proprietary database system *Powerview*.

TNS considers a continuous reporter to be a respondent who provided purchasing records (from any category) for at least 75% of the time period, along with purchases in the first and last weeks of that time period. The 75% requirement means that respondents were required to have provided purchasing records for at least 39 of the 52 weeks used as the standard time period in this analysis. The panel records all purchases that come into the home rather than purchases at particular points of sale. Potentially it therefore captures sales made at all locations and outlets.

All categories are those specified by TNS. While it may be debatable whether, for example, the soft drink category should be divided into the two categories 'canned colas' and 'canned soft drinks (ex colas)' or whether these should simply be classified as a single category, this is the categorisation provided by TNS. These categories are, therefore, already widely used and analysed, and are thus appropriate bases of analysis (Nijs et al. 2001).

The Dirichlet's S loyalty parameters were calculated using the estimation procedures outlined by Goodhardt, Ehrenberg and Chatfield (1984), namely Means and Zeros. Specific Excel based software was used for this purpose (Dr Zane Kearns, 2002, Excel software for Dirichlet analysis¹), which has been used elsewhere (e.g. Scriven and Bound 2004 for a recent example).

Results and Discussion

Across the 468 product categories, all expected to be repertoire markets, S varied from 0.39 to 12.9 with some 90% of categories having an S value of more than 0.8. It is also worth noting that 62% of categories have an S value of less than 2.0 thus most S values appear to be constrained within a narrow range rather than exhibiting an even distribution.

Of key importance to our inquiry here only 4%, i.e. nineteen, data sets exceed SWG's 0.6 lower limit for repertoire markets. So SWG's proposed limit seems like a pretty good estimate, though it is clearly possible for a few categories to creep under this limit. Most of our outlying categories had S values of 0.55 or higher. Only four data sets had values under 0.5 and these were all for the same category, packaged tea, in different years. Table 1 below shows the twenty data sets with S values below 0.6.

¹ Available for download from <http://www.survey.co.nz>

Table 1: the 20 smallest observed values of S

Data set (category)	S value
Packet Tea	0.39
Packet Tea	0.41
Packet Tea	0.43
Packet Tea	0.44
Instant Decaff Coffee	0.54
Fresh Soup	0.54
Instant Porridge	0.55
Instant Porridge	0.55
Porridge Oats	0.55
Packet Tea	0.55
Indigestion Medicines	0.57
Fresh Soup	0.57
Porridge Oats	0.57
Porridge Oats	0.58
Thick Brown Sauce	0.58
Thick Brown Sauce	0.58
Porridge Oats	0.58
Porridge Oats	0.59
Thick Brown Sauce	0.59

'Packaged tea' (i.e. loose tea, not in tea bags), 'instant porridge' and 'porridge oats', and 'thick brown sauce' are the product categories that make up most of these data sets. 'Indigestion Medicines' and 'Instant Decaffeinated Coffee' also have low S values that vary, depending on the year, from slightly under to somewhat over 0.6. In these categories², in the years 2000-05, buyers show unusually high brand loyalty and small repertoires. It is possible that the S parameter for these categories is unusually low due to data error, calculation error, incorrect classification of brands within the category, or that these categories are insufficiently homogeneous to be correctly considered single competitive product categories. Notwithstanding these possibilities, the categories do appear to share some obviously apparent similarities.

² 'Fresh Soup' has a low S value in only two of the earlier years (2001 & 2002 listed in table 1 above).

These categories tend to have low annual category penetration. Packaged teas is bought by only about 10% of the UK population in a year compared to 80+% who buy tea bags. Porridge is bought by only 20-30% of buyers compared to 95+% for other breakfast cereals. Instant Decaffeinated Coffee is bought by less than 20% of the population while Instant Standard Coffee is bought by more than 85%. It is likely that generally supermarkets stock very few brands in these categories. For example, the websites of both Sainsbury and Waitrose show that they offer dramatically fewer packet tea brands than tea bag brands.

Interestingly, many of the unusually low *S* categories are what might be termed ‘old fashioned’; and I suspect that the average buyer is older than the average supermarket shopper. Table 2 below confirms that these categories have a greater proportion of older buyers and fewer young buyers. On average these categories have 40% more buyers aged over 55 than related categories with normal *S* scores.

Equally importantly the categories with unusually high brand loyalty were once more popular than they are today. In 1986 packaged tea was bought by 39% of the UK population³ its penetration now cut to a third. None of the other 78 categories appear to exhibit both these two characteristics. There are categories like Vodka which are bought by a very small proportion of the population, but this is far from being an ‘old-fashioned’ category, and it is growing. There are categories like wrapped bread and butter which might be said to be a bit old-fashioned but they have very high penetration (87+% of the population buys wrapped bread, 65+% buy butter).

³ Calculated from the AdLab database, a single source continuous panel. See Hansen and Christensen Hansen, Flemming and Lars Bech Christensen (2005), "Share of voice /share of market and long-term advertising effects," International Journal of Advertising, 24 (3), 297-320. for details.

Table 2a Proportion of category buyers aged 55 and over - low S categories have more older buyers

Low S categories	% aged 55+	Comparison categories	% aged 55+
Porridge	52	RTE Breakfast Cereals	36
Instant Decaff Coffee	45	Instant standard coffee	38
Packet Tea	67	Tea Bags	40
Brown Sauce	42	Tomato Sauce	35
Average	52	Average	37

Table 2b Proportion of category buyers aged under 25 - low S categories have fewer young buyers

Low S categories	% aged under 25 yo	Comparison categories	% aged under 25 yo
Porridge	48	RTE Breakfast Cereals	58
Instant Decaff Coffee	51	Instant standard coffee	57
Packet Tea	34	Tea Bags	56
Brown Sauce	52	Tomato Sauce	57
Average	46	Average	57

It might seem obvious that 'Instant Decaffeinated Coffee' appears to be the niche category in our data. Decaffeinated coffee sells to people with an aversion to caffeine (perhaps it gives them headaches) while for many other coffee drinkers caffeine is one of the important reasons they buy (and repeat buy) coffee. But our analysis is concerned with brand loyalty within the category, not loyalty to the category. Instead the answer probably lies in the distribution of brands across the retail channel. Our higher loyalty

categories tend to have low penetration, they are not bought by everyone, nor often, and each supermarket chain stocks few brands (often their own store brand and maybe one or two others). Yet there are still quite a number of brands on the total market. This may be a big part why these categories appear ever so slightly more ‘subscription’ than expected. Subscription markets can have a lot of brands yet buyers still maintain very small repertoires; our unusual categories are a little like this – largely due to the fact that their supermarket stocks very few of the available brands and each supermarket chain tends to stock different brands.

Whereas there are categories like sugar confectionery and shampoo (not shown in table), where there are many brands in every outlet, and these have much higher S values of around 3.0 (buyers have large repertoires).

Conclusions

This research is quite an extensive investigation of SWG’s boundary for repertoire markets, covering many repertoire categories and across time. While the data concurs with their generalisation that the vast majority of repertoire categories feature an S value of larger than 0.8 (and indeed 1.0) 4% of our data sets and product categories were below SWG’s stated lower boundary of 0.6, though not one single category held a S value of lower than 0.6 for all six years of our data. Their boundary figure therefore appears close to the mark, certainly a repertoire category that has an S value of less than 0.6 is unusual, but a more realistic figure for the absolute barrier looks like 0.5.

That our oddly low S categories appear to be ‘old fashioned’ declining categories is intriguing. It is often suggested that it is the aim of marketers to increase loyalty, and that it would be better to be in a category characterised by higher brand loyalty. This analysis suggests that this is not the case, that perhaps high brand loyalty within a category is more usually symptomatic of a declining category.

A less controversial conclusion is simply that these categories have been failing to acquire new buyers, particularly young buyers who should be entering the category as they become supermarket shoppers. Probably largely due to a lack of advertising activity by brands in the category. This results in the category losing sales volume and hence supermarkets stocking narrower brand ranges. And because of the high first store loyalty to supermarkets (East et al. 1995) it is difficult for buyers to have large repertoires of brands. The result is small repertoires that show considerable heterogeneity between buyers – a higher loyalty, lower S market.

Thus loyalty metrics (which all depend on the S value) may say less about success than about failure consumers particularly specific types of consumers. Indeed the classic niche brand, one with a small but highly loyal consumer base, is as much a story about being unattractive to many buyers as it is about being attractive to a few. The much lauded Harley-Davidson might attract some buyers who will only buy Harleys until they die, but the vast majority of motorcycle buyers will never buy a Harley-Davidson.

Future Research

This research stream highlights the value of examining the Dirichlet model's parameters. To date specific investigation has been fairly limited, however given their ability to quantify buyer behaviour, whilst isolating confounding factors such the length of the analysis period, it seems an area that is ripe for further research.

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