

**The long and the short of it. Patterns of consumer behaviour are predictable,
and can inform both tactical and strategic marketing planning**

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Abstract: This paper reports important extensions to well known empirical generalisations in repeat buying, from the very short to the very long term. Analysis of two consecutive consumer purchases has been shown to reveal many of the well-known brand buying patterns found in consumer panel data (Bennett, Ehrenberg & Goodhardt, 2000; Bennett, 2008). We link these to long-term brand performance patterns found in a new six-year panel of continuous purchasing. The study is a replication and extension of empirical generalisations and results are tested against NBD-Dirichlet benchmarks (Ehrenberg, Uncles and Goodhardt, 2004). We find that in general the model will closely predict many long-term (by which we mean five years or more) brand performance metrics such as loyalty and switching from very short term data. Knowledge of both the model and well-established behavioural patterns is consequently of great value to managers.

Keywords: Double Jeopardy, NBD-Dirichlet, Brand Loyalty, Duplication of Purchase, Two-Purchase Analysis.

1. Introduction & Objectives

In established markets, a strategy of consumer segmentation and brand differentiation is widely considered a route to growth (Smith, 1956; Day, Shocker and Srivastava, 1979), but standard three year consumer panel data offers little evidence of success for this. Instead, we see many distinctive brands maintaining share over time in the face of aggressive competition. If this equilibrium is long-term, with stable aggregated repeat-buying patterns generally observed over five or more years, then the short term can tell us a very great deal about the future.

The two-purchase analysis technique reveals surprising insight into the consumer behaviour underlying category structure in both near-stationary and evolving markets (Bennett, Ehrenberg & Goodhardt, 2000; Bennett & Graham 2010). Using data on consecutive brand choices, the main patterns of repeat buying for competing brands such as market share, penetration and brand switching are shown and may be used to evaluate short term marketing performance. The technique is quick to execute, straightforward to analyse (if a manager knows the expected patterns to look out for), and cost effective, particularly where panel data is hard to come by, or if a quick reading is needed on a particular marketing activity.

Two-purchase analysis is also useful for marketing planning, since purchase propensities tend to remain stable in established markets. Although almost unbelievable, this is now a well-established empirical generalisation. Bass & Pilon, (1985), Dekimpe & Hanssens, (1995) Srinivasan & Bass, (2000), Ehrenberg, Uncles and Goodhardt, (2004) and Graham, (2009) have all shown that competitive marketing actions such as advertising or price promotion positively affect market share in the short term, but the impact is only ever temporary. Consumers are typically highly experienced buyers and can switch back and forth within a portfolio of preferred brands, perhaps in response to promotional activity or a desire for variety, or both.

The resulting category equilibrium means that simple patterns of repeat buying identified from two-purchase analysis almost certainly hold for a few quarters, and are governed by the established laws of marketing such as Duplication of Purchase (Ehrenberg & Goodhardt, 1970) and double jeopardy (Ehrenberg, Goodhardt and Barwise, 1990). Knowledge of these patterns together with a few category metrics from two-purchase analysis (e.g. average purchase

frequency, brand penetrations) are enough to define a realistic tactical marketing plan, and category structure can also be accurately predicted using the NBD-Dirichlet model (Goodhardt, Ehrenberg and Chatfield, 1984).

Our interest in this paper is not however in the tactical; our aim is to demonstrate how this knowledge may extend into the long term, to enable managers to design more effective marketing strategies. Here, some further principles may be at play.

Summarising the purpose of strategic marketing, Schulz (2010) argues that market forces tend to impose equilibrium; a balance between supply and demand, pricing that offers value to consumers but a profit to producers, distribution that brings the right quantity of goods to market at the right time to meet customers' needs. It is the role of the marketing manager to destabilise this equilibrium in favour of brands they manage by creating differential advantage, and then quickly re-stabilising the new order, sustaining competitive advantage through increased brand loyalty. The literature in this area suggests that segmentation, targeting and positioning is the key to such brand share growth. In established markets particularly, Webster (1986), Doyle (1996), McDonald and Dunbar (2004) and Aaker and McLoughlin (2007) have all prescribed the process as the means to achieve market share increases through brand loyalty.

While Levitt (1980) originally conceptualised differentiation at the product level, its derived competitive advantage is now as short lived as that of advertising or price promotion. Any successful product innovations are quickly imitated or improved upon by competitors (Ehrenberg, Barnard and Scriven, 1997). At the brand level though, the ability to attract loyal buyers through differentiated positioning has been a focus of attention for many years, particularly the impact of customer lifetime value on brand valuation and the management of consumer-based brand equity (Keller, 1993). This latter model encourages managers to identify and promote those attributes where a brand must equal competitors and those where it should differentiate, in order to achieve brand resonance. Consumer attitudes towards these attributes may be either rationally or emotionally derived, but the more favourable, strong and unique the associations that make up consumer brand image, the stronger it is assumed the loyalty will be.

This is at odds with basic epistemological principles and empirical evidence regarding the stability of measures of attitude (Sharp, Sharp and Wright 2000). While such measures may be steady at the aggregate level, at the individual level they are unstable—attitudes towards brands show average repeat-response rates of only 50% (Baldinger and Rubinson 1996, Dall'Olmo Riley, Ehrenberg, Castleberry, Barwise, and Barnard, 1997). Consumers may appear inconsistent or fickle, but it is more likely that attitudes are not held very deeply and are no more enduring than other situational variables. Indeed this may be why studies using attitude to predict future behavior generally have very poor results (see Kraus, 1995, Wright and Kljyn, 1998). The same is true for “intent to purchase” (see e.g. Morwitz and Schmittlein, 1992; Mellens, Dekimpe and Steenkamp, 1996; Ji and Wood, 2007).

Then too, very little evidence for the effectiveness of a differentiation strategy on repeat buying has been observed in standard panel data (Kennedy & Ehrenberg, 2001). It may of course be that evolution in brand share and in long-term buyer behaviour is only gradual. Certainly brand-equity is regarded by practitioners as a long-term investment. However, we are now in a position to examine this through a new long-term consumer panel, extending to over twenty-six quarters of continuous purchasing. In this time frame, we could expect to see what we have not yet seen; evidence of segmentation i.e. partitions around competing brands, exemplified by exceptionally high repeat purchase and sole brand loyalty, and brands that increase their share through differentiation at the expense of others in the category. These would be important findings because they would break the known laws of marketing and violate the assumptions of the NBD-Dirichlet model, thus limiting their use to short term planning purposes only.

While practitioners and academics endlessly debate *why* individual consumers buy a brand, it is more important than ever to establish *how* consumers buy (Ehrenberg, 1988). This is not just pattern spotting, it is more about describing actual buying behaviour at the individual level and how this aggregates at the market level into clearly identifiable patterns or distributions of buying propensities. If there is little or no evidence of changing purchasing propensities, even over twenty six quarters, then the laws hold good from the tactical to the strategic perspective. The long and the short of it is that the laws of marketing can then be applied to strategic planning with confidence.

The aim of this paper is therefore to describe and compare patterns of long- and short-term repeat buying. We focus on two established UK categories; Male Deodorant and Shampoo. Each contains at least one highly differentiated brand which may prove to violate predicted norms over time. The shampoo brand *Head & Shoulders* is differentiated predominantly using a rational benefit-segmentation (Haley, 1968) with the proposition: “beautiful up to 100% dandruff free hair” (headandshoulders.co.uk). On the other hand *Lynx* is positioned using blatantly wry lifestyle segmentation, “helping guys get ahead in the mating game” (unilever.co.uk), an emotional proposition that sets the brand apart from more functionally positioned deodorants. By describing and benchmarking observed long- and short-term patterns of buying of these brands against competitors and against theoretical metrics, a start can be made in extending empirical generalisations to strategic marketing planning. In particular we address four questions:

- In the very short term, the most important patterns of consumer behaviour in any category can be described from just two consecutive purchases. This is useful for a quick evaluation of unfolding tactics, and a derived conditional probability matrix is often used as a basis for market modelling (Lilien, Kotler and Moorthy, 1992). How useful is this in predicting longer-term outcomes? How does two-purchase analysis relate to longer-term quarterly panel data?
- The literature on stochastic loyalty assumes stationary repeat purchase in the medium term, say from one quarter to the next, and also between non-adjacent periods. Predictions of future market structure can therefore be made from the tactical to a strategic five-year time frame, if empirical generalisations about the *as-if* random nature of purchasing can be extended that far, and if non-stationary exceptions are understood.
- When brands are observed to grow or decline in share over time this violates the central stationarity assumption of the NBD-Dirichlet. Nevertheless evolution in purchase behaviour might still be constrained by marketing laws such as double jeopardy. If so, repeat-purchase remains predictable.

- On the other hand, if evidence of the effects of “brand equity” emerges we might expect to see differentiation attracting higher than normal levels of repeat-buying, higher levels of sole brand loyalty and lower duplication of purchase. This would also lead to a growing market share and the relative decline of one or more competitors, but the changes in purchasing would violate all the assumptions of the NBD-Dirichlet. While such trends could be described in retrospect, they would not be easily predictable.

The structure of the paper is as follows. In the next section we present our conceptual framework, theories of repeat-buying and the empirical generalisations which support them. We then describe how this framework will be used to evaluate the patterns of repeat-buying observed in the two categories before presenting findings in the subsequent section. We then generalise these findings to further categories before discussing exceptions, our conclusions and their implications for marketing practitioners. We finish by suggesting routes for further research.

2. Conceptual Framework. Empirical Generalisation & Laws of Marketing

Empirical generalisation and empirically grounded theory form the conceptual framework for this work. Through replication and extension of existing concepts, we test and extend knowledge of the well-known laws of marketing. Ehrenberg (1995) draws a clear distinction between empirical generalisation and theory: “mere data regularities” become empirical generalisations when they are observed to occur under different and specified conditions and thus become routinely predictable under those conditions. Empirically grounded theory predicts but also explains. Theory may be simple at first, but is developed and honed through observation and tested over time as the range of conditions under which it holds is extended. As exceptions to known generalisations are found, these can then be investigated as boundary conditions, eventually perhaps limiting the application of the theory or adding to it. Marketing science like natural science, can therefore be developed by the interaction between data and theory as further and differing replications and extensions are conducted. Replications such as the work described here (crucially using many sets of data) will extend confidence in the theory, while extension identifies its boundary conditions and expands its applications (Wright and Kearns, 1998).

We next describe the main patterns of repeat-buying observed in established and near-stationary markets over the past fifty years, the empirically-grounded theories that have been derived, and the assumptions of the model that unites them, the NBD-Dirichlet (Goodhardt *et al.*, 1984). The main brand metrics are described in this model; how many people buy each brand, how often they do so, and which other brands they buy. The fundamental pattern observed is that all brand performance measures vary together according to brand size. This is reflected in loyalty measures such as repeat purchase and brand switching that are dependent upon market share rather than any particular brand or customer attribute. Big brands tend to score higher and small brands lower on these metrics (Ehrenberg *et al.*, 2004).

Loyalty is therefore not specific to any particular brand: rather, brands of similar size in any category normally attract similar loyalty. In addition loyalty is usually split between brands. Most consumers buy from a portfolio of brands over a series of purchases, favouring one over another, but buying each regularly if infrequently. Sometimes they may switch away from a particular brand, add a new one, or downgrade a former favourite, but few customers are 100% loyal and those that are tend to be the lightest category buyers.

Near-stationary category structure-- In this study we examine purchasing in established categories of fast moving consumer goods (FMCG). Such markets are large and valuable, and cover the majority of household purchases (East, Wright and Vanhuele, 2008), and they are also generally near-stationary. Evidence from consumer panel data reveals that even over the course of a year or two, brand shares remain approximately stationary with any gains or losses being only temporary (Dekimpe & Hanssens, 1995; Srinivasan & Bass, 2000). Two explanations have been proposed to account for this: the first is that competing marketing interventions are usually off-setting (Bass & Pilon, 1980; Lal & Padmanabhan, 1995; Pauwels, 2007), the second is that consumers are highly experienced and buying is essentially habit-driven (Ehrenberg, 1988). Of course “...*professional marketers devote their careers to destroying market equilibria*” (Goodhardt *et al.*, 1984, p.650) and consequently, habitual buying propensities do sometimes change. Some brands grow or decline, although not by much and not usually permanently. From the data available we can now examine the extent of market equilibrium and the underlying patterns of buying that support stationarity, as well as the changes that drive market dynamics. Marketing investments such as advertising, price promotions and product development are

expensive and usually made on the promise of a sustained increase in share. However, surprisingly little work has yet been conducted on the long-term effects of such investments (exceptions are Johnson, 1984; Ehrenberg, Hammond and Goodhardt, 1994; Mela, Gupta & Lehman, 1997; Srinivasan, Leszczyc & Bass, 2000; Stern & Hammond, 2004) largely because of an absence of suitable data. We can now address that gap in this research and also investigate early evidence of changing buying propensities in short term data, perhaps in deviations from known benchmarks of brand purchase such as double jeopardy.

Double Jeopardy— The law of double jeopardy (DJ) states that small brands are punished twice. Compared with bigger brands they have fewer buyers, and those buyers buy the brand slightly less often. It has been observed in hundreds of categories over fifty years by observing the relationship in any fixed period such as a month or quarter between three common measures in the category, market share, market penetration, and average purchase frequency. Market shares and penetrations are very closely correlated, and although they vary considerably (there are big brands and tiny brands, based on the number of people who buy them) share and penetration decline together. Purchase frequency on the other hand is very similar across all brands in a category, although normally slightly above average for bigger brands, and slightly below average for smaller brands (hence double jeopardy). This implies that penetration, the number of customers that a brand has, is far more important in determining brand size than how loyal those customers are. The phenomenon was first identified by the sociologist William McPhee (1963) as a statistical selection effect, but has many useful applications in marketing. The relationship between penetration (b) and purchase frequency (w) for brands in any near-stationary category can be described (Ehrenberg, *et al*, 1990) as the constant, $w(1 - b)$. A marketer with knowledge of the basic brand performance measures in a category should be able to see whether any particular brand is performing as expected and determine appropriate strategies.

The fact that the relationship between penetration and purchase frequency remains constant militates against well-established marketing lore. It denies among other things, the overriding importance of loyalty as a marketing objective. Another related idea is that of the niche brand. This has been described by Kahn, Kalwani and Morrison, (1988) as a brand targeted towards a small consumer base, a cogniscenti, who will exhibit an unusually high loyalty. At the other end of the spectrum, they describe “change of pace” brands as appealing to a large number of buyers,

who buy them only occasionally as a break from routine. Both ideas violate the assumptions of the $w(1 - b)$ model, and are almost never seen; brands are either big or small, and all other measures typically follow. Fader and Schmittlein (1993) and Bhattacharya (1997) both discuss a non-systematic deviation occasionally observed in some of the biggest leading brands, so-called “triple jeopardy”, a higher than expected purchase frequency. This is partially explained as a distribution benefit for leading brands since every retailer, no matter how limited in space for a category, will stock the category leader. It nevertheless remains unsatisfactory evidence for the existence of “brand equity” since its occurrence has so far been only sporadically observed.

The DJ relationship replicates universally across established categories (goods, services and B2B), brands and countries (Ehrenberg, *et al*, 2004), and is a fundamental underlying pattern of aggregated consumer behaviour. It has been shown to constrain brand growth and decline (Anschuetz, 2002; Baldinger, Blair and Echambi, 2002), period-to-period customer churn in subscription and repertoire markets (Sharp, Riebe & Dawes, 2002; Wright and Riebe, 2009), the erosion of repeat-purchase loyalty (East and Hammond, 1996) as well as brand switching and repeat-purchase (Ehrenberg, 1988). In this research we extend knowledge of DJ by examining how it is shown in both short and long term brand performance measures. This becomes important in a discussion of disrupting market equilibrium. For example, Aaker (1991) and Keller (1993) argue that over time as a result of cumulative investment, evidence of “brand equity” might emerge as some brands break out of the DJ relationship and increase share by attracting exceptional levels of loyalty. If category structure changes significantly, then we would normally expect to see a shift in the DJ constant over a few quarters, rather than any single brand exhibiting higher than normal purchase frequencies for its penetration.

Your buyers are the buyers of other brands who occasionally buy you-- The pattern of polygamous loyalty has been observed in categories from soup to soap in data from round the world. In frequently purchased categories experienced consumers buy habitually from their different but established portfolios of two or three acceptable brands, often choosing the brand on deal on any single occasion. Average portfolio size reflects both the competitiveness of the category and the loyalty of the buying. Colombo and Jiang (2002), and Banelis (2008) show that in common with other loyalty measures average portfolios expand over time as buyers have more chance to experiment and switch. It is a typical pattern that the customers of any one brand buy

other brands over half the time. In this research we examine polygamous loyalty over six years-- longer than previously seen--for any exceptions to this rule.

Duplication of purchase is in line with brand penetration-- Benchmarks for polygamous loyalty were published forty years ago (Ehrenberg and Goodhardt, 1970). These were developed from empirical generalisations seen in early panel data. This model of multi-brand buying allows the marketing practitioner to evaluate the strength of competition from particular brands in the category, identify incidence of cannibalisation (Lomax, Hammond, Clemente and East, 1996), and otherwise assess the efficiency of their own marketing by benchmarking against its expected norms. The model states that brand switching generally declines in line with brand penetrations - bigger brands attract more switching buyers. The regularity is captured in the Duplication of Purchase Law, expressed as:

$$b_{y|x} = Db_y$$

where $b_{y|x}$ is the proportion of brand x purchasers who also bought y in the observed period, b_y the penetration of y in the same period and D = a duplication coefficient which is approximately constant across all the brands in the category. The law implies that the brands in a category are undifferentiated and substitutable and that purchase probability relates only to the number of buyers rather than any particular positioning derived from a close segmentation and targeting strategy (Kennedy and Ehrenberg, 2001). In practice, for a variety of reasons some brands are partitioned together, indicated by a higher than expected duplication between themselves, but these cases are exceptional. Over the 26 quarters available in our data, it might be that clear evidence of segmentation will now emerge as a result of a particular differentiation strategy. We are now in a position to examine this for the first time.

Hard-core loyalty does exist - mostly among light buyers-- The marketing literature has argued extensively that increasing loyalty brings increased customer lifetime value through higher sales, profitability and recommendation (e.g. Reichheld & Sasser, 1990). Evidence to date simply does not support this (East, Hammond and Gendall, 2006). In any period the number of 100% loyal consumers is relatively low, and they buy infrequently. They may well be loyal simply because they don't buy much and therefore have fewer opportunities to switch. However as the period of

observation lengthens the proportion of hard-core loyal buying for every brand may rise, but we would expect this to be the result of an increasing incidence of very light buyers, rather than from exceptional loyalty. If, for a single brand in a category, we observe such an increase coupled with rising purchase frequency it would be evidence for the emerging effects of differentiation and “brand equity”.

The NBD-Dirichlet and its assumptions-- Having described the main regularities of consumer buying behaviour, we conclude this section with a description of the theory that explains them and the assumptions that underpin the NBD-Dirichlet model. If any of the assumptions are violated through the extension of the time periods observed, then the model output will no longer fit the data and a boundary condition will have been established. Stochastic models such as the Dirichlet are based upon an assumption of fixed consumer choice propensities “*for the time being*” which can therefore be treated as fixed probabilities within a given time-frame. As previously noted though, it is the role of the marketer to destroy competitive equilibrium by bringing about changes to the habitual fixed propensities that constrain buying behaviour. The existence of steady propensities is in itself hard to believe even over a few quarters, let alone over six years, but establishing the temporal extent of such propensities will extend the usefulness of the Dirichlet as a management tool.

The NBD-Dirichlet models market structure in any given period from just five assumptions, two regarding purchase incidence, two regarding brand choice, and one that links incidence and choice. Two further requirements are that the category should be stationary, and that there should be no partitioning. In practice this is most often the case over the short term, twelve months or so (Ehrenberg *et al*, 2004). These assumptions are as follows:

1. Consumers’ differing average category purchase rates are distributed Gamma across the population. Each household is assumed to buy the category at a steady long-run rate (although with periodic fluctuations, see assumption 2), and the Gamma distribution usually shows there are many more light buyers, and fewer heavy buyers of the category.
2. Individual household category purchasing follows a Poisson distribution, spread irregularly over a long-run average, and independent of previous purchase (zero-order).

3. A multivariate Beta distribution of brand choice probabilities; the multivariate Dirichlet distribution captures the heterogeneous brand choice probabilities in the population, based on its observed near-independence in empirical evidence.
4. Multinomial distributions for specific purchases; the widely used zero-order multinomial distribution of brand choice probabilities. The choice of brand A on any particular occasion is independent of any other previous brand choice.
5. Purchase incidence and brand choice are independent of each other. Beta distributions of brand choice probabilities are independent of category purchase rates; market shares are typically the same across light, medium and heavy buyers.

Increased loyalty beyond the category average, or any lowering of purchase duplication below the predicted rate, or higher usage of one brand among heavy users would all indicate violation of the zero-order purchase and brand choice assumptions in the model. The resulting segmentation this would show implies a violation of assumption 5. Changes in share for any single brand imply a violation of the steady purchase probabilities captured in the NBD distributions. Any or all of these developments in brand purchase would create a boundary condition for the theory.

3. Procedure. Brand performance benchmarks and the tools to generate them.

Two-purchase analysis-- Two-purchase analysis is a recently developed technique to describe buying behaviour and competitive market structure quickly (Bennett, Ehrenberg and Goodhardt, 2000) and has been shown to produce useful results in categories ranging from fast-food and petrol to cars and televisions (Bennett, 2008; Bennett and Graham, 2010). Two-purchase analysis identifies the distribution of two consecutive brand choices over a sample of buyers (including new buyers) from which a duplication table is constructed, to be interpreted in comparison with established norms of repeat purchase. The questions are as simple as: “What make of car do you currently own?” and “What make of car did you own before?” from which frequencies can be quickly established across the two purchase occasions.

In many categories the largest brand may be twenty times the size of the smallest, and sample size needs therefore to reflect this (though useful results have been achieved with samples as small as 200). Here values for larger brands are still captured well, but data for the smaller brands tends to be prone to error. In FMCG categories, where inter-purchase intervals are relatively short (i.e. within a quarter), a two purchase analysis may be more reliably derived from panel data. The short-term two purchase analysis presented here represents the category purchasing of around 20,000 UK households reporting to Kantar WorldPanel.

Six-year continuous reporting panel-- For the long-term study we use a subset of Kantar’s three-year standard UK data, consisting only of those households that reported continuously for six years (i.e. across two panel cycles). The data describes buying for 26 quarters in 18 widely differing FMCG categories and more than 140 brands, allowing detailed study of brand loyalty at the individual household level. With standard panel reports this is not possible since panel attrition can be confounded with brand defection. There are however limitations to the approach. First the panel is smaller than standard, consisting of only 4,000 or so households. Second, the sample is slightly un-representative of the UK population since it includes continuous reporters only. A third concern is about the type of buyers included in the sample; it may be that remaining in a panel for 26 quarters shows an extraordinary propensity for habitual behaviour which might extend to brand choice. Nevertheless, the fit between the smaller and larger panels is in fact close from quarter to quarter with little variation in the measures observed.

4. Findings.

How does two-purchase analysis relate to longer- term quarterly panel data?

Table 1 shows a comparison of repeat buying rates in the shampoo category. The farthest left column shows the brands in the category with their market shares in the next column followed by the year-to-year repeat buying rate. This rate is a simple measure of whether individual households bought a brand in two consecutive years. The next two columns show the short term or purchase to purchase repeat buying rate. This is calculated from the last two purchases made by individual households. Notice that both long and short term repeat buying rates are very similar, but that the short term purchase-to-purchase rates tend to be a point or two higher.

There are also some exceptions, though mostly small. For example, *Timotei's* short term repeat is lower than its long term rate. This may be due to a particular event, an attractive offer by competitors perhaps, or conversely, a short term stocking problem. In any case the deviation is small and there is most likely a simple explanation for it.

Table 1. Long and short term repeat rates, Shampoo

Shampoo brands	Long Term		Short term	
	% share	Year to year repeat rate %	% share	Purchase to purchase repeat rate %
Others	58	47	57	47
Head & Shoulders	10	41	11	44
Pantene	9	39	9	40
L Oreal Elvive	6	30	5	33
Herbal Essences	5	26	5	27
Timotei	4	27	5	22
Fructis	3	29	4	33
VO	2	27	4	28
<i>Average</i>		<i>31</i>		<i>33</i>

Table 2 shows the same comparison of repeat rates, but this time for the deodorant category. The results are much the same as before. Note again that there is a distinct double jeopardy pattern in which the larger brands have higher repeat rates than the smaller brands. These two categories

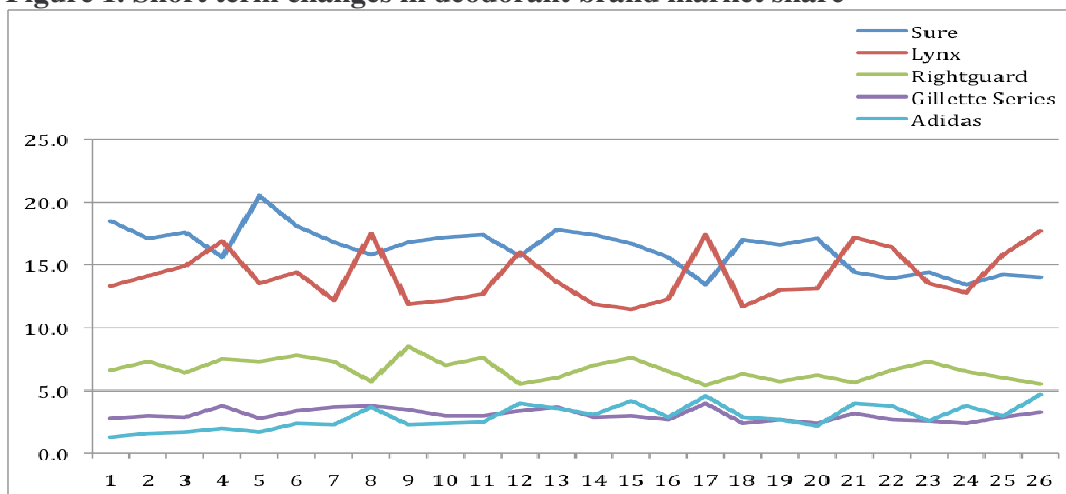
are typical examples of how two-purchase results compare to long-term results, and are very much like the other categories in which short and long term results have been compared (not shown here).

Table 2, Long and short term repeat rates, Deodorant

Deodorant brands	Long Term		Short Term	
	% share	Year to year repeat rate %	% share	Purchase to purchase repeat rate %
Others	49	48	44	40
Sure	18	44	18	45
Lynx	14	38	16	42
Rightguard	6	36	7	33
Gillette Series	4	27	4	34
Vaseline	3	35	4	35
Arrid	3	29	4	36
Adidas	4	14	3	23
<i>Average</i>		<i>34</i>		<i>36</i>

It may be startling to some that loyalty appears to be so low, with only a third of households returning to the same brand on a subsequent occasion. However, this level is quite normal, and here we clearly see it from purchase to purchase and over the long-term. In Table 2, long-term repeat rates were calculated as an average over 6+ years. During that time the rates varied very little (a point or two from year to year), though individual brand market shares varied by up to 5 points from year to year.

Figure 1. Short term changes in deodorant brand market share



In figure 1, at the left *Sure* was the largest brand with about 18% market share. Reading across to the right, we see that a couple of quarters of share losses were followed by a period of rapid gain, and then more losses. The same gyrations were seen for *Lynx*, the second biggest brand, but these were in the opposite direction, showing that the two brands are highly competitive. Even so, over the six plus years the *Sure* average market share was about 18%, while *Lynx* was about 14%, perhaps rising a point over that time. Short term gains and losses, while dramatic, were soon corrected, thanks to competitive bursts of marketing activity. Meanwhile, smaller brands had smaller gyrations, but they too ended up much where they started. The fact that market shares changed while repeat rates did not shows that the gains and losses in share were due to temporary gains or losses of customers, and not to any changes in their loyalties.

In summary, overall year to year repeat rates are seen to be closely related to the size of the brands. Although *Head & Shoulders* and *Lynx* are highly differentiated in their positioning they are both also large brands, and this is reflected in the double jeopardy effect seen in their long and short term buying metrics. They are larger because they have more customers who are slightly more loyal. The relative stability in repeat purchase across both categories offers strong support to the notion of long term equilibrium, even for differentiated brands. It is worth noting that any variance in the short term measures here may reflect the temporary promotional spikes and troughs seen in market share, expressed in repeat buying rates that are marginally higher or lower than they should be given a brand's size. Overall, the rates are very close to the long term averages.

What evidence is there of permanent share growth or decline?

In the two categories presented there is little evidence of any permanent brand growth or decline. Nor are there short term indications of evolution. Rather, the short and long term measures of repeat buying are very similar. This is because the growth or decline of brand share is accounted for by gain and loss of customers, not changes in their loyalty (repeat buying rates). It is also clear from the long-term data that most brands have only temporary gains and losses in share,

and while they may gain customers one year and lose them the next, the customers themselves have not altered in their buying propensities.

Table 3, Duplication of purchase, long-term, Shampoo

% of buyers of...	... who also bought.						
	Head & Shoulders	Pantene	L'Oreal Elvive	Herbal Essence	Fructis	VO5	Timotei
Head & Shoulders	-	16	12	11	7	7	8
Pantene	16	-	17	13	10	11	9
L'Oreal Elvive	16	21	-	16	13	13	11
Herbal Essence	15	18	17	-	12	13	13
Fructis	14	18	19	16	-	14	10
VO5	16	19	20	18	13	-	13
Timotei	17	18	17	19	11	15	-
Average	16	18	17	15	11	12	11
Predicted Duplication	19	18	14	13	10	10	8
Penetration	12	11	9	8	6	6	5
D	1.61						

While repeat buying for brands was very stable over both long and short term and in line with the market shares of the brands, this was true despite the short term changes in market share seen in Figure 1. When we look at the duplication of purchase, or how the brands share customers over time, we also expect to see that sharing is in line with brand size. A duplication table shows the portions of purchasers of each of a number of brands who also purchase each of the other brands. This analysis is carried out on the individual buyers, not the number or volume of purchases. Table 3 shows how the purchasers of the brand of shampoo in the column on the left also buy other brands of shampoo. 16% of the buyers of *Head and Shoulders* also bought *Pantene*, while 12% bought *L'Oreal Elvive*, and so on. The figures are much the same for all the brands, declining from left to right across the table, showing that when customers switch brands, more of them switch to bigger brands than to smaller brands.

Since only some customers of a brand are loyal from one purchase to another, its other customers are buying other brands, as shown in Table 3. The pattern is simple; the figures in each column decline from the bigger brands on the left to the smaller brands on the right showing that penetration determines the overall level of duplication between brands. The fact that the figures

in each column are by and large much the same shows there is little partitioning in this market, i.e. no clustering.

The pattern is very similar when looked at from one purchase to the next. Again the brands are arranged in order of penetration, but these figures are taken from the last two purchases which correspond to the final quarter of the six year data set. Since this covers only two purchases, the duplication levels are slightly understated because here the maximum portfolio size is only two brands.

Table 4, Duplication of purchase, Short-term, Shampoo

% of buyers of...	<u>... who also bought.</u>						
	Head & Shoulders	Pantene	L'Oreal Elvive	Herbal Essence	Fructis	VO5	Timotei
Head & Shoulders	-	16	10	4	10	9	3
Pantene	17	-	11	7	8	6	6
L'Oreal Elvive	10	6	-	5	3	3	4
Herbal Essence	13	13	14	-	3	2	2
Fructis	9	5	9	12	-	11	1
VO5	10	17	5	4	2	-	3
Timotei	9	9	6	5	4	3	-
Average	11	11	9	6	5	6	3
Predicted Duplication	11	9	7	6	5	4	4
Penetration	14	12	9	8	6	5	5
D	.77						

Thus the average duplication between brands was 8%, while for the full data set it was 14%. The D value in this case is .77 and the predicted duplication is therefore .77 times the penetration for each brand. This yields the same linear relationship between the average observed and the predicted duplications as we saw in Table 3. Note that while the duplications in the short term are all lower than for the long term, the same relationship between large and small brands is maintained, and again there is little indication of partitioning or of change in share among the brands.

If we now look at deodorant, over the long term the same patterns are quickly apparent in Table 5. When buyers switched between brands they did so in line with the penetration of those brands. The table is quite uniform and again there are no apparent partitions.

Table 5, Duplication of purchase, long term, Deodorant

% of buyers of...	<u>... who also bought.</u>						
	Sure	Lynx	Right Guard	Vaseline	Adidas	Gillette	Arrid
Sure	-	25	19	10	9	8	7
Lynx	31	-	14	9	10	8	6
Right Guard	39	25	-	10	11	11	9
Vaseline	36	25	18	-	9	9	7
Adidas	36	36	22	10	-	13	8
Gillette	33	27	21	10	12	-	6
Arrid	34	24	23	9	11	9	-
Average	35	28	20	10	11	10	7
Predicted Duplication	35	29	17	10	10	9	7
Penetration	23	19	11	6	6	6	4
D	1.54						

While the same overall pattern of switching is apparent from the short term analysis in terms of the dominance of penetration in determining switching, more striking are the deviations shown in Table 6. For example, *Lynx* and *Adidas* had duplication levels that were higher than predicted, while *Sure*'s duplication with *Adidas* was much lower. In other words, fewer buyers than expected switched to *Sure*, while more than expected switched to *Lynx*. Other brands were more in line with the switching predicted by their penetrations. These deviations are striking when compared to the close fit between observed and predicted duplications in the shampoo category.

Table 6, Duplication of purchase, Short Term, Deodorant

% of buyers of...	<u>... who also bought.</u>						
	Sure	Lynx	Right Guard	Vaseline	Adidas	Gillette	Arrid
Sure	-	25	9	4	9	5	3
Lynx	13	-	7	9	5	1	4
Right Guard	11	25	-	10	11	2	3
Vaseline	13	31	18	-	9	3	10
Adidas	9	26	12	4	-	11	2
Gillette	11	26	9	3	12	-	4
Arrid	8	24	6	2	11	3	-
Average	11	26	10	5	10	4	4
Predicted Duplication	17	18	10	5	6	3	3
Penetration	25	28	15	8	9	5	4
D	0.66						

However, these deviations can be explained. If we look back to Figure 1 we see that in the last quarters—from which the two-purchase data were drawn, *Lynx* and *Adidas* were growing brands; we see now that their growth was driven by their ability to attract more than their share of switchers. *Sure* on the other hand, shrank because it attracted fewer switchers. Remember that the repeat rates for these brands were not out of line, so growth and decline of these brands was due to their attraction of switching customers.

Thus the short term switching measures are a useful indication of change in the marketplace—they show which brands are growing and which are shrinking and confirm that growth or decline stem from the relative attractiveness of the various brands, at a particular moment. If we were to look further at the market, we would probably find that this short-term attraction is due to some specific marketing intervention such as heavy promotion, price reductions and so on. Since these changes are only temporary, a cross section such as this may give slightly unusual results for individual brands, perhaps higher or lower than expected metrics reflecting the competitive cut and thrust of marketing, but without indicating a trend. Overall, the main patterns appear to hold firm, with variability between periods.

What can these analysis techniques offer to inform marketing strategy?

Our approach in this research was to observe patterns of buying behaviour in a variety of market categories from both the short and long term. In order to do this we tested replications of law-like generalisations in the data and established that both long and short term measures show the same generalized patterns. Beyond that, we can, from the long-term data address the issue of whether there are any exceptions to the general rule of market stability.

Our last finding concerns the exceptional brands in the long-term data, those that exhibited sustained growth or decline in market share. From over 140 brands in the six-year dataset, only nine grew by over one share point per year, and only two showed a decline of a similar order. Included in this total are product line extensions of the same brand (*Felix* cat food) in different packaging formats, tins and pouches. Over the period the tins were replaced by flexipacks and the decline in market share of one is compensated by an increase in the other. A similar exercise was undertaken for *Winalot* dog food. The market share changes are observed *within* these two

brands and so those results will be considered in a separate study; here we consider the six other dynamic brands.

Table 7. Double Jeopardy in brand share evolution

Brand	Market Share Change (Points)	Average Quarterly Purchase Frequency						Average Quarterly Penetration %					
		Year						Year					
		1	2	3	4	5	6	1	2	3	4	5	6
<i>Growing</i>													
Warburtons	+9	5.6	5.8	5.7	5.3	5.5	5.5	21	23	24	26	29	32
Country Life	+9	2.2	2.3	2.3	2.3	2.5	2.6	5	5	6	9	11	9
Kenco	+7	1.9	1.9	2.0	1.8	1.8	1.9	9	10	17	13	14	15
Flora	+7	3.1	3.0	3.1	3.0	3.0	3.1	24	26	27	27	27	27
Dove	+7	1.5	1.5	1.5	1.5	1.5	1.5	7	7	7	7	8	7
<i>Declining</i>													
Douwe Egbert	-7	1.6	1.5	1.6	1.6	1.6	1.8	4	2	2	2	2	2
Average		2.7	2.7	2.7	2.6	2.7	2.7	11	12	14	14	15	15
$w(1-b)$		2.3	2.3	2.3	2.2	2.3	2.3						

Source: Kantar Worldpanel

Table 7 presents for each growing or shrinking brand, a comparison of the two evolving key measures of performance, purchase frequency and penetration, as they develop over the six-year period. Only five brands grew substantially, increasing by between seven and nine market share points in large and valuable categories, while the sixth, *Douwe Egbert* declined by a similar amount. Using the average quarterly penetration and frequency measure for each year we can see that despite such major changes in share, for growing brands the loyalty metric (purchase frequency) barely moved, just rising slightly in the case of *Kenco* and *Country Life*. Across all the evolving brands the average purchase frequency remained almost constant. Average penetration on the other hand rose by 36%, a clear indication that change in market share depends far more on the number of buyers than it does on their loyalty. The relationship between penetration and purchase frequency is governed by the law of double jeopardy and can be represented approximately as a constant defined as $w(1 - b)$, so that for any brand in a category the measures can be predicted.

In order to test whether the law holds for dynamic brands, e.g. to ascertain if the relationship remains constant as share increases or decreases, we apply the statistic to the average measures

in the table. It can be seen that the resulting statistic remains steady despite the growth in penetration--even dynamic brands remain governed by the law. This finding is an important benchmark for marketers since it helps to guide the strategic choices they might make in order to grow their brands. For example, since growth comes about from the acquisition of more buyers, and those buyers tend to be occasional or light buyers, the marketing emphasis should be placed on tactics and strategies that reach as many potential customers as possible—in other words, those that will raise penetration.

5. Conclusion and further research

The intent of this paper was to demonstrate how developing and extending knowledge of the laws of marketing from the short to the long term will enable managers to design more effective marketing strategies. Despite the widespread perception that it is the role of the marketing manager to destabilise the equilibrium found in almost all frequently bought categories of goods by creating differential advantage, developing strongly held loyalty beliefs leading to repeat buying behaviour and so on, we have taken and supported the position that equilibrium is in fact the norm, and difficult to disturb. Despite the best efforts of marketing managers which at best may result in short term share gyrations, long term shares remain remarkably constant. The question then becomes whether growth of share is possible, and if so, what does it look like?

We have demonstrated that the underlying structure of brand buying can be revealed both by short and long term data sources, both of which show that brand loyalty and switching are dominated by how big the brand is. Our explanation is that choice for a specific consumer is mostly between what seem to him or her to be close substitutes. Otherwise there would hardly be a choice issue.

The finding that sales are far more driven by differences in how many customers a brand gets than by differences in their repeat-buying loyalty goes counter to the currently fashionable concern with loyalty and relationship marketing. The finding is clear for both stable and growing brands, and can also be seen in the loss of buyers as a brand declines.

That switching varies predominantly with market share is also already familiar and we show that it can be seen over both short and long term, at somewhat different levels, but in the same general DJ pattern. This is also in accord with previous studies including those dealing with price tiers, retail outlets and product variants or functionally different “stock-keeping-units” (SKUs) such as pack-sizes, flavours, and product-formats (see Fader and Hardie 1996, Singh & Ehrenberg, 2001).

It is apparent from the two cases presented in detail that even where a brand is highly differentiated, this does not appear to be a driver of growth. Buyers of *Head and Shoulders* or *Lynx* also bought competing brands almost exactly in line with expected norms. We could say that these brands are distinctive rather than differentiated (Sharp, 2010). This may account for their ability to maintain market share over extended periods, but it has not led to any “excess” loyalty and share growth.

Since market equilibrium persists into the strategic time frame, and underlying purchasing continues to follow Dirichlet norms even in evolution, strategic brand planning may become somewhat simpler. Nevertheless, these results need further generalisation.

In this research we have covered eighteen categories of FMCG brands, and discussed in detail two typical examples. Further research on more categories will help to generalize the findings. In addition, we plan to analyze non-FMCG categories as well as further extensions to this research. We will then seek to demonstrate that the findings are more widely applicable by examining data from different countries, including dynamic marketplaces such as India and China.

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