# An Empirical Investigation of Customer Defection & Acquisition Rates for Declining and Growing Pharmaceutical Brands

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## Abstract

Nearly all companies/brands lose and gain some customers each year. Do growing brands gain more new customers than they would if they were not growing, or does growth in the size of the customer base come more from getting better at retaining customers? Do dying brands lose more customers than they should, or do they fail to replace their lost customers? We examine one market (18 brands over nine years) and find that changes in market share, up or down, are associated with unusual acquisition rates, not retention rates. Growth and decline in size of the customer base can be entirely explained by changes in acquisition rates. This stark and unexpected finding has profound implications for how marketing actions affect customer acquisition and defection.

**Search Words:** Customer Defection, Churn, Growing/Declining Brands, Market Dynamics

## Introduction

Market share differences have been shown to be strongly related to differences in size of the customer base (Ehrenberg, Goodhardt and Barwise, 1990). Thus the ability to grow the market share of a brand is logically related to a brand's ability to retain existing customers and/or to acquire new ones. Many millions of dollars are spent annually on a variety of retention marketing activities aimed at preventing customers from leaving and sales initiatives to acquire new customers.

Therefore, it seems sensible to consider what happens to defection and acquisition rates when brands change market share. Investigation may provide insight into whether retention or acquisition strategies more effectively lead to increases in market share or prevent decline. This paper reports on how brands with changing market shares deviate from normal levels of defection and acquisition.

In spite of the substantial literature pertaining to customer retention, there is little in the way of empirically grounded knowledge concerning defection and acquisition rates. Recently Colombo (Colombo, Ehrenberg and Sabavala, 2000) reported that retention/defection rates for cars does not show much difference between brands. Though retention rates are somewhat higher for larger car brands – a classic Double Jeopardy pattern (Ehrenberg, Goodhardt and Barwise, 1990) that should logically be present if the market is unpartitioned and stationary (Sharp, Riebe and Dawes, 2001). This knowledge gives us a benchmark from which to study market dynamics.

## Methodology

### A Dynamic Market

In order to empirically examine how brands grow or decline we needed longitudinal individual purchase data which exhibited brand share variability. Most buyer panels (which provide the necessary individual level data) measure mature markets over the short to medium

term which are typically in a state of equilibrium with brand shares moving very little (Goodhardt, Ehrenberg and Chatfield, 1984) except for very short lived blips/wobble. While most markets are stable, at least in the short to medium term, occasionally brands do grow and decline in market share, and marketers are exceedingly interested in this movement.

We searched for a data set where substantial market share change did occur. Our data covers nine years of anti-depressant prescribing (January 1989 to December 1998) by 102 UK General Practitioners. The anti-depressant category over this period saw substantial change as a new generation of drugs grew to dominate the market. Our data is a continuous panel recording choices of drug by each doctor on each decision occasion. For this market, the 18 biggest brands in the market were used for analysis and these 18 main brands captured over 90% of all prescribing by doctors.

In this market, over the nine years, nine brands changed (grew or declined) in terms of the numbers of doctors for whom they were the favoured brand.

As described by Stern and Hammond (1997), doctors' prescribing patterns are somewhat different from consumption behaviour for FMCG products. Despite these differences, work by Stern and Hammond has shown that this market shows the same repeat-buying patterns as consumer markets. Consequently, despite the apparent specialised nature of the data, the results should generalise and or at least provide some hypotheses for testing in other markets.

**Classifying Customers as Having Defected (or not)**

While the literature relating to brand switching seems relatively extensive, much of it does not concern actual defection and acquisition, but rather the shuffling around within repertoires (a notable exception is East and Hammond (1996)). (It should be noted that all of the drugs examined in this paper are in the same category and so government subsidising would be standard across the market (ie there are not some drug brands that are subsidised and others that are not)). In repertoire markets most 'switching' occurs with no changes to the customer's underlying propensities to buy either brand. In contrast we are concerned with substantial changes in purchase propensities, ie. when a customer either upgrades or downgrades a brand in their repertoire, or in subscription markets (where customers typically only use one brand), where customers change brands (Reichheld and Sasser, 1990, Reichheld, 1996).

Our data concerns a repertoire market where the average doctor prescribes a number of brands each year. In order to determine whether or not an individual has defected from, or been acquired by a brand, we wished to classify each individual doctor as being a customer of one single brand. Considering change in the behaviourally favoured brand has been used in other studies, with first brand loyalty being commonly used as a measure of loyalty in repertoire markets (East, 2000, East and Harris, Lomax and Wilson, 1997, East, Harris, Wilson and Hammond, 1995, Hammond and East, 1996, Hammond, East and Ehrenberg, 1996). Adopting this approach, we classified customers according to their behaviourally favoured brand and then examined changes in this favoured brand over time. Where doctors used two brands equally over a year, they were eliminated from the data for that year (a maximum of three in any one year out of the 101 doctors in the study).

**Churn Patterns**

In a market that is stable we would expect that if a doctor whose favoured brand in the first year was brand A, switched to brand B in the second year, then another doctor whose

favourite brand in the first year was brand B, would also switch to brand A. Any defection that did occur would be counteracted by customer acquisition.

For a brand with a growing or shrinking customer base then logically acquisition and defection would not be equal. Which raises the following questions:

> If a brand's customer base grows, then acquisition must exceed customer defection. Is this because defection drops or because acquisition rises? Or do both occur?
>
> If a brand declines, is it because it experiences unusually high customer defection or does it fail to acquire enough customers? Or does it fall victim to both high defection and failure to acquire?

Intuitively we would expect brand growth (or decline) to be reflected in both defection and acquisition, for example a feature improvement (e.g. a price reduction) would encourage some to adopt the brand while simultaneously discouraging existing customers from leaving. However, this is not what we discover.

**Expected Churn Rates**

Churn rates vary between brands of differing sizes. Even though larger brands churn a smaller proportion of their customer base (Sharp, Riebe and Dawes 2001) they churn more absolute customers (a brand with only 10 customers can lose no more than 10). In order to have benchmark we calculated a theoretical level of both defection and acquisition for defection data using a churn coefficient. Theoretical levels of both defection and acquisition (we would expect these to be equal in a stationary market), can be calculated thus:

$$\textbf{Churn Coefficient (CC)} = \frac{\text{\# of defections or acquisitions}}{\text{Proportion Favoured}}$$

$$\textbf{Proportion Favoured} = \frac{\text{\# of doctors with the brand as their favoured brand}}{\text{\# of doctors in the population}}$$

$$\textbf{Average CC} = \frac{\text{All CCs for brands in market in either year}}{\text{\# of brands in market in either year}}$$

**Penetration** = # of doctors giving brand as favourite in a year

**Predicted Defection/Acquisition for any brand** = Average CC x Penetration

These calculations are similar to those used in the shorthand equation for the Duplication of Purchase law (more correctly estimated by the Dirichlet Model) but have been transformed for use in relation to defection data. They provide a churn benchmark, which we calculated for each brand each year (given its size at the start of the year and the overall market churn that year).

We analysed nine years of data and 18 brands, this gave us 144 observations (we analysed this movement year-to-year, giving 18 * 8 observations). In this paper we report only the averages across the years for the nine brands that grew or declined. In all of these, the brand's change in market share was due entirely to an unusual rate of acquisition. For the other eight stationary brands, which each year acquired approximately as many customers as they lost, their rates of defection and acquisition were typically exactly as predicted by our churn calculation.

Table 1 shows the average deviation from the expected churn rate (given the amount of churn

in the market and the size of each brand) for each brand across the nine year period. The five brands which grew their customer base are listed first followed by the four whose customer base shrunk. Within these divisions the brands are ranked in size order.

To explain the table, brand G is a large brand and each year it gains and loses customers. On average, given its size at the start of each year and the general level of churn in the market it is expected to lose five doctors (customers) and gain five doctors if it were stationary. However, over the nine years it grew its customer base (a net gain of 16 doctors from year 1 to year 9). It lost exactly the amount of customers it should (about five per year) but gained more than it should - each year it gained about eight, which is three more than expected.

**Table 1 Deviations from expected churn rates**

| **Brand** | **Change** | **Predicted Churn (lose/gain)** (annual average) | **Defection** (average annual) | **Deviation from predicted defection** (annual average) | **Acquisition** (annual average) | **Deviation from predicted acquisition** (annual average) |
|---|---|---|---|---|---|---|
| G | Growth | 5 | 5 | 0 | 7 | +2 |
| N | growth | 4 | 4 | 0 | 8 | +4 |
| J | growth | 3 | 4 | +1 | 5 | +2 |
| O | growth | 1 | 1 | 0 | 2 | +1 |
| C | growth | >1 | >1 | 0 | 2 | +2 |
| D | decline | 15 | 11 | -4 | 9 | -6 |
| A | decline | 4 | 4 | 0 | 3 | -1 |
| F | decline | 2 | 2 | 0 | 1 | -1 |
| M | decline | 1 | 1 | 0 | 0.5 | -0.5 |

Brands N and D are two of the greatest movers, N grows to be a large brand, while D begins as market leader and declines substantially. N's growth came entirely from unusually high acquisition (double) while its annual defection rate was normal – in spite of its rapid growth it still lost customers each year. Brand D is unusual in that (like one other brand – J) its rate of defection was deviated from the predicted rate. In spite of its decline its defection rate was lower than expected. So defection does not explain its decline, it has a net loss of customers because of a substantial lack of acquisition (only around half the rate it should have) which was sufficient to counter its favourable defection rate. Brand J, the one other to have a deviation from its expected rate of defection is a similar story. Here the brand grew, and its slightly unusual defection rate is actually higher than expected, so again it does nothing to explain its sales trend – which is entirely due to acquiring more customers than required to maintain its share.

## Implications

If these results generalise then brands grow by having an unusually high rate of acquisition and normal rate of defection, so they acquire more customers than they lose. Likewise, dying

brands in fact lose about what we would expect them to given their size. Their downfall is their rate of acquisition, they do not attract adequate numbers of new customers to replace those who are leaving. Such a finding has significant implications for how marketing works.

All brands lose customers, and seem to always lose customers in line with their market share. This does not necessarily mean that only focussing on acquisition will ensure success, just that growth does not seem to occur without gains in acquisition rates, whereas defection rates seem to have nothing to do with growth (or decline).

Our finding suggests that defection is largely independent of what marketers do – or at least is not much affected by those things that make the brand grow or decline. Perhaps customer retention/defection is due to a wide variety of events independent of the brand's marketing mix or the efforts of competitors. Events such as the customer changing jobs, moving house, having financial difficulties etc. And also, of course, having a bad service experience, but perhaps the chance of this occurring is equally distributed across the brands. It is just an occasional random event that all brands suffer from to equal degrees. In the market we studied perhaps the sort of things that cause defection are a doctor having a run of patients for whom their favoured drug might have unwanted side-effects (eg, three pregnant patients in a row). An event which forces them to reconsider and adjust their prescribing habits. At which time they are available for acquisition (and the past/current efforts of pharmaceutical representatives pay off).

Our finding suggests that marketing efforts have little effect in actually 'pulling' customers away from other brands. Instead good marketing means a brand wins more than its fair share of those that defect. Thus marketing actions that focus on acquisition, rather than reducing defection are likely to have greater impact on the success of the brand.

These surprising findings are important in terms of our understanding of how brands grow and decline, but are based on one set of data. Further studies are needed to replicate and extend these findings.

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