Evaluating the Impact of a Loyalty Program on Brand Loyalty

Can loyalty programs produce deviations from established 'Dirichlet' patterns of repeat-purchase?

Byron Malcolm Sharp B.Com, M.Bus(Research)

Submission of thesis for Doctor of Philosophy

Graduate School of Management

The University of Adelaide

Supervisor: Dr Fred Robins

April 1999
For Anne

Acknowledgments:

I owe thanks to the following people and organisations:

Fred Robins for supervising this PhD. Thanks for your comments, patience and courtesy.

Thanks to all my colleagues at the Marketing Science Centre including the interviewers who collected the data so well. Especially Anne Sharp and David Corkindale who worked to set up this project. A very special thanks to Anne for ‘doing battle’ with the BUYER software.

Thanks to staff at Moreland Direct Marketing for coordinating the initial funding for the Australian panel and listening to my methodological ideas—Mark Moreland, Caroline Rowe, and Alan Hale.

BP, ANZ, CLEAR Communications for providing funding support for this project.

The Australian Research Council (ARC) for providing funding support for this project.

The Marketing Science Centre, University of South Australia for providing funding support for this project.

Mark Uncles for his advice on running panels.

And the anonymous referees for supporting the ARC grant application.
NAME: Byron Sharp  COURSE: PhD

I give consent to this copy of my thesis, when deposited in the University Libraries, being available for photocopying and loan.

SIGNATURE:  DATE: 7/2/2000

This thesis contains no material which has been accepted for the award of any other degree and to the best of my knowledge this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.
Evaluating the Impact of a Loyalty Program on Brand Loyalty: Can loyalty programs produce deviations from established ‘Dirichlet’ patterns of repeat-purchase?

Abstract

This thesis evaluates an intervention in the marketplace. It examines the impact of a loyalty program on brand loyalty in a series of seven studies/replications across two countries and five product categories.

The primary purpose, in terms of knowledge generation, is to provide an indication of the expected effects of a loyalty program on repeat-buying patterns.

The research reported in this thesis adopted a novel approach to assessing this effect. Panels of respondents were set up close after the introduction of the loyalty program and weekly purchasing data were collected from individual households. This repeat-purchase information was used to calculate the Dirichlet model of repeat-purchase which provides norms for repeat purchase statistics by brand. Dirichlet provides stationary market norms, that is, it describes how the market should normally look and predictions of how it will look if purchase patterns are not disrupted, say by a successful marketing intervention. By comparing Dirichlet predictions of key repeat-purchase statistics with the same statistics based on the observed data I sought to identify and quantify the impact of the loyalty program intervention in terms of bringing about “excess” purchase loyalty.

Loyalty programs are designed in a way that appeals primarily to existing customers, encouraging them to increase their purchase loyalty. A loyalty program should, therefore, not have the usual disproportionate effect on a brand’s market penetration (number of customers) over its effect on purchase loyalty. Indeed a loyalty programs would rather be expected to have a disproportionate effect on purchase loyalty and no, or little, effect on penetration. This would result in deviations from Dirichlet predictions in terms of the
Dirichlet model underpredicting the brand’s level of purchase loyalty and overpredicting its level of penetration.

A panel was set up to gather information on the impact of the launch of the FlyBuys loyalty program in Australia. It covered four product categories: retail fuel, supermarkets, department stores, and credit cards. A similar panel was established in New Zealand to evaluate the impact of FlyBuys in that market, this panel covered retail fuel, credit cards and home telecommunications (toll call provider).

Overall the methodology appeared to work well; it appeared to be able to identify the hypothesised marketplace changes when they occurred. It did so in spite of the changes being quite subtle particularly in terms of market share shifts. It did so very early in the loyalty program launch using quite a limited period of data collection. It did so in spite of simultaneous other market interventions, and it provided some tests of causality.

In the three ‘repertoire’ categories in Australia (retail fuel, supermarkets, and department stores) the loyalty program was associated with mild and inconsistent ‘excess loyalty’ effects. Overall this appears to be evidence of an effect, though very weak, on repeat-buying patterns. In the one ‘subscription’ category, credit cards, where brand switching or even changes in share of category requirements would be especially difficult to achieve, there was evidence of the loyalty program instead increasing the amount of usage by existing customers. The same sort of pattern was observed in the New Zealand credit card category.

In the New Zealand retail fuel category, where there was virtually no brand level differentiation, the loyalty program produced a more obvious excess loyalty effect. A simultaneous sales promotion for another brand also delivered a small degree of excess loyalty though far less pronounced.

A summary of key findings follows:

1. This research has supported the use of Dirichlet norms to assess the impact of marketplace interventions, or at least loyalty initiatives. The comparisons against Dirichlet predictions seemed to work as expected in being able to show the impact, or lack of impact, of these marketing interventions. The thesis provides a methodological and analytical framework for further studies of this kind.
2. The research has provided significant support for the contention that, when loyalty programs successfully impact on buying behaviour, they bring about excess loyalty rather than 'normal' patterns of market share gain.

3. Loyalty programs seem, at best, to have a weak impact on the market. They produce a small or even no degree of excess loyalty.

4. Loyalty programs do not appear to attract mainly heavy buyers of the category, but rather attract existing buyers of the loyalty program brand(s); both heavy and light buyers. Most of these customers will receive loyalty program points for undertaking no change in buying behaviour. Even if they do change behaviour they will still be given points for a substantial amount of buying that they would have undertaken anyway regardless of the loyalty program.

5. Loyalty programs are therefore best thought of as highly defensive, and, in line with their name, they are for increasing the loyalty of existing customers rather than winning new customers.

6. The research supports those who have argued that changing fundamental repeat-purchase patterns is very difficult. Brands typically show only small differences in purchase loyalty. The findings in this thesis show that this remains the case, even when some degree of excess loyalty has been achieved by loyalty program brands. Loyalty programs do not seem to induce market partitioning and they certainly do not turn repertoire categories into subscription categories.

7. The research has supported the argument that loyalty programs are unlikely to have a substantial effect on market share, and that even if they impact on repeat buying behaviour and bring about excess loyalty they may not produce substantial market share movement. The argument that market share or sales gains are an inappropriate way to assess loyalty program performance is supported by the empirical evidence in this thesis.

8. Loyalty programs appear able to stimulate increased usage in subscription markets. As expected, there was no evidence that they could encourage brand switching in subscription markets. In repertoire markets, loyalty programs appear to have little or no ability to induce brand switching, nor induce other substantial changes in repertoire weights.
9. A lack of brand level differentiation (including price differentiation) seems strongly related to increased loyalty program impact. Markets that are promotion sensitive appear to be loyalty program sensitive as well. The magnitude of the effect observed in such conditions was approximately one extra repeat buy every 10 repeat buys. This is probably the upper bound of loyalty program impact on purchase loyalty.

10. The research also provides some evidence that promotions, rather surprisingly, also create excess loyalty rather than excess penetration or the normal ratio of gains in penetration and average purchase frequency. This provides further support for the contention that promotions are taken up largely by existing customers (Ehrenberg et al. 1994). However, they do appear to have a more 'normal' impact on purchase patterns than loyalty programs. That is, what was observed suggested a reasonable, though less than expected, degree of penetration growth to accompany purchase loyalty increases.

11. Loyalty programs do appear capable of insulating a proportion of a brand's customers from the 'temptations' of competitor promotions. This raises the issue of whether or not loyalty programs bring about increases in differentiation loyalty (decreases in vulnerability) perhaps even when they do not cause increases in purchase loyalty. This research was not designed to address this issue, which is an important limitation of this thesis and an opportunity for future research.

1 Though the panels did not really run for sufficient time to assess this properly.
CHAPTER FIVE – DESCRIPTION OF THE LOYALTY PROGRAM AND THE PRODUCT CATEGORIES

- FLYBUYS
  - Australian Launch
  - New Zealand Launch
  - Participants Stated Objectives
  - Australian Department Store Market
  - Australian Grocery Market
  - Australian Retail Petrol Market
  - Australian Credit Cards
  - New Zealand Credit Card Market
  - New Zealand Home Telecommunications
  - New Zealand Retail Petrol Market

CHAPTER SIX – AUSTRALIAN PANEL RESULTS

- DATA COLLECTION: THE PANELS
- ANALYSIS
- DEVIATIONS AND MODEL FIT
- THE RESULTS
  - Awareness & Loyalty Program Uptake
  - Changes in Loyalty Patterns
  - Department Store Chains
    - Results for FlyBuys members only
    - Results for the total department store market
    - Loyalty Program Induced Partitioning
    - Summary Australian Department Stores
  - Australian Supermarkets
    - FlyBuys Members Only
    - Total market results
    - Loyalty program induced partitioning
    - Summary - supermarkets
  - Retail Fuel
    - FlyBuys members only results
    - Total market results
    - Summary
  - Credit Cards
    - FlyBuys members only results
    - Total market results
  - Conclusion

CHAPTER SEVEN: NEW ZEALAND RESULTS

- THE PANEL
- MARKET SHARE CHANGES
  - The impact of the sales promotion
- RESULTS
  - Credit Cards
  - Marketshare changes
  - Loyalty findings: FlyBuys members only results
  - Total market results
- HOME TELECOMMUNICATIONS
  - Marketshare Changes
  - Loyalty findings: FlyBuys members results only
  - Total Market Results
- RESULTS RETAIL FUEL
  - The Marketing Interventions
CHAPTER EIGHT - SUMMARY OF MAIN FINDINGS & FUTURE RESEARCH SUGGESTIONS

SPECIFIC RESEARCH FINDINGS
MANAGERIAL IMPLICATIONS
LIMITATIONS AND FUTURE RESEARCH

REFERENCES

APPENDIX ONE

THERE ARE TWO TYPES OF REPEAT PURCHASE MARKETS

ABSTRACT
INTRODUCTION
WHAT DOES A REPERTOIRE MARKET LOOK LIKE?
WHAT DOES A SUBSCRIPTION MARKET LOOK LIKE?
TIME, INTER-PURCHASE INTERVALS, AND PROPENSITY TO BUY
FURTHER IMPLICATIONS
APPENDIX REFERENCES
### Some technical terms used in this thesis

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dirichlet</td>
<td>The NBD-Dirichlet model of repeat-purchase.</td>
</tr>
<tr>
<td>Duplication of Purchase Law</td>
<td>That brands share customers with each other in line with their respective marketshares.</td>
</tr>
<tr>
<td>Purchase loyalty</td>
<td>The degree of purchasing that customers devote to a particular brand.</td>
</tr>
<tr>
<td>Repertoire market</td>
<td>A repeat-purchase market where customers tend to buy from a repertoire of brands so that they typically show divided loyalty, i.e. few customers are solely loyal. See appendix one.</td>
</tr>
<tr>
<td>SCR</td>
<td>Share of category requirements. The amount of category purchases that the average customer devotes to the brand. A measure of purchase loyalty.</td>
</tr>
<tr>
<td>Solely loyal</td>
<td>Buying only one brand from the category.</td>
</tr>
<tr>
<td>Stationary market</td>
<td>Where no brand is experiencing a substantial (e.g. more than 5% points) gain or loss in marketshare. This turns out to be a characteristic of most mature markets most of the time.</td>
</tr>
<tr>
<td>Subscription market</td>
<td>A repeat-purchase market where customers tend to commit all their purchasing to one brand, i.e. most customers are solely loyal. See appendix one.</td>
</tr>
</tbody>
</table>
Chapter One - Introduction

This thesis evaluates an intervention in the marketplace. It examines the impact of a loyalty program in a series of studies across two countries and five product categories. This is useful because little is known about the marketplace impact of marketing interventions, that is, there is little in the way of generalised knowledge about changes in buyer behaviour and brand performance. This is in spite of the tremendous growth in marketing research in the latter part of this century. A number of potential reasons for this lack of progress in an area of vital interest to marketing managers may be suggested:

- A considerable amount of effort has instead been devoted to elaborate theory construction and development of more and more theoretical constructs, along with essentialist debates concerning which is the appropriate conceptualisation for a particular term eg brand loyalty, indeed this is particularly true of the term brand loyalty.

- Vast amounts of effort have also been expended on developing highly sophisticated measurement and modelling techniques. While this work has brought substantial improvements in reliability and research rigour, it has also gobbled massive amounts of resources, and sometimes taken a statistical rather than scientific approach (Ehrenberg and Bound 1993, Ehrenberg 1990, Ehrenberg 1963). This increase in methodological sophistication has unfortunately not been accompanied by an increase in generalisable knowledge.

- There has been debate regarding an appropriate epistemological basis for marketing. Particularly there has been a degree of doubt concerning whether marketing can make normal scientific progress. This doubt, or strong belief that generalised knowledge is not possible, has stopped many marketing scholars from looking for generalised findings in spite of the considerable progress made by the few who have sought such knowledge.

---

2 This trend of declining research productivity, that is, more articles being published but without a commensurate rise in knowledge is apparently not confined to marketing. It has been called the Iron Law of Important Papers, ie that the proportion of important papers keeps dwindling (see Armstrong 1998).
There has been almost an obsession with cognitive processes of consumers and work in this area has come at the expense of research trying to relate marketplace change to marketing interventions and changes in consumers' environments (Foxall 1996). While cognitivist researchers have claimed that their work will lead to an understanding of the underlying mechanisms of marketplace change (a) not much has been achieved in this respect and (b) this seems a case of putting the horse before the cart – once we know what marketplace changes occur due to particular marketing interventions then we can seek to identify individual level cognitive explanations, should we wish to.

And there has been a paucity of work seeking to document marketplace change so that empirical generalisations can be established concerning what actually happens in markets. While considerable descriptive market research is conducted these data are mostly held as confidential (Peckham 1963, Peckham 1981 are good, though rare, examples of the value in publishing descriptive market research). Systematically documenting marketplace changes seems a necessary first step in developing theories that explain the impact of marketing interventions. Without some benchmarks it is difficult to assess marketing interventions.

This is a personal assessment of the causes of the present state of knowledge, but most will agree that little progress has been made in this area. The rate of progress may or may not be surprising depending on ones' point of view about what is reasonable to expect. But understanding and predicting the impact of typical marketing interventions is probably one of the areas of very great importance to practicing marketers. Marketers need to have some guidelines in terms of expected effects of their marketplace interventions in order to formulate marketing strategy to meet particular objectives. This knowledge of expected effects is also required in order for them to be able to develop approaches to evaluate their specific marketing programs.

This is, nevertheless, a difficult area in which to develop knowledge. It can be difficult to obtain data concerning marketing interventions and marketplace change (though great strides have been made in the last 50 years), and it is difficult to develop reasonable and realistic tests of causal relationships.

This thesis makes a small contribution to this important area. It shows how existing empirical generalisations, and a comprehensive model which captures these, can be used to document the marketplace change brought about by specific marketing interventions. In this case the intervention is a
loyalty program, a marketing effort which has leapt in popularity and usage this decade, throughout the developed world.

This thesis describes empirical studies that used known empirical generalisations concerning the nature of repeat-purchase patterns to evaluate a loyalty program. I argue that loyalty programs represent a distinctive type of, highly defensive, as opposed to offensive, marketing intervention and therefore have the capacity to bring about distinctive marketplace changes. This change is observed to varying degrees in the product categories studied in this thesis across varying market conditions.

**Purpose of this thesis**

The purpose of this research is to evaluate the impact of a loyalty program on brand loyalty. The primary purpose in terms of knowledge generation is to provide an indication of what is reasonable to expect of a loyalty program in terms of impact on repeat-buying patterns.

The management problem that, in part, stimulated this research program was to be able to somehow evaluate the longer-term impact of a loyalty program soon after its launch. Competitors to the companies involved in launching ‘FlyBuys’ (the loyalty program) were fearful that the program might have a loyalty effect, ‘locking in’ part of the market. If this were true then the last firms to launch loyalty programs into the market might be in an unfortunate position. Thus, it was seen as something of a race to work out whether or not FlyBuys was having an effect on the marketplace, and to determine whether that effect was indeed a loyalty effect that would result in customers being locked in for a fairly long period of time. Ideally the competitor firms wished to see any loyalty impact before FlyBuys had diffused far through the population, that is, before it had the chance of being able to lock in a substantial portion of the market.

It was anticipated that FlyBuys would have to have some impact on the market given the very substantial marketing expenditure which was known would accompany its launch, but firms wanted to be able to discern whether the attention that customers paid to FlyBuys would lead to them joining the program and altering their purchasing behaviours. Just as firms were apprehensive about being ‘the last to know’ that the market had fundamentally changed, they were also cautious about getting stuck with an expensive but ineffectual loyalty program. Most firms had undertaken a great deal of study into potential loyalty programs, and a number had programs ‘ready to go’ if they deemed they needed them. They were very
aware of the substantial costs involved in launching such a program. It was expected that FlyBuys’ owners would issue positive data concerning the effectiveness of the program, and it was expected that many firms would undertake poor research and might reach incorrect conclusions. Likewise many managers would simply copy their competitors (many marketing managers reported receiving pressure from their general managers concerning why they did not also have a loyalty program). So there was also an advantage, if FlyBuys were found not to be having a loyalty effect, of being able to safely sit back and let competitors decimate their marketing budgets on an ineffectual loyalty program.

**Methodology**

This research adopted a novel approach to assessing the impact of a loyalty program on brand loyalty. Panels were set up soon after the introduction of the loyalty program and weekly purchasing data were collected from individual households. This repeat-purchase information was used to calculate the Dirichlet model of repeat-purchase which provides norms for repeat-purchase statistics by brand. The Dirichlet model provides stationary market norms, that is, it describes how the market should normally look and predictions of how it will look if it is not disrupted by a successful marketing intervention. By comparing Dirichlet predictions of key repeat-purchase statistics with the same statistics based on the observed data I sought to identify and quantify the impact of the loyalty program intervention in terms of bringing about “excess” purchase loyalty. Loyalty programs are designed in a way that appeals primarily to existing customers, encouraging them to increase their purchase loyalty. Therefore, loyalty programs should not have the usual disproportionate effect on a brand’s market penetration (number of customers) over its effect on purchase loyalty. Indeed it would rather be expected to have a disproportionate effect on purchase loyalty and no or little effect on penetration. This would result in deviations from Dirichlet predictions in terms of the Dirichlet model underpredicting the brand’s level of purchase loyalty and overpredicting its level of penetration.

The panel that was set up to gather information on the impact of FlyBuys launch in Australia covered five product categories, retail fuel, supermarkets, department stores, and credit cards. A similar panel was

---

3 For example, comparing the loyalty or expenditure levels of FlyBuys members with non-members which, due to a self selection effect, would show higher loyalty amongst the FlyBuys group. Another poor approach was to simply evaluate the attitudes of FlyBuys members towards the program.
established in New Zealand to evaluate the impact of FlyBuys in that market, this panel covered the retail fuel, credit cards and home telecommunications.

**Main Findings**

Overall the methodology appeared to work well. It appeared able to identify the hypothesised marketplace changes when they occurred. It did so in spite of the changes being quite subtle (particularly in terms of marketshare shifts). It did so very early in the loyalty program launch using quite a limited period of data collection. It did so in spite of simultaneous other market interventions, and it provided some tests of causality.

In the three repertoire categories in Australia (retail fuel, supermarkets, and department stores) the loyalty program produced mild and inconsistent ‘excess loyalty’ effects. Overall, this appears to be evidence of an effect, though very weak, on repeat-buying patterns. In the one subscription category, credit cards, where brand switching or even changes in share of category requirements would be especially difficult to achieve, there was evidence of the loyalty program instead increasing the amount of usage by existing customers. The same sort of pattern was observed in the New Zealand credit card category.

In the New Zealand retail fuel category, where there was virtually no brand level differentiation, the loyalty program produced a more obvious excess loyalty effect. A simultaneous sales promotion also delivered a small degree of excess loyalty though far less pronounced and with a larger effect on marketshare.

In summary:

1. This research has supported the use of Dirichlet norms to assess the impact of marketplace interventions, at least loyalty initiatives. The comparisons against Dirichlet predictions seemed to work as expected in being able to show the impact or lack of impact of marketing interventions. The thesis provides a methodological and analytical framework for further studies employing this approach.
2. The research has provided significant support for the contention that when loyalty programs successfully impact on buying behaviour, they bring about excess loyalty rather than 'normal' patterns of market share gain.

3. Loyalty programs seem to, at best, have had a weak impact on the market. They produce a small or no degree of excess loyalty.

4. Loyalty programs do not appear to attract heavy buyers of the category, but rather attract existing buyers of the loyalty program brand(s). Most of these customers will receive loyalty program points for undertaking no change in buying behaviour. Even if they do change behaviour they will still be given points for a substantial amount of buying that they would have done anyway regardless of the loyalty program. Loyalty programs are therefore best thought of as highly defensive, and, in line with their name, they are for increasing the loyalty of existing customers rather than winning new customers.

5. The research supports those who have argued that changing fundamental repeat-purchase patterns is very difficult. Brands typically show only small differences in purchase loyalty. The findings in this thesis show that this remains the case, even when some degree of excess loyalty has been achieved. They do not seem to induce market partitioning and they certainly do not turn repertoire categories into subscription categories.

6. The research has supported the argument that loyalty programs are unlikely to have a substantial effect on market share, and that even if they impact on repeat-buying behaviour and bring about excess loyalty they may not produce substantial market share movement. The argument that market share or sales gains are an inappropriate way to assess loyalty program performance is supported by the empirical evidence in this thesis.

7. Loyalty programs are therefore best thought of as highly defensive, and in line with their name they are for increasing the loyalty of existing customers rather than winning new customers.

8. Loyalty programs appear able to stimulate increased usage in subscription markets. There was no evidence that they could encourage brand switching in subscription markets. They appear to have
little or no ability to induce brand switching, and even changes in repertoire weights (i.e., increase share of category requirements), in repertoire markets.

9. A lack of brand differentiation (including price differentiation) seems strongly related to increased loyalty program impact. Markets that are promotion sensitive appear to be loyalty program sensitive as well.

10. The research provided some evidence that promotions, rather surprisingly, also create excess loyalty rather than excess penetration or the normal ratio of gains in penetration and average purchase frequency. This provides further support for the contention that promotions are taken up largely by existing customers (Ehrenberg et al. 1994). However, they do appear to have a more 'normal' impact on purchase patterns than loyalty programs. There was a reasonable, though less than expected, degree of penetration growth to accompany purchase loyalty increases.

11. Loyalty programs do appear to be capable of insulating a proportion of a brand's customers from the 'temptations' of competitor promotions. This raises the issue of whether or not loyalty programs bring about increases in differentiation loyalty (decreases in vulnerability) perhaps even when they do not cause increases in purchase loyalty. This research was not designed to address this issue, which is an important limitation of this thesis and an opportunity for future research.

**Organisation of the Thesis**

The next chapter of this thesis discusses loyalty research in general which is the research stream most relevant to this research. It discusses both concepts and measures of loyalty.

The third chapter discusses loyalty programs in general and the small amount of literature concerning their likely effects.

Chapter four provides a methodological overview, it describes the relevant empirical generalisations concerning repeat-purchase patterns and discusses the likely impact of a loyalty program on these patterns. It introduces and describes the Dirichlet model which captures these empirical generalisations
and explains the methodology of using Dirichlet predictions to identify excess loyalty. Finally, this chapter describes the in-built replication approach used in this thesis. It presents the benefits of replication studies and discusses the particular multiple study design used in this research.

Chapter five gives a summary of the FlyBuys loyalty program and how it launched into Australia and later into New Zealand. It provides background information on each of the product categories which were studied and how the replications differed from one another. This is necessary information in order to understand the degree and nature of generalisation revealed by the studies.

Chapters six and seven present the analyses and results for the Australian and New Zealand studies. Rather than only presenting results, these chapters also contain discussion of the results and some background material. This unorthodox presentation approach is employed because of the large number (7) of studies.

Chapter eight provides a summary of the overall findings, provides some recommendations for marketing practice, discusses the limitations of the research, and makes suggestions for future research.
Chapter Two — Conceptualising Brand Loyalty

Brand loyalty concepts — The preliminary interviews conducted for this study revealed widespread differences of opinion and substantial confusion about the nature and significance of brand loyalty behavior.

(Cunningham 1956)

This chapter provides a brief overview of the literature on loyalty conceptualisation and measurement. In doing so it makes a distinction between three different loyalty concepts: (1) attitudinal loyalty, (2) purchase or share loyalty, and (3) vulnerability or differentiation loyalty. This thesis is concerned with loyalty program impact on purchase/share loyalty.

Introduction

Loyal behaviour has been of considerable interest to marketing scholars and practitioners for some time. This is not surprising, because, of all buying behaviours, loyalty seems most central, given that marketers strive to gain and retain custom. It seems reasonable to assume that marketers are very interested in making their customers buy more and for longer, and making competitors’ customers buy less or switch.

A number of reasons have been put forward to support the importance of loyalty:

1. Most firms are interested in selling with the greatest possible economies, and there is a popular belief that customers who exhibit loyalty reduce the marketing costs of doing business (Danenberg and Sharp 1996). Positive word of mouth, brought about by loyalty, is seen as just one possible mechanism for enabling a firm to save on marketing costs (Jones and Sasser 1995). Another is that loyalty reduces total acquisition costs.

---

4 This chapter is in part based on (Rundle-Thiele et al. 1998, Sharp et al. 1997b).
2. Brand extension, an increasingly preferred vehicle for new product launches, is an attempt, in part, to exploit the loyalty to the parent brand (Hammond et al. 1996a) and thereby lower the risk of new product failure.

3. Loyalty rates have been shown to increase with market share, and market share, in turn, has been shown to be associated with higher rates of return on investment (Buzzell et al. 1975, Buzzell and Gale 1987).

4. The double jeopardy phenomenon (Ehrenberg et al. 1990) suggests that brands that seek to improve their market share have to be successful both in getting new brand users and in increasing their repeat-purchase rates.

5. Profitability has been claimed to be strongly linked to the degree of loyalty of a firm's customer base (Reichheld and Sasser 1990, Reichheld 1993, Reichheld 1996a, Reichheld 1996b), although these claims have not been exposed to empirical testing.

**Loyalty Research — Measures and Concepts**

Given the apparent importance of loyalty there has been a recent resurgence of both practitioner and academic interest in loyalty after an apparent lull in the 1980s. A range of new research has emerged (see special edition of the International Journal of Research in Marketing 1997 Vol.14, No.5) with no doubt more to follow. In particular, loyalty is increasingly being used as a dependent variable in studies of satisfaction, service quality and studies of marketing interventions. The NBD and Dirichlet models of repeat-purchase stand out as being the great scientific achievements in the loyalty field (these are discussed in chapter four and so the research associated with developing these models is not described here).

Early discussions on brand loyalty centred on the growing trend for brand competition and whether or not it was worthwhile for marketers to seek to encourage customers to prefer a particular brand. This apparently did not last long, at least in this century; it was soon accepted marketing doctrine that a fundamental marketing goal was to stimulate strong brand preference (including presumably dislike of other brands).

Academic research seeking to define loyalty and to describe the degree and nature of loyalty in markets began quite early this century (see Copeland 1923) when a distinction was made between
what might today be called ‘sole brand loyalty’ and other degrees of loyal behaviour. Later, as data became available on customers’ buying histories, scholars attempted to uncover the degree of loyalty that actually existed in markets (eg Cunningham 1956). This was an obvious first step towards developing theories that explain and predict different degrees of loyalty, its causes and consequences.

Empirical work in fast moving consumer good categories soon refuted a number of widely held beliefs concerning loyalty, for example that sole loyalty was common, that a loyalty prone segment existed with some customers likely to be highly loyal across many product categories, that loyal customers had distinctive demographic profiles, that loyalty varied across countries (eg see Cunningham 1956, Uncles and Ehrenberg 1990a, Ehrenberg and Goodhardt 1968). In spite of this evidence many of these beliefs remain quite widely held.

Such research on loyal behaviours has been marked by a wide range of operational measures of loyalty. This has been criticised as limiting the comparability between studies, but the fact that so many of these measures are highly correlated suggests that many of the measures are, in fact, measuring the same construct. And the fact that many findings hold in spite of different loyalty operationalisations provides reassurance that they are real and not just an artefact of the measurement approach (Lindsay and Ehrenberg 1993, Ehrenberg and Bound 1993).

Strongly related to this criticism of the use of different measures has been an essentialist debate concerning whether behavioural measures capture the true essence of loyalty. There have been a number of similar publications over the years where the authors have argued that any behavioural measure of loyalty is inadequate because ‘true loyalty’ must include an attitudinal (eg preference) component (Jacoby and Kyner 1973, Jacoby and Chestnut 1978, Dick and Basu 1994, Day 1969, Mellens et al. 1996). Most textbooks support this view and many give more coverage to this essentialist argument than they give to (managerially useful) findings on loyalty.5

Cognitive researchers emphasise the role of mental processes in building brand loyalty. They imply that in many/most instances consumers engage in extensive problem-solving behaviour involving brand and attribute comparisons, leading to strong attitudinal preference and repeat purchase behaviour (Schiffman and Kanuk 1991). It is consistent that such researchers would advocate a primary place for attitudes in any loyalty definition. Interestingly few, if any, researchers have advocated a purely attitudinal conception of loyalty, instead preferring composite definitions (eg

Jacoby and Kyner 1973, Dick and Basu 1994). In these definitions loyal behaviour is only classed as ‘truly’ loyal if loyal behaviour is accompanied by a positive attitude.

Thus one of the great contentions in loyalty research is whether loyal behaviour by itself (ie with or without a positive attitude) is loyalty. As already noted, this debate over conceptual definitions appears again and again in the loyalty literature. My observation is that it also almost always emerges when managers discuss loyalty and loyalty research. I am not sure if this is because managers are highly influenced by the marketing literature, which today tends to be cognitivist in nature, or whether the literature reflects management thinking. The ‘majority camp’ appears to be those who argue that loyalty should be conceptualised as displaying loyal behaviour and having a positive attitude towards the brand. Hammond et al (1996a) point out that loyalty is a concept used to describe human relationships and it has been borrowed by marketing. The term has, therefore, brought with it a host of connotations that are unlikely to be suitable for the prosaic act of buying brands. This may be sufficient in itself to explain why the composite attitudinal school of thought exists.

In spite of wide acceptance the composite definition argument rests on some assumptions which do not fit well with empirical evidence. Two arguments have been put forward against the use of composite definitions of loyalty (East et al. 1995, Hammond et al. 1996a).

1. Such composite conceptions often put forward a long list of necessary criteria. Such conceptions are difficult to operationalise and may result in only a small section of a market being classed as “loyal”, so small that this segment may be of limited managerial interest.

2. Composite definitions inhibit rather than encourage research into the cognitive antecedents of loyalty (through subsuming the antecedents into their consequence). East and colleagues note that composite measures of attitude (where attitude was conceived as both affect and behaviour) held up research into the attitude and behaviour relationship until Azjen and Fishbein defined attitude entirely as an evaluative affective construct (East et al. 1995).

---

6 Eg the act of repeat-purchase, the act of defection (for dis-loyalty), the act of recommending to others.

7 In the main this debate is essentialist, concerning the ‘true nature’ of abstract concepts. Such debates are pointless because they can never be resolved empirically or logically (Popper 1972, Esslemont and Wright 1994).
To these problems I would add a third, that composite attitudinal-behavioural definitions afford attitudes a special status based on assumptions that are counter to the existing empirical evidence. It has been argued that the attitude component is important because otherwise customers would be classed as loyal if they repeatedly bought a brand when it was the only one available, or because there were very high switching costs. It is argued that these switching costs and other environmental reinforcers may change and then the non-attitudinally loyal customer will change their behaviour. But this argument rests on the notion that attitudes are less likely to change than environmental reinforcers whereas the recent empirical evidence is that attitudes, especially those held towards brands, are extremely variable (Dall'Olmo Riley et al. 1998, Dall'Olmo Riley et al. 1997, Sharp et al. 1998). The argument also ignores the evidence of a very weak association between attitudes and future behaviour, even for presumably quite strongly held attitudes (see Kraus 1995, Wright and Klýn 1998).

While operational definitions of brand loyalty abound, not a great deal of attention has been paid to conceptual definitions of brand loyalty (Hammond et al. 1996a). The concepts of brand loyalty have not been clearly separated from the operationalisation, and as a result these measures are often devoid of theoretical meaning (Dick and Basu 1994).

The orthodox view is that conceptual definitions ought to precede and determine one’s operationalisations rather than vice versa (Jacoby and Chestnut 1978). Once a conceptual framework has been developed, a comprehensive set of relevant variables can be identified and studied (Engel et al. 1978). However, the impressive track record of empirical work aimed at discovering regularities first and theory later perhaps challenges this view (see Ehrenberg 1995). It is perhaps possible to progress a long way with operational definitions and later synthesise these findings together with conceptual definitions, that is, deciding what the different operational measures measure whether it be different or the same concept.

In the next section I distinguish between three different, though obviously related, loyalty concepts and identify a range of operational measures that capture each of these concepts. These three concepts capture the range of operational definitions that have been called loyalty. I am not intending to put forward an essentialist case for what does and does not constitute the true meaning of loyalty (see Esslemont and Wright 1994). I am simply arguing that there is a plethora of potential loyalty measures and these do not all seem to relate to exactly the same concept, or at least to consider them so would mean losing much richness of explanation.
Of the three loyalty constructs I have identified one is attitudinal and two are behavioural: (1) attitudinal loyalty — how customers feel about being behaviourally loyal to the brand, (2) purchase or share loyalty — how much buying customers devote to the brand, and (3) differentiation loyalty (also called vulnerability) — how sensitive customers are to enticements from alternative brands, which must logically relate to how long a customer stays a customer. These have been described earlier (in Sharp et al. 1997b) and the relationship between each loyalty type investigated (in Rundle-Thiele et al. 1998). Similarly East, Hammond and Ehrenberg make a distinction between two types of behavioural loyalty — “buying more” (which they refer to as “share loyalty”, “preference loyalty”, and “first brand loyalty”) and “buying for longer” (which they refer to as “allegiance”, “retention” or “tenure loyalty”) (see East 1997, East et al. 1997, Hammond and East 1996, Hammond et al. 1996a).

**Attitudinal Loyalty**

Attitudinal loyalty refers to customers’ attitudes towards the act of loyal/dis-loyal type behaviours towards the brand, how customers feel about being behaviourally loyal to the brand, that is whether they prefer buying the brand over alternatives.

While few, if any, researchers have advocated a solely attitudinal conception of loyalty purely attitudinal measures are very commonly used in both academic research and market research (eg Macintosh and Lockshin 1997, Zeithaml et al. 1996). Even intention measures of loyalty are attitudinal, in that they measure\(^8\) a latent mental construct (intent) which is supposed to guide behaviour, rather than measuring behaviour itself.

**Operationalising Attitudinal Loyalty**

Operationalisations of attitudinal loyalty should concentrate on attitudes towards the act of loyal type behaviours towards the brand rather than just general attitude towards the brand. This way it is possible to explore the relationship between attitudinal loyalty and other general attitudinal concepts, such as satisfaction, attitude to the brand etc. If attitudinal loyalty is defined in terms of general attitudes towards the brand this opportunity is lost.

\(^8\) Or at least are purported to measure a latent mental construct, no empirical verification is possible since such abstract constructs are unobservable. There is some empirical support for the view that intention statements are better seen as statements of past behaviour rather than statements of some intention (plan) of future behaviour (see Bird and Ehrenberg 1966a, Bem 1967).
Examples of operationalisations of attitudinal loyalty include:

- I would feel uncomfortable buying another brand (agree....disagree)
- I like being a regular customer of X (agree....disagree)
- I am committed to buying brand X first (agree...disagree)

Presumably intention measures would tend to produce similar individual level (customer loyalty) and aggregate level (brand loyalty) results although this is an empirical question.

**Purchase Loyalty**

The main alternate conceptualisation of brand loyalty that has been broadly researched to date is that of purchase loyalty which is concerned with certain repeat-buying behaviours (Hammond et al (1996a) call it “buying more”). These behaviours may be the result of underlying attitudes (or in fact they may cause attitude change), switching costs, etc. but such antecedents have not generally been part of this research stream (Ehrenberg 1988). The emphasis of much repeat purchase research has concentrated on modelling purchasing patterns using stochastic models.

**Operationalising Purchase Loyalty**

A wide range of operationalisations of purchase loyalty exist in the extant literature, for example:

- share of category requirements (SCR)
- first brand loyalty (ie which brand represents the greatest proportion of a buyer’s repertoire)
- (average) purchase frequency
- repeat-purchase rates (from one period to another)
- ratio of heavy to light buyers
- proportion of solely loyal buyers.
These measures for any brand tend to be highly correlated (Ehrenberg 1988). This correlation means they exhibit high convergent validity, thereby suggesting they measure the one underlying construct, purchase loyalty.

**Differentiation Loyalty**

A brief overview of relevant product differentiation literature is necessary in order to develop a third conceptualisation of brand loyalty; that of a degree of immunity or indifference to competing brands.

**Product Differentiation**

The concept of differentiation originated in economics where it is usually referred to as “product differentiation” (see Chamberlin 1933) and is used to describe a deviation from one of the assumptions of “perfect competition”, ie that buyers consider all brands as equivalent. Product differentiation is said to come about because of “loyalty”, with the term being used in this context to describe displayed preference for one brand over others. This preference has been ascribed variously to product heterogeneity (Chamberlin 1933), distribution/availability differences (see Hotelling 1929), imperfect information (eg see Akerlof 1970), awareness/salience effects (Hoyer 1984, Hoyer and Brown 1990, Macdonald and Sharp 1996), or just plain irrationality or habit (Jeuland 1979, Tucker 1964). Customers vary in their loyalty (and price sensitivity) and so each has a different “reservation price”, the price differential required to switch them away from buying/preferring the brand in question, the result being that brands face downward sloping demand curves (Caves and Williamson 1985).

The distinguishing trait of a differentiated product is said to be “the ability of its seller to raise the product’s price without sacrificing its entire sales volume” (Scherer and Ross 1990) (true by definition if product differentiation is defined as “facing a downward sloping demand curve” (Caves and Williamson 1985)), a statement which reveals that almost all products are differentiated to some degree. However, this somewhat narrow view of the benefits flowing to the firm from differentiating its products can be expanded. It is generally accepted that products can be considered as bundles of attributes, which offer varying degrees of utility (from very positive to very negative), and which may be present to a more favourable or a less favourable extent than competing offerings. Price usually

---

9 In economics this concept was developed from the work of Rosen (1974) and Lancaster (1979), in marketing research it provides the theoretical underpinning of conjoint analysis (Green and Wind 1975).
represents negative utility in an offering, but some offerings can have less of this negative utility than others. Therefore the traditional idea of differentiation leading to a price premium is just another way of saying that the firm has made consumers less sensitive to a feature which represents negative utility. Logically, then, differentiating on certain aspects of an offering can make consumers less sensitive to other aspects which represent negative utility, or compare unfavourably to competing offerings. By making consumers less sensitive to certain product attributes, the firm has built at least some degree of immunity to competing offerings.

**A Differentiation Conceptualisation of Brand Loyalty**

The concept of differentiation loyalty is directly related to the economic and strategy concept of differentiation. It captures the idea of varying sensitivities between a brand’s customers, to competing offers:

A brand’s differentiation loyalty increases when its customers become more insensitive (immune) to the offers of competing brands.\(^\text{10}\)

Increases in differentiation loyalty might allow a brand to undertake marketing activities that allow the firm to build/retain value. These activities include increasing price, reducing service, reducing advertising. Or put another way, they might allow a brand (or site) to maintain a price premium, gain more effect from less advertising etc. The consequence of an increase in differentiation loyalty is that competitors have to offer more (‘work harder’) in order to win/steal custom, that is, they are forced to surrender value.

Differentiation Loyalty is obviously related to the length of time that a customer remains a customer. If a customer is highly sensitive to the offers of competitors it is likely that they will eventually defect or drop the brand from their repertoire.

Recently Narayandas (1998) presented a concept (along with measures) of ‘BCR’, the benefits of customer retention, made up of

- Resistance to counter persuasion

\(^{10}\) This immunity might come about because of preference, memory, awareness, learning effects, perceived switching costs, or lack of ability to become aware of competing offers or products (eg because of distribution differences).
- Resistance to competitors' blandishments
- Resistance to adverse expert opinion
- Willingness to wait if preferred vendor's products are in short supply
- Willingness to pay a price premium

Each of these behavioural propensities can be seen as aspects of differentiation loyalty. The end result of such loyalty would be increased length of customer tenure.

**Differentiation Loyalty Operationalisation**

The operationalisation of differentiation loyalty is not necessarily straightforward. These issues are not, however, central to this thesis. They are discussed more fully elsewhere (Rundle-Thiele et al. 1998, Sharp et al. 1997b, Sharp and Dawes 1996). Probabilistic estimates of the likely change that a customer will defect within a given time period have been used as a useful differentiation loyalty measure in subscription markets (see Danenberg et al. 1998, Danenberg and Sharp 1996). Changes in aggregate/brand level repeat-purchase rates have been used in repertoire markets (Hammond and East 1996).

**The Relationship Between Each Type of Loyalty**

There must be a positive relationship between each conception of brand loyalty if they are indeed related concepts, however we do not expect a perfect correlation (otherwise there would be little need for different conceptions). This is what initial empirical investigation seems to have shown (Hammond and East 1996, East et al. 1997, Rundle-Thiele et al. 1998).

Theoretically as differentiation increases, (each brand moves more into its own partition or sub-market) then by definition differentiation loyalty increases - buyers become more insensitive to other offers. At the same time purchase loyalty will also increase as duplication of purchase (brand switching) decreases. Attitudinal brand loyalty presumably would also rise (regardless of whether attitudinal loyalty is an antecedent or consequence of these behavioural loyalties).
However, a perfect relationship between the three concepts of brand loyalty need not always exist. Consider, a subscription market with 100% repeat-purchase loyalty that introduces a loyalty program offer. It may have an increase in differentiation loyalty, while repeat-purchase loyalty remains constant.

So, overall it would be expected that each of the three types of loyalty would show a positive but imperfect correlation, particularly at aggregate level.

**Conclusion**

Loyalty is a complex phenomenon and in this chapter I have presented three distinct but related conceptions of loyalty as well as suggesting a variety of operationalisations.

This thesis is almost entirely concerned with the impact of loyalty programs on one of these types of loyalty, that is, purchase loyalty. There is, of course, good reason to assume that if a loyalty program did improve purchase loyalty it would also improve attitudinal loyalty and differentiation loyalty.
Chapter 3 — Loyalty Programs

Most customers have a repertoire of brands which they regularly choose between. The role of loyalty marketing is, quite simply, to convert occasional users by making exclusivity an attractive option.


This chapter discusses loyalty programs, the key marketing intervention evaluated in this thesis. The chapter reviews the brief academic literature on loyalty programs as well as summarising views expressed in the trade press. Most of this material concerns the expected effects and benefits, or lack of benefits, of loyalty programs. Empirical data is scant and there appears to have been little or no systematic research into the effects of loyalty programs on customer behaviour, brand performance, or company profitability. In spite of this, many commentators, both academic and practitioner, have expressed quite strong views concerning the viability of loyalty programs and how they should and should not be implemented. These views, therefore, seem to be largely based on idiosyncratic experiences and/or personal beliefs/prejudices.

All commentators agree on the fact that loyalty programs are currently “in vogue” with a considerable amount of attention being paid to such schemes by the marketing press. Recent times have also seen the launch of loyalty programs of much greater size and scope than in the past. This is generally attributed to improvements in technology, particularly customer databases and transaction recording devices.

Loyalty Programs & Their Rise in Popularity

Loyalty programs are structured marketing efforts which reward, and therefore encourage, loyal behaviour, behaviour which is, hopefully, of benefit to the firm. They have possibly been in use ever since the emergence of organised trade. Sellers have long since recognised the importance of repeat business and the fact that if someone buys once from you then they have usually strongly identified
themselves as a likely future customer of the product category. Loyalty programs use current buying to incentivise the customer to buy from the same brand/provider when they do buy from the category again. The most simple loyalty programs are actions like a discount on subsequent purchases, or special terms (eg discounts, credit, or special service) for regular buyers or "old" customers. Such marketing tactics are very common in industrial markets where customer acquisition and set up costs are relatively high so it is in sellers’ interests to discourage switching by their existing customers.

In recent times loyalty programs have come and gone in many industries. As a child I remember my family collecting coupons/stamps which came in many brands of tea. The tea coupon programs lasted quite a few years but eventually were withdrawn. It is possible that the reason loyalty programs come and go has more to do with fashion than any structural or environmental reason (Sharp et al. 1997a). In the last decade there has been a massive increase in the number of product categories where brands are implementing structured and highly public loyalty programs and there has been the emergence of super loyalty programs encompassing many product categories, involving millions of consumers. From cafes offering stamps and coupons (eg your fifth coffee free), to grocery retailers using ‘smart cards’ to give customers points redeemable for air travel, to car companies issuing credit cards where expenditure accumulates a discount on the next car purchased. This substantial upturn in usage of loyalty programs appears to be common throughout the modern market economies of the world.

The airlines’ frequent flyer schemes are probably the most well known, and most clearly identified as loyalty programs (apart from the FlyBuys program introduced in the next chapter). These operate around the world. Flyers earn ‘points’ typically based on the distance flown with the airlines in the scheme and these are redeemable for specified amounts of further travel with the airlines. Today it seems as if almost every airline in the world operates such a scheme. Such schemes have possibly become an essential aspect of doing business in the category, and thus they form something of a barrier to entry to the airline industry – at a minimum in terms of the systems and costs associated with running such a scheme. In Australia the two national domestic airlines, Qantas and Ansett, both introduced frequent flyer programs simultaneously when a third airline entered the market (this third player later failed financially).

The airlines’ frequent flyer schemes were amongst the first in the recent wave of very large scale consumer oriented programs. Charge card companies were also early adopters with companies such as American Express embracing loyalty schemes with its Membership Miles scheme. Nowadays, motor
vehicle companies, supermarkets, petrol stations, amongst others, have launched loyalty schemes. Many companies operate the schemes by themselves, others are involved in partnership or consortium arrangements.

Many of the brands participating in loyalty schemes are in product categories, such as petrol retailing, where the opportunity for product or service differentiation is quite low. Loyalty schemes, in this instance, are seen as a means to create brand preference. They are also seen as a tool for shifting the industry's focus away from price discounting practices.

This widespread and quite sudden adoption by marketers of loyalty programs in the 1990s has supposedly been stimulated by beliefs (which may or may not be true) that marketing has not paid sufficient attention to customer retention (Kotler 1992), that increased rates of retention lead to significantly increased profitability (Reichheld and Sasser 1990), and that decreased differentiation and increased consumer cynicism has lead to an overall erosion in loyalty levels which therefore require special marketing attention to restore.

Why Use Loyalty Programs

Dowling & Uncles (1997) suggest 6 motives/benefits sought from loyalty programs:

1. Maintain sales levels, margins and profits
2. Increase the loyalty and potential value of existing customers
3. Induce cross-product buying by existing customers
4. Attempt to differentiate a parity brand
5. Pre-empting the entry of a new (parity) brand
6. Pre-empting a competitor from introducing a similar loyalty scheme.

---

11 The preliminary empirical work in this area does not indicate a decline in loyalty levels (see Dekimpe et al. 1997).
Most of these benefits are very defensive, they are about holding on to a market position, or exploiting an existing position. This degree of defensive orientation is perhaps a key aspect of difference between loyalty programs and other marketing activities. Loyalty programs, through their emphasis on increasing purchase loyalty, may operate differently from other marketing efforts such as advertising campaigns and sales promotions and potentially may achieve distinct benefits for the firm. Loyalty promotions can also be distinguished from sales promotions by their longer term nature. When the promotion finishes, there is nothing to stop consumers from reverting to their previous behaviour patterns and, indeed, this is what appears to happen (for empirical evidence see Ehrenberg et al. 1994). Loyalty programs, through the equity the customer builds in the program (eg via points collection), aim to lock customers.

On close inspection however, some of the potential benefits of loyalty programs appear to be not very feasible:

**Replacing Other Marketing Activity**

An objective of a loyalty program may be to replace other promotions. While this substitution phenomena can be widely observed it seems unlikely to be an important motivation behind companies launching loyalty programs. Loyalty programs are typically substantially more complicated to establish and administer, they require greater levels of investment and commitment with programs often running for years and having potentially high exit costs. They are, therefore, considerably more risky than ad hoc promotions, sponsorships, and giveaways.

**Gaining a Price Premium**

An attractive objective for a loyalty program may be to facilitate a price premium through decreasing price sensitivity. However, considering that, for most loyalty programs, only a small proportion of a brand’s total customer base are members it would be difficult for a firm to sustain a price rise on the basis of the

---

12 The term sales promotion is used throughout this thesis to describe short term promotions usually designed to generate higher than usual sales. These sales promotions usually take the form of some sort of price discount, a “giveaway”, or a lottery.

13 They also potentially lock in the firm because such programs, even unsuccessful ones, are difficult for firms to withdraw from without upsetting customers.
loyalty program. Any reduction in the competitiveness of the marketing mix risks jeopardising a large part of the customer and revenue base, who are not members of the loyalty program. Thus price premiums are difficult to support unless that price premium can be successfully contained to apply to program members only. The same logic applies to attempting to lower service standards or offering fewer/cheaper features on the basis of a loyalty program reducing customer sensitivity to these aspects.

Reducing Costs & Improving Profitability

In recent years some incredible claims have been made regarding the financial importance of increasing customer loyalty. For example:

"Companies can boost profits by almost 100% by retaining just 5 percent more of their customers"

"Increased customer loyalty is the single most important driver of long term financial performance (Jones and Sasser 1995).

The original source behind these now common quotes is a 1990 Harvard Business Review article (Reichheld and Sasser 1990). Closer scrutiny of the article shows such assertions to be clearly misleading. The 5% absolute defection rate decrease actually refers to a 50% reduction (from 10% to 5%). And the increased ‘profits’ are not in the form of ‘profit&loss sheet profits’ but rather ‘customer lifetime profits’ which, of course, increase as the average lifetime of a customer staying with the firm increases (in the illustrative case) from 10 years to 20 years. Thus the article presents an analytic statement rather than an empirical finding. In reality, such large increases in loyalty would be difficult, if not impossible, and expensive to achieve and there is little reason to suggest that there would be an automatic improvement in the bottom line.

If it were the case that customer retention is more cost effective than customer acquisition then a loyalty program could potentially improve profitability through cost savings. However, the lure of customer acquisition is its potential to enhance overall sales revenue, and marginal revenue gains are often very profitable when they come on a predominently fixed cost base.

The case for increased loyalty automatically leading to enhanced profits appears to have been oversold.
Gaining Sales and Share

A common loyalty program objective may be to seek an increase in market share. In this case there may be difficulty in distinguishing ‘loyalty programs’ from other marketing efforts, and such an objective perhaps behaves using the term ‘loyalty’ in the title. Indeed a loyalty program may be successful on a number of loyalty measures, such as reducing inter-brand switching rates or increasing a brand’s share of loyalty program members’ requirements, while market share and overall sales remain stable or decline. Indeed such behavioural change may be of great benefit to the firm in spite of not bringing about increases in revenue. Increased loyalty may allow the formation of closer relationships with customers, allowing the firm to become more knowledgeable about clients’ needs and wants. It may reduce marketing costs, with the firm spending less on having to convince customers to return. And it may raise barriers to entry to the market, lessening the chance of future competitive threat.

A loyalty program need not lift sales revenue to be a success in financial terms. From a finance theory perspective a firm’s value is determined by its future net income streams and the risk associated with those income streams (Copeland et al. 1990). Loyalty gives something of a guarantee of future earnings; even if current earnings are high, a low level of loyalty means that the future earnings are at risk (Pearson 1994). If a loyalty program increases the surety of future income flows, through decreasing the risk of losing customers (revenue providers), then it may have a real, and perhaps substantial, impact on shareholder value without affecting current revenue or market share levels.

Providing Information on Customers

Modern loyalty programs, particularly those that make use of smart card technology, offer the potential of tracking a considerable amount of buying behaviour information that may be useful marketing intelligence. However, there are at least three major problems which may prevent the gaining of useful information:

1. Consumer privacy laws, which are being strengthened in most developed countries, are likely to substantially reduce the amount and depth of information that can be collected and cross-referenced to other customer data. Such laws are also likely to increase the expense of gaining and holding such information.
2. There are considerable operational difficulties associated with gathering, storing, retrieving and analysing such data (Passingham 1998). Loyalty program owners have typically been severely constrained in their capacity to exploit the potential for data collection and implementation of marketing programs based on the data (eg due to a lack of skilled staff). For example, there is little evidence that the FlyBuys database is used for much more than mass mailing list generation.

3. Finally, several commentators (eg Corkindale 1996) have pointed out that the data that comes from loyalty program members is inherently biased because of self-selection. It also will only provide data on buying of the loyalty program brand(s), it will not capture data on their buying of competitive brands, for this traditional panel data is required.

Increases in Loyal Behaviour

Loyalty is a function of brand strength. You can't lure customers into buying small brands.

Loyalty schemes can only work within very narrow limits (Professor Andrew Ehrenberg, Marketing Globe, Volume 4, No.869, August/September, 1994, p.11)

This is the area of investigation that concerns this thesis. However, a number of knowledgeable commentators have already argued that loyalty programs face an almost impossible task.

Drawing on the known facts about repertoire markets it has been pointed out that sole brand loyalty is very rare, that most consumers hold repertoires of, say, three or more brands which appear to stay extremely steady, at least in the medium term (say a year). Thus it is argued that it is implausible to believe that a loyalty program could create a large group of solely loyal customers (Uncles 1994a, Dowling and Uncles 1997) or even bring about substantial reductions in the size of customers' repertoires.

Of course, this remains an empirical question (one that this thesis seeks to address). And given that most marketers in mature categories struggle to achieve even tiny increases in marketshare and/or price it may not be necessary for loyalty programs to create a large group of highly loyal customers for them to be considered successful.
How to Use Loyalty Programs

Along with opinions on the likely impact of loyalty programs there have been several recommendations concerning what will, and will not, lead to a successful loyalty program.

It has been suggested that loyalty programs that directly support the “value proposition and positioning” of the target product are likely to be more successful (Dowling and Uncles 1997). Or put more simply, that airlines frequent flyer programs should offer travel and accommodation as rewards, and not something unrelated like a computer, and that grocery store loyalty programs should give groceries or discounts as rewards, not something like airline travel. The foundation of this argument is unclear. Presumably marketers of prosaic services, such as electricity provision or supermarkets, can add considerable excitement to their offerings by giving away items such as holiday travel. Likewise it may not make sense for airlines to give away travel to frequent flyers, many of whom will have no wish to undertake any more travel than they already do.

In another prominent (Harvard Business Review) article O'Brien and Jones (1995) state that managers’ interest in loyalty schemes is justified, that the ‘theory is sound’, that rewards do build customers’ loyalty. But they argue that schemes will only be successful so long as companies ensure that the rewards provide sufficient value to entice customers to change their behaviour and that the rewards do not give away too much value to customers. This is obviously nothing more than an analytic statement.

It would seem that until more empirical work is done it is difficult to make definitive normative statements concerning how and how not loyalty programs should be structured.

---

14 They also state that no business can make money on customers that are chronic switchers. Depending on the definition of ‘chronic switchers’ this might describe most repertoire markets where companies sell to customers who are constantly changing suppliers, and buying far more from competitors. Yet there are many large and profitable companies operating in such markets, eg Proctor and Gamble, Coca-Cola, McDonalds, Unilever etc. Likewise the marginal revenue provided by ‘chronic switchers’ may be highly profitable for some companies.
Empirical Research on Loyalty Program Impact

In contrast to the degree of practitioner interest in loyalty programs there is only a very small body of academic literature dealing with their potential impact and how they might be evaluated. As discussed even the academic articles tend to be normative rather than empirical, dealing with opinions concerning their potential value (or lack of) and how they should (and should not) be implemented (e.g., Uncles 1994a, Dowling and Uncles 1997, O'Brien and Jones 1995, Uncles 1994b, Corkindale 1996). Empirical investigation of loyalty programs has been limited by the difficulties in obtaining panel data in markets where loyalty programs have been introduced (see East and Hogg 1997 for some ingenious work to get around this problem). Researchers have also encountered the practical problem of the difficulty of constructing classic experimental designs which require a control benchmark, either in terms of a set of consumers not exposed to the loyalty program, or data on what buying behaviour was like prior to the program launch.

Some measurement of a loyalty scheme's performance is presumably attempted by almost all companies who are involved in one. There are, however, acknowledged problems in isolating the effects of the scheme from other marketing mix elements and environmental impacts. Several common approaches to measurement of a loyalty program's impact include:

- Monitoring of membership levels, issue and redemption rates of points or vouchers.
- Measuring the level of sales, number of customers, regularity of purchase and average customer spend. If any of these increase during the scheme it is usually viewed as causal.
- Comparing the performance of participating stores with non-participating "control" stores.
- Undertake market research with customers in relation to their attitudes and behaviour.
- Comparing the buying behaviour of customers in the loyalty program with customers who are not in the program.

Each of these approaches has some fairly obvious problems as well as varying degrees of operational difficulty. And, of course, the results of individual companies' research are seldom made public, and even when they are they are difficult to validate.
The following is a brief review of the limited published empirical evidence.

**Claimed changes in behaviour**

A study commissioned by direct marketing agency Evans Hunt Scott Eurocom surveyed a random sample of 1012 adults in the UK. 34% of respondents were participating in a petrol retailer loyalty scheme, 19% in a DIY scheme and 13% in a credit card loyalty scheme. When participating respondents were asked if they switched brand to join the scheme, 15 percent said "yes" in relation to a DIY store, 13% for petrol stations and 10% for a credit card. The survey also found that approximately 70% of consumers believe they feel no differently towards the brand as a result of the schemes. 49% of petrol scheme participants, 57% of DIY participants and 39% of credit card scheme members said that they did not always try to buy or use the brand to make the most of the schemes (Marketing (UK), December 8, 1994, p.31). Without some sort of benchmark such statistics are near impossible to interpret.

A similar survey was undertaken in New Zealand by academics at Massey University (Gendall et al. 1998). Forty five percent of respondents reported that they had a FlyBuys card (ie were members of the loyalty program evaluated in this thesis). But only 6% (2.5% of all respondents) said that they had changed their main grocery store to New World (the FlyBuys participant) so that they could use their FlyBuys card when they bought groceries. Given that in the period since FlyBuys launched some members must have changed to New World as their main supermarket just through natural market movement15, and that some of these respondents would be likely to later claim that this was to collect FlyBuys points, the 6% figure seems very low (nb it is a little lower than the British survey reported above).

It was also reported that 15% of FlyBuys card holders said that they always try to use a store or supplier who gives them FlyBuys points, presumably this means that much less than 15% loyalty program induced brand switching occurs for these people.

These results are interesting but difficult to relate to overall sales effects, such claimed behaviour reports are potentially quite unreliable (eg see Sharp et al. 1998), and it is difficult to calculate the degree of increase in purchase loyalty that might have occurred. Not least because reported changes in non-

---

15 Just as some New World shoppers will have switched away to other brands, usually because of environmental changes such as moving house.
program members were not reported. In summary they provide some, close to anecdotal, evidence that
loyalty programs are affecting the behaviour of some individuals in the sense of increasing their loyalty.
They also strongly suggest that many/most loyalty program members are receiving “something for
nothing”, in that they gain points for buying their usual brands.

Descriptive Behavioral Research

Reports exist concerning the number of people who have joined particular loyalty programs, the
proportion who are multiple program members, the mean number of programs customers are members
of, and the number of people who have redeemed points for rewards. Such reports on FlyBuys are used
in the chapter describing this loyalty program (chapter 5).

In one of the more notable articles Passingham (1998) provides some data concerning buying behaviour
in the British grocery retailing market. This market is particularly interesting, because it the market where
the only publicly reported analysis of loyalty program impact has been undertaken (other than the
research reported in this thesis) as will be discussed shortly. Passingham provides Taylor Nelson AGB
data to show that Sainsbury Reward Card holders spend 58% of their grocery expenditure with Sainsburys
compared with only 39% for those not in the loyalty program. They do not do this by spending more in
store but rather, of the trips that they make to supermarkets, they go more often to a Sainsbury store.

The inference of causality made in this article is a classic mistake. It forgets the issue of selection bias, in
that heavier Sainsbury shoppers were far more likely to join the Sainsbury loyalty program. This is
supported by another analysis in the article which shows that heavy buyers of the category are more likely
to have multiple loyalty cards than lighter shoppers. It is known that heavier buyers hold larger
repertoires of brands (Ehrenberg 1988), it follows that they would take up more loyalty cards too.
Existing buyer behaviour seems to be a powerful cause of loyalty program membership.

Analysis of Sales Growth

As discussed, the only other empirical study of the impact of a modern loyalty program on loyalty
(published in the academic literature) is an analysis of Tesco overtaking Sainsbury as marketshare leader
(East and Hogg 1997). This work is based on analysis of sales data covering two years in which Tesco
grew to take the market leadership position. The analysis shows that Tesco grew mainly by attracting new customers rather than increasing purchase loyalty. This is in line with what is expected for normal market share growth, and is not the expected impact of a loyalty program as is discussed later in chapter four (Methodological Overview). East and Hogg analyse the potential causes of the sales growth, in addition to Tesco’s loyalty program which it launched shortly before Tesco finally overtook Sainsbury's. They note that about half of Tesco’s growth can be attributed to physical expansion (new and bigger stores) over the period. In price competition Tesco did marginally better than Sainsbury over the period. And the introduction of a ‘one in front’ check out policy\textsuperscript{16} showed a marked reduction in customers’ expectation of having to queue at Tesco checkouts (almost half the proportion of customers expected to queue at Tesco compared to at Sainsbury). Given these other advantages it is difficult to attribute the loyalty program with a major role in increasing Tesco’s market share.

Also the increase in purchase loyalty that Tesco gained looked like the normal gain expected when a brand increases market share. However, no comparisons to Dirichlet norms were published so it is not possible to say if Tesco’s level of loyalty was unusual for its new level of market share.

**Summary**

The small literature on loyalty programs has highlighted a number of potential benefits, though on closer inspection many of these benefits would appear unlikely or difficult to obtain. The existing knowledge concerning repeat-purchasing behaviour in repertoire markets would certainly suggest that aims to convert a large part of the customer base into solely loyal buyers would be hugely ambitious.

The existing empirical work on loyalty program impact is so small that it is probably unwise to draw any conclusions other than to say that it too suggests that massive increases in loyalty are unlikely. However, reasonable and practical objectives for loyalty programs are unlikely to require massive increases in loyalty. The real question remains, can loyalty programs achieve a moderate, but potentially economically viable, impact on purchase loyalty? Or do they simply give away something (rewards) for nothing (no change in behaviour)?

\textsuperscript{16} The service policy was to open another checkout when a customer had more than one other customer in the queue in front of them.
Chapter 4 - Methodological Overview: using Dirichlet benchmarks

The methodological implication is that we should be taking another step in the direction of not necessarily having to observe directly everything we wish to know, through being able to make theoretical calculations instead. So far, the biggest step in this kind of market research work has been the application of sampling theory. But it is hoped that with increasing knowledge and improved techniques, other more general kinds of applied mathematics may also become increasingly applicable.

(Ehrenberg 1959 - comment on the discovery of the NBD model, forerunner to the NBD-Dirichlet model).

This chapter provides an overview of the somewhat novel, for marketing, quasi-experimental, empirical generalisation-based methodology used to evaluate the marketplace impact of a loyalty program. It describes the sort of effect we might expect a loyalty program to bring about, this is called "excess loyalty" and is defined in terms of normal patterns of repeat-purchase at brand level. The Dirichlet model is introduced, a theory which explains and predicts these patterns. The essence of the methodology is to compare the observed repeat-purchase patterns post-loyalty program launch with Dirichlet predictions in order to identify the presence or absence of "excess loyalty" and to quantify it. The details of the survey methodology (consumer panels) and analysis are explained in other chapters.

This chapter also discusses the adopted approach of building replications into the research design. It briefly explains the importance of replications/extensions in validating results and gaining knowledge about the generalisibility of the results, ie identifying boundary conditions and moderating factors.

Overview

Loyalty programs are presumably initiated by marketers in an effort to achieve some sort of financial pay-off in terms of either current or future profits, or the security of these profit flows. Financial returns
depend on increases in purchase loyalty or decreases in the degree of sensitivity customers have towards competing offers (differentiation loyalty). In this thesis I concentrate on assessing the former, that is increased purchase loyalty. This is not to deny that (some) loyalty programs might function to increase differentiation loyalty, raising barriers to entry for new brands and allowing firms to benefit through mechanisms such as price rises or decreases in advertising spend (Sharp 1998). However, in most of the markets that are investigated in this thesis, ie very frequent repeat-purchase markets, it is doubtful that an increase in differentiation loyalty could occur without an accompanying increase in purchase loyalty\textsuperscript{17}.

While most ‘marketing’ activity for established brands is defensive, its primary purpose being to maintain current market position and revenue flows, marketers often initiate interventions with the objective of generating sales gains. That marketshare gains seldom occur is probably due to the fact that competitors are also intervening in the market with similar objectives, marketers must therefore “run hard just to stand still” (Ehrenberg et al. 1997). This noted, it is no exaggeration that many would have considered the loyalty programs evaluated here as being unsuccessful if it had not produced sales gains. Like most mass market loyalty programs they were very expensive marketing interventions, involving considerable set up and on-going running costs. A sales gain was probably necessary in order to recover these costs\textsuperscript{18}. So the FlyBuys loyalty program was launched with the expectation that it would increase the purchase loyalty of customers, as well as possibly attracting some new buyers, and overall bring about increased sales and marketshare. This thesis describes an investigation of the nature and degree of this marketplace performance primarily focussing on purchase loyalty.

\textsuperscript{17} If a loyalty program made customers immune to competitors’ marketing efforts (promotions, new products etc.) it would seem highly probable that the share of category requirements (SCR) customers devoted to the brand would increase at the expense of other brands. In a subscription market immunity could potentially rise while SCR did not, since SCR is typically at 100%, ie a “ceiling effect”, but in a repertoire market any change in immunity should be reflected in SCR changes. This is because the decline in responsiveness to other brands should result in a downgrading of other brands in the repertoire, eg brands that were largely only bought when on promotion.

\textsuperscript{18} Though there were, presumably, some savings as FlyBuys replaced some of the firms’ other promotional expenditure.
Potential individual level effects

Loyalty programs offer customers incentives, typically in the form of points that can be redeemed for travel or other items of value, to encourage repeated purchases of the brand. Usually there is a hurdle in terms of requiring a significant number of purchases in order to be able to claim any benefit. This creates the incentive for the customer to keep on buying (ie to buy for longer, to not drop the brand from their repertoire) and to concentrate their purchasing from the product category on the one brand (ie to increase the share of category requirements devoted to the loyalty program brand, increasing their purchase loyalty). Aside from the utility incentives, the points system may also act as an informational reinforcer invoking operant conditioning (Foxall 1992, Nord and Peter 1980, Peter and Nord 1982). Each time the customer makes a purchase (the desired behaviour) they are rewarded by being given points. A tendency to accumulate and hoard may even make the points desirable in their own right, independent of the prizes they potentially represent.19

The effectiveness of loyalty programs which reward/reinforce specific types of consumer behaviour should, logically, be evaluated in terms of the type of behavioural changes they aim to bring about.20 Loyalty program members (customers) should show changes in purchase loyalty which are not evident among non-program members, specifically:

- decreased switching to non-program brands
- increased allocation of share of requirements to the program brand(s)
- increased repeat-purchase rates (for the program brand(s))

19 I observe that I collect frequent flyer points, and am distressed if I am not credited the points I am due, even though I have never redeemed any points and have no desire to fly any more than I have to. Likewise Bill Gates seems very concerned about earning money even though money has probably ceased to have any utilitarian value for him. Foxall (1997) explains this as being due to the fact that informational reinforcement may confer social status and/or self satisfaction, or it may provide a reference point denoting progress to date.

20 This thesis is concerned with behavioral loyalty rather than attitudinal loyalty because, in practice, loyalty programs only reward behaviour. Customers are not given points, prizes, discounts or any other reward/incentive for changing their attitudinal loyalty.
- increased usage frequency (for the program brand(s))
- greater propensity to be exclusively loyal (to the program brand(s))
- greater propensity to switch between program brands compared to propensity to switch to non-program brands

Changes in Aggregate Patterns

If a number of individual customers do change their behaviour in a similar manner then this will result in changes in aggregate, ie brand level, purchase loyalty indicators. These include:

- **Penetration**: the percentage of consumers buying from the total product/service category at least once in a specified time period and the percentage of consumers buying the various individual brands at least once in a specified time period.

- **Purchase Frequency**: the number of purchases per buyer of the total product/service category in a specified time period and the number of purchases per buyer of individual brands in a specified time period.

- **Repeat-buying**: the proportion of buyers who continue to buy the same brand in two equal-length time periods.

- **Incidence of Sole Buyers**: the proportion of buyers who only buy the one specified brand within the specified time period.

- **Brand-duplication**: the percentage of buyers who buy another brand within the specified time period, conditioned on having bought a specified brand. That is, customers who buy one loyalty program brand will be more likely to buy another loyalty program brand and less likely to buy non-program brands.

How might we expect a loyalty program to affect these purchase loyalty indicators? Well, when marketing effort is successful in increasing a brand’s market share it generally has a positive effect on a brand’s penetration and a much smaller positive effect on average purchase frequency (Ehrenberg et al.)
This is a logical consequence of the empirical generalisation known as ‘Double Jeopardy’. ‘Double Jeopardy’ refers to a pattern noted by William McPhee (McPhee 1963), specifically he observed that for competitive items, such as comic strips and radio presenters, the less popular items (brands) not only had fewer customers (readers/listeners) but they were also bought less often by these customers. So smaller brands get “hit twice”, hence the name double jeopardy, smaller brands have fewer customers and those customers are less loyal (Ehrenberg et al. 1990). Across many markets and product categories it has been observed that the ‘double jeopardy line’ (see chart one) is reasonably flat in that brands of differing marketshare sizes differ mainly in terms of penetration, that is, the number of customers they have. While they also differ in average purchase frequency, in line with the double jeopardy effect, this difference is less pronounced. Thus all brands have some purchase loyalty, only bigger brands have slightly more than smaller brands. This double jeopardy line is illustrated in the following graph with each * indicating a brand in the same produce category.

Figure 1: Double Jeopardy Line

The flatness of the double jeopardy line suggests that marketing efforts that cause a change in marketshare mainly affect a brand’s degree of penetration, i.e. the number of customers it has.
programs, in contrast to other marketing efforts, should have more of an effect on how much existing customers buy rather than winning new customers. This is because loyalty programs are most attractive to existing buyers of the brand.

The loyalty program might also possibly attract heavy buyers of the category (these heavy category buyers would also tend to be existing buyers of the brand given that heavy buyers tend to maintain larger repertoires of brands (Ehrenberg 1988)). However, while the results in this thesis consistently show that FlyBuys members were more likely to be customers of the FlyBuys brands Table 1 shows that FlyBuys members are not heavier (or lighter) buyers of the category overall.

**Table 1: Category buying FlyBuys members c.f. non-members**

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Members</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>27.2</td>
</tr>
<tr>
<td>Retail Fuel</td>
<td>13.3</td>
</tr>
<tr>
<td>Dept Stores</td>
<td>10.4</td>
</tr>
<tr>
<td>Credit Cards</td>
<td>10.2</td>
</tr>
<tr>
<td>Telecommunications (NZ)</td>
<td>25.9</td>
</tr>
<tr>
<td>Retail Fuel (NZ)</td>
<td>12.1</td>
</tr>
<tr>
<td>Credit cards (NZ)</td>
<td>8.8</td>
</tr>
<tr>
<td>Average</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Thus, this strongly suggests that loyalty programs attract existing customers; including both heavy and light buyers of the category. They do not attract non-customers who are heavy category buyers, probably because they simply do not attract non-customers (heavy or light). These (existing) customers who do join the loyalty program are already highly likely to have bought at least once during any given period (other than very short periods) and so penetration is unlikely to rise. Conversely, lighter buyers of the category or brand can still be attracted by promotions when they buy, whereas loyalty programs are not as attractive to them. The substitution of a loyalty program for intermittent promotions, particularly when competitors continue with their promotional efforts, may potentially even result in a decline in the penetration statistic for loyalty program brands.
In line with this reasoning, an effective loyalty program should have a greater impact on a brand's average purchase frequency (and other related purchase loyalty measures) than it has on the brand's penetration level. Thus a loyalty program would not be expected to move a brand smoothly along the double jeopardy line, causing the brand to exhibit "excess loyalty" (see chart two). This means that the brand will have a higher average purchase frequency than would be expected given its level of penetration. Alternatively this can be expressed as the brand having a lower than expected penetration given the brand's average purchase frequency. Effectively, the brand is selling more often to the same people than would be the norm. Using Kahn et al's terminology (1988) the brand has become a niche brand.

**Figure 2: Excess Repeat Purchase Loyalty**

![Graph](Figure2.png)

**Penetration of the market**

In many competitive repeat-purchase markets people generally show "divided loyalty", they shop from a repertoire of brands and are rarely 100 percent loyal (see Ehrenberg and Uncles 1998), hence such markets have been called repertoire markets (see appendix one - a working paper outlining the differences between repertoire and subscription markets). Loyalty programs should affect this behaviour and increase the share of requirements that the participant brand accounts for and increase the number

---

21 The periods studied in this research cover 9-20+ category purchase occasions for the average customer (many more for heavy buyers). On average customers used 3 brands or around 30-50% of the available brands, heavy buyers had even larger repertoires.
of solely loyal buyers. Thus, purchase frequency in Figure 2 could be replaced with share of requirements (SCR) or percentage of solely loyal buyers.

The expected 'excess loyalty' impact of a loyalty program is discussed more fully later in this chapter. Preceding this, Dirichlet, the means of predicting the precise nature of the double jeopardy line, is introduced.

**Dirichlet Benchmarks — what is normal?**

In order to test if a loyalty program is having an effect on purchase loyalty, it is necessary to know what levels of performance should be normally expected for each brand, given their respective levels of market share. These benchmarks are provided by the NBD-Dirichlet model of repeat-purchase patterns (usually referred to simply as Dirichlet) (Ehrenberg 1988, Ehrenberg and Uncles 1998, Goodhardt et al. 1984) which provides a *natural baseline* (Fader and Schmittlein 1993) for the level of purchase loyalty each brand should enjoy. This model and the empirical generalisations associated with it have been widely tested and supported in marketing (Uncles et al. 1995), having been observed for over 30 years and across European, US, Asian and Australasian markets. The Dirichlet model captures the double jeopardy pattern in purchase loyalty statistics discussed previously.

Dirichlet allows repeat-purchase loyalty performance figures to be accurately predicted for stationary or near stationary markets, which is most markets most of the time, but it has also been shown to display a very reasonable level of overall fit for only approximately stationary markets (Ehrenberg and Uncles 1998) for example, ones where a marketing intervention means that one or two brands are somewhat non-stationary. The methodological approach of this thesis was to use Dirichlet predictions so that an assessment was made of the performance of the brands in the loyalty program against the loyalty baselines. Specifically, deviations from these baselines for brands linked to the loyalty program were used to provide early indications of the program's impact. This approach is discussed in the following section, but first it is useful to more fully introduce the Dirichlet model.
The Dirichlet model of repeat-purchase was first fully documented publicly in 1984 (in Goodhardt et al. 1984). It extends the previous NBD, Negative Binomial Distribution, model which accounts for repeat-purchase regularities for a single brand (Ehrenberg 1959); Dirichlet models all brands in the product category. Dirichlet is a stochastic model, it specifies probabilistically how many purchases each buyer makes in a particular time period as well as specifying the probability of each brand being bought on each purchase occasion. It is thus able to make estimations of each of the summary statistics discussed in the previous section (Changes in Aggregate Patterns) and predictions of these statistics for future time periods.

Dirichlet is underpinned by the assumption that each buyer has steady propensities to buy any particular brand (different propensities for different brands). While these propensities are assumed static there is assumed to be great variation between buyers in terms of these propensities (which are reflected in the brands they buy, ie the repertoires they hold) and their purchase frequencies. More specifically the model consists of a mixture of distributions; these five distributional assumptions and their justifications are detailed below (as described in Ehrenberg and Uncles 1998, Ehrenberg 1988 p.255). Of course the main justification for the mixture of these distributions is that the model has proved to work very well across time and a wide range of conditions, that is, it adequately describes many different aspects of buying behaviour for many different product categories and geographical markets. There are, however, explicated reasons why the specific distributional assumptions underlying the Dirichlet should be as they are assumed and not something else (Ehrenberg 1988 p.258):

1. **Assumption: Purchasing of the product-class takes the form of a Poisson process for each consumer.**

   A consumer’s purchasing from the product category occurs with a certain steady probability or buying rate. Individual purchases are spread as-if-randomly over time, and independently of just when previous purchases were made (ie a “zero-order” process). This distribution means that a consumer who buys on average 5 times a year would have a steady probability of purchasing of 0.1 a week. The probability of two “back-to-back” purchases in successive weeks would be only 1 in 100 (0.1 x 0.1), which is very close to zero, hence the robustness of the zero-order assumption.

   **Justification:** Technically this is a “Poisson” distribution. This has been empirically verified many times, as described in Ehrenberg (1988) p.258.

22 The model is named, curiously, after a French-named German mathematician rather than the marketing scientists who developed it.
times by comparing the equality of the mean and variance of the empirical data with the Poisson distribution.

2. **Assumption:** The purchasing rates of different consumers follow a Gamma distribution. There is substantial variation between consumers' average buying rates, e.g., some are heavy buyers, some light, and some do not purchase from the product category at all. This heterogeneity is taken to follow a smooth distribution of a Gamma type. This is usually skew reverse J-shaped, i.e., many light buyers and few heavy buyers.

   **Justification:** Theoretically, the distribution must be Gamma if buying of brand X is independent of (i) buying brand Y, and (ii) of X's category share for the individual consumer. Both of which are largely so in practice (see Ehrenberg 1988 Ch.13.)

3. **Assumption:** Each consumer's choices among the available brands follow a multinomial distribution. Each consumer is assumed to choose independently from a repertoire of brands. Thus a buyer with steady probabilities of 0.6, 0.3, and 0.1 (and virtually zero for the other brands in the category) will choose their 0.1 brand on 10% of buying occasions in an as-if-random fashion independently of the brand bought on the last occasion (i.e., zero-order).

   **Justification:** Technically this is a multinomial distribution of choices.

4. **Assumption:** These choice probabilities follow a multivariate Beta or "Dirichlet" distribution across different consumers. Consumers show substantial variation from each other in their brand choice probabilities (and hence their repertoires). These differing choice probabilities are assumed to follow smooth distributions across consumers of a particular multivariate Beta or "Dirichlet" type.

   **Justification:** The theoretical justification for this comes from the near independence of brand choice and the unsegmented nature of such markets. The proportion of purchases devoted to one brand is independent of the way the remaining purchases are distributed between the other brands. Buying a particular brand does not affect the way probabilities are allocated to other brands in the category. This assumption of no market partitioning is discussed more fully shortly.

5. **Assumption:** These choice probabilities are independent of purchase incidence across different consumers. So market shares should be the same for lighter, and heavier category buyers, which empirically has been found to be mostly the case.
The first two assumptions combined say that the number of customers that buy 0, 1, 2, 3 etc times in any chosen time-period should follow a Negative Binomial Distribution, which was the original single brand model (see Ehrenberg 1959, Ehrenberg 1988).

The Dirichlet’s assumptions mean that the model applies to markets which exhibit two characteristics: (1) they are under stationary or “no trend” conditions and (2) the different brands show no special groupings, ie no market partitioning. It is an interesting discovery, surprising to many people, that so many markets exhibit these characteristics, and so consequently Dirichlet describes these markets very well. The reason why Dirichlet type markets must be stationary and non-partitioned is that non-stationary conditions would result in changes in individuals’ purchase propensities, and partitioning would violate the assumption of a Dirichlet distribution of purchase probabilities.

The first condition is precisely what makes Dirichlet useful for examining marketing interventions that bring about a degree of non-stationarity. Many people find this fact confusing – how can a model that assumes stationarity be used to evaluate interventions which, if they are having an effect, will make the market non-stationary? That is, the interventions will violate an assumption of the model and by (incorrect) implication render it useless. Since this is the methodological basis of this thesis it is explained more fully in the next section.

The latter condition of there being no partitioning often seems unreasonable to marketers, which is perhaps a reflection that marketing textbooks strongly imply that particular brands appeal to particular and distinct customer groups. The reality is that brands within competitive product categories appear to be close substitutes. The general lack of partitioning in repertoire markets is captured by the duplication of purchase law. The duplication of purchase law states that the dominant effect on duplication of purchase is simply a brand’s penetration or, in effect, its market share. Thus, any brand has many of its buyers also purchasing from the large share brands and only a few of its buyers also purchasing from small share brands. What percentage of buyers two brands will share with each other depends primarily on their relative market shares rather than on their ‘positioning’ (Ehrenberg 1988, Sharp and Sharp 1996)23. Deviations from the duplication of purchase law, ie market partitioning, tend to be the result of major

23 And thus it might be reasoned that differentiation is usually a product category rather than brand level phenomenon. That is no brands are more/less differentiated than their peers within the category, after accounting for a double-jeopardy share effect (Sharp and Dawes 1996).
functional differences/similarities between brands or distribution differences. Of course, within these partitions, or sub-markets, duplication is normal.

**Brand performance statistics**

A number of key performance measures can be predicted using the Dirichlet. It can predict, among other things, a brand’s:

- Penetration
- Buying rate, ie average purchase frequency
- Share of category requirements that the average customer devotes to the brand
- Proportion of solely loyal customers
- The proportion of customers who also buy another particular brand (this duplication of purchase statistic can be predicted for duplicated buying of each and every brand in the category)

It can also predict the proportion of customers who buy the brand 0, 1, 2, 3 etc times, and repeat-buying rates, eg the proportion of customers who bought in a particular period (say January) who repeat-purchase in a subsequent period (say February).

To do this Dirichlet needs surprisingly few inputs. It needs only one brand-specific input and that is the brand’s market share. And three product category numerical inputs are required:

1. The category penetration in a base period, eg the % of people who bought at least once from the category in January.
2. The average frequency of buying from the category per category buyer, during the base period.
3. The average number of different brands bought during the base period.

The impressive ratio between required inputs and the typically used outputs is neatly demonstrated by the following table (from Ehrenberg and Uncles 1998). The few necessary numerical inputs are filled in
on the table, the many output fields, under the columns marked T for theoretical prediction, are left blank.

The columns marked O are for the observed figures (not filled in). A comparison between the observed and theoretical (T) figures shows how well Dirichlet fits the market (see Ehrenberg 1993, Ehrenberg 1988, Goodhardt et al. 1984, Wright et al. 1998b for some examples). The fit across many different categories has turned out to be very good with little or no bias and small irregular scatter (and correlations across brands of 0.9+ for penetration-type measures) (Ehrenberg and Uncles 1998).

<table>
<thead>
<tr>
<th>Instant coffee</th>
<th>Brand Share</th>
<th>% Buying</th>
<th>Purchases per buyer</th>
<th>% buying once</th>
<th>100% loyal</th>
<th>Category Purchases Per buyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% buyers</td>
<td>Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>100%</td>
<td>31</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Any present</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folgers</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxwell House</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taster's Choice</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nescafe</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanka</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Point</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madim</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brim</td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Brands</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Brand</td>
<td>11</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Equivalent to the average number of different brands bought.
In practice, slightly different input computations are used in fitting the model. Panel data normally provide these inputs. Possessing panel data, of course, means that all the (observed) output fields are known (easily calculated). The (usual) value of the Dirichlet is not then in being able to estimate, ie know, these figures since in order to compute Dirichlet this information is typically already collected/computed. Dirichlet's value comes from being able to make predictions for subsequent periods and, most importantly, being able to compare the actual market with the theoretical, ie normal stationary one. This comparison, either with the market period that the Dirichlet was fitted on (as in this research) or with some future period (eg as in Ehrenberg et al. 1994), allows one to check if a competitive repertoire market is behaving as it should be expected to under normal, ie near stationary, conditions.

If a loyalty program is having a loyalty effect on a brand then some expected discrepancies will occur between the model's predictions and observed figures for the key performance measures listed above. This is because the model describes a normal stationary market, that is, the Dirichlet model provides predictions for a normal, competitive, repertoire market where no substantial changes to purchase patterns occur overall.

A traditional approach to assessing the impact of marketing interventions is to use a quasi-experimental design by capturing comprehensive "before" data and comparing this to post-launch data. This approach has considerable practical problems, particularly when it comes to assessing the impact of a mass market intervention such as a loyalty program. An alternative is make use of the known empirical generalisations concerning the repeat-purchase patterns in stationary or near stationary markets. By providing brand-by-brand estimates of the performance that would be expected if the market were stationary, Dirichlet can be used to assess non-stationarity for particular brands that have initiated major marketing interventions. Thus, Dirichlet can be used to provide a natural benchmark against which the impact of a loyalty program can be assessed. This baseline allows effects to be evaluated without using a classic before and after (loyalty program launch) experimental design. This is a very practical advantage since pre-launch data on

24 Researchers are developing ways to collect the necessary Dirichlet inputs without comprehensive panel data (see Wright et al. 1998a). This would allow Dirichlet to be used to calculate the many (stationary market) repeat-purchase statistics from just the few necessary inputs. Providing a substitute for some of the market structure information gained from commissioning buyer panels.

25 Together these two analyses allow for what is known as conditional trend analysis (CTA) (see Ehrenberg 1988 for more details).
individual's repeat-purchase behaviour is often not available and can not be collected post hoc, as was the case for the loyalty program examine in this thesis.\textsuperscript{26} This is just one illustration of the benefit and importance of developing empirical generalisations (and integrative theories such as Dirichlet).

Ehrenberg, Hammond and Goodhardt (1994) used a somewhat similar approach to assess the after effects of price promotions in the United States. Their approach differs from that used in this thesis in that here Dirichlet is fitted to a market 'in the grip' of a loyalty program, whereas Ehrenberg and colleagues fitted Dirichlet to a stationary market before the price promotion and then compared predictions to observed patterns post promotion. Ehrenberg and colleagues did not report on the nature of the market during the price promotion, other than the fact that there was a dramatic temporary sales spike (indeed it was this spike that was largely used to infer that a sales promotion had occurred). In this thesis I use the approach of comparing the current market directly to Dirichlet estimates (of stationary behaviour) fitted on that market. Markets are examined while a loyalty program is running and, in one category, also a substantial price promotion.

Another advantage of Dirichlet benchmarks is that they allow market share changes to be dissected into their component parts of gains/losses in purchase loyalty and gains/losses in numbers of customers. The ability to disaggregate market share like this is particularly useful for examining a loyalty program, since the program was expected to impact more on loyalty and less on customer 'acquisition', thereby deviating from the normal relationship observed between penetration (number of customers) and purchase loyalty.

An alternative methodology to evaluate such an intervention would be to conduct controlled experimentation, with the marketing intervention run in certain regions of the country and compared with "control" regions, the whole exercise being subjected to the principles and procedures of statistical experimentation. But imposing effective experimental control in marketing is usually very expensive, difficult (due to competitors' activities or other variable factors), and sometimes altogether impossible (as in this case where control sites would not have been possible) (Ehrenberg 1988 p.104). Furthermore, controlled experiments have to be planned in advance which requires prior knowledge of the loyalty

\textsuperscript{26} Note: the decision to utilise Dirichlet rather than a simple 'before and after' approach had been made prior to the launch of Fly Buys (outlined in the Australian Research Council Collaborative Grant application ‘Assessing the impact of marketing programs on customer retention/loyalty’ 1994).
program's intended implementation which is usually unavailable to those outside of the company introducing the loyalty program.

The Predicted Effects — “Excess Loyalty”

*This simple use of a general model is one of the most basic forms of practical pay-off to be gained from successful theoretical work. It is much more efficient than reference back to raw data or the use of controlled experimentation.*

(Ehrenberg 1988 p.84-85)

It is a well established scientific principle that data does not speak for itself but rather, should be interpreted within a theoretical framework (Chalmers 1976). In this case Dirichlet provides an interpretive guide. Dirichlet norms provide a baseline from which results can be interpreted. Such a baseline allows the effects of many marketing actions to be examined in some detail. Dirichlet allows a comparison to be made between what actually happened with what would probably have happened without the marketing intervention(s).

A competitive, repertoire, and near stationary market will fit Dirichlet patterns of repeat-purchase very well. That is, each brand will behave as it should in terms of repeat-purchase statistics (penetration, average purchase frequency, proportion of repeat-buying, etc). A market that has been successfully disrupted (ie is not stationary) by some brand-specific marketing activity will not fit perfectly, it will show brand specific deviations and these can be used to evaluate the impact of the program.

If a loyalty program was effecting changes in buying behaviour then this would be seen as upward deviations in purchase loyalty statistics and downward deviations in penetration for the brand that runs the loyalty program. Naturally if we wish to attribute causality to the loyalty program we would expect to see this effect confined to the loyalty program members. The expected downward deviation in penetration is not to say that the loyalty program brand would necessarily actually lose customers, that is, drop in penetration, though it might (this is discussed in the next section). A downward deviation in penetration, a deviation from Dirichlet predictions, is expected, because penetration will be out-of-kilter
with the growth in purchase loyalty. That is, the penetration growth, if there is any, should be less than would be expected given the corresponding increase in repeat-purchase loyalty. Normally brands with high, relative to competitors, repeat-purchase loyalty have very high penetration, ie they are large share brands. This is the “upside” of the famous Double Jeopardy effect (Ehrenberg et al. 1990). Brands showing “excess loyalty” don’t simply (or even necessarily) have more loyalty than other brands, they have too much purchase loyalty for their penetration level, or put the other way round, their penetration level is too low for their level of purchase loyalty. For more on “excess loyalty” see (Sharp and Sharp 1997a, Fader 1993, Kahn et al. 1988).

In addition to these deviations from Dirichlet purchase loyalty predictions, there should also be a higher than normal duplication of purchase between the participant brands in the same industry and far less switching to non-program brands, that is, the loyalty program should create a degree of market “partitioning”.

What a normal market looks like

A normal Dirichlet type market displays the following patterns, patterns which a loyalty program might disrupt:

- Double Jeopardy – brands with less marketshare have fewer customers (lower penetration) and these customers buy the brand less often (lower purchase loyalty).

- Brands of differing marketshares show considerable variation in penetration but far less variation in average purchase frequency (and other purchase loyalty statistics).

- Duplication of Purchase law – brands share customers with each other in line with their marketshares.

---

27 A before and after research design would allow us to see if any “excess loyalty” position was due to an increase in purchase loyalty or a decrease in penetration. In this research I do not dissect the changes that bring about excess loyalty I simply record it. However, an increase in average purchase frequency is more plausible.
• A brand's customers generally buy other brands far more often (ie your customers are the customers of other brands who occasionally buy from you (see Hammond et al. 1996b)), so that the average share of category requirements that a brand fills is usually much less than 50%.

• The proportion of a brand's customer base that is solely loyal (ie only buys that brand) is small, typically less than 10% and this declines with time.

Note: The last two patterns do not hold in subscription markets where customers do not typically buy from a repertoire of brands (see appendices for a working paper outlining the differences between subscription and repertoire markets). In subscription markets the Dirichlet 'S' statistic would be very low (in the subscription markets in this thesis S is around 0.1). Amongst other things S is an indicator of the degree of differentiation in the market; the degree to which brands are separately partitioned. An S of 0 would indicate that each brand is, in effect, in its own market. The low S figures for the subscription categories shows that here the brands do not share customers much, customers do not typically hold repertoires of brands. Little is actually known about the fit of Dirichlet to such markets, although not the focus of this thesis it does make an important contribution by shedding some light on this.

Evaluating a Loyalty Program — why not just use market share?

A loyalty program could have an effect like a long term promotion, that is, it could increase market share and this market share gain might come about in the normal manner, that is through a substantial gain in penetration (number of customers) and a small increase in average purchase frequency (and other repeat purchase loyalty measures) (Ehrenberg et al. 1990). However, a more likely effect, given the nature and objectives of loyalty programs, is that the result would be an increase in purchase loyalty without the expected degree of increase in penetration. Thus the result could be referred to as a "large" increase in purchase loyalty for a 'small' (even zero) increase in market share.

It is worth considering that a loyalty program may be effective on a number of purchase loyalty measures, as listed previously, while market share and overall sales remain relatively stable or even perhaps decline. Such behavioural change may be of great benefit to the firm in spite of not bringing about increases in revenue. Increased purchase loyalty may allow the formation of closer relationships with customers, allowing the firm to become more knowledgeable about its clients' needs and wants and be able to
provide better service at a lower cost. It may also reduce marketing costs, in that the firm need spend less
on convincing customers to return. And it may raise barriers to entry to the market, lessening the chance
of future competitive threats; for example, it is more difficult to enter the airline industry today because of
the additional requirement to have a frequent flyer program.

Moreover, a loyalty program need not lift sales revenue to be a success in financial terms. As discussed
previously, if a loyalty program increases the certainty of future income flows, through decreasing the risk
of losing customers (revenue providers), then it may have a real, and perhaps substantial, impact on
shareholder value without affecting current revenue or market share levels.

It is not sensible, therefore, to use market share gain alone to evaluate a loyalty program. Even if a sales
increase can be directly attributable to a loyalty program, and not some other influence, it is questionable
whether this is an appropriate aim for a loyalty program as there are many other more simple and less
risky paths to achieving this objective. Indeed, substantial sales gains may be an indication that the
program is giving away too much value to the customer, to the firm’s financial detriment. Likewise, there
is the danger that a loyalty program might be incorrectly judged a failure if sales were not improving even
though other benefits were accruing to the firm.

There are other practical problems in assessing the impact of a loyalty program (or any marketing
intervention for that matter) via market share movement:

Firstly, it is a clumsy and blunt measure. As discussed, changes can occur, indeed are even expected to
occur, in the underlying structure of the market share (number of customers of purchase frequency) while
market share remains relatively stable. And changes in sales and market share that are brought about by
marketing interventions can be very small, difficult to assess without very accurate measures and large
samples. Separating sales gains from seasonal and other effects can be very difficult. We would not
expect a loyalty program to produce a substantial shift in market share, marketing interventions seldom
do. Using Dirichlet to identify excess loyalty is by comparison a more sensitive measure because it
examines the underlying structure of the market share. Thus, as will be shown, it is able to detect small
changes and very early in the launch of the loyalty program. This was one of the key practical reasons this
methodology was chosen prior to the loyalty program’s launch.
Secondly, marketshare is a relative measure, ie sales compared to all other brands' sales. While this has the advantage of controlling for changes in overall category sales, eg due to seasonality, it means that marketshare as a measure of loyalty program effect is very susceptible to the impact of other brands' activities or lack of activities. If a competitor launches an advertising campaign (or withdraws a campaign) or any other action at the time of the loyalty program launch this makes it difficult to interpret any marketshare shifts. This problem is especially pertinent during the first six months or so of the launch period when competitors are likely to undertake retaliatory interventions. Because the methodology employed in this thesis looks for a very specific effect, "excess loyalty" for the loyalty program brand and confined to loyalty program members, confounding effects are far less of a problem.

In summary, there are substantial practical problems associated with using marketshare to assess the impact of a loyalty program, especially in the short term. The required length of time needed to identify a real "permanent" marketshare shift in itself lowers the value of marketshare measures, particularly for competitors to the loyalty program brand. Finding out one year or more "down the track" that a loyalty program has effectively locked-in a proportion of the market would be distressingly too late.

In this thesis I focus on assessing the impact of a loyalty program in terms of it bringing about unusually high purchase loyalty without giving the firm corresponding large numbers of customers (increasing market penetration). This may occur with or without a gain in market share, at least in the short term. The issue of longer term market share gains (with corresponding normal increases in purchase loyalty) is fairly easily addressed via traditional market research or pooled sales data, whereas determining whether "excess loyalty" has been generated requires an understanding of what level of purchase loyalty is normal for any brand. Fortunately an existing theory of repeat buying behaviour, Dirichlet, provides this understanding.

Sidenote: The Effect of Multiple Participants

FlyBuys is a multiple participant loyalty program where members can accumulate points from buying from a number of participating store brands across retail categories. Such a structure has several implications that might conceivably prevent the program from achieving excess loyalty (in the sense of increasing repeat-purchase loyalty of the customer base without the expected corresponding effect on penetration).
Firstly, multiple participation, particularly by big brands across a number of commonly purchased product categories, could signal to customers that points acquisition is easy and inevitable. If one presumes that customers value their ability to be disloyal, i.e., to sample brands across the product category, then such a scheme is attractive because customers do not feel that they have to give up this behaviour in order to gain the reward. While this is a potential trap for multi-participant programs, Fly Buys requires substantial point accumulation before a reward (a free flight) is earned. It might, therefore, be expected that many customers concluded that a change in buying behaviour was required in order to accumulate points within a reasonable time period. Nevertheless, a number of Fly Buys members will have concluded that the multi-participant nature of the program would allow them to accumulate substantial points without changing their repeat-purchase behaviour. Thus excess loyalty would not occur because there is no change in behaviour.

Secondly, multiple brand participation could result in the loyalty program attracting new and light buyers to a brand thereby partially cancelling out any observed aggregate loyalty effects. As previously discussed, when some marketing effort is successful in increasing a brand's sales it has a large positive effect on that brand's penetration rate and a very small positive effect on average purchase frequency (Ehrenberg et al. 1990). This would appear to come about through an increase in average purchase frequency by existing customers being counter-balanced by the gaining of a significant number of new, but lighter or average, buyers. As discussed previously, a loyalty program should have a greater than expected effect on average purchase frequency given the brand's penetration level (alternatively this can be expressed as it having a smaller than expected effect on penetration given the brand's average purchase frequency). However, a multiple participant loyalty program is likely to attract some new light buyers to any brand in the scheme. These will be consumers who are heavy buyers of other brands in the program and hence see benefit in joining the program, but previously light or non-buyers of the one brand in question. It is in their interest to now add this brand to their repertoire, hence that brand gains some new customers.

28 Of course an intention to change behaviour does not necessarily mean that there will be a change in behaviour.

29 The alternative explanation that marketing efforts result in attracting new heavier than average buyers while not affecting current customers purchase behaviour seems implausible, though (East 1997) points out that exactly how increased sales are distributed has not yet been examined empirically.
(increasing penetration) and they are light customers and so have a depressing effect on average purchase frequency.

This potential effect needs, however, to be viewed in perspective. Loyalty programs are still most attractive to consumers who are heavier buyers of the brands in the program and least attractive to light buyers of these categories. Fly Buys members were, on average, heavier buyers of Fly Buys brands (see tables in chapters 6 & 7). If the multiple participant nature of Fly Buys had attracted some new lighter buyers to any of the brands it can not have been many. In all likelihood they were balanced by the loss of light buyers who moved to other brands in the category attracted by promotional initiatives which were no longer being run by the Fly Buys brands.

Assessing the fit between Dirichlet and the observed market figures

It is immediately apparent in all the repertoire market analyses in the upcoming chapters that, while there are deviations for some brands, the model still describes the market reasonably well. Usually in near stationary markets the Dirichlet predictions match the observed figures for each brand with deviations no more than a point or so for penetration and +/- 0.1 for average purchase frequency (see Goodhardt et al. 1984, Ehrenberg 1988, Ehrenberg and Uncles 1998). On one hand, this good fit is to be expected since the repertoire markets studied here are typical of a "Dirichlet type market" and have been modelled successfully previously. On the other hand, there is good reason to suspect that these market is far from being stationary, after all, a major loyalty program has just launched. While stationarity is one of the assumptions of the Dirichlet model, it is an emerging generalisation that the model is able to "cope" with quite a substantial degree of non-stationarity. In particular, it seems that the non-stationarity of one or two brands is not sufficient to badly upset the overall fit, and predictions for the other brands, much. It is this feature that makes the model so useful, if it broke down under non-stationary conditions this would severely limit its practical use in assessing marketing interventions. Likewise, if it always fitted perfectly (ie even in non-stationary conditions) it would also be useless (consistently perfectly fitting models tell us little about the empirical world that we do not already observe).

But there is still the question of when a deviation is real and when is it due to sampling error or just general bad fit. While the latter can be assessed by examining the overall picture for all the brands, and
the average brand, sampling error is difficult to assess. The sampling errors associated with Dirichlet statistics have had relatively little published investigation. There does not exist an available test of statistical significance to test differences between observed figures and those predicted by Dirichlet. There is also some disagreement among researchers regarding whether such a test would be of much practical value since deviations tend to be rare and easily spotted.

One of the problems with estimating sampling error for the Dirichlet is that, while it is common to treat samples in time as equivalent to samples in space, this is not strictly true with the Dirichlet assumptions. These problems of sampling error are beyond the scope of this thesis and addressing them would require a separate research project using sampling simulation.

Thus, in this thesis I made use of the accepted rule of considering a discrepancy between predicted and observed penetration of three percentage points or more likely to be ‘real’ and important, likewise for purchase frequency a discrepancy of 0.3 or more is considered a deviation. Therefore ‘excess loyalty’ would be clearly evident if a brand had at least a purchase frequency of 0.3 occasions higher than predicted and penetration of three percentage points lower than expected.

**Use of purchase incidence rather than value**

All the modelling in this thesis uses purchase incidence as is normal with Dirichlet modelling. Early work was conducted with the NBD handling differing pack sizes etc. Gradually it was realised that a purchase occasion approach would work better and allow multi-unit purchases and the aggregation of different pack sizes to be dealt with by the same theory (Ehrenberg 1988 p.10). However, one desirable effect of a loyalty program would be to increase the average amount bought on each purchase occasion and this is not explicitly considered in the research methodology described so far.

Increasing the average amount purchased is presumably difficult, as it has been shown to typically be stable across brands (Ehrenberg 1988, p 10 & 53). In an effort to address this, many loyalty programs, including Fly Buys, make use of “points barriers” where buyers do not earn a point in the loyalty program unless the dollar value of the single purchase occasion exceeds a points barrier. These barriers are often set at the average purchase amount, or slightly higher, in an effort to encourage additional expenditure, though this does not seem to have been the case with FlyBuys. For example, in FlyBuys, expenditure of
$20 at a retail fuel outlet was required to earn one point, and additional points were given for each $15 after that. In this case it was hoped was that small dollar value purchasers would be encouraged to buy something extra at the convenience store associated with most petrol stations in order to break the points barrier. Additionally, the lower incremental point barriers (ie $15 increments) would provide general encouragement to spend more on each occasion.

One factor that might inhibit this effect would be a lack of consumer knowledge of the point barriers. Members are less likely to alter expenditure if they are unsure of the desired behaviour. Retail fuel buyers were surveyed on their unprompted awareness of Fly Buys points barriers at the end of the panel which tracked their buying behaviour. Knowledge levels were very low, “don’t know” being the most common response by far. A low proportion, considering the opportunity to guess, identified that a minimum expenditure of around $20 was required to earn one point. Only 23% of Fly Buys members correctly identified that $35 earned 2 points, suggesting that few appreciated that there was a lower secondary points barrier. When respondents who were Fly Buys members were told of the $15 second points barrier only 15% said they knew this. Thus, the lower marginal barriers are unlikely to have an incentive effect for members.

Other factors that may inhibit increases in average purchase value include that members may stop purchasing once they have reached a points barrier (ie decrease their typical purchase value) and/or on occasions when they forget to carry their Fly Buys card and might deliberately buy a small amount.

It might, however, be argued that even without knowledge of the points barriers Fly Buys encourages customers to buy more. Members simply need to appreciate that the more that they spend at a Fly Buys site the more points they earn (the Fly Buys slogan is “The More You Buy The More You Fly”). However, considering the difficulty in increasing category spend and average spend per purchase occasion it seems very unlikely that this occurred in any of the Fly Buys categories studied in this work.
Replication

An important and somewhat novel aspect of this thesis is that replication/extension is built into the research design. This benefits the research in two major ways, (1) it provides increased confidence in the results, that they are not just an accurate record of a one-off happening or an artefact of a particular aspect of the research implementation (like a mistake!), and (2) it gives some empirically based insight into the generalisability of the findings and into factors which affect the results. Both of these very substantial advantages seem largely to be ignored by marketing 'scientists' because replications are very rare and very few researchers build replications into their original research projects. It is possible that this is, at least in some cases, due to ignorance of the limitations of a single study, a single set of data. It is also possible that researchers, often mistakenly, feel that there are other ways of overcoming the limitations. For example, researchers may feel that gaining a statistically significant result means that it is someway 'real' (ie not in error) and that it must generalise to the real world, when all it really indicates is that the chance that the result is due to random sampling variation is quite small – which can be an extraordinary long way from meaning that the result in anyway reflects the real world or that it generalises to any population. And it tells us nothing about which population(s) the results do and do not generalise to.

There are many other reasons why so little replication work is undertaken in marketing, such as editors discouraging the publication of such works, unwillingness of researchers to submit papers which contradict original works (and instead dismissing their own results as mistakes), perceptions that replication work is boring or unoriginal or even not challenging, and difficulty in gaining the necessary information from other researchers in order to replicate a study (see the following for more on these and other reasons Hubbard and Armstrong 1994, Reid et al. 1992, Amir and Sharon 1990). That replication research is so rare is a great shame. It means that many of the findings we consider as true are not, and it means that our knowledge is severely limited because we have a very shallow understanding of the true generalisability of our theories.

Replication is vital to overcome some of the fundamental problems of empirical research. Such research is always prone to subjectivity and uncertainty, no matter how rigorous the research design. The many causes of this subjectivity and uncertainty include (Wright and Kearns 1998):

1. Sampling error;
2. the dependence on fallible 'instrument' theories underpinning the data collection procedures;

3. the possibility of some confounding influence such as an unrecorded marketing activity or fluctuations in the business environment

4. the possibilities of psychological subjectivity, bias, error, or plain dishonesty from the observing researcher(s)

These issues lead to the conclusion that empirical data can only support it can never prove a theory, and that even falsification of theories is prone to subjectivity and uncertainty. However, in spite of the arguments of some, this still means that we can develop reasonably objective knowledge about the world through observation. Replication plays a crucial role in achieving this through helping to overcome the problems of observation, for example (Wright and Kearns 1998):

1. Further samples reduce the problem of sampling error

2. Different data collection methods make our observations somewhat independent of the bias arising from one particular method

3. Different times, places, and markets reduce the effects of confounding influences

4. Additional observers reduce the influence of subjectivity, bias, error, or dishonesty of a single observer of the results

Added to this, replication makes the substantial contribution of providing empirical evidence of the degree of generalisability of the findings/theory. The conclusions of a single study always include, either implicitly or explicitly, speculation concerning under what conditions the results hold. No matter how well thought out this remains as speculation until further studies are conducted. Without replication there is the almost certainty of researchers over-generalising their findings (eg. no one really wants to say that their finding only applies to 107 North American University students from one particular

---

30 That this knowledge will be fallible puts us in no worse position than that of physics and biology (Wright and Kearns 1998).
undergraduate class, who have since graduated and dispersed \(^{31}\). Not knowing when a theory holds and when it does not renders it pretty well useless, thus replication is absolutely vital for scientific progress.

No replication is ever identical to the original study, and there would be little point in conducting such an identical replication for it must logically produce identical findings unless a mistake is made in the replication (Stern and Ehrenberg 1996). Close replications are useful for sorting out whether the original findings are just the result of some research error or bias, or that the finding was pretty much a one-off event (eg like a chicken's pecking pattern being correctly associated with success in battle\(^{32}\)) for whatever reason. Differentiated replications, if they concur with the original study's findings also suggest that the first result is trustworthy and that it generalises to some new conditions. If a differentiated replication does not concur with the original study's results then it is not clear whether the new conditions represent boundary conditions or whether the first, or second, result is trustworthy. Thus a sensible research program approach seems to be to begin with close replications, then once satisfied about the reliability of the findings move onto more differentiated replications where the emphasis is now on determining the degree of generalisability (Lindsay and Ehrenberg 1993). Though a program that makes immediate use of differentiated replications can potentially progress quickly.

Replications can be made increasingly different from the original study in many ways through changes to variables that are part of the theory, or changes to variables that were originally omitted but might play a role. It is very much a matter of judgement as to what constitutes a major or minor departure from the original, or subsequent, studies. The research in this thesis consists of seven studies covering five different product categories (retail fuel, department store chains, credit cards, telecommunications and supermarket chains) and two countries (Australian and New Zealand). It could also be considered to cover two loyalty programs, although they were virtually identical. There are therefore various ways of interpreting the research results. For example they could be viewed as:

- Four close replications (fuel, dept. stores, supermarkets and credit cards in Australia) followed by three more differentiated replications (fuel, credit cards and telecommunications in New Zealand).

\(^{31}\) Such as Aaker & Keller's work on the transferability of brand names in brand extensions (Aaker and Keller 1990). Fortunately this work was later replicated showing different results in different circumstances (eg Sunde and Brodie 1993).

\(^{32}\) Used by some ancient Romans to predict future success in battle.
• Two close replications (fuel in New Zealand and Australia) and another two close replications differentiated from the first two (credit cards in New Zealand and Australia), followed by three more differentiated replications in different product categories.

• One study (fuel in Australia) followed by differentiated replications: four in different product categories, two of which were in a different country (very differentiated), and one differentiated only by country.

There are indeed a very wide variety of bases on which to group and distinguish these studies, for example, firm concentration in the industry, intensity of promotional expenditure, whether the studies shared respondents or not, degree and nature of competitor retaliation to the loyalty program launch, past history of promotional practice in the product category, whether the retail outlets where owned by the program participants or were free agents, degree of brand image differentiation in the category, capacity of consumers to make price comparisons between in the product category, whether the loyalty program was launched by a major or minor brand in the category, etc. This highlights the degree of interpretation and creativity required to analyse the results of replications. The scientist must still make subjective judgements about what is likely to matter and what is not, though these judgements are put to the test by the results of the differentiated replications. The scientist still puts forward their best explanation/theory yet to explain the, always limited, set of studies. Replication helps build confidence in our findings and our speculation regarding their degree of generalisability, but it can never provide absolute proof of theories, it just gives greater certainty. Without replication there is no certainty whatsoever.

Fortunately, as will be seen, the differences in the results between the studies in this thesis are not generally large, and there appears to be a consistent trend towards weak excess loyalty across most of the studies. Thus while many factors might create differences between the studies the fact that not a great deal is observed means that there is not a lot extra in need of explanation. This is an important aspect of science: data reduction, or giving us guidance concerning the things that do and do not effect things. For example, it might be necessary to take into account differences in brand image in order to explain differences in brands' purchase loyalty levels (many marketers probably think so), however, this turns out not to be the case (Ehrenberg 1988). Knowing this is useful, just as it is useful to know that it is not necessary to sacrifice virgins in order to make a solar eclipse end, or to take into account the pecking of
sacred chickens to order to estimate the chances of success in battle. It is very useful to know what matters and what does not; it can save a lot of time and effort, as well as improve the validity of predictions and forecasts.

I have chosen to treat the studies in the repertoire categories as three close replications (fuel, department stores, and supermarkets), all conducted in Australia, and one differentiated replication conducted in the New Zealand retail fuel market. I take this view because the first three studies share a number of similarities, the loyalty program is exactly the same, the data is collected at exactly the same time (which, of course, means the same time after the program's launch), from the same respondents, in the same state and country. They differ in that they are different product categories, with different brand shares, histories, marketing efforts etc.

The New Zealand retail fuel market study was conducted in another country, at another time, from different respondents, plus all the other changes that go along with these changes. Particularly pertinent was the fact that this market was known to be 'promotion sensitive' with little brand level differentiation (including price differences) and unusually high profit margins for this product category. And a substantial promotion was launched by one brand to counter FlyBuys.

The subscription categories (credit cards and telecommunications) I have treated as differentiated from the repertoire categories. Within these subscription markets there is one close replication (credit cards in Australia and then again in New Zealand) and as expected this shows similar results.

The research team, including many of the telephone interviewers, was consistent across all studies as was the data collection method, and the loyalty program itself was almost identical in each product category.

33 Indeed one of the motivations for one of the oil companies to be involved in the funding of this research was that they were scared of losing what they considered to be very valuable marketshare due to the loyalty program.
Chapter Five — Description of the Loyalty Program and the Product Categories

This chapter provides some detail on the loyalty program FlyBuys and the product categories where its impact was evaluated. FlyBuys is a mass consumer loyalty program, one of the largest in the world. It covers multiple product categories, mostly brands of retail outlet but also credit cards and telecommunications. It was launched in Australia and later New Zealand. Studies were undertaken in several Australian product categories, credit cards, department stores, grocery stores, and retail fuel. In New Zealand credit cards and retail fuel were examined again, plus home telecommunications (toll calls). This chapter provides some background information on each of these product categories/markets.

FLYBUYS

FlyBuys is the largest customer loyalty scheme in both Australia and New Zealand. The retail outlets involved represent more than 20 percent of Australian retail spending and cover not just store patronage but also credit card usage and petrol sales. The program offers points to shoppers (for store patronage) that can be redeemed for free air travel or accommodation. In many ways it is a retailing version of the airlines’ frequent-flier schemes. Typically customers earn one point per every $20 spent, though the points barriers vary across the categories.

FlyBuys is run by a joint-venture company called Loyalty Pacific Pty Ltd, which is owned by several of the companies utilising the FlyBuys loyalty program. The consortium companies pay Loyalty Pacific a fee for each point that is issued under the scheme and Loyalty Pacific, in turn, purchases the relevant air tickets from Qantas, Ansett and Air New Zealand. The initial cost of setting up and introducing

---

34 The National Star (National Australia Bank Staff Newspaper), issue 21, 19 July, 1994, p.1. Much of the descriptive detail in this chapter comes from trade publications and the national press. These references are footnoted rather than including them in the academic bibliography.
FlyBuys is believed to have been many tens of millions of dollars. FlyBuys annual operating budget has been reported to be $20 million.35

Prior to the Australian launch Loyalty Pacific funded more than 10 studies across the country that questioned 4500 households about their attitudes to different types of reward programs. A large proportion preferred travel-related rewards (not surprisingly, cash was the most popular reward) and were willing to participate in schemes for more than a year to get a free flight. Loyalty Pacific also examined 53 customer-reward schemes overseas before formulating the FlyBuys scheme.36

**Australian Launch**

The program was launched in Australia on August 29, 1994 accompanied by considerable promotion and press interest. It was considered by many to be the “marketing event of the year” (Anonymous 1995). The program covers all purchases made at participating stores (or with the participating credit card), consumers are required to present the FlyBuys magnetic swipe card along with payment to collect the points. 10.8 million brochures were printed for the launch, the largest print run in Australia since the last census, and 2.4 million plastic (magnetic swipe) membership cards, the largest production run since the introduction of Medicare (the national public health program).

The principal companies/brands involved were Shell petrol, the National Australian Bank, and Coles-Myer - a retailing conglomerate which represents more than 20% of all retail spending in Australia but is mainly made up of department stores (Myers, Grace Brothers, Target and Kmart) and supermarkets (Coles). Telstra Australia, then called Telecom, also joined FlyBuys though not immediately and it withdrew after a year or so. FlyBuys was launched with the objective to have 350,000 members in its first week of launch (achieved largely by signing up all the employees of the participant companies), one million by the end of the year and 1.6 million members by its second year of operation.37

By April 1995, seven months after the launch, the scheme had a membership of 1.3 million households, which represents 21 percent of all households in Australia and about 2.7 million people. Not surprisingly the membership base has been reported to cover all ages and socio-economic

---

35 Reward Plan Wins a Few Points With Customers, BRW, February 20, 1995, pp.64-66; Gotta Fly!, The Weekend Australian, April 1-2, 1995, p.17


groups. More than 4000 people earned a free flight with the first seven months of launch with 10,000 being “ready to fly” by having 550 points or more accrued, sufficient to undertake a domestic “mystery flight”\textsuperscript{38}.

Initially in Australia, FlyBuys attracted a significant amount of media attention, though many of the commentaries tended to be negative. A typical mainstream media article documented the mechanics of the program and then commented on the large amount of expenditure that was required by consumers in order to accrue sufficient points to receive a ‘free’ flight. Most critics claimed the figure was $17,000, Dr Peter Langkamp, then General Manager of Loyalty Pacific, countered saying that only expenditure of $12,000 was required\textsuperscript{39}. Differences of opinions over such ‘facts’ arose because of differences in type of flight (eg “mystery flight” versus normal domestic trip), the type of expenditure mix (the number of points awarded depended on the type of expenditure eg takeaway cooked chicken versus petrol), and whether the expenditure was undertaken with a National Bank credit card (which earned bonus points). Commentators clearly also varied in the extent that they considered the expenditure was ‘additional’ or just normal expenditure, in which case the free flight was ‘something for nothing’.\textsuperscript{40}

Coverage in the marketing professional and trade literature seemed almost schizophrenic. FlyBuys received an incredible amount of discussion and loyalty programs in general were enthusiastically advocated as a necessary tool for every marketer. Yet marketing commentators and managers also often echoed the concerns of the mainstream media, eg:

\textsuperscript{38} This is generally the cheapest airfare available in Australia. Customers can book a time but not a destination. When they arrive at the airport they are told which other state capital city they are flying to. These flights are generally used for fun tourism/shopping days.

\textsuperscript{39} “Reward Plan Wins a Few Points With Customers”, BRW (Business Review Weekly), February 20, 1995, pp.64-66

\textsuperscript{40} This issue presumably affected consumers’ decisions whether or not to join the program, at least for those who thought much about it. And, of course, it strikes at the heart of whether the loyalty program could change buyer behaviour. For many consumers who already undertake significant expenditure on the loyalty program brands whether the amount of expenditure required to earn a flight was $12,000 or $17,000 should not make much of a difference, flights are guaranteed for them at no cost. For customers who do not normally buy these brands the issue is much more pertinent, because in order to gain a free flight they would have to move expenditure away from their usual brands to the loyalty program brands or (unlikely) they would have to undertake extra expenditure.
It [FlyBuys] is not a loyalty program so much as a frequency deal in the form of an extended sales promotion, like a frequent flyer program. And it is not a good one either, as the reward is difficult to achieve and not to everyone’s taste.


Comments that FlyBuys was not really a ‘loyalty’ program were very common, along with slogans like “you can’t buy loyalty it has to be earned”. This essentialist debate concerning what is a ‘real’ loyalty program seemed to stem from the term loyalty, as discussed previously, normally being used in the context of human relationships and thus bringing a host of connotations not necessarily relevant for the marketing situation (Hammond et al. 1996a).

My discussions with marketing managers in Australia at the time uncovered similar opinions. There generally was a lot of interest and support for loyalty programs, and yet most were sceptical or unwilling to positively endorse FlyBuys, and some were downright negative about its chances of success. I found the logic behind such opinions difficult to comprehend. There was an interesting tendency for manangers to give their own loyalty efforts the title of ‘loyalty program/initiative’ and yet tend to dismiss other programs, such as FlyBuys, as promotions or ‘bribes’.

New Zealand Launch

In New Zealand FlyBuys appeared to receive far less negative press coverage, perhaps due to Loyalty Pacific and partners learning how to quickly counter the issues that the Australian press had picked up on. The tone of press articles was far more that FlyBuys represented a bonus for customers, or a sensible reward for loyal behaviour. This perhaps partially explains the faster adoption of FlyBuys by New Zealand consumers.

FlyBuys was launched in New Zealand in September 1996, nearly two years after its launch in Australia. The scheme, its marketing communication, and its branding was virtually identical to FlyBuys Australia. The programs were separate though and retailers in New Zealand tourist spots quickly got used to spotting Australian FlyBuys cards and explaining to Australians that they were not valid in New Zealand41. The participating companies/brands were similar except that Coles-Myer was

41 I observed this in both Rotorua and Auckland.
not involved, in its place was another supermarket chain and various other retailers. The Bank of New Zealand, owned by the National Australia back, was the NZ credit card brand.

Participants Stated Objectives

There were a range of opinions concerning the objectives of the companies participating in FlyBuys. My discussions with managers from these companies, from Loyalty Pacific (the company running FlyBuys), and from competitors gave me the impression that, in most cases, the marketplace performance objectives were typically broad, not necessarily well thought out, and there were significant differences of opinion even between managers within the same department. Marketplace performance objectives were typically vague such as “increase loyalty” (not defined), “increase sales/markets”, “win new customers”, or all of the above.

Like many marketing departments there appeared to be a strong operational production-like focus, and, not surprisingly, the specific objectives were of this nature. Things like launching the loyalty program on-time without technological, legal or administrative disruptions, signing-up a certain number of members, getting cards to members etc. Nearly all of the released figures ‘proving’ FlyBuys success related to such operational achievements.

Nevertheless a number of ‘strategic’ objectives were claimed. For example, Shell allegedly wished to use the program to accelerate the rationalisation of its retail network: the petrol stations Shell wanted to close in the next few years were not included in FlyBuys.

The Australian Financial Review (April 8, 1994, p.1&34) reported that Shell’s new marketing strategy was aimed at reinforcing “brand loyalty” with existing customers and as a mechanism to woo new customers from other retailers. It was the first major marketing push by a petrol retailer to win a significantly new slice of market share for a number of years.

The National Australia Bank reportedly saw FlyBuys as a device for attracting more credit card customers and increasing its credit-card sales volume. It reported a lift in its credit-card business, with a 50 percent increase in applications during September and October immediately post-FlyBuys launch in Australia.

Most marketing exercises offer incentives to attract new customers, and tend to take existing customers for granted. So while we're confident the program will attract new business to the
Coles Myer allegedly hoped FlyBuys would lift its sales, overall Coles Myer had been performing poorly compared to its main rival Woolworths. At least for the first few financial years post-FlyBuys this continued to be the case.

The big membership that FLYBUYs has attracted is not surprising: the program was heavily promoted and membership is free. Some Coles Myer executives say the sales growth is less than expected.

There is anecdotal evidence that FlyBuys has boosted sales in some of the 10 Coles Myer chains, particularly Coles Supermarkets, Myer and Grace Bros. Langkamp quotes research showing that 3 percent of FlyBuys members had not previously shopped at Myer-Grace Bros and 9 percent are new customers for Coles and Bi-lo. ... Coles Myer's supermarket and department store divisions are happy with the impact of FlyBuys, but other divisions are less than impressed (Reward Plan Wins a Few Points With Customers, BRW, February 20, 1995, pp.64-66).

Individual arms of Coles Myer allegedly had their own motives. Myer-Grace Bros, for example, apparently saw FlyBuys as a useful marketing tool while it moved away from price-cutting and tried to position its stores more upmarket.

FlyBuys is all about building the loyalty of our customers. Of course - as with any marketing program - we also hope to encourage new customers to shop with us, rather than our competitors (Peter Bartels, Managing Director, Coles Myer, The Australian, July 20 1994, p.30)

Telecom gave FlyBuys points on the two products it faced most competition from new entrant Optus Communications, presumably to discourage switching to Optus. Telecom joined FlyBuys later than other participants in January 1995 and withdrew in June 1997.

This thesis only evaluates the marketplace impact of FlyBuys, that is, in terms of its ability to alter repeat-buying patterns in the marketplace. It does not seek to evaluate FlyBuys performance against
the myriad of other objectives that participating companies may have had. It is possible that FlyBuys could achieve some of these objectives without impacting on loyal behaviour patterns, though clearly this is not true for many of the above stated objectives.

**Australian Department Store Market**

Department Stores represent a very significant part of the Australian retail scene, particularly for Christmas season shopping. In Adelaide, where the data was collected, this is especially so. Adelaide is a well planned city of just over a million people, with wide roads and good parking. There is a central shopping district in the city, a long mall closed to traffic called Rundle Mall. A large proportion of total shopping is done in this district and it featured five large department stores at the time of the research. Department stores sell a broad range of merchandise including clothes, cosmetics, white goods, sporting goods, electronics, furniture, glassware, crockery, prescription glasses, computers and even pets, they also have their own cafes, hairdressers and provide other services such as carpet cleaning.

There were six main department stores operating in Adelaide during the research and several other retailers that were similar though with a smaller product range. The six main store chains were David Jones, John Martins, Harris Scarfe, Myer, Target and Kmart, these last three all being FlyBuys participants (they were all owned by the Coles Myer company).

These departments stores traditionally hold large sales immediately after Christmas and, six months later, around the middle of Winter. Target, Kmart and, to a lesser extent, Harris Scarfe also undertake periodic promotions eg 10% discount on everything in the store for one day or more. These last three being seen as ‘discounters’.

All of the more traditional, and larger, department stores (Myer, David Jones, John Martins, and Harris Scarfe) offer store credit cards. These do not offer any discount and the credit rate on them is generally quite high but they are fairly easy credit to obtain. They are only for use within the store.

**Australian Grocery Market**

Six supermarket chains operated in Adelaide at the time of the research plus numerous smaller grocery outlets. The key supermarkets in this industry were Woolworths, Coles, Bilo, Foodland and Franklins. To reduce the enormous amount of information collected with panel data to a manageable
size, most tables refer only to these major operators. The other smaller brands included such operators as Jewel, Supa-Valu, Triple Seven, Serv-Wel, Cheap Foods and Toms. Each brand has multiple sites across metropolitan Adelaide.

For every $25 spent on a purchase occasion the consumer gained one Fly Buys point.

Dirichlet has been previously applied to purchase occasions in this industry very successfully (see Hay and Johnston 1979, Wrigley 1980, Wrigley and Dunn 1984b, Wrigley and Dunn 1984a, Keng and Ehrenberg 1984).

Two of the chains were FlyBuys participants, Bi-Lo, a discount grocery chain and Coles a more up-market grocery chain. Bi-Lo was probably the leader amongst the “no-frills” stores, while Coles was second to Woolworths which was generally seen as the market leader in 1990s terms of marketshare, profitability, innovation and quality.

Prior to FlyBuys none of these stores had any marketing initiatives resembling structured loyalty programs. No such initiatives followed FlyBuys’ launch. Woolworth’s general manager made a comment at the time of FlyBuys launch along the lines of “if Coles were introducing a loyalty program it has to be the wrong thing to do”, alluding to Coles poor relative performance.

**Australian Retail Petrol Market**

In the UK, petrol retailers have run customer loyalty programs for over 20 years (Hawkes 1994, Parfitt 1972). This is not the case in Australia or New Zealand.

In Adelaide there were five major retail petrol brands (Shell, BP, Mobil, Caltex and Ampol — this last brand advertised itself as the Australian petrol brand) and several minor brands (eg Southern Cross) plus a few independent owner branded sites. One such non-aligned owner branded site on the main road south through all the expanding southern suburbs (sensibly named ‘South Road’) was very well known for discounting and, from time to time, was involved in price wars which were allegedly initiated by the petrol wholesalers (the major brands) to force this operator out of the market. So there were quite significant differences between petrol sites both in terms of price and services provided. It is difficult to say how much brand level differentiation existed though certainly the major brands tended to offer more services in terms of accompanying convenience stores than did the smaller brands. Even amongst the five major brands there were differences, most like BP and Shell
had very distinctive and highly consistent station 'livery' whereas others such as Ampol, at the time, did not.

The industry was still in the midst of a rationalisation program to reduce the number of outlets, in the past decade the number had fallen from more than 20,000 nationally to about 9700. Outlets had also broadened the range of products into convenience store operations, reportedly with mixed degrees of success. Shell's plan for FlyBuys coincided with the proposal by the Industry Commission to deregulate the petroleum-retailing industry. It proposed the removal of the Price surveillance authority controls over petrol prices and the dumping of federal legislation which regulates the number of sites from which petroleum companies operate and how these companies deal with their franchised retail outlets.42

**Australian Credit Cards**

This subscription category, did not at the time of FlyBuys launch, show much product heterogeneity between banks. Most banks offered Visa and Mastercard, and interest rates and terms did not vary much between banks, or certainly were too complicated for consumers to perceive much difference. The FlyBuys brand in this category, National Australia Bank, was widely perceived as the leading brand in terms of marketing strategy. It was the most profitable bank, had the highest level of customer satisfaction, and was the most successful in cross-selling financial services. In the past few years it had risen to challenge and then succeed BHP as the largest company in Australia based on share market capitalisation.43

Very few customers held credit cards from more than one bank. Consequently the proportion of solely loyal customers for each brand is very high (see chapters 6 & 7) and the capacity of customers to change the share of requirements that they devote to brands is very limited.

---


43 The Commonwealth Bank of Australia and Telstra (formerly Telecom) were not fully floated on the sharemarket.
New Zealand Credit Card Market

This category was very similar to that of Australia. The one FlyBuys brand, the Bank of New Zealand, was the largest brand in terms of marketshare.

New Zealand Home Telecommunications

Usage of toll calls (local calls in New Zealand are free and provided by one provider) was tracked. This is another subscription category where customers tend to be solely loyal to one provider though they are able to switch simply by using override codes when making a phone call, as well as by changing their specified provider by application form.

This category was very unusual in that it had only two brands. One, Telecom, was government owned and had been in the market since telecommunications services were first offered in New Zealand, the other, CLEAR, was a new entrant. Telecom was very much the dominant brand, with a massive advertising and sponsorship spend, yet is very profitable.

The category was also unusual in that Telecom already had its own substantial loyalty program running (called 'Talking Points'). With the launch of FlyBuys customers were allowed to earn FlyBuys or Talking Points points on their phone call expenditure, but not both; points from the 'Talking Points' scheme could be transferred to FlyBuys points at any time. CLEAR Communications offered no such program.

New Zealand Retail Petrol Market

In contrast to the Australia retail fuel market there were only four brands (Shell, BP, Mobil and Caltex) in the New Zealand market when FlyBuys was launched by Shell. There was little brand level differentiation. There had been substantial rationalisation of petrol outlets, for example the village near to where my parents lived had for many years four petrol stations (plus petrol deliveries to many farms) but by the time FlyBuys launched this had been reduced to one (and petrol deliveries had

44 In October 1998 it was reported that 630,000 New Zealanders were members of ‘Talking Points’ (http://www-stl.mastercard.com/about/press/981007b.html). It isn’t clear whether this refers to households or individuals; since most households have one shared phone line it difficult for individuals to join alone. In which case 630,000 members is substantial coverage of a population of 1.3 million households (3.7 million people) (1996 Census).
almost disappeared). The remaining stations tended to be fairly well set out in terms of shop fittings and 'livery'.

The degree of price competition appears to have been low. New Zealand was considered an unusually profitable market for the major international oil companies. More recently three new companies have entered the New Zealand market after legislative changes. This development was welcomed by the Minister for Energy who said he was “always confident there were excessive margins on petrol in New Zealand” (NZ Herald, 19/2/98, p.1), one week earlier it had been reported that the principal lure for the new entrants was that petrol prices in New Zealand were seen as high (NZ Herald 13/2/98, p.1).

The market was also known amongst marketing managers to be very promotion sensitive, this is in comparison to both other retail fuel markets and other markets in general in New Zealand. Offers such as a free drinking glass with a petrol purchase were known to be able to cause substantial sales increases. In spite of the generally low margins in any volume retailing, such as petrol, these promotions were apparently often able to be self funding and profitable.

These two facts are likely to be direct consequences of the lack of brand level differences.
Chapter Six — Australian Panel Results

Can a loyalty program disrupt normal market repeat-purchase patterns? Do loyalty programs increase loyalty? This chapter reports and discusses the results from the three repertoire and one subscription product categories studied after the launch of FlyBuys in Australia. The Dirichlet model fitted well to the repertoire markets, in the subscription category the fit to penetration was good but it tended to, on average, underestimate purchase loyalty and not fit very well for individual brands. Still this provided good evidence that the categories were still fundamentally normal after the loyalty program launch. Of the individual brand deviations, there was an overall trend towards excess loyalty for the loyalty program brands but the deviations were, on average, very small, and in several cases it was questionable whether the effect could be attributed to the loyalty program. Only two brands in the repertoire categories showed significant excess loyalty deviations. In the credit cards subscription category there was evidence of the loyalty program stimulating usage (presumably at the expense of using cash or other payment means, rather than credit card brand switching) and therefore bringing about excess loyalty.

In the categories with more than one loyalty program brand there was no clear evidence of loyalty program induced partitioning.

---

Data Collection: The Panels

As Fly Buys concerns credit card usage and store patronage rather than the purchase of fast-moving consumer goods brands, commercial panel data on consumer behaviour in these industries was not available. It was therefore necessary to set up a consumer panel to collect the required behavioural data.

A representative sample of 500 households was recruited from the Adelaide metropolitan area. Adelaide is a popular test market and the sample was representative in terms of both of Adelaide metropolitan demographics and the proportion of Fly Buys members.

Behavioural data was collected in relation to purchasing behaviour at the different retail outlets/brands and purchase frequency. Information from the four industries of retail fuel, credit card usage, department stores, and supermarkets was gathered, this data included every purchase occasion for the category and record of which brand/store was shopped at. Respondents were posted diaries in which to record their purchase behaviour. Each week this data was collected via telephone interviews conducted by IQCA (Interviewer Quality Control of Australia) accredited interviewers.46

The applicability of the Dirichlet and NBD model to store choice has been demonstrated (Wrigley and Dunn 1984a, Wrigley and Dunn 1984b, Keng and Ehrenberg 1984) and panel data records of consumer behaviour have been shown to be very reliable (Ehrenberg 1988). Panel data provides all the necessary inputs to calculate Dirichlet and to compare observed data to Dirichlet predictions. Though the number of input variables required is fairly low, the longitudinal panel typically produces vast volumes of raw data upon which the calculations are based. This data was analysed using SPSS and BUYER software.

Two panels were run. The first ran for nine weeks from the launch of Fly Buys (late August, 1994) until the week before Christmas. The ‘drop-out’ rate for this first panel was fairly substantial and was partially due to the difficulty in contacting respondents in the last few weeks just before Christmas. The panel initially recruited 500 households but a full continuous nine weeks of data was able to be collected from only 244 respondents. This level of attrition does not appear to be unusual although better results were hoped for. Part of the attrition was due to unfamiliarity with running panels. Not all the fieldteam supervisors initially appreciated that if a respondent did not provide data for one

46 The surveys were conducted using the Marketing Science Centre’s in-house field-team.
week they were to be considered ‘lost’, ie an intermittent record was useless. A number of respondents missed a week but did not deliberately drop out from the panel, ie they still wished to participate. In the second panel greater efforts were made to contact respondents each week to minimise such attrition.

The second panel ran for twelve weeks beginning in mid January 1995 and running until mid April. Members from the first panel were re-recruited plus some new members to bring the panel back near to a starting number of 500. A full continuous twelve weeks of purchasing data was able to be collected from 385 respondent households. A third measure of behaviour was a survey using probabilistic measures to calculate Dirichlet in September 1995 (see Wright et al. 1996 for details), this confirmed the repeat-purchase statistics of the previous panels but is not reported here.

The second panel should therefore have yielded the most accurate results. Sampling error should be lower due to the larger sample size although, as discussed previously, little is known about sampling error effects on Dirichlet modelling. The longer time period, (12 cf 9 weeks) probably had much the same effect as an increase in sample size on random sampling variation. It is known that NBD-Dirichlet is susceptible to very short time periods, although in the product categories examined here the frequency of repeat-purchase is typically very high so the data should be sufficient to properly reflect consumers repertoire buying. Presumably Dirichlet is also susceptible to very long panel periods where erosion/change in repertoires may become sufficient to violate some of its underlying assumptions. Not much is empirically known about this (see East and Hammond 1996, Stern and Hammond 1997) and it is not an issue for this research as the time periods studied are too short for much repertoire erosion/change.

In the interests of reducing the number of data tables, results are only presented for the second (12 week) panel. In an IJRM publication (Sharp and Sharp 1997a) Anne Sharp and I reported some of this data as an average of two nine week panels. This merging of data from the two panels was done to reduce sampling error effects, though it does not seem to have produced any better results than using the full 12 weeks of the second panel. Another option was to model the data from only the respondents who stayed throughout both panels, ie for 21 weeks. This data would be discontinuous, because of the break at Christmas, though apparently this is not uncommon in Dirichlet modelling47. However, this would deliver a sample size of fewer than 200 respondents and, given the very frequent repeat-purchasing in most of the product categories studied, the extra panel length would be unlikely

47 Personal discussion with Mark Uncles.
to deliver any great gains in accuracy. Using only those who stayed for both panels might also raise questions about self-selection biases (though some research suggests that panels do not seem to suffer much from this (Parfitt 1972, Ehrenberg 1988 p.8)). On balance then the 2nd panel seems most likely to yield the most trustworthy results.

Analysis

During the research design an important issue was whether or not to collect data from just FlyBuys members or from a representative sample of the whole market. I chose the whole market because, at the time, I thought that a FlyBuys only sample would not be representative of the market and therefore difficult or impossible to interpret. Including both members and non-members gave the benefit of producing figures that could be compared to other external measures of the marketplace, eg reported marketshare rankings.

However, I was wrong in thinking that a FlyBuys only sample would be biased and non-valid. It does not create problems because I am comparing observed figures to Dirichlet predictions. Using a FlyBuys only sample naturally means that brand share rankings are likely to be different from the actual market; FlyBuys brands should be bigger because of a self-selection effect, users of these brands are more likely to join FlyBuys. However, Dirichlet simply adjusts for this, its predictions being for a brand of that size, whatever size it happens to be given the respondents in the sample. And a FlyBuys only sample has the advantages that (a) it is less contaminated by any other marketing interventions and (b) an effect is not missed simply because the larger group of non-members, who presumably do not change their behaviour, dampens the results when these are presented as averages of FlyBuys and non-FlyBuys members.

That said, it is also useful to know the total market impact of the loyalty program. For example the loyalty program may be strongly affecting a small group of people while other marketing interventions are weakly affecting a large group of people, one obviously wants to know which has greater net effect.

Hence I present both the analyses here, firstly just with FlyBuys members in order to see if FlyBuys is affecting their repeat-buying patterns, then I present results with members and non-members modelled together (total market) in order to examine the magnitude of the program's impact on the total market dynamics.
Deviations and Model Fit

The following results sections present penetration statistics and three key purchase loyalty statistics\(^{48}\) for credit cards, department stores, retail fuel and supermarket categories respectively. The tables present the average deviation from Dirichlet predictions for all major brands measured in the category, including brands not in the FlyBuys program, in order to allow comparisons with any deviations from predictions which were recorded for the FlyBuys brands.

The analyses focus on detecting any upward deviations in repeat-purchase loyalty statistics and downward deviations in penetration, ie ‘excess loyalty’. The expected downward deviation in penetration is not to say that the loyalty program brand has actually lost customers (ie a drop in actual penetration). A downward deviation in penetration (a deviation from Dirichlet predictions) is expected because penetration should be out-of-kilter with any growth in repeat-purchase loyalty. That is, that the penetration growth (if there is any) is less than would be expected given the corresponding increase in repeat-purchase loyalty (as brands with high repeat-purchase loyalty normally have very high penetration, ie they are large share brands).

As previously noted, little is known about the sampling errors associated with Dirichlet fitted statistics. While it is common in research to treat samples in time as equivalent to samples in space, this is not strictly true with Dirichlet modelling. As the same respondents are being used the sampling error is less than if a new sample of people was being drawn each period. It is usual to mark differences greater than 3 (for penetration) or 0.3 (for average purchase frequency) as being potentially important (Wright et al. 1996) and these guides are adopted here. I have employed this rule as well as using the Mean Absolute Deviations (MAD) as an additional indicator of whether a deviation is meaningful given that the models’ general degree of fit. A good benchmark indicator is the MAD calculated by excluding the FlyBuys brands, which were expected to potentially deviate (and it is these deviations that are of interest), and the ‘other’ brands as in some categories this shows deviations greater than the average. The reason for this deviation seems most likely to be one of category definition, due to respondent confusion/disagreement concerning which of these minor brands were really in the product category (eg is a 7-Eleven store a supermarket?) there is substantial error associated with the reporting of this consolidated ‘brand’. With hindsight this ‘brand’ should

\(^{48}\) As is usually observed, the repeat-purchase loyalty measures are highly correlated for each brand.
perhaps have been excluded from the Dirichlet modelling\textsuperscript{49} in some categories as it degrades the overall fit of the model.

However, the MAD is not a perfect indicator of whether a FlyBuys brand's deviation is potentially 'real'. While it shows how large it is compared to other deviations in the same data set these other deviations have at least two causes in terms of model fitting. One cause of fit imperfection is sampling error and my use of MAD is to give some guidance to the degree to which this is affecting the size of deviation. But the confounding influence is that a real deviation by one brand, ie alteration of the normal repeat-buying structure, will affect the fit of the model to all the other brands. Thus in a category where FlyBuys brands make up a substantial proportion of the brands (and marketshare) in the category deviations among FlyBuys brands will cause deviations among the other brands, resulting in a high MAD\textsuperscript{50}. It would, of course, be dangerous to then use the MAD to reject the FlyBuys brands' deviations as non-real (ie likely to be due to sampling error). This all highlights the usefulness of the 3%/0.3 generalisation (and how difficult/impossible it will be to develop sampling error guides for use when using Dirichlet to assess marketing interventions).

To aid interpretation all tables have brands ordered in terms of observed penetration figures (highest to lowest).

The 'FlyBuys members only' models do show greater divergence from Dirichlet predictions. While this might be expected since this population should be the most 'disrupted' by the loyalty program intervention it also suggests that the sample size of only 104 does result in a fair degree of greater sampling error compared with the 385 respondent sample.

The Results

Awareness & Loyalty Program Uptake

Initial awareness of FlyBuys was extremely high in the post launch period with 93 percent of the panel

\textsuperscript{49} The BUYER software automatically gathers unassigned entries in the raw data into the 'others' category. In the Methodological Overview chapter it was mentioned that Dirichlet allowed brands to be amalgamated into one 'super brand', this is in effect what BUYER does to create the 'others' brand.

\textsuperscript{50} Perhaps not surprisingly then it turned out that there was usually little difference between the MAD calculated with or without the exclusion of FlyBuys brands.
respondents having heard of FlyBuys in the first month of its launch. Comprehension of the nature of the program was also good including overall knowledge of which stores/brands were in the program. The differences in awareness largely reflected market share/usage differentials (as has been shown by Barwise and Ehrenberg 1985, Bird and Ehrenberg 1966a, Bird and Ehrenberg 1966b).

In the second panel, 28 percent of respondents (n = 104) were Fly Buys members, 71 percent were not and one percent of respondents considered themselves "lapsed" members (n = 281). These figures are consistent with those cited by Loyalty Pacific, the company running FlyBuys.

**Changes in Loyalty Patterns**

Across each of the product categories that are presented in the following section it is immediately apparent that the overall categories tend to conform, as expected, to the basic Dirichlet type patterns51. The category average deviations from predictions are minor. For example, the penetration statistics are typically well within 3 percentage points of predictions. The double jeopardy effect is obvious with the smaller brands typically having lower penetration and lower purchase loyalty statistics (share of category requirements, purchase frequency, and proportion of solely loyal buyers). The brands show major differences in penetration but comparatively smaller differences in purchase loyalty. In the repertoire categories each brand’s customers typically buy other brands more often than they buy that brand with share of category requirements usually being well under 50%. And the proportion of solely loyal buyers is typically low, usually less than 10%. These are the sort of patterns we expect to see in a repertoire market, and this suggests that it is quite appropriate to use Dirichlet to model such a market. It also shows that the loyalty program has done nothing extreme to upset market structure.

Some people may have expected a loyalty program to totally partition the brand(s) turning the majority of customers into solely loyal buyers. It has been pointed out that fundamentally changing market patterns like this would be exceptionally unlikely (Dowling and Uncles 1997, Dowling and Uncles 1995) and this data strongly supports this. Even a landmark loyalty program such as FlyBuys has not turned repertoire markets into subscription ones.

51 The subscription category does not conform to all the patterns, but this was expected.
In the subscription category, credit cards, the patterns were also as expected though somewhat different from the repertoire categories. This is discussed in the results section for this product category.

**Department Store Chains**

Results for FlyBuys members only

Table 2: Department Store Performance, FlyBuys members only, panel two, 12 weeks (n=104)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>Obs. 93.3</td>
<td>Pred. 93.3</td>
<td>Obs. 10.4</td>
<td>Pred. 10.4</td>
</tr>
<tr>
<td>Target*</td>
<td>56.7</td>
<td>58.7</td>
<td>3.5</td>
<td>3.4</td>
</tr>
<tr>
<td>Myer*</td>
<td>51.9</td>
<td>49.3</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Kmart*</td>
<td>50.0</td>
<td>59.8</td>
<td>4.1</td>
<td>3.4</td>
</tr>
<tr>
<td>John Martin</td>
<td>49.0</td>
<td>46.8</td>
<td>2.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Harris Scarfe</td>
<td>32.7</td>
<td>24.6</td>
<td>1.8</td>
<td>2.3</td>
</tr>
<tr>
<td>David Jones</td>
<td>12.5</td>
<td>14.6</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>50.0</td>
<td>57.8</td>
<td>3.8</td>
<td>3.3</td>
</tr>
</tbody>
</table>

| Ave. | Obs. 43.3 | Pred. 44.5 | Obs. 3.0 | Pred. 2.9 | Obs. 24.4 | Pred. 22.2 | Obs. 2.8 | Pred. 3.4 |

Mean Absolute Deviation | 4.9 | 0.3 | 3 | 1.7 |

MAD excluding FlyBuys brands & other | 4.1 | 0.1 | 2 | 1.3 |

*S = 5.1925

*A FlyBuys participating brand

The results for FlyBuys members only are presented first in order to check if there is evidence of the loyalty program having an impact on the repeat-buying behaviour of those who joined the program. The answer here seems to be yes, but only for one of the three loyalty program brands. Kmart shows a very large excess loyalty effect with an almost 10 point deficit in penetration and loyalty scores very substantially above predictions.
Results for the total department store market

Table 3: Department Store Performance, total market (members and non-members) panel 2, 12 weeks (n=385)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>90.4</td>
<td>90.4</td>
<td>8.8</td>
<td>8.8</td>
</tr>
<tr>
<td>Kmart*</td>
<td>48.4</td>
<td>52.1</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Target*</td>
<td>43.8</td>
<td>42.0</td>
<td>2.9</td>
<td>3.0</td>
</tr>
<tr>
<td>John Martin</td>
<td>42.0</td>
<td>42.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Myer*</td>
<td>35.2</td>
<td>34.3</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Harris Scarfe</td>
<td>32.1</td>
<td>27.3</td>
<td>2.3</td>
<td>2.7</td>
</tr>
<tr>
<td>David Jones</td>
<td>11.9</td>
<td>11.6</td>
<td>2.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Others</td>
<td>45.6</td>
<td>49.4</td>
<td>3.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>2.2</td>
<td>0.2</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and 'others'</td>
<td>1.7</td>
<td>0.2</td>
<td>2.0</td>
<td>2.3</td>
</tr>
</tbody>
</table>

S = 3.1952

* A Fly Buys participating brand

For the total (members and non-members) department store category the absolute fit of the Dirichlet model is quite good, the mean absolute deviations being quite low. Only two brands show deviations that appear to be substantial. Harris Scarfe shows a deficit in loyalty and Kmart show what appears to be a fairly strong excess loyalty pattern. Kmart is a FlyBuys brand, however, strangely the other two FlyBuys brands do not show the same result: if anything they actually show a slight deficit loyalty deviation.

The Kmart deviation is much more obvious in the FlyBuys members only analysis. Table 4 provides a breakdown of repeat-purchase statistics for each Fly Buys brand comparing Fly Buys members with non-members. Fly Buys members show higher average purchase frequency and higher penetration than non-members but this is to be expected since Kmart shoppers were more likely to join the loyalty program, ie a selection effect. The important statistics are therefore not the comparisons between observed figures for each group but comparisons between the deviations from Dirichlet predictions. In effect the Dirichlet model is adjusting for the skew in each sample. Table 4 shows some excess loyalty deviations for non-members as well as Fly Buys members, although nowhere near the same magnitude, and certainly within the general level of fit most brands achieve. The deviations are very large for the Fly Buys group, although the sampling error must also be larger for
this group (the Fly Buys members sample being approximately one third the size of the non members sample).

Table 4: Fly Buys Members c.f. Non-Members, panel 2, twelve week period

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fly Buys members (N=104)</td>
<td>Non Fly Buys members (N=281)</td>
</tr>
<tr>
<td>Kmart</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Target</td>
<td>57</td>
<td>59</td>
</tr>
<tr>
<td>Myer</td>
<td>52</td>
<td>49</td>
</tr>
<tr>
<td>Mean Absolute Deviation (all brands)</td>
<td>4.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>

That the excess loyalty is not observed for the other two FlyBuys department stores suggests that the excess loyalty effect for Kmart is due to some interaction with something specific to Kmart. This could be that it has some feature such as a unique type of client, its degree of advertising, or sales promotions. Kmart was the only FlyBuys brand to use FlyBuys linked promotions during the panel. These promotions gave double FlyBuys points for brief periods.

Such promotions illustrate the importance of longer periods of observation or multiple sets of data. The panel data reported here is susceptible to single brand promotions making one brand appear "out-of-sync" with others. Purchase frequency for department stores is the lowest of the three industries studied, making it the most susceptible to large short term aberrations affecting the overall period statistics.

Loyalty Program Induced Partitioning

The fact that Kmart seems alone in showing a strong loyalty effect might have been due to Kmart having a unique perhaps a loyalty program prone, customer base, however, this seems unlikely since research has shown that competitive brands in repertoire markets do not typically have distinctive client bases (Hammond et al. 1996b). Analysis of the duplication of purchase between the department store chains supports this in that it does not suggest Kmart's customer base buy other

52 The first (9 week) panel also showed excess loyalty for Kmart. Promotions also occurred during this period.
brands in anything other than the expected pattern. Table 5 and Table 6 present observed
duplication of purchase figures for each brand. Three week figures (Table 5) are presented as well as
the full panel (Table 6) because longer time periods can obscure partitioning patterns — with a long
enough panel duplication of purchase can reach 100% between all brands.

The analysis shows that, as expected, Kmart shares its customers with all the other brands and does
so roughly in line with those brands’ market share (the duplication of purchase law pattern). There is
a slight tendency for Harris Scarfe customers to buy from Kmart more than expected. Harris Scarfe is
a more traditional department store but, like Kmart, it is a discounter which makes regular use of
sales promotions. This does not seem like loyalty program induced partitioning since Harris Scarfe is
not a FlyBuys brand. Kmart actually shares its customers less than expected with Myer, one of the
other loyalty program brands.

The slight natural partitioning of Kmart with Harris Scarfe may explain the deficit in loyalty position
that Harris Scarfe seems to have. Presumably it is being affected by Kmart’s promotions and loyalty
program slightly more than other brands.

All the other slight partitioning evident in these tables seems to be explained by store location (see
Sharp and Sharp 1997b for more details).

Table 5: Duplicate Buyers Table, panel 2, first 3 weeks

<table>
<thead>
<tr>
<th>% Buyers of: (brand’s penetration)</th>
<th>Who Also Buy:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kmart</td>
</tr>
<tr>
<td>Kmart*</td>
<td>100%</td>
</tr>
<tr>
<td>Target*</td>
<td>33.1</td>
</tr>
<tr>
<td>John Martin</td>
<td>31.4</td>
</tr>
<tr>
<td>Myer*</td>
<td>31.8</td>
</tr>
<tr>
<td>Harris Scarfe</td>
<td>35.0</td>
</tr>
<tr>
<td>David Jones</td>
<td>19.7</td>
</tr>
<tr>
<td>Others</td>
<td>22.7</td>
</tr>
<tr>
<td>Average Duplication</td>
<td>29.0</td>
</tr>
<tr>
<td>Predicted Duplication penetration</td>
<td>34.2</td>
</tr>
<tr>
<td>penetration</td>
<td>26.2</td>
</tr>
</tbody>
</table>
Table 6: Duplicate Buyers Table, panel 2, full 12 weeks

<table>
<thead>
<tr>
<th>% Buyers of:</th>
<th>Who Also Buy:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(brand's penetration)</td>
<td>Kmart*</td>
<td>Target*</td>
</tr>
<tr>
<td>Kmart*</td>
<td>100</td>
<td>49.7</td>
</tr>
<tr>
<td>Target*</td>
<td>55.0</td>
<td>100</td>
</tr>
<tr>
<td>John Martins</td>
<td>50.0</td>
<td>49.4</td>
</tr>
<tr>
<td>Myer*</td>
<td>52.9</td>
<td>56.6</td>
</tr>
<tr>
<td>Harris Scarfe</td>
<td>61.3</td>
<td>52.4</td>
</tr>
<tr>
<td>David Jones</td>
<td>43.5</td>
<td>47.8</td>
</tr>
<tr>
<td>Others</td>
<td>49.4</td>
<td>53.4</td>
</tr>
<tr>
<td>Average Duplication</td>
<td>52.0</td>
<td>51.6</td>
</tr>
<tr>
<td>Predicted Duplication</td>
<td>57.4</td>
<td>51.9</td>
</tr>
<tr>
<td>Penetration</td>
<td>48.4</td>
<td>43.8</td>
</tr>
</tbody>
</table>

Summary Australian Department Stores

In summary, the department store category shows one out of three FlyBuys brands with a deviation in the direction of excess loyalty. This is possibly due to FlyBuys linked sales promotions.
Australian Supermarkets

FlyBuys Members Only

Table 7: Supermarket Chains, FlyBuys Members Only, panel 2, 12 weeks (n=104)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fixing)</td>
<td>97.1</td>
<td>97.1</td>
<td>27.2</td>
<td>27.2</td>
</tr>
<tr>
<td>Coles*</td>
<td>72.1</td>
<td>76.8</td>
<td>10.7</td>
<td>10.0</td>
</tr>
<tr>
<td>Woolworths</td>
<td>62.5</td>
<td>59.1</td>
<td>7.2</td>
<td>7.6</td>
</tr>
<tr>
<td>BiLo*</td>
<td>61.5</td>
<td>63.2</td>
<td>8.3</td>
<td>8.0</td>
</tr>
<tr>
<td>Foodland</td>
<td>60.6</td>
<td>66.9</td>
<td>9.3</td>
<td>8.4</td>
</tr>
<tr>
<td>Franklins</td>
<td>23.1</td>
<td>24.7</td>
<td>6.0</td>
<td>5.6</td>
</tr>
<tr>
<td>Triple 7</td>
<td>15.4</td>
<td>13.9</td>
<td>4.7</td>
<td>5.2</td>
</tr>
<tr>
<td>SupaValue</td>
<td>11.5</td>
<td>13.6</td>
<td>6.1</td>
<td>5.2</td>
</tr>
<tr>
<td>ServWell</td>
<td>3.8</td>
<td>1.0</td>
<td>1.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Other</td>
<td>23.1</td>
<td>11.1</td>
<td>2.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Average</td>
<td>37.1</td>
<td>36.7</td>
<td>6.2</td>
<td>6.7</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>4.0</td>
<td>1.1</td>
<td>4.33</td>
<td>1.5</td>
</tr>
<tr>
<td>MAD excluding FB brands &amp; other</td>
<td>3.0</td>
<td>1.1</td>
<td>4.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

S = 2.4339
*A Fly Buys participating brand

In the supermarket chain category both of the loyalty program brands, Coles and BiLo, show excess loyalty amongst FlyBuys members. Surprisingly so do the non-FlyBuys brands Foodland and SupaValue, strongly in terms of average purchase frequency though not at all in terms of the proportion of solely loyal buyers. This result is difficult to explain other than a consequence of sampling error. Once again the number of deviations is high, sampling error on the small FlyBuys only sample proving somewhat problematic. Thus the important issue simply seems to be whether or not the analysis simply suggests the possibility of a loyalty effect amongst those who joined the program. Here the answer is yes for both of the loyalty program brands in the category.
Total market results

Table 8: Supermarket Chains, total market (members and non-members), panel 2, 12 weeks (n=385)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>97.4</td>
<td>97.4</td>
<td>28.1</td>
<td>28.1</td>
</tr>
<tr>
<td>Foodland</td>
<td>64.2</td>
<td>64.7</td>
<td>9.5</td>
<td>9.4</td>
</tr>
<tr>
<td>Coles*</td>
<td>61.3</td>
<td>64.4</td>
<td>9.8</td>
<td>9.4</td>
</tr>
<tr>
<td>Woolworths</td>
<td>59.5</td>
<td>60.5</td>
<td>9.1</td>
<td>8.9</td>
</tr>
<tr>
<td>Bilo*</td>
<td>58.4</td>
<td>59.8</td>
<td>9.1</td>
<td>8.9</td>
</tr>
<tr>
<td>Franklins</td>
<td>28.1</td>
<td>29.9</td>
<td>7.2</td>
<td>6.7</td>
</tr>
<tr>
<td>Triple 7</td>
<td>15.8</td>
<td>11.9</td>
<td>4.5</td>
<td>6.0</td>
</tr>
<tr>
<td>SupaValue</td>
<td>13.2</td>
<td>10.1</td>
<td>4.5</td>
<td>5.9</td>
</tr>
<tr>
<td>ServWell</td>
<td>6.8</td>
<td>5.1</td>
<td>4.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Other</td>
<td>21.6</td>
<td>15.3</td>
<td>4.3</td>
<td>6.1</td>
</tr>
<tr>
<td>Average</td>
<td>36.5</td>
<td>35.8</td>
<td>6.9</td>
<td>7.5</td>
</tr>
</tbody>
</table>

* Mean Absolute Deviation: 2.5, 0.8, 2.2, 1.1

MAD excluding FB brands & other: 2.0, 0.9, 2.1, 1.1

s = 1.8945

*A Fly Buys participating brand

The supermarket category is marked by much closer markets shares of the four dominant brands in Adelaide. On first inspection the Dirichlet fit to the market seems good, and much better than the previous table based on FlyBuys members only. However something is clearly odd in that amongst the top four brands the double jeopardy effect does not hold. The ‘cause’ of this effect seems to be that two brands, Coles and BiLo, are exhibiting excess loyalty. The excess loyalty for the two FlyBuys brands makes the market look as if it is not ‘Dirichlet’, that it breaks the double jeopardy law, when in fact Dirichlet still describes the overall category quite well.

The deviations in purchase frequency are larger than would be expected, the MADs being larger than 0.3. The model underpredicts purchase frequency for all the large brands, all of which are more traditional supermarkets, and over predicts for the smaller convenience brands. There is perhaps some partitioning in the market, and that these two groups represent sub-categories.

Interestingly the excess loyalty effects for Foodland and SupaValue, observed amongst FlyBuys members, is no longer apparent. Since it is difficult to think of a reason why a non-FlyBuys brand
should show excess loyalty only among FlyBuys members this seems likely to be simply random sampling variation.

In this total market analysis Coles shows clear excess loyalty, BiLo less so.

Breaking down this effect by FlyBuys members and non-members suggests that FlyBuys membership, alone at least, is not the cause of this excess loyalty though, as the brands show excess loyalty even amongst non-FlyBuys members (Table 9).

**Table 9: Fly Buys Members c.f. Non-Members, twelve week period**

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fly Buys members (N=104)</td>
<td>Non Fly Buys members (N=281)</td>
</tr>
<tr>
<td>Coles</td>
<td>72</td>
<td>77</td>
</tr>
<tr>
<td>BiLo</td>
<td>62</td>
<td>63</td>
</tr>
</tbody>
</table>

Although for Coles at least the excess loyalty is much greater among FlyBuys members than non-members.
Loyalty program induced partitioning

Table 10: Duplicate Buyers Table, supermarkets, panel 2, full 12 weeks

<table>
<thead>
<tr>
<th>% Buyers of:</th>
<th>Who Also Buy:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foodland</td>
</tr>
<tr>
<td>Foodland</td>
<td>100</td>
</tr>
<tr>
<td>Coles</td>
<td>65.3</td>
</tr>
<tr>
<td>Woolworths</td>
<td>72.5</td>
</tr>
<tr>
<td>BiLo*</td>
<td>72.9</td>
</tr>
<tr>
<td>Franklins</td>
<td>65.7</td>
</tr>
<tr>
<td>Triple 7</td>
<td>59.0</td>
</tr>
<tr>
<td>SupaValue</td>
<td>72.5</td>
</tr>
<tr>
<td>ServWell</td>
<td>73.1</td>
</tr>
<tr>
<td>Others</td>
<td>65.1</td>
</tr>
<tr>
<td>Average Duplication</td>
<td>68.3</td>
</tr>
<tr>
<td>Predicted Duplication</td>
<td>70.6</td>
</tr>
<tr>
<td>penetration</td>
<td>64.2</td>
</tr>
</tbody>
</table>

There appears no evidence of loyalty induced partitioning. Coles and BiLo share customers almost perfectly in line with the Duplication of Purchase law. The only apparent partitioning evident in the market is between ServWell, SupaValue and Triple 7 chains which in most cases offer convenience stores rather than fully fledged supermarkets. Though it should be noted that Coles and Bi-Lo are quite different supermarkets, one being a discounter. Thus it is possible that they previously shared customers less than expected and the loyalty program has brought them into line with the normally expected pattern.

Summary - supermarkets

In summary in the Australian supermarket category both the two FlyBuys brands show signs of excess loyalty but it is does not seem possible to ascribe causality to the loyalty program since this excess loyalty effect is also observed amongst customers who have not joined the loyalty program.
Retail Fuel

FlyBuys members only results

Table 11: Retail Fuel, FlyBuys members only, panel 2, 12 weeks (n=104)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>90.3</td>
<td>90.3</td>
<td>13.3</td>
<td>13.3</td>
</tr>
<tr>
<td>Shell*</td>
<td>66.0</td>
<td>69.3</td>
<td>7.2</td>
<td>6.9</td>
</tr>
<tr>
<td>Mobil</td>
<td>52.4</td>
<td>55.4</td>
<td>5.9</td>
<td>5.6</td>
</tr>
<tr>
<td>BP</td>
<td>38.8</td>
<td>34.1</td>
<td>4.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Caltex</td>
<td>32.0</td>
<td>27.0</td>
<td>3.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Ampol</td>
<td>26.2</td>
<td>23.6</td>
<td>3.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Southern Cross</td>
<td>5.8</td>
<td>6.5</td>
<td>4.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Others</td>
<td>5.8</td>
<td>4.8</td>
<td>3.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Average</td>
<td>32.5</td>
<td>31.5</td>
<td>4.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>2.9</td>
<td>0.5</td>
<td>3.6</td>
<td>4.0</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>3.2</td>
<td>0.5</td>
<td>3.6</td>
<td>2.9</td>
</tr>
</tbody>
</table>

*S = 1.8717
*A Fly Buys participating brand

Although the mean absolute deviations are not terribly large there are deviations for almost every brand, for every statistic, making this table difficult to interpret. Shell, the loyalty program brand, does show an excess loyalty deviation but it is not especially large compared to the deviations shown by other brands. All that it is reasonable to conclude is that FlyBuys might have affected the repeat-purchase patterns of those who joined the program but this is far from clear.
Total market results

Table 12: Retail Fuel, Total market (members and non-members), panel 2, 12 weeks (n=385)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>87.8</td>
<td>87.8</td>
<td>13.5</td>
<td>13.5</td>
</tr>
<tr>
<td>Mobil</td>
<td>50.8</td>
<td>51.4</td>
<td>5.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Shell*</td>
<td>46.4</td>
<td>50.8</td>
<td>6.3</td>
<td>5.8</td>
</tr>
<tr>
<td>BP</td>
<td>43.3</td>
<td>43.0</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>Caltex</td>
<td>34.7</td>
<td>33.2</td>
<td>4.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Ampol</td>
<td>30.3</td>
<td>27.1</td>
<td>4.1</td>
<td>4.6</td>
</tr>
<tr>
<td>Southern Cross</td>
<td>11.1</td>
<td>11.1</td>
<td>4.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Others</td>
<td>11.7</td>
<td>9.4</td>
<td>3.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Average</td>
<td>32.6</td>
<td>32.3</td>
<td>4.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>1.8</td>
<td>0.3</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>1.1</td>
<td>0.2</td>
<td>3.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

S = 1.7163

Deviations for many brands have all but disappeared compared to the previous FlyBuys members only analysis. Shell still shows excess loyalty, it breaks the double jeopardy pattern for every statistic except the proportion of solely loyal buyers (though it still shows an upwards deviation from predictions). Indeed the excess loyalty it shows in the above table is greater than in the members only analysis, which must mean that the pattern holds for non-members too. The following table shows that this is the case, once again making it difficult to attribute causality to the loyalty program.
Table 13: Fly Buys Members c.f. Non-Members, twelve week period

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fly Buys members (N=104)</td>
<td>Non Fly Buys members (N=281)</td>
</tr>
<tr>
<td>Shell</td>
<td>66</td>
<td>69</td>
</tr>
</tbody>
</table>

In presenting these results to an open industry forum I was informed that Shell is the dominant corporate fuel card brand (this was later verified) and this may partially explain this result, with the fuel card acting as a loyalty incentive running across FlyBuys members and non-members.

**Summary**

The loyalty program brand shows an excess loyalty pattern, but this is evident amongst non FlyBuys members also so it is difficult to attribute causality to the loyalty program.
Credit Cards

FlyBuys members only results

Table 14: Credit Cards, FlyBuys members only, panel 2, 12 weeks (n=104)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (need for fitting)</td>
<td>65.4</td>
<td>65.4</td>
<td>10.2</td>
<td>10.2</td>
</tr>
<tr>
<td>NAB*</td>
<td>12.5</td>
<td>21.4</td>
<td>12.8</td>
<td>7.5</td>
</tr>
<tr>
<td>ANZ</td>
<td>12.5</td>
<td>11.6</td>
<td>6.6</td>
<td>7.1</td>
</tr>
<tr>
<td>BankSA</td>
<td>10.6</td>
<td>11.9</td>
<td>8.0</td>
<td>7.1</td>
</tr>
<tr>
<td>CBA</td>
<td>10.6</td>
<td>8.8</td>
<td>5.8</td>
<td>7.0</td>
</tr>
<tr>
<td>Westpac</td>
<td>9.6</td>
<td>10.5</td>
<td>7.7</td>
<td>7.1</td>
</tr>
<tr>
<td>Adelaide</td>
<td>5.8</td>
<td>2.4</td>
<td>2.8</td>
<td>6.8</td>
</tr>
<tr>
<td>Diners</td>
<td>4.8</td>
<td>7.6</td>
<td>11.0</td>
<td>7.0</td>
</tr>
<tr>
<td>AmEx</td>
<td>1.9</td>
<td>1.1</td>
<td>4.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Others</td>
<td>17.3</td>
<td>17.0</td>
<td>7.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Average</td>
<td>9.5</td>
<td>10.3</td>
<td>11.8</td>
<td>12.2</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>2.3</td>
<td>2.1</td>
<td>16.6</td>
<td>22.2</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>1.7</td>
<td>2.0</td>
<td>16.7</td>
<td>22.3</td>
</tr>
</tbody>
</table>

S = 0.2807

* A Fly Buys participating brand

This is a subscription, rather than repertoire, product category and the fit of the Dirichlet model is not as good. The average deviation in the penetration statistics is very small. This, however, is not the case for purchase loyalty statistics. The MADs for purchase frequency are well in excess of 0.3. The subscription nature of the category reveals itself with extraordinarily high SCRs and proportion of solely loyal buyers even for minor brands (the smallest of the brand credit cards, Adelaide Bank, still has more than 40% of its customers being solely loyal, and if non-bank cards had been excluded this figure would undoubtedly be close to 100%). Even so, given that this is a non-repertoire market, it is perhaps surprising how well Dirichlet performs.

The double jeopardy pattern perhaps vaguely holds but it is apparent that the loyalty program brand, National Australia Bank, is displaying very substantial excess loyalty. It has twice the average purchase frequency of the ANZ a brand with an identical level of penetration. When this brand is removed any semblance of the double jeopardy pattern disappears.
Diners Club is also displaying excess loyalty. This card also has a loyalty program. American Express also has a similar loyalty program though less generous (Diners Club give 50% more points). However, caution needs to be exercised in interpreting these figures, the small size of these brands means that sampling error is potentially very high.

Total market results

Table 15: Credit Cards, Total market (members and non-members), panel 2, 12 weeks (n=385)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>52.2</td>
<td>52.2</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>BankSA</td>
<td>12.7</td>
<td>13.3</td>
<td>7.6</td>
<td>7.2</td>
</tr>
<tr>
<td>NAB*</td>
<td>9.9</td>
<td>13.1</td>
<td>9.6</td>
<td>7.2</td>
</tr>
<tr>
<td>ANZ</td>
<td>9.1</td>
<td>7.6</td>
<td>5.9</td>
<td>7.1</td>
</tr>
<tr>
<td>CBA</td>
<td>7.8</td>
<td>6.3</td>
<td>5.7</td>
<td>7.0</td>
</tr>
<tr>
<td>Adelaide</td>
<td>6.2</td>
<td>6.8</td>
<td>7.8</td>
<td>7.0</td>
</tr>
<tr>
<td>Westpac</td>
<td>6.0</td>
<td>6.2</td>
<td>7.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Diners</td>
<td>2.9</td>
<td>2.9</td>
<td>7.0</td>
<td>6.9</td>
</tr>
<tr>
<td>AmEx</td>
<td>1.3</td>
<td>2.0</td>
<td>10.6</td>
<td>6.9</td>
</tr>
<tr>
<td>Others</td>
<td>8.8</td>
<td>7.9</td>
<td>6.4</td>
<td>7.1</td>
</tr>
<tr>
<td>Average</td>
<td>7.2</td>
<td>7.3</td>
<td>7.5</td>
<td>7.1</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>1.0</td>
<td>1.2</td>
<td>11.0</td>
<td>14.4</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>0.7</td>
<td>1.1</td>
<td>11.0</td>
<td>15.2</td>
</tr>
</tbody>
</table>

*S=0.181

*A Fly Buys participating brand

Examining the total market National Australia Bank (NAB) still maintains its excess loyalty position. It is the second largest brand in terms of penetration but is by far the leader in terms of purchase frequency. Its customers used it 2.4 times more than predicted in the 12 weeks, or 30% higher usage than expected. Being a subscription market where most customers have only one credit card (average sole loyalty of almost 60%) there is little opportunity for the loyalty program to impact on penetration, at least in the short to medium term. Its main impact would likely be on usage frequency where customers can use their credit card instead of cash, cheques, electronic funds transfer or other charge cards. This appears to be what has happened.

American Express also seems to show excess loyalty.
The subscription nature of this market makes it difficult to analyse not only because of the poor Dirichlet fit to purchase loyalty but also because the double jeopardy pattern does not seem to hold in the observed figures.

Comparing FlyBuys members to non-members shows that among non-members NAB also shows a slight excess loyalty pattern though nowhere near as large as amongst members.

Table 16: Fly Buys Members c.f. Non-Members, twelve week period

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fly Buys members (N=104)</td>
<td>Non Fly Buys members (N=281)</td>
</tr>
<tr>
<td>NAB</td>
<td>12.5  21.4</td>
<td>8.9  10.4</td>
</tr>
<tr>
<td>Average</td>
<td>9.5   10.3</td>
<td>6.3   6.6</td>
</tr>
</tbody>
</table>

On balance this looks to be evidence of the loyalty program inducing excess loyalty. The only caveat being that due to the subscription nature of this market, and the number of competing brands, each brand has very few customers in this data set. For example, only 13 respondents were FlyBuys members and used a NAB credit card once during the panel (0.125 x 104) and only 25 respondents used a NAB card but were not FlyBuys members. Thus this conclusion is drawn from a very small sample. It is questionable to what degree this finding applies to the real market for Australian credit card usage. Industry sources, however, concurred with this assessment. FlyBuys was seen as being very successful for NAB in spite of great doubts concerning its impact in other product categories. Other financial institutions shortly after introduced loyalty programs associated with credit card usage. This did not occur in any of the other product categories.

Conclusion

This chapter presents an analysis of a large loyalty program in terms of its repeat-purchase loyalty effectiveness, adopting a novel approach based on repeat-purchase baselines predicted by the Dirichlet model. The Dirichlet fitted extremely well in all three of the repertoire markets examined, indicating that the markets are behaving in the normal manner expected of repertoire markets around the world. As expected, it did not fit so well in the one subscription market examined. The
loyalty program does not appear to have changed the fundamental structures of these markets. This finding supports those who have argued that changing the fundamental repeat-purchase patterns of markets is very difficult.

However, it is clearly possible to alter repeat-purchase patterns, at least to a small degree, and loyalty programs deliberately focus on bringing about such change. But there was no across the board impact of FlyBuys on loyalty patterns. That is, Fly Buys brands did not consistently show higher levels of purchase loyalty given their individual levels of penetration. However, there is a general pattern of Fly Buys brands being more likely to show a deviation in the direction of excess loyalty. Five of the seven brands in the Fly Buys program show deviations (albeit usually not confined to program members) in the direction of excess loyalty (with one brand deviating very slightly in the opposite direction and one not deviating at all). In comparison, the majority of non Fly Buys brands show deviations in the opposite direction or no deviation at all. Some of these deviations can be dismissed as sampling error, and some are due to imperfect model fit (a deviation for one brand “causing” deviations from predictions for another), however, the general pattern is clear, there is a trend towards excess loyalty for Fly Buys brands, though for most it is small, perhaps disappointingly so for the brand’s owners.

Very often, this excess loyalty pattern was also observed amongst non loyalty program members making it difficult to attribute causality to the loyalty program, other than perhaps the promotional expenditure and word-of-mouth associated with the program’s launch.

In the subscription category, credit cards, there was a substantive deviation in average purchase loyalty observed. This category was very different from the other three. Firstly, being a subscription market, where sole brand loyalty was high and switching rates very low, it was very unlikely that any changes in penetration could be observed within a 12 week period. This might conceivably make any change in purchase frequency more likely to appear as an excess loyalty deviation. Whereas in other markets if the loyalty program positively affected penetration this would make it ‘harder’ for any rise

53 This analysis is based only on purchase frequency and considers any deviation, not just those passing the 0.3 rule.

54 This finding made me suspect a mistake had been made in classifying respondents as members or not. This was checked and rechecked. Strong evidence to support an absence of a mistake is provided by the marketshare rankings found in the FlyBuys members tables compared to total market or non-members analyses. In the FlyBuys member only data the marketshare rankings of the FlyBuys brands are much higher, this is to be expected as FlyBuys members should be skewed towards the customer bases of these brands, existing customers were more likely to be recruited and it was in their interests to join the program.
in purchase frequency to appear as a deviation. That noted, there were not reports of marketshare changes in any of the other categories following the launch of FlyBuys.

Secondly, this market did not require customers to change their brand ‘allegiances’ in order to increase purchase frequency. Simply by putting more purchases on their existing credit card consumers gained FlyBuys points.

In the next chapter similar panel data is analysed after the launch of FlyBuys in New Zealand. The analyses include the retail fuel and credit card categories as well as a new subscription category, toll call telecommunication providers.
Chapter Seven: New Zealand Results

This chapter presents results from three more studies, two subscription categories and one repertoire category, all in New Zealand where a new panel was set up to gather data shortly after the launch of FlyBuys in New Zealand. Learning from the previous Australian studies the panel ran for ten weeks but with a larger sample.

One of the subscription markets, credit cards, is a replication of the Australian credit card study. It produced similar findings with the loyalty program brand showing an unusually high level of usage. The other subscription category, telecommunications, was not studied in Australia; no loyalty program impact was found here.

The repertoire category, retail fuel, is another replication of Australian work though the conditions in the New Zealand retail fuel market were quite different than those in Australia, and any of the other repertoire markets studied. It was known to be a ‘promotion sensitive’ market (marked by little brand/price differentiation) and, as expected, a stronger ‘excess loyalty’ effect was observed for the loyalty program than in the Australian retail fuel market.

A retaliatory price promotion ran in competition to the loyalty program. It was, therefore, possible to examine the differing effects of a loyalty program and a price promotion on repeat-purchase behaviour in the same market.

The loyalty program appeared to insulate the loyalty program brand from the effect of this promotion. Interestingly, the price promotion also generated excess loyalty but less than the loyalty program. The price promotion generated a greater, but obviously temporary, market share gain. Both marketing interventions appear to be quite defensive in nature, encouraging buying by existing buyers. This is in contrast to interventions that achieve ‘normal’, permanent market share gains that are primarily based on increases in penetration, i.e., numbers of customers. This result supports other empirical work suggesting that promotions attract existing
customers, they are defensive and reinforcing which is in contrast to a popular view that promotions at best attract new trials and at worst harm the loyalty of existing customers.

Due to being informed of the loyalty program launch date it was possible to collect market share data prior to the loyalty program's launch. No loyalty program brands increased in market share, this was in accordance with expectations and reasoning outlined earlier in this thesis.

The replications support the Australian studies method of using existing empirical generalisations, and theory that captures these generalisations, to provide a benchmark against which the impact of these interventions on repeat-purchase could be assessed. The difference in strength of impact suggests that brand and price differentiation have a strong influence on the impact of loyalty programs.

The Panel

Based on the results in the Australian market it was decided that a ten week panel was adequate to capture a fair degree of repeat purchasing. Instead of extending the panel period, funds were spent on increasing the sample size. 701 respondents were recruited for the panel, the following findings are based on the responses of 592 respondents who provided complete details of their purchases for each week of the 10 weeks prior to 15 December, 1996. The data was collected by telephone every week using IQCA (Interview Quality Control Australia) interviewers based in Adelaide at the Marketing Science Centre, University of South Australia. The rate of attrition was low, probably because the interviews were conducted from Australia thus there was a novelty value for respondents (being interviewed by people far away who spoke with different accents); plus respondents presumably felt important, and that they were taking part in something significant, because they received mail and phone calls from an overseas university.

Panel members were recruited prior to the loyalty program launch as, in this case, it was known when FlyBuys would launch, but continuous buying data was not collected until after FlyBuys launched. The recruitment interviews allowed pre-loyalty program launch market shares to be calculated, these compared very well against industry reported market shares, which, in the case of retail petrol, were based on pooled data concerning the number of litres of petrol pumped/sold.
This panel began just two weeks after the launch of the loyalty program in New Zealand. The sample consisted of adult (18 years old and over) New Zealanders, not working in the market research or advertising industries, who held a drivers licence and owned or had access to a car. 34% of the sample were members of FlyBuys at the start of the 10 week period and a further 12% joined during the panel period. All comparisons in this report between program members and non-members exclude those who joined sometime during the 10 weeks of the panel. This may potentially dampen the differences between these groups but, as will be seen, the differences actually turn out to be stark, certainly sufficient to attribute causality to the loyalty program.

The 'total market' modelling includes those respondents who were not FlyBuys members at the start of the panel but joined during the ten weeks.

A total of 45% of panel members were loyalty program members by the end of the panel. This is higher than in Australia. However, concurred with reports from Loyalty Pacific when commenting on the success of the loyalty program up-take in New Zealand. The high figure therefore appears mainly due to the greater success of the program in recruiting members, as well as perhaps being partly due to the panel being skewed to adult members of the population who are in the market for products involved in the loyalty program, though almost every adult is a customer of the product categories studied. The greater proportion of FlyBuys members in our samples makes the sampling error lower in the FlyBuys members only analyses, and it makes any FlyBuys loyalty effect more likely to be seen even in the combined total market analyses where FlyBuys members are outnumbered by non-members.

It is possible that involvement in the panel heightened FlyBuys' salience for some respondents and therefore encouraged them to join. If this happened the effect was obviously a very small one since the panel figures were very close to those announced by Loyalty Pacific.

**Market Share Changes**

Because it was known that FlyBuys was going to launch it was possible to conduct the panel recruitment survey prior to the launch and to gain pre-launch market share figures. This allowed some basic analysis of marketshare movements in addition to analysing repeat-purchase patterns. The marketshare estimates are based on claimed behaviour from the panel recruitment survey. FlyBuys launched during the later
part of the survey period but this should not have contaminated the marketshare estimates which were based on past (but recent) behaviour.

In the previous chapter, the Australian studies, I did not report on market share shifts, but rather argued against using market share as a measure of loyalty program success/failure, noting that (a) “excess loyalty” is possible without any, or a very small, marketshare gain, and (b) loyalty programs are inherently defensive, appealing to existing and heavier buying customers so they should not be expected to have any marked degree of impact on penetration. East (1998), however, argues that a loyalty program might still bring about some degree of penetration gain and that this could actually reduce the degree of “excess loyalty” observed in terms of Dirichlet deviations (any gain in average purchase frequency would look like less of a deviation if penetration also rose). Thus it may be important to look at market share movements, particularly for the loyalty program brand.

Normally the difference between large and small share brands is primarily that small brands have far fewer customers than large brands (Ehrenberg 1988). They also have lower purchase loyalty, that is, their customers buy them less often (the famous 'double jeopardy' effect McPhee 1963, Ehrenberg et al. 1990) but this difference is of a much smaller magnitude than the difference in numbers of customers between large and small brands (Ehrenberg and Uncles 1998). It follows, therefore, that when a brand moves to a higher market share position it gains a lot more customers and also experiences a smaller gain in purchase loyalty. Little is known about how this increase in average purchase frequency happens, that is, whether the brand attracts some heavier than average buyers or whether existing customers buy more (East 1997). Little is also known about the non-stationary period before a brand settles down in its new higher market share position. Does a brand move smoothly along the ‘double jeopardy line’\(^{55}\), or do existing customers begin buying more (raising repeat-purchase loyalty) before word-of-mouth and demonstration effects, amongst other things, attract new buyers\(^{56}\), or does marketing effort attract new buyers who trial the brand (raising penetration) and who then gradually add the brand to their repertoire

\(^{55}\) In this scenario the brand would always fit the market’s double jeopardy pattern even while it was non-stationary, i.e changing market share positions. Since non-stationarity is a deviation from the Dirichlet’s assumptions the brand should deviate from predictions while it is not stationary so this no-deviation scenario seems improbable.

\(^{56}\) In this second scenario the brand would move to an ‘excess loyalty’ (also called ‘niche’ (Kahn et al. 1988)) position before gradually falling to the ‘double jeopardy line’ at a new higher share position.
lifting repeat-purchase loyalty. This thesis attempts to shed some light on these dynamics, at least in terms of the temporary market share gain caused by promotions and the more lasting effect of a loyalty program.

The impact of the sales promotion

It is more difficult to form expectations concerning the marketplace effects of promotions. It is known that promotions, particularly price promotions, can cause quite dramatic sales spikes. So promotions make a brand temporarily look like a larger share brand, thus it might be expected that promotions should produce large increases in penetration and small gains in average purchase frequency, this is in line with the observed difference between a brand and any larger share brand. However, promotions produce only temporary market share increases, the increase disappears once the promotion finishes, and promotions typically run for short periods which may preclude some marketplace effects. It appears that there is little or no residual effect post-promotion, which has been put down to evidence that promotions mainly attract existing buyers rather than inducing trial by new customers (Ehrenberg et al. 1994). This would suggest that promotions may receive their sales gain in terms of excess loyalty instead of substantial penetration gains. However, exactly the opposite has been argued (Kahn et al. 1988 state that a brand might show deficit loyalty or “change of pace” if it ran promotions during the panel period) and it is uncommon for marketing textbooks to associate promotions with increases in loyalty, no matter how temporary.

I conducted an expert survey, by e-mail, of academics at the University of South Australia and the University of Adelaide asking the opinions concerning how a promotion induced temporary sales spike would manifest itself. Respondents were asked to choose from three mutually exclusive options:

1. Six respondents voted for a smooth movement along the ‘double jeopardy line’, ie the brand would increase in share but without ever deviating from Dirichlet predictions.

57 In this third scenario the brand would more to a ‘deficit loyalty’ (also called ‘change of pace’ (Kahn et al. 1988)) position before gradually rising to the ‘double jeopardy line’ at a new higher share position.
2. Five respondents voted for the brand showing the sales spike to display 'excess loyalty, that is the sales spike would come more than expected from an increase in purchase frequency and less than expected from penetration.

3. Eight respondents voted for ‘deficit loyalty’ or ‘excess penetration’, that is, the sales spike would come more from expected from an increase in penetration and less than expected from purchase frequency.

So the vote was split, illustrating the point that little is known about the marketplace dynamics which occur as brands change marketshares (East 1997). This research provides an initial finding in respect to promotion driven sales spikes. The results from the retail fuel category in this chapter support (2) as the correct answer but the sales gain is more ‘normal’ (ie like (1)) than a marketshare shift produced by a loyalty program.

Results

Credit Cards

As in Australia, there was only one loyalty program brand in this category, the Bank of New Zealand (BNZ) formerly the state owned bank and now a wholly owned subsidiary of the National Australia Bank (a blow to the pride of some New Zealanders).

Unlike the Australian analysis, purchasing data was not collected or modelled on charge cards (eg Diners Club, AmEx) though these and other cards did appear in the data for some respondents and are hence modelled as ‘others’.

Another important difference from the Australian study was that due to the timing of this panel, that is closer to the launch date, only 67% of respondents who held a BNZ credit card and who were Fly Buys members had linked their credit card to Fly Buys. That means one third of the Fly Buys group were not given any incentive to alter their behaviour in this market. Thus we might expect to see less of an impact for FlyBuys in this panel data.
Market share changes

Table 17: market shares pre and post loyalty program launch

<table>
<thead>
<tr>
<th></th>
<th>Market Share before the loyalty program launch</th>
<th>Market Share post loyalty program launch (the panel period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNZ</td>
<td>24%</td>
<td>25%</td>
</tr>
<tr>
<td>ANZ</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>Westpac</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>National</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Trust</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>ASB</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Countrywide</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

No evidence of market share changes.

Pre-launch market share were calculated crudely by asking the panel recruitment sample what credit cards they held. Post-launch shares are based on penetration and usage frequency during the panel period. Overall the figures are extremely close. It is possible that the loyalty program brand, BNZ, has increased in market share which should have happened if its customers increased their usage frequency, though any effect appears to have been small. This is not surprising given that only a small part of BNZ’s customer base (23%) were both FlyBuys members and had linked their credit card to FlyBuys.
Loyalty findings: FlyBuys members only results

Table 18: Credit Cards, FlyBuys members only, ten weeks (n=199)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>61.8</td>
<td>61.8</td>
<td>8.8</td>
<td>8.8</td>
</tr>
<tr>
<td>BNZ*</td>
<td>16.6</td>
<td>22.5</td>
<td>10.6</td>
<td>7.8</td>
</tr>
<tr>
<td>ANZ Trust</td>
<td>13.6</td>
<td>13.7</td>
<td>7.7</td>
<td>7.6</td>
</tr>
<tr>
<td>Westpac</td>
<td>12.1</td>
<td>13.0</td>
<td>8.2</td>
<td>7.7</td>
</tr>
<tr>
<td>National</td>
<td>9.6</td>
<td>10.5</td>
<td>8.3</td>
<td>7.5</td>
</tr>
<tr>
<td>ASB</td>
<td>9.6</td>
<td>7.8</td>
<td>6.1</td>
<td>7.5</td>
</tr>
<tr>
<td>CountryWide</td>
<td>3.5</td>
<td>2.5</td>
<td>5.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Others</td>
<td>2.5</td>
<td>1.4</td>
<td>4.0</td>
<td>7.3</td>
</tr>
<tr>
<td>Average</td>
<td>8.5</td>
<td>8.9</td>
<td>6.5</td>
<td>7.4</td>
</tr>
<tr>
<td>Mean Absolute Deviation (+/-)</td>
<td>1.5</td>
<td>2.0</td>
<td>16.4</td>
<td>19.1</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>1.0</td>
<td>1.4</td>
<td>12.2</td>
<td>14.5</td>
</tr>
</tbody>
</table>

*A Fly Buys participating brand

The observed figures are somewhat similar to those observed in Australia, accounting for the shorter time period in New Zealand. Buyers used a credit card on average around 9 times in this 10 week period, and in Australia they used a card 10 times in 12 weeks. 65% of Australian FlyBuys members used a card in 12 weeks, and 62% did in New Zealand in 10 weeks.

As in Australia, the fit of the Dirichlet model to this subscription market is best in terms of penetration, and not so good for purchase loyalty. The SCRIs noticeably are systematically out. The average brand estimate is close but that is because of systematic underestimation for large brands and over estimation for the small brands.

There does, however, appear to be a rough double jeopardy effect, presumably due to some customers holding more than one card.
BNZ, the loyalty program brand, shows the greatest deviation and this is in the direction of 'excess loyalty'. Thus this suggests that the loyalty program may have had an impact on changing the purchasing habits of existing customers; this is in line with the Australian study.

**Total market results**

**Table 19: Credit Cards, Total market (members and non-members), ten weeks (n=592)**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>56.8</td>
<td>56.8</td>
<td>8.8</td>
<td>8.8</td>
</tr>
<tr>
<td>BNZ*</td>
<td>15.4</td>
<td>15.7</td>
<td>8.1</td>
<td>7.9</td>
</tr>
<tr>
<td>ANZ</td>
<td>12.8</td>
<td>13.2</td>
<td>8.1</td>
<td>7.9</td>
</tr>
<tr>
<td>Westpac</td>
<td>11.2</td>
<td>12.1</td>
<td>8.5</td>
<td>7.8</td>
</tr>
<tr>
<td>Trust</td>
<td>9.0</td>
<td>9.8</td>
<td>8.5</td>
<td>7.8</td>
</tr>
<tr>
<td>National</td>
<td>8.8</td>
<td>8.3</td>
<td>7.4</td>
<td>7.7</td>
</tr>
<tr>
<td>ASB</td>
<td>4.4</td>
<td>3.7</td>
<td>6.4</td>
<td>7.7</td>
</tr>
<tr>
<td>Countrywide</td>
<td>2.0</td>
<td>1.1</td>
<td>4.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Others</td>
<td>0.3</td>
<td>0.1</td>
<td>3.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Average</td>
<td>8.0</td>
<td>8.0</td>
<td>6.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Mean Absolute Deviation</td>
<td>0.6</td>
<td>1.4</td>
<td>12.6</td>
<td>12.2</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>0.7</td>
<td>1.1</td>
<td>7.2</td>
<td>4.7</td>
</tr>
</tbody>
</table>

S = 0.0863

*A Fly Buys participating brand

The total market analysis is again similar to the Australian panel (note: although here the loyalty program brand is the leading brand).

In this table there is no deviation of any substance for the loyalty program brand, this is perhaps not surprising as the proportion of the market that is a FlyBuys member and has a BNZ credit card and has linked this to FlyBuys is small (23%).

A more appropriate analysis is to compare members with non-members. Here the results are as expected, given the Australian results. FlyBuys members are more likely to be BNZ customers (observed penetration is much higher than among non-members) and amongst FlyBuys members BNZ shows a
substantial 'excess loyalty' deviation from Dirichlet estimates, whereas this is not evident amongst non-members.

Table 20: Fly Buys Members c.f. Non-Members, ten week period (note those who joined during are excluded)

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fly Buys members (N=199)</td>
<td>Non Fly Buys members (N=323)</td>
<td>Fly Buys members (N=199)</td>
</tr>
<tr>
<td>BNZ</td>
<td>16.6</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Thus it appears that the results for this category concur with the original study in Australia. FlyBuys appears to have increased the usage frequency of existing customers. However, an important caveat is that the poor fit of the Dirichlet to this subscription market makes an excess loyalty conclusion problematic. The conclusion of a loyalty program effect is supported by the fact that the usage frequency for the loyalty program brand is substantially above the average brand’s level.

Home Telecommunications

Usage of toll calls (local calls in New Zealand are free and provided by one provider: Telecom) was tracked. This is another subscription category where customers tend to be solely loyal to one provider in spite of being able to switch simply by using override codes when making a phone call, as well as by changing their specified provider by application form.

This category was very unusual in that it had only two brands. One, Telecom, was government owned and had been in the market since telecommunications services were first offered in New Zealand, the other, CLEAR, was a new entrant. Telecom was very much the dominant brand, with a massive advertising and sponsorship spend, yet was very profitable.
The category was also unusual in that Telecom already had its own substantial loyalty program running (called 'Talking Points'). With the launch of FlyBuys customers were allowed to earn FlyBuys or Talking Points points on their phone call expenditure, but not both; points from the 'Talking Points' program could be transferred to FlyBuys points at any time.

Almost 50% of Fly Buys members in the panel reported being members of Talking Points while, as expected, only about a third of respondents who are not members of Fly Buys were members of Talking Points. Of course with a third of non-FlyBuys members being Talking Points members this may cloud results.

**Marketshare Changes**

**Table 21: market shares pre and post loyalty program launch**

<table>
<thead>
<tr>
<th></th>
<th>Market Share before the loyalty program launch</th>
<th>Market Share post loyalty program launch (the panel period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom</td>
<td>83%</td>
<td>83%</td>
</tr>
<tr>
<td>CLEAR</td>
<td>17%</td>
<td>17%</td>
</tr>
</tbody>
</table>

No evidence of marketshare changes.

Pre-launch marketshares were calculated based on asking the panel recruitment sample which brand was their specified provider (the tolls call provider than they did not have to dial an override code in order to use). The post-launch figures are based on the penetration and usage frequencies of panel members. There appears to have been no marketshare movement.

---

58 In October 1998 it was reported that 630,000 New Zealanders were members of ‘Talking Points’ (http://www-stl.mastercard.com/press/981007b.html). New Zealand’s population being approx. 3.5 million.
Loyalty findings: FlyBuys members results only

Table 22: Phone companies, FlyBuys members only, ten weeks (n=199)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>97.0</td>
<td>97.0</td>
<td>25.9</td>
<td>25.9</td>
</tr>
<tr>
<td>Telecom*</td>
<td>87.9</td>
<td>87.9</td>
<td>24.3</td>
<td>24.3</td>
</tr>
<tr>
<td>CLEAR</td>
<td>20.6</td>
<td>20.6</td>
<td>18.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Average</td>
<td>54.3</td>
<td>54.3</td>
<td>21.1</td>
<td>21.1</td>
</tr>
<tr>
<td>Mean Absolute Deviation (+/-)</td>
<td>0</td>
<td>0</td>
<td>1.34</td>
<td></td>
</tr>
</tbody>
</table>

S=0.1759

*A Fly Buys participating brand

The two brand category displays an almost perfect Dirichlet fit. There is no sign of any excess loyalty.

Total Market Results

Table 23: Phone companies, Total market, ten weeks (n=592)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>97.3</td>
<td>97.3</td>
<td>26.3</td>
<td>26.3</td>
</tr>
<tr>
<td>Telecom*</td>
<td>85.5</td>
<td>85.4</td>
<td>24.8</td>
<td>24.7</td>
</tr>
<tr>
<td>CLEAR</td>
<td>22.1</td>
<td>22.7</td>
<td>20.1</td>
<td>18.6</td>
</tr>
<tr>
<td>Average</td>
<td>53.8</td>
<td>54.0</td>
<td>22.4</td>
<td>22.2</td>
</tr>
<tr>
<td>Mean Absolute Deviation (+/-)</td>
<td>0.4</td>
<td>0.3</td>
<td>2.9</td>
<td></td>
</tr>
</tbody>
</table>

S=0.1352

*A Fly Buys participating brand

The fit of Dirichlet is extremely good for a subscription market which may be largely due to the fact that the market has only two brands that (just) happen to show such a normal double jeopardy pattern (which is not seen in the other subscription categories). The mean absolute deviation for purchase frequency
seems quite large at 0.3 but this is based on a fairly large number of purchases, around 20 purchases for the average buyer of each brand.

Telecom shows no sign of excess loyalty, its very small deviation from predictions is actually in the opposite direction.

The total market results are very similar to the FlyBuys members only analysis (surprisingly an ever so slightly worse Dirichlet fit in spite of the larger sample size). Indeed the absolute observed figures are very similar which must mean that FlyBuys did not attract people that were more likely to be Telecom customers or who were heavier Telecom customers. This is different from every other category studied where the FlyBuys members were more likely to be customers of the brands that participated in FlyBuys.

Thus these results not only suggest that FlyBuys had no effect in this category but that Telecom did not particularly succeed in recruiting its customers to FlyBuys, or that FlyBuys members were not aware of, or did not value, Telecom’s involvement. Given that customers could already earn ‘Talking Points’ perhaps this is not surprising59.

Results Retail Fuel

The Marketing Interventions

The retail petrol market in New Zealand at the time of the loyalty program launch was quite different from the market in Australia. The market was completely dominated by four brands (BP, Shell, Mobil, and Caltex) with independent petrol stations being almost non-existent. In Australia, minor brands and independents often positioned themselves as discounters, whereas ‘discounters’ did not exist in the New Zealand market. Supermarkets also did not offer retail petrol outlets as they do in other countries (eg see Shingleton 1998). Profit margins, at the time, were higher in New Zealand than Australia. The four petrol companies were publicly accused of monopolistic behaviour and there was some public pressure for the

59 Interestingly Telecom’s web site, in 1998, makes no mention of the company’s involvement in FlyBuys, only ‘Talking Points’, its own loyalty program, is mentioned with several pages describing the program and allowing customers to get updates concerning the number of points that they have earned (see http://www.telecom.co.nz).
government to encourage new entrants into the market, this happened a couple of years after this research was conducted.

There was almost no product or price differentiation between brands whatsoever. The main differentiating features were between individual outlets, that is, difference in location, type of accompanying food store, presence or absence of carwash, etc. Consequently brand shares were well known to be promotion sensitive. Marketers at each of the four petrol companies could achieve quite substantial temporary sales gains for their brand through sales promotions, these usually featured discounts on non-fuel products (eg Coca-cola), competitions, or giveaways (eg free drink glass with every fuel purchase) rather than discounting.

In the post loyalty program period one brand (Mobil) ran a series of “back-to-back” promotions, some were price discounts and some were “softer” promotions, this was unusually ‘large’ promotional activity designed to celebrate Mobil’s 150 year anniversary in New Zealand. Caltex, the smallest brand undertook some degree of promotional activity, though nowhere near the same scale. The market leader (BP), perhaps deliberately, did nothing; they had seen the minimal impact of FlyBuys in Australia and were reluctant to needlessly overreact to the launch of FlyBuys in New Zealand. The consequences of Mobil’s intensive price promotions were temporary upwards sales spikes but, as will be seen, it did not steal sales from each competing brand as would be expected. I attribute this effect largely to the presence of the loyalty program.

**Market Share Changes**

Before examining whether or not the loyalty program has brought about “excess loyalty” (ie disrupted normal repeat-purchase patterns) Table 24 describes the market share movements that occurred.

The market shares, for each petrol brand, before and after the loyalty program launch are shown in the table below. The first column shows pre-launch figures derived from probabilistic estimates of buying behaviour a method shown to produce very accurate aggregate level sales statistics (derived from estimates of penetration and purchase frequency) (see Wright et al. 1998a, Brennan and Esslemont 1994). The pre-launch market shares were calculated using a matched sample, that is, the same respondents who participated in the full ten weeks of the post-launch panel. This effectively removes sampling error in
making comparisons between the two sets of marketshares. However, given that probabilistic estimates “look forward” there is some danger that they might be contaminated by FlyBuys launch in the later part of the survey upon which these estimates are based. So the second column shows estimates based simply on the entire recruitment sample’s stated petrol buying in the past week.

Table 24: market shares pre and post loyalty program launch

<table>
<thead>
<tr>
<th></th>
<th>Market Share before the loyalty program launch (probabilistic measures)</th>
<th>Market Share before the loyalty program launch (reported past behaviour measures)</th>
<th>Market Share post loyalty program launch (the panel period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell</td>
<td>32%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Mobil</td>
<td>21%</td>
<td>23%</td>
<td>28%</td>
</tr>
<tr>
<td>BP</td>
<td>32%</td>
<td>32%</td>
<td>26%</td>
</tr>
<tr>
<td>Caltex</td>
<td>15%</td>
<td>15%</td>
<td>16%</td>
</tr>
</tbody>
</table>

The brand on promotion jumps in market share.

There is no apparent gain in marketshare for the loyalty program brand (Shell) during the period that the panel ran, indeed the opposite appears to occur, but it does move to the number one rank position due to changes in the shares of the other brands. The brand on heavy promotion during the period (Mobil) posted a substantial marketshare gain, largely at the expense of the market leader (BP) while the smallest brand in the market (Caltex) appears to have largely held its ground, due perhaps to the smaller promotion it ran.

The (at least) five percentage points in marketshare that Mobil gained from other brands should have come from Caltex (one point), BP (two points) and Shell (two points) according to the Duplication of Purchase law, which has been shown to predict marketshare gains/losses in non partitioned markets (see Lomax et al. 1996). Whereas in reality it appears that Caltex did not lose any share but rather gained, so BP and Shell should have lost even more. Shell though, at most, lost only the 2 points it should have because of Mobil’s gain, while BP lost a full six percentage points of share, when it should have only lost little more than 2 points. These differences could be due to major partitioning in the market (as well as errors associated with the individual measures) but are much more likely to be due to the marketing interventions, particularly the lack of intervention on BP’s part.
The figure below reports weekly market shares, sales for each brand were calculated by multiplying penetration by average purchase frequency. On a week-by-week basis Shell is fairly consistently in the market leadership position. Mobil has a strong run for several weeks then falls back followed by another less dramatic and short spike upwards in week 8 only. The chart reveals the sales impact of Mobil cycling through its different promotions. BP sits in 2nd or 3rd position, depending on the week, and Caltex is consistently the smallest brand. Week by week variation in terms of rank positions is fairly minor, except for Mobil which seems to jump from 3rd to 1st position and back to 3rd again twice. Caltex does seem to suffer from Mobil’s promotions, as does BP. Shell seems largely unaffected.

Figure 3: Market Share, weekly periods

Loyalty Results

The next tables examine the loyalty effects first for FlyBuys members alone and then for the total sample.
FlyBuys Members Only

Table 25: Retail Petrol, FlyBuys members only, ten weeks (n=199)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
<th>Share of Requirements (%)</th>
<th>Sole Buyers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (used for fitting)</td>
<td>98</td>
<td>98</td>
<td>12.1</td>
<td>12.1</td>
</tr>
<tr>
<td>Shell*</td>
<td>62.8</td>
<td>68.8</td>
<td>7.9</td>
<td>7.2</td>
</tr>
<tr>
<td>Mobil</td>
<td>47.2</td>
<td>43.5</td>
<td>5.4</td>
<td>5.9</td>
</tr>
<tr>
<td>BP</td>
<td>42.2</td>
<td>41.7</td>
<td>5.7</td>
<td>5.8</td>
</tr>
<tr>
<td>Caltex</td>
<td>38.7</td>
<td>33.9</td>
<td>4.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Other</td>
<td>0.5</td>
<td>0.33</td>
<td>3.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Average</td>
<td>38.3</td>
<td>37.6</td>
<td>5.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Mean Absolute Deviation (+/-)</td>
<td>3.0</td>
<td>0.7</td>
<td>6.8</td>
<td>3.9</td>
</tr>
<tr>
<td>MAD excluding FlyBuys brands and others</td>
<td>3.0</td>
<td>0.4</td>
<td>2.9</td>
<td>1.8</td>
</tr>
</tbody>
</table>

S = 0.8162

*A Fly Buys participating brand

Amongst FlyBuys members only, Shell shows the expected excess loyalty pattern, and interestingly every other brand shows a deficit loyalty pattern. This suggests that the loyalty program has affected the repeat-purchase patterns of FlyBuys members.
Again Shell shows an excess loyalty pattern. So also does the heavily promoted brand Mobil, though not to the same degree as Shell.

The deviations from Dirichlet predictions are interesting. There is a clear excess loyalty effect for the brand running the loyalty program. Shell has lower penetration than expected (ie lower than the Dirichlet theoretical prediction) and higher than expected purchase loyalty. Mobil (the participant brand in the retaliatory promotion) also shows this phenomenon, although to much less extent. BP appears relatively normal. Caltex appears to show an 'deficit loyalty' effect. This is probably at least partially due to model fitting, ie a deviation for one brand "causing" a deviation for another, however inspection of the observed figures alone shows a strong double jeopardy effect suggesting that the "deficit loyalty" effect is possibly also due to things going on in the real market, ie the non-stationarity of two of the other brands.

Overall the results give a strong indication of a loyalty program having an effect, and it is reasonably large (ie greater than 3 percentage points deviation for penetration and share of category requirements, and 0.3 for average purchase frequency). This is further supported by direct examination of Shell's apparent excess of repeat-purchase. Table 27 reports the proportion of buyers who bought a brand in the first 5
weeks who then repeat purchased in the following 5 week period. Shell has a greater proportion of repeat buyers than expected and this phenomenon is “caused” (ie the deviations are attributable to) entirely by the loyalty programs’ members, the rate of repeat buying between the two periods is in line with theoretical expectations for non-program members. This deviation for program members (and Shell’s customers overall) implies some trend (upwards) between the two periods.

Mobil, which showed excess loyalty in the total 10 week figures (Table 26), here shows no excess of repeat-purchase between the first and second 5 week periods. This strongly suggests that Mobil’s excess (average over the whole 10 week panel – see Table 26) was due to a temporary deviation(s) occurring some time within the 10 week period and between the two, 5 week “slices’. The market share movements shown in Figure 3 concur.

The other brands show repeat purchase rates closely in line with theoretical expectations, except that amongst loyalty program members repeat-purchase is systematically lower than expected for the non-participant brands. This suggests some trend (downwards) in loyalty program members’ repeat-purchase of these brands (BP, Caltex, Mobil) between the two periods.

Table 27: Retail Petrol, Repeat purchase rates (between first and second 5 week periods)

<table>
<thead>
<tr>
<th>Brand</th>
<th>All Repeat Buyers</th>
<th>Loyalty program Members</th>
<th>Non-Loyalty Program Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell*</td>
<td>82</td>
<td>79</td>
<td>87</td>
</tr>
<tr>
<td>Mobil</td>
<td>75</td>
<td>78</td>
<td>68</td>
</tr>
<tr>
<td>BP</td>
<td>77</td>
<td>77</td>
<td>72</td>
</tr>
<tr>
<td>Caltex</td>
<td>70</td>
<td>73</td>
<td>71</td>
</tr>
<tr>
<td>Average</td>
<td>76</td>
<td>77</td>
<td>75</td>
</tr>
<tr>
<td>Any</td>
<td>98</td>
<td>97</td>
<td>99</td>
</tr>
</tbody>
</table>

*loyalty program participant brand

An Indicator of Causality

Table 28 presents more separated results for loyalty program members and non-members. The theoretical figures are from separate Dirichlet models fitted to each separate group. As can be seen, there
is an excess loyalty effect only amongst buyers of Shell who are members of the loyalty program. Thus the overall excess loyalty effect is due entirely to the loyalty program members. Excess loyalty is not observed amongst non-members.

Intriguingly Mobil’s excess loyalty is entirely due to non-members of the loyalty program, the program members actually show a deficit in average purchase frequency for Mobil (as they do for every other non-participating brand). This suggests that the loyalty program insulated Shell from Mobil’s promotional efforts (while non-loyalty program members were still affected by this promotion). That is, program members who also bought Mobil appear largely unaffected by Mobil’s promotion. This is supported by the fact that Mobil failed to steal as much marketshare from Shell as it should have in making its temporary sales gains.

Because these two brands have higher than expected loyalty they have lower than expected penetration. As discussed previously this deficit in observed, compared with predicted, penetration for Shell and Mobil should not be interpreted as meaning that these brands lost customers. It is a reflection of Dirichlet “saying” that these two brands have too much repeat-purchase loyalty for their penetration level, or put another way, that they have too little penetration for their level of loyalty. The fact that they do not fit (normal patterns) is reflected in both the average purchase frequency and penetration statistics at the same time.

<table>
<thead>
<tr>
<th>Fly Buys Brand</th>
<th>Penetration (%)</th>
<th>Average Purchase Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fly Buys members (N=104)</td>
<td>Non Fly Buys members (N=281)</td>
</tr>
<tr>
<td>Shell</td>
<td>Obs. 7.9</td>
<td>Pred. 5.6</td>
</tr>
<tr>
<td>Mobil</td>
<td>Obs. 5.4</td>
<td>Pred. 7.1</td>
</tr>
<tr>
<td>BP</td>
<td>Obs. 5.7</td>
<td>Pred. 6.2</td>
</tr>
<tr>
<td>Caltex</td>
<td>Obs. 4.8</td>
<td>Pred. 4.7</td>
</tr>
<tr>
<td>Average</td>
<td>Obs. 6.0</td>
<td>Pred. 5.9</td>
</tr>
</tbody>
</table>
Conclusion — Retail Fuel

This research has shown in some detail the impact of a loyalty program and has distinguished this impact from other confounding competitive effects, i.e., the promotion by Mobil. It seems very reasonable that certain effects can be attributed to the loyalty program and its launch.

The Shell brand is not behaving as it would if it were stationary. It shows excess loyalty and this effect seems entirely attributable to the loyalty program. Non-loyalty program Shell buyers are not being affected.

The Mobil brand is also showing deviations though not as substantial in spite of, or perhaps because of, a large market share movement. In this case however, it is non-loyalty program members that are affected, suggesting that the loyalty program somewhat insulated buyers (members) from this promotion.

The combined result of the loyalty program and Mobil’s promotion is to change overall market share rankings with Shell the biggest winner in the 10 week panel period. Mobil stole share from everyone but more so from BP and Caltex and much less so from Shell.

_________________

60 If a brand increases in penetration it is likely to attract buyers who only have limited chances to buy the brand (due to the length of the promotion or survey period), therefore average purchase frequency may fall.
Chapter Eight - Summary of Main Findings & Future Research Suggestions

This thesis has attempted to show the impact of a loyalty program on the repeat-purchase patterns that exist in repertoire and subscription markets. In doing so it has described empirically the fit of the Dirichlet model to a series of near stationary product categories in Australasia, including subscription categories which have not really been exposed to such study previously. It has also documented the impact of a substantial price promotion on loyalty patterns, and provided some initial evidence concerning whether a ‘successful’ loyalty program can insulate customers from the enticement of a competitors’ sales promotion.

Specific Research Findings

1. It has supported the use of Dirichlet norms to assess the impact of marketplace interventions, especially loyalty initiatives. The comparisons against Dirichlet predictions seemed to work as expected in being able to show the impact or lack of impact of marketing interventions. The thesis provides a methodological and analytical framework for further studies employing this approach.

2. The research has provided significant support for the contention that when loyalty programs successfully impact on buying behaviour they bring about excess loyalty rather than normal patterns of market share gain.

61 Some exploratory analysis has been conducted of a potentially ‘subscription’ market, airline fuel contracts (Uncles and Ehrenberg 1990b). However, the analysis amalgamated customers across different airports (eg British Airways at Heathrow airport, and at Charles de Gaul airport, etc) which results in the creation of repertoires.

62 The results of this research have been presented to managers in public forums in Adelaide, Melbourne and Sydney, participants included the companies involved in FlyBuys. In-house presentations were also made to sponsors in Adelaide, Melbourne, Auckland and Wellington. This provides some degree of external validation.
3. Loyalty programs seem to, at best, have a weak impact on the market. They produce a small or no degree of excess loyalty.

4. Loyalty programs to not appear to attract heavy buyers of the category, but rather attract existing buyers of the loyalty program brand(s). Most of these customers will receive loyalty program points for undertaking no change in buying behaviour.

5. The research supports those who have argued that changing fundamental repeat-purchase patterns is very difficult. Brands typically show only small differences in purchase loyalty. The findings in this thesis show that this remains the case, even when some degree of excess loyalty has been achieved. Loyalty programs do not seem to induce market partitioning and they certainly do not turn repertoire categories into subscription categories.

6. The research has supported the argument that loyalty programs are unlikely to have a substantial effect on market share, and that even if they impact on repeat buying behaviour and bring about excess loyalty they may not produce substantial market share movement. The argument that market share or sales gains are an inappropriate way to assess loyalty program performance is supported by the empirical evidence in this thesis.

7. Loyalty programs are therefore best thought of as highly defensive, and in line with their name they are for increasing the loyalty of existing customers rather than winning new customers.

8. Loyalty programs appear able to stimulate increased usage in subscription markets. As expected, there was no evidence that they could encourage brand switching in subscription markets. In repertoire markets they also appear to have little or no ability to induce brand switching, nor other substantial changes in repertoire weights.

9. A lack of brand differentiation (including price differentiation) seems strongly related to increased loyalty program impact. Markets that are promotion sensitive appear to be loyalty program sensitive as well. The magnitude of the effect observed in such conditions was one extra repeat buy every 10 repeat buys. This is probably the upper bound of loyalty program impact on purchase loyalty.

10. Promotions, rather surprisingly, also impact on market share via excess loyalty rather than excess penetration or even the normal ratio of gains in penetration and average purchase frequency. This
provides further support for the contention that promotions are taken up largely by existing customers (Ehrenberg et al. 1994). However, they do appear to have a more normal impact on purchase patterns than loyalty programs. There was a reasonable, though less than expected, degree of penetration growth to accompany purchase loyalty increases.

Managerial Implications

The main value of this thesis to managers running loyalty programs or considering implementing them is that it provides guidelines concerning how to assess their impact and it provides a strong indication of the sort of marketplace effect that is reasonable to expect (and therefore what not to expect).

This research has only investigated the marketplace impact of loyalty programs. And only in terms of bringing about excess purchase loyalty. This limits the normative recommendations that can be made on the basis of the results in this thesis. However, the results in this thesis do suggest a few quite clear guidelines for marketing practice.

- In most markets, managers seeking to increase market share should not consider loyalty programs.
- Managers who operate in markets that are promotion sensitive, particularly markets where sales promotions are often profitable, would be well advised to investigate the option of launching a loyalty program. It appears possible that these promotional benefits can be locked in permanently and that, unlike on-going promotions, there may be substantial first mover advantages.

The biggest cost of a loyalty program is likely to be the cost of giving rewards to customers who have not changed their buying behaviour. In assessing the financial returns of a loyalty program managers must separate out the amount of repeat-purchasing that was likely to occur without the loyalty program. Dirichlet modelling provides a good indication of this.
Limitations and Future Research

It would have been nice to have run a panel prior to the launch of FlyBuys and then for a long period afterwards in order to assess the Dirichlet approach against a more traditional quasi-experimental design. However, this would have required more funds and considerable prior warning of FlyBuys launch, both of which were not available. And the objective of this research was to assess the impact of a loyalty program, this was not a piece of methodological research whose purpose was to compare competitive approaches to assessing the impact of a loyalty program.

As has been noted, this research only examined the marketplace impact of this one loyalty program, it did not examine the financial impact of the program. Loyalty program success, from a firm’s perspective, depends not only on bringing about the behavioural change which is required, but also on firstly choosing to reward a behavioural change which is beneficial to the firm beyond the costs of the program. Some industries and firms will benefit more than others from an increase in purchase loyalty. For instance, firms in industries where the costs of acquiring new customers are high and where new or infrequent customers are more difficult to service would particularly benefit from increases in purchase loyalty. This thesis has not examined this issue. Even if it can be shown that a particular loyalty program does bring about substantial change in purchase loyalty and/or market share further research is needed to examine the financial return in light of the program’s costs.

This research was really only set up to investigate the impact of loyalty programs on purchase loyalty. It did not investigate the potential benefit of decreasing customers’ sensitivity to competitor offers (ie increasing differentiation loyalty), little is yet known about this (Sharp 1998). This is an important limitation and area for future research.

An important question arising from this research is whether any observed effect is temporary or likely to be of a lasting nature. The answer probably depends on how much the of observed loyalty effect can be attributed to the loyalty program and how much can be attributed to the impact of its launch and associated advertising, publicity and word-of-mouth/excitement. I suggest that the bulk of the effect is due to the nature of the program rather than its launch. Research on price promotions suggests that the bulk of any sales increase is due to the price reduction rather than the accompanying advertising, although the advertising is needed to create awareness of the price promotion. Advertising alone seldom
produces immediate sales increases, let alone marked increases. Likewise non-price/incentive promotions seldom produce the large sales spikes observed with price promotions. Industry reports from New Zealand were that once the market has settled down, eg Mobil's 150 year anniversary promotions ended, Shell had gained several percentage points of marketshare sufficient to wrest marketshare leadership from BP. The question remains whether this marketshare position is held while still in a state of "excess loyalty" or whether Shell's penetration has increased substantially and brought the brand into (double jeopardy) line. Given the reinforcing/incentive structure of loyalty programs the answer probably is that Shell still enjoys excess loyalty, that the loyalty program has produced a permanent deviation from normal Dirichlet market patterns. However, the permanency of the excess loyalty effect remains uninvestigated.

There is still much to be done in investigating the marketplace impact of loyalty programs. Other questions which were not addressed by this piece of research include:

- Can loyalty programs, at least in some instances, result in increases in the average value of a purchase occasion?

- Does the impact of a loyalty program on consumer behaviour change (perhaps become more effective) as the consumer builds equity in the program, ie accumulates points? Does this change when points are redeemed?

There is also considerable research that could be conducted to determine which are the more/less successful implementation options for loyalty programs. Currently the design and implementation of loyalty programs rests almost entirely on creativity, intuition, experience and guesswork. There is little in the marketing literature to guide practitioners. This research was limited in that it examined one specific implementation of a loyalty program. Future research could examine alternative implementations, eg reward structure, types of rewards.

Clearly there is much to be done in order to build a series of generalisations concerning the effects of different loyalty initiatives. The same applies for other marketing interventions. But on a very positive note the utility of such generalisations to marketing practice would be large and it certainly appears possible to develop such generalisations. If this research is undertaken then future marketing managers
should have a much better idea of what to expect from their marketing strategies than their counterparts today do.
References


Guest, Lester (1955) "Brand Loyalty - Twelve Years Later", *Journal of Applied Psychology*, 39 (6), 405-408.


Jacoby, Jacob and David B Kyner (1973) "Brand Loyalty Vs. Repeat Purchase Behavior", *Journal of Marketing Research*, 10 (February), 1-9.


Sharp, Anne, David Corkindale and Byron Sharp (1997a), "Loyalty Programs - A Debate", ANZMEC 97, Melbourne, Department of Marketing, Monash University, 1, 567-577.


Sharp, Byron and Anne Sharp (1996), "Positioning and Partitioning", Refereed Proceedings of ANZMEC, Auckland, NZ, Department of Marketing, University of Auckland, 2, 723.


Uncles, Mark (1994a) "Do You or Your Customers Need a Loyalty Scheme?", Journal of Targeting, Measurement and Analysis for Marketing, 2 (No. 4), 335-350.


Appendix One

There are two types of repeat purchase markets

Byron Sharp and Malcolm Wright,
Marketing Science Centre, University of South Australia


---

63 Correspondence should be addressed to Byron Sharp at: Marketing Science Centre, City West Campus, University of South Australia, North Terrace, Adelaide, SA 5000, AUSTRALIA, email Byron.Sharp@msc.unisa.edu.au

NOTE:
This publication is included on pages 147-158 in the print copy of the thesis held in the University of Adelaide Library.