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ARE RADIO MARKETS DIRICHLET?
A STUDY INTO THE NBD/DIRICHLET,
ITS EMPIRICAL GENERALISATIONS
AND THEIR EXTENSION TO RADIO
LISTENING PATTERNS.

A thesis presented in partial fulfilment
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ABSTRACT

The well recognised and parsimonious Dirichlet model of buyer behaviour (Goodhardt, Ehrenberg and Chatfield 1984) has summarised a number of empirical generalisations about market structures and buyer behaviour. These generalisations have been described by Sharp, Wright and Goodhardt (2002) as:

- Differences in market share can be attributed largely to differences in market penetration

- A double jeopardy pattern emerges, with smaller brands having a lower average purchase frequency, share of category requirements, and proportion of sole buyers

- A brand’s customers buy from other brands more frequently

- Sole buyers tend to be very rare, and are also very light buyers

- Heavy buyers buy more brands and are very unlikely to be sole buyers

- Brands share their customers in proportion to their market share (Duplication of Purchase Law).

Of these empirical generalisations, double jeopardy, polygamous loyalty and the duplication of purchase law are amongst the better known. They have been observed across an increasing number of product categories, countries and differing market conditions. This thesis considers whether the Dirichlet and its accompanying empirical generalisations also hold true for radio markets.

Whilst Goodhardt, Ehrenberg and Collins (1975) and Barwise and Ehrenberg (1988) have considered television and its audiences there has been very little study into radio audience patterns. Perhaps this is because many researchers consider radio to be more
like television than any other media. However, Lees (2003, 2006) has started to address the issues of radio market structures and radio audience patterns.

This thesis adopts an empirical generalist approach showing the Dirichlet model of consumer behaviour and its associated empirical generalizations appear to apply to radio markets in that they:

- Show a high correlation between market share and the brand performance measures of: cumulative audience, average time spent listening, share of category requirements and exclusive audience

- Reflect the double jeopardy pattern with those stations that have a higher market share also having a higher penetration or cumulative audience and a higher average weekly time spent listening. Conversely those stations with a low market share having a lower cumulative audience and a lower average weekly time spent listening

- Show audience duplication between radio stations that varies according to each stations’ market cumulative audience, in accordance with the Duplication of Purchase Law

- Have the percentage of listeners loyal to one radio station reflecting the Dirichlet’s expectation of low exclusive audience. These exclusive listeners also reflect a double jeopardy pattern with the bigger stations having more exclusive listeners than the smaller stations.

The most compelling result of this thesis is the apparent ability of the Dirichlet to describe a radio market place. Thus has managerial implications – especially to what extent a manager should take the patterns as ‘normal’ or seek to ‘buck the trend’. The conclusion is that radio station managers need to carefully manage their station working with the market rather than trying to ‘buck the trend’. This is likely to involve station managers actively promoting their stations to ensure that their station
remains salient to its current listeners while also trying to increase its awareness amongst non listeners.

This thesis has also made several contributions to knowledge about the Dirichlet. First, it has extended knowledge about the model to a new area – that of radio listening. Second, it has shown that while some radio listening seemingly violates some of the assumptions behind the model it is still robust enough to account for variations in multivariate count data in a manner that is parsimonious. Third, it has confirmed the known boundary condition that the Dirichlet does under-predict sole loyal purchase frequency.

This thesis also calls for further research into both the Dirichlet model with further extensions to differentiated product categories; and into the question of radio audience measurement. It calls for the New Zealand Radio Broadcasters Association to commission a report into the effect of introducing portable people meters as a form of audience measurement.
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# TABLE OF CONTENTS

ABSTRACT .................................................................................................................................................. ii  
ACKNOWLEDGEMENTS ....................................................................................................................... v  
TABLE OF CONTENTS ......................................................................................................................... vii  
LIST OF TABLES ...................................................................................................................................... xii  

1 INTRODUCTION ................................................................................................................................. 1  
1.1 BACKGROUND ............................................................................................................................... 1  
1.2 OBJECTIVES .................................................................................................................................. 4  
1.3 OUTLINE OF THE THESIS ........................................................................................................... 6  
1.4 SUMMARY ....................................................................................................................................... 7  

2 EMPIRICAL GENERALISATIONS AND THE NBD DIRICHLET MODEL OF CONSUMER BEHAVIOUR .............................................................................................................. 8  
2.1 INTRODUCTION ............................................................................................................................. 8  
2.2 EMPIRICAL GENERALISATIONS ................................................................................................... 9  
  2.2.1 Many Sets of Data ....................................................................................................................... 11  
  2.2.2 Replication and Extension ......................................................................................................... 12  
  2.2.3 Prior Knowledge and Its Importance ......................................................................................... 14  
  2.2.4 Summary ................................................................................................................................. 15  
2.3 CONSUMER BEHAVIOUR MODELS ............................................................................................. 16  
  2.3.1 Cognitive Tradition .................................................................................................................... 16  
  2.3.2 Stochastic Modelling ................................................................................................................ 17  
    Markov Model ........................................................................................................................................ 17  
    The Theory of Stochastic Preference ............................................................................................... 20  
    Hendry System .................................................................................................................................. 21  
    The NBD Dirichlet .............................................................................................................................. 22  
  2.3.2 Summary ................................................................................................................................... 22  

3 THE NBD DIRICHLET TRADITION .................................................................................................... 24  
3.1 INTRODUCTION .............................................................................................................................. 24
Market Partitioning, Brand Size and Brand Loyalty ............................. 133
6.5.3  Market Partitioning ................................................................. 135
6.6  SUMMARY ..................................................................................... 139

7  DISCUSSION, CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH ................................................................. 142
7.1  INTRODUCTION ........................................................................ 142
7.2  STOCHASTIC ASSUMPTIONS, IMPLICATIONS AND VERSIONS OF THE MODEL .......................................................... 142
7.2.1  Poisson Process and Inter-Purchase Time Periods .................. 143
7.2.2  Purchase Occasions ................................................................. 144
7.2.3  Dirichlet Discrepancies .......................................................... 144
7.2.4  Versions of the Dirichlet ........................................................ 145
7.3  PATTERNS OF THE DIRICHLET AND ITS EMPIRICAL UNDERPINNINGS .............................................................. 146
7.4  IMPLICATIONS OF THE DIRICHLET PATTERNS ..................... 147
7.4.1  Dirichlet Implications for Radio Audiences ............................ 147
7.4.2  Dirichlet Implications for Station and Station Loyalty ............. 150
7.4.3  Dirichlet Implications for Radio Marketing Inputs .................. 151
7.5  SUMMARY ..................................................................................... 154
7.6  FUTURE RESEARCH ................................................................. 157
7.7  FINAL COMMENTS ..................................................................... 159

8.  REFERENCES ..................................................................................... 161

9.  APPENDICES ..................................................................................... 182
Appendix A: Radio Diary ..................................................................... 183
Appendix B: Interviewer Instruction Sheets ........................................... 208
Appendix C: Interviewer Training Information ...................................... 213
Appendix D: Duplication of Listening for All Stations .......................... 238
Appendix E: Dirichlet Predictions of Duplication of Listening Between ‘All Stations’ ................................................................. 239
# LIST OF TABLES

Table 1: Varied Conditions for Dirichlet-type Patterns ................................................. 25
Table 2: Empirical Regularities ...................................................................................... 25
Table 3: Brand Performance Measures ......................................................................... 44
Table 4: Annual Observed and Theoretical Performance Measures (Averages for 8 Leading Brands in 12 Product Categories). .............................................. 47
Table 5: Predictions of Purchase Frequency and Share of Requirements. ................. 48
Table 6: Market Share and Share of Requirements ....................................................... 50
Table 7: New Zealand Radio Research: Survey Frequency and Sample Size in each Market ..................................................................................................................... 68
Table 8: New Zealand Radio Licences in the AM and FM Sound Radio Spectrum by Owner and Number Owned in March 2004 .......... 71
Table 9: Competing New Zealand TRN and RadioWorks Brands .............................. 72
Table 10: Sample Sizes and Responses ......................................................................... 94
Table 11: Response Rates ............................................................................................. 95
Table 12: Relative Cost Effectiveness of the Recruitment Methods ......................... 97
Table 13: Return Rates ................................................................................................. 101
Table 14: Sample Sizes and Responses ........................................................................ 102
Table 15: Response Rates .......................................................................................... 103
Table 16: Sample and Population Comparisons ......................................................... 104
Table 17: Brand Performance Measures for More FM (O – Observed and T – Theoretical) ..................................................................................................................... 107
Table 18: Summary Statistics – ‘All Stations’* .............................................................. 111
Table 19: Summary Statistics – ‘Top Twelve Stations’* .............................................. 112
Table 20: Repertoire Sizes .......................................................................................... 112
Table 21: Repertoire Size by Station ............................................................................ 113
Table 22: Duplication of Listening Between ‘Top Twelve’ Stations (%) ..................... 120
Table 23: Duplication of Listening Between the ‘Music’ and ‘Music Stations’ (%) .......................................................... 122
Table 24: Duplication of Listening Between ‘Music’ and ‘Talk’ Stations (%) ........... 122
Table 25: Duplication of Listening Between ‘Talk’ and ‘Music’ Stations (%) .......... 123
Table 26: Duplication of Listening Between ‘Talk’ and ‘Talk’ Stations (%) .... 123
Table 27: Correlations and D Values for Tables 23 to 26 .......................... 123
Table 28: Observed and Theoretical Performance Measures ‘All Stations’* ... 128
Table 29: Observed and Theoretical Performance Measures ‘Top Twelve’* ... 129
Table 30: Observed and Theoretical Performance Measures ‘Music Stations’ ... 134
Table 31: Observed and Theoretical Performance Measures ‘Talk Stations’ .. 134
Table 32: Correlations Between Observed and Theoretical Performance Measures for ‘Music’, ‘Talk’ and ‘Top Twelve’ Stations ............. 134
Table 33: Dirichlet Predictions of Duplication of Listening Between ‘Top Twelve’ Stations (%) ................................................................. 136
Table 34: Dirichlet Predictions of Duplication of Listening Between ‘Music’ Stations (%) ............................................................................. 137
Table 35: Dirichlet Predictions of Duplication of Listening Between ‘Music’ and ‘Talk’ Stations (%) ............................................................. 137
Table 36: Dirichlet Predictions of Duplication of Listening Between ‘Talk’ and ‘Music’ Stations (%) ............................................................... 137
Table 37: Dirichlet Predictions of Duplication of Listening Between ‘Talk’ and ‘Talk’ Stations (%) ................................................................. 138
Table 38: Correlations and MAD for Tables 33 to 37 ................................. 138