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

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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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