

The Share Order Effect of a New Radio Station Entering the Marketplace

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This study adds to the growing body of work concerning empirical generalisations and the behaviour of brands by extending research previously concerned mostly with products into a new area, radio broadcasting. The results are important not only to broadcasters planning to launch new stations, but also by confirming previous studies in the area of cannibalization and share order effect, are useful to any manager considering the introduction of a new brand into their marketplace. In this research the impact of a new radio station on an existing marketplace was examined to see if radio market share behaviour imitates product behaviour in terms of share order effect. A simple share order effect model based on Luce's (1959) Axiom of the Independence of Irrelevant Alternatives (IIA) was tested on five different new station launches. As predicted, new stations took their listeners from existing competitor stations in proportion to the existing station's market share, although there were some deviations from the model's predictions.

Keywords: Radio listening behaviour; share order effect

Introduction

For a number of years it has been shown that, for almost all product categories, there appears to be an ongoing market share advantage that equates with a brand's order of entry into the market. This paper will summarise the literature related to these issues and build upon that largely product-related platform by extending it into a new arena, radio market share and reach performance.

Order-of-Entry Issues

Pioneering research in order-of-entry impact on market share by Buzzell (1981) suggested that in about 76% of categories, order-of entry advantages attained in market share are never overcome. Robinson and Fornell (1985) developed these thoughts further by suggesting the concept of a general size-of-share ratio (of the n^{th} brand to enter's share as a fraction of the previous, $n^{\text{th}} - 1$, brand's share) and indicated that for both business and consumer products, the ratio appears to be about 0.71. In other words, a new brand entering the market can expect to achieve a market share that is about 71% of the last brand to enter's market share, before the new brand entered.

Rossiter and Percy (1998), based on both the Robinson and Fornell (1985) and Urban, Carter, Gaskin and Mucha (1986) studies, provide an example of this relationship showing that, when a second brand enters a market it can expect to reduce the first brand's share to 58% and take for itself 42%. This produces the $42/58 = 0.72 \approx 0.71$ size-of-share ratio. Rossiter and Percy then went on to indicate that a third brand entering the marketplace can expect the first and second brand's shares to drop to 45 and 32 percent, respectively, while achieving 23

percent for itself. The third brand's 23 percent is 0.71 of the second brand's 32 percent which is, in turn, 0.71 of the first brand's 45 percent.

Obviously the size-of-share ratio is, as Rossiter and Percy indicate, based on '*ceteris paribus*' assumptions; that is, all things being equal, namely parity brands and parity advertising. However, the concept is important as it indicates the market share limits a brand entering the marketplace can expect to achieve.

The usefulness for marketing managers of this prior work on order-of-entry impact on a brand's market performance is emphasised by associated contributions in the share-order-effect literature, which this study researches.

Share Order Effect (SOE)

A corollary to the size-of-share ratio can be seen from the order-of-entry literature, namely, that a new brand entering the marketplace will attract its customers from existing brands in direct proportion to their market share prior to the new entrant's launch. Again, using the Rossiter and Percy (1988) example, it can be seen that the third brand in entering the market and achieving its 23 percent market share has obtained 58 percent of its sales from the first brand and 42 percent from the second brand. The first brand has dropped 13 percentage points (58 to 45) which is the same as 58 percent of the third brand's 23 percent. Likewise with the second brand whose 10 percentage points drop (42 to 32) is 42 percent of the third brand's 23 percent. This drawing of customers from other brands in proportion to their market share is commonly called the share-order-effect (SOE) model (Ehrenberg, 1988; Lomax, Hammond, East and Clemente, 1996). The model predicts that all brands will lose market share to a new entrant in direct proportion to their size before the new entrant's launch.

The SOE model is a constant-utility model based on Luce's (1959) Axiom of the Independence of Irrelevant Alternatives (IIA). In IIA models, probability of purchase is the dependent variable, while individual preferences are assumed to be constant. Fader, Hardie and Walsh (1994) used the IIA assumption to develop their preference models to predict consumer choice from amongst a range of stock keeping units. However, the market behaviour predicted by these assumptions has never been tested in the arena of radio market share penetration, a market some might consider so different as to be unlikely to behave in a similar manner to product markets. This article, in evaluating the launch of a radio station with an existing format into a new market place, will also test under what conditions the IIA assumption may or may not hold.

An argument could be made that the IIA assumption may not be convincing when considering radio stations that have formats that are similar to others already in the marketplace. It has already been asserted that the SOE model might not hold true in all situations, especially where some products could be considered more similar than others (Lomax, Hammond, Clemente & East, 1996).

In a situation in which two brands are very similar it is intuitive to suggest there could be a greater sharing of customers between those brands than among others with a lesser degree of similarity. Such a situation could easily apply to radio markets where many stations have similar formats. Although the concept of greater sharing between similar brands is appealing,

some prior work on products' duplication-of-purchase activity is inconsistent in predicting that outcome.

Duplication-of-Purchase-Contributions

Alongside the concept of a share order effect is the concept of proportional gains (or losses), which is consistent with empirical duplication analyses such as Ehrenberg's (1959) Duplication of Purchase Law and the Dirichlet model (Goodhardt, Ehrenberg and Chatfield, 1984). It is generally accepted that in almost all fast moving consumer goods markets consumers buy from within repertoires. While they may have one particular favourite brand, purchases will be made from one or maybe two other brands. The proportion of people who buy any two brands can be predicted by calculating the separate and combined penetrations of the two brands. Ehrenberg and Goodhardt (1970) have shown that, in most fast moving consumer goods markets, the buyers of other brands are distributed in accordance with the penetration of those other brands, that is they follow Luce's (1959) IIA assumptions. This would suggest that radio market share behaviour should be no different from any other.

Alternatively, it could be argued that where two or more radio stations share a similar format, as with products that share the same name (i.e. a parent brand and line extension), the level of cross purchasing *might or might not* be higher than that predicted by the Duplication of Purchase Law. On the one hand, Ehrenberg (1976) found that cross purchasing of two MacLean's line variants to be more than twice that predicted by their respective penetrations. On the other hand, Beal, Barwise and Collins' (2004) work indicated *television* viewers lacked *programme-genre* loyalty. They found that someone who watches a programme of a given genre in one week allocates almost exactly the same proportion of their following week's viewing to that genre as the average viewer.

In light of a lack of prior investigation into whether the empirical generalizations common to product-market forecasting also apply to radio markets, it was decided to study the issue further within a New Zealand context.

Research Hypothesis: That all radio stations would lose share to a new entrant in direct proportion to their relative size before the launch.

Method

Sample

Five New Zealand commercial radio markets were analysed. Each experienced the recent addition of a new station. This is summarized in table one to follow. In this table actual marketplace names have been replaced by generic labels (Market 1, Market 2) to maintain both marketplace and individual station anonymity. Since commercial radio research requires respondents to be over 10 years of age to complete a diary, the population of each marketplace is expressed in terms of the number of people over the age of 10 (10+ population).

Table 1. 10+ Population, Sample Size and Number of Commercial Radio Stations by Marketplace

	Market 1	Market 2	Market 3	Market 4	Market 5
10+ Population	910,100	290,100	94,500	95,400	64,900
Sample Size	3072	1615	1136	1072	1211
Number of commercial radio stations	37	22	20	13	15

In addition, all marketplaces have at least two non-commercial radio stations.

The “New Entrants” Studied

The New Zealand radio market was relatively stable during the 1990’s thus most radio stations, within their then existing marketplaces, could be considered to be relatively mature brands with well-established product lines. However, in the late 1990’s and early 2000’s the two major radio organisations started to either extend their existing networks into new marketplaces or to establish a new network. This provided a fertile ground for this research.

In Market 1 the new station entering the marketplace had an alternative and New Zealand music format, whereas in Market 2 the new station had an ethnic and contemporary music focus. Conversely, in Market 3 and Market 5, the new station was an extension of an existing brand (a syndicated station) into those marketplaces. The new station in Market 4 was an ethnic based station with a strong New Zealand music format. In each of the five marketplaces the marketplace was examined pre-and-post launch. The pre-launch measure was the official radio survey immediately prior to the launch. The post-launch measure was the official radio survey immediately after the launch.

Procedure

The data used in this article comes from the Research International’s official radio audience surveys which were conducted during 2002 and 2003. Whilst the surveys in each marketplace were undertaken during different months of each year, the same time frame was used during each year for every marketplace. Each survey period lasted 8 to 12 weeks. The results are based on the average weekly Monday to Sunday, midnight to midnight audience.

The research methodology was diary based quantitative research. Each diary was pre-printed with all the known radio stations in the region listed. Two versions of the radio diary were used, with the only difference being the order in which the stations were listed. Station orders were reversed to average out any order effects.

The diaries were placed in randomly selected households. Respondents were asked to complete a diary of their week’s radio listening. During that week the respondents had to indicate the radio station they listened to for each period of 8 minutes or more. Listening was defined as ‘respondents being able to hear the spoken announcements being broadcast and so identify the station broadcasting’. Each respondent was contacted at least once throughout the week to ensure the instructions were clearly understood and that there were no problems.

The survey data was weighted by age, gender and geography based on census data to ensure the data was representative of the population. The sample sizes for each marketplace are shown in Table 1.

SOE Calculation

An estimate of share purchase was made assuming that a straight line share SOE model would apply, i.e. that all stations would lose share to the new station in direct proportion to their size before the launch. This calculation takes as a given the share achieved by the new station during the 2003 survey and recalculates all the other stations' shares in line with this assumption. This scenario does assume, however, there is no change in the overall structure of the market, consistent with Ehrenberg's (1988) comment that markets tend to be stationary for long periods.

Consider a theoretical radio market with only three stations (Station A, Station B, Station C), into which Station D is launched. Before the launch of Station D, Station A had a market share of 50%, Station B of 30% and Station C of 20%. Station D's launch is successful and it achieves a market share of 10%. The SOE model, underpinned by the IIA (independence of irrelevant alternatives) assumption, would predict that the three existing stations will lose market share to Station D in proportion to their share before the launch.

If radio market share behaviour is in line with product market predictions the expected post launch position would be:

- Station D 10%,
- Station A 45% ($50 \times [100 - 10/100]$),
- Station B 27% ($30 \times [100 - 10/100]$), and
- Station C 18% ($20 \times [100 - 10/100]$).

It was on this basis that, as a new entrant came into a market, the predicted share for each station in each marketplace was calculated (post entry) and then compared to the actual market share for its respective situation. From this a mean percentage deviation of actual vs. predicted values was calculated for all stations' market shares.

However, a radio station's market share is a reflection of both the station's cumulative audience and reach (the number of people listening), and time spent listening (TSL) (how long they listen). Because the variable TSL is a measure of purchase or consumption volume it has the potential to distort the findings. For instance, stations with a talk-based format have, on average, a longer TSL than music-based format stations, although they tend to have a lower cumulative audience. Therefore, consideration was also given to the impact of a new station on the existing station's cumulative audience.

Results and Discussion

The Fit of the Actual To the Predicted Market Shares

The overall fit of the actual to the predicted market share for each marketplace is shown in Table 2. The mean absolute percentage error (MAPE) and Mean Average Deviation (MAD)

reflect the difference between each station's predicted vs. actual market share. The R-squared is calculated on the difference between the actual and predicted market shares.

Table 2. Fit of the Actual to the Predicted Market Share

	Market 1	Market 2	Market 3	Market 4	Market 5
MAPE	18%	19%	18%	28%	20%
MAD	0.86	1.50	1.49	2.48	2.09
R²	0.95	0.85	0.75	0.82	0.70

The R², MAPE and MAD all demonstrate a good fit between the actual and predicted market shares—thus supporting the proposition that radio stations would lose share to a new entrant in direct proportion to their size before the new station's launch.

However, given there are up to 37 commercial radio stations in some markets, it needs to be recognised that the actual sample sizes for some of the stations, especially the smaller stations, are very small and thus may have an impact on the results. It also needs to be recognised that there were individual variations between the stations that could be reflective of other activities occurring during the survey period, namely increased station promotion and advertising.

The Fit of Actual to Predicted Cumulative Audiences

As mentioned previously, due to the manner in which a station's market share was calculated, the study also considered whether the SOE also applied to the existing stations' cumulative audience. Table 3 shows the actual average cumulative audience of all stations in each of the five market places, and the fit of the actual to the predicted cumulative audience.

Table 3. Fit of the Actual to the Predicted Cumulative Audience

	Market 1	Market 2	Market 3	Market 4	Market 5
MAPE	11%	11%	16%	18%	5%
MAD	1.20	1.70	2.06	2.57	1.04
R²	0.96	0.91	0.82	0.94	0.96

As with the fit of the market share the MAPE, MAD, and R-squared for the cumulative audience all show a relatively good fit—again supporting the original proposition that brands will lose share to a new entrant in direct proportion to their size before the new entrant's launch.

However, while the overall fit of both market share and cumulative audience both show a good fit, there were again individual variations reflecting increased activity in the marketplace. This increased activity is a major limitation of this study. For the SOE model to have a predicative reliability there needs to be parity brands and parity advertising (see Rossiter & Percy, 1998). When the official radio audience surveys are being undertaken each station is aggressively competing for increased audience, so it is understandable that there

will be some deviations in pre and post results. Variables that may have caused deviations included actions such as changes in station personnel, increased promotion during the survey period, as well as underlying patterns in possible switching between stations with similar formats.

Conclusion, Implications and Further Research

When launching a new radio station the main aim of the broadcaster is to shift audience listening (in terms of both numbers of listeners and the time spent listening) from their major competition to the new station. For instance, if one of the major networks is launching their rock music station into a new market their main aim is to draw listeners from the other network's existing rock music station. However, this does not appear to be the case as this study shows that all radio stations lose share to a new entrant in direct proportion to their market share and cumulative audience before the new station's launch. This is not only consistent with the SOE model but also has a major implication for the networks concerned, one of cannibalisation.

When launching a new station the broadcaster attempts to position their new station as both; 1) substitutable for their perceived main competition; and 2) as being distinctly different from any of their existing stations. However, as shown that strategy appears to fail as listeners to the new station are not drawn specifically from the main competition but from all existing stations. This raises the issue of cannibalisation as the new station will draw listeners from the broadcasters own stations as well as their competitors. There is the need to recognise that all stations will lose some audience to the new entrant and therefore there will be a negative impact on the market shares of the broadcasters own stations as well as their competitors

Further research needs to be undertaken looking at the Buzzell (1981), Robinson and Fornell (1985), Urban, Carter, Gaskin and Mucha (1986) and Rossiter and Percy (1998) studies on order of entry issues and whether the 0.71 size of share ratio applies to radio markets. Consideration also needs to be given to if and how the order of entry effects can or have been overcome, in that what level of additional promotion is required to negate those effects. This research can be combined with research looking at audience duplications and duplication deviations to see if new radio stations behave like an existing station in terms of their cumulative audience and audience duplication. This additional research would be reflective of work undertaken by both Ehrenberg & Goodhardt (2000) and Wright & Sharp (2001) that shows new brands look and behave almost instantly like existing brands. How long after their launch do new radio stations start to behave like the existing stations?

In conclusion, the research reported here shows that the SOE model may hold true in radio markets. It indicates that radio stations will lose share to a new entrant in direct proportion to their size before the new station's launch. Nonetheless, using the data available from the official radio surveys does raise some concerns. The surveys are taken twelve months apart and there is no recognition of when a new station is launched and how long it has been broadcasting. The timing of any new launch will also have had an impact on these findings. For instance, for a station that had been launched close to the second survey, awareness will have been gained rather slowly and listening behaviour will be based on the more obvious cue of brand name assuming greater importance (Rao and Sieben, 1992). However, stations that have been launched closer to the first survey are likely to show the impact of more knowledgeable listening behaviour based on experience with the station (Rao and Monroe, 1988).

While this research addresses issues in the radio market in terms of market structures and the share order effect, it also highlights the need for further research into order of entry effects, audience duplication and listening patterns.

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