Andrew S. C. Ehrenberg, Gerald J. Goodhardt, & T. Patrick Barwise

Double Jeopardy Revisited

In any given time period, a small brand typically has far fewer buyers than a larger brand. In addition, its buyers tend to buy it less often. This pattern is an instance of a widespread phenomenon called "double jeopardy" (DJ). The authors describe the wide range of empirical evidence for DJ, the theories that account for its occurrence, known exceptions and deviations, and practical implications.

IN this article, we review a little-known but widely occurring and theoretically supported regularity in competitive markets, namely that small brands generally attract less "loyalty" among their buyers than large brands do among theirs. Twenty-five years ago the Columbia University sociologist William McPhee (1963) noted this pattern for competitive items such as different comic strips and radio presenters. In comparison with a popular strip, one that was read by fewer people was usually also liked less by those few who read it. McPhee thought it unfair for less popular items to suffer in *two* such ways. Hence he named the phenomenon "double jeopardy." Subsequently, this double jeopardy (DJ) pattern was found to occur much more widely—for example, for branded packaged goods, the less popular a brand, the less loyal its buyers tended to be (Ehrenberg 1972, 1988; Martin 1973; Shuchman 1968). The reverse, a small brand having few but exceptionally loyal buyers, has seldom if ever been reported.

Despite increasing empirical evidence and strong theoretical support for DJ, which we review here, DJ is not widely known among marketing scholars and practitioners, nor has it featured in most of the literature. Yet anyone who analyzes or models consumer behavior or market structures should presumably seek to recognize and take account of such a regularity. Marketing managers also should be aware of DJ, at least as background to the strategic and especially the more tactical options for increasing or defending sales. In allocating marketing effort it is worth knowing that it is *normal* for a small brand to attract somewhat less "loyalty" and yet to survive. We return to these issues in the final discussion.

All the general explanations of double jeopardy are statistical, relating to the size structure of the market. Other things being equal, small brands attract less loyalty just because they are small (i.e., have lower market shares). No other marketing mix or consumer variables need be invoked to explain DJ. McPhee himself outlined this notion in broad terms and it is also common to the later, more detailed models reviewed here.

What, then, is the role of marketing factors such

Andrew S. C. Ehrenberg is Professor and Director of the Centre for Marketing and Communication, London Business School, and Visiting Professor, New York University. Gerald J. Goodhardt is Sir John E. Cohen Professor of Consumer Studies and Deputy Dean, City University Business School. T. Patrick Barwise is Professor of Management and Marketing, London Business School. This article is part of a program of work that was supported by Procter & Gamble, Colgate Palmolive, General Mills, M&M Mars, and the Ogilvy Center in the U.S. and by 35 leading companies in the U.K.

Journal of Marketing
Vol. 54 (July 1990), 82–91

as product formulation, price, distribution, advertising, promotions, and market segmentation? The answer seems to be that these factors give brands their different sales levels, which in turn show up in the DJ pattern, *but rarely cause big additional differences in brand loyalty*. Hence competitive brands tend to differ mainly in how many buyers they have rather than in how loyal those buyers are (e.g., Ehrenberg 1972, 1988). But in as far as they *do* differ in loyalty, the differences contain a systematic DJ trend.

With real-life data there are also many minor deviations from the DJ trend, as well as very occasional exceptions. They mostly reflect specific marketing or segmentation factors (though they are rarely simple to pin down). In principle such factors could be large or even overshadow the DJ trend. One therefore must check the structure of one's own particular market: the DJ pattern is very general, but markets also have their own characteristics. How much these characteristics lead to deviations from DJ should be tested empirically—once—for each market.

After presenting the empirical evidence for DJ, we examine the theories that account for its occurrence. We then discuss the implications of both DJ and the deviations from it.

The Empirical Evidence for DJ

Double jeopardy trends have been reported for a variety of loyalty or liking measures when customers choose between items that are similar but differ in their popularity. We here briefly illustrate the evidence covering

- brand choice, store choice, and attitudinal measures for packaged goods,
- program choice, channel choice, and audience appreciation in the media (especially TV), and
- isolated instances of brand buying in durable and industrial goods markets.

DJ effects often are observed but not recognized (e.g., Raj 1985). Even the 40 or so published articles that *do* refer to DJ usually do so only in a limited context and mostly in passing (e.g., just as a footnote in Ehrenberg 1972). Hence the need for this review.

The most extensive evidence reported for DJ trends in marketing is for repeat buying. It ranges over 50 different frequently bought product categories from breakfast cereals through gasoline to toilet soap, and in Britain, Continental Europe, and Japan as well as in the United States.

Table 1 illustrates DJ for the average purchase frequencies of eight leading U.S. brands of instant coffee. The number of households that bought each brand in a year—the annual penetration—varies by a factor of four from 24% to 6%. In contrast, the number of times on average that each brand's buyers bought it in the year varies much less, but also tends to be somewhat lower for the brands with fewer buyers. This is double jeopardy. The correlation between the two variables is .65. (The corresponding correlations for 35 Procter & Gamble product categories based on recent IRI scanner-panel data also average about .6; Davis et al. 1990).

TABLE 1
Brand Penetration and Average Purchase Frequency

Brand[a]	% Buying in Year	Purchases per Buyer
Maxwell House	24	3.6
Sanka	21	3.3
Tasters Choice	22	2.8
High Point	22	2.6
Folgers	18	2.7
Nescafé	13	2.9
Brim	9	2.0
Maxim	6	2.6
Average	17	2.8

[a]Instant coffee, MRCA, USA, 1981, in market-share order (Uncles 1985).

Deviations from the DJ trend are typified by the rather low purchase frequency of 2.0 for Brim in Table 1, as we discuss subsequently. The remarkable feature is that the deviations are relatively small given how much the brands differ in their product formulation (e.g., caffeinated or decaffeinated, freeze-dried or spray-dried), as well as in their branding and advertising, pricing, packaging, distribution, ownership, maturity, and so on. The correlations here are as low as .6, not because the deviations are large but because the average purchase rates per buyer differ little anyway. As stressed in the introduction, the *dominant* finding with packaged goods is that brands do not differ greatly in loyalty.

Similar DJ effects occur also in the context of *media*. One example is for regular TV series. For a high-rating series, 40 to 50% of persons who watch one episode also watch the next; for a low-rating series, the repeat-viewing rate is only 20 to 30% (e.g., Barwise 1986; Barwise and Ehrenberg 1988; Goodhardt, Ehrenberg, and Collins 1975).

Another example occurs for national daily newspapers in Britain, a market with very diverse product formulations that is extremely segmented, as shown by the percentages of white-collar readers in Table 2. Yet a strong DJ trend again shows up: the less popular papers are not only read by far fewer people, but also read less frequently by those who do read them. Double jeopardy, as we see shortly, can be expected theoretically for similar items—for example, *within* a

TABLE 2
Double Jeopardy Despite Strong Segmentation

Daily Newspapers U.K. 1983	% of Readers Who Are ABC1[a]	% of Adults Who Read It in a Week	Daily Issues Read per Weekly Reader
Popular			
The Sun	24	45	3.9
Daily Mirror	25	39	3.6
Daily Star	19	20	3.2
Middle			
Daily Express	50	24	3.2
Daily Mail	56	22	3.3
Quality			
Daily Telegraph	83	15	3.1
The Guardian	79	9	2.3
The Times	85	7	2.0
Financial Times	86	6	1.7

[a]Broadly, "in white-collar households" (Ehrenberg and Goodhardt 1988).

market segment—but here it even occurs across very different segments.

A similar DJ effect occurs for repeat purchasing of *automobile makes* (Colombo and Morrison 1989, Table 2), and DJ has been reported explicitly in an *industrial* market, as in Table 3 for the number of contracts for aviation fuel held by an oil company's airline customers across different airports. This DJ effect has been replicated for Europe (Uncles and Ehrenberg 1990).

DJ patterns also arise with *channels of distribution*. They occur, for instance, for the repeat buying of a packaged-goods product at small versus large stores or store groups (e.g., Keng and Ehrenberg 1984; Uncles and Ehrenberg 1988; Wrigley and Dunn 1984). For broadcast TV channels, smaller channels reach fewer viewers who generally view them less. Two quite major exceptions have been reported, however: some Spanish-language and religious stations in the U.S. attract very heavy viewing from their relatively few viewers (Barwise and Ehrenberg 1984, 1988).

The preceding examples relate to *repeat-choice* measures of loyalty (e.g. repeat buying or repeat viewing). Double jeopardy also occurs for *brand-switching* aspects of brand loyalty, such as the incidence of 100%-loyal or "sole" buyers of a brand. As illustrated for instant coffee brands in Table 4, only 11% of the 6% who bought Maxim in the year bought only that brand and no others, fewer than for the larger brands.

Finally, DJ effects arise for various *attitudinal* responses, both for brands and for most TV series (e.g., Barwise and Ehrenberg 1985, 1987, 1988), but with more deviations and exceptions than for behavioral measures of loyalty. The audience appreciation of a low-rating entertainment program among its few viewers tends to be lower than that of a more popular program among the latter's more numerous viewers. The results are akin to McPhee's (1963) original findings for people's liking of comic strips and radio announcers. An exception is that DJ does not seem to arise for the perhaps more varied "demanding" types of program (Barwise and Ehrenberg 1987, 1988;

TABLE 3
Penetration and Average Number of Airline Contracts for Aviation Fuel

Oil Company[a]	% Airlines That Are Customers	Contracts per Customer
Shell	69	2.4
BP	55	2.3
Mobil	53	2.3
Esso	42	1.7
Total	26	1.1
Texaco	19	1.1
Average	44	1.8

[a]Africa, 1972 (Ehrenberg 1975).

TABLE 4
Incidence of 100%-Loyal Buyers in a Year

Brand[a]	% Buying in Year	% of Buyers Who Bought Only That Brand
	Obs.	Obs.
Maxwell House	24	20
Sanka	21	20
Tasters Choice	22	24
High Point	22	18
Folgers	18	13
Nescafé	13	15
Brim	9	17
Maxim	6	11

[a]Instant coffee, MRCA, USA, 1981 (Uncles 1985).

Castleberry and Ehrenberg 1990; Meneer 1987).

DJ occurs for free-choice measures of consumers' beliefs about specific brand attributes for about half the attributes usually covered, such as "reasonably priced" and "tastes nice," as in Table 5. For the other attributes, such as "fun for children to eat" in Table 5, there are major exceptions to an overt DJ trend, with highly brand-specific factors dominating. DJ also seems less marked with forced-choice questioning (Barnard and Ehrenberg 1990).

Theory: Why Does DJ Occur?

The occurrence of DJ in so many contexts and for so many aspects of liking and loyalty suggests a common underlying causal factor. The alternative would have to be a variety of many different *ad hoc* explanations. For example, in many markets larger brands have more advertising support and possibly also wider distribution, either of which might lead both to more buyers *and* to greater loyalty. But would both factors generalize to *all* such markets? In any case, they would not explain DJ for different network TV programs, say, or for retail channels, which would therefore need different kinds of theoretical explanation.

In contrast, a single parsimonious set of probabilistic arguments shows that unless specific other factors prevail, *double jeopardy will arise whenever competitive items differ in their popularity* (e.g., in their shares of the market). McPhee's original explanation and all subsequent theories have this in common.

McPhee's "Exposure" Explanation

McPhee's (1963) theoretical explanation of DJ arose from his noting an asymmetry in people's familiarity with, or exposure to, items that are similar but differ in popularity. For instance, suppose there are just two restaurants in town, one widely known and the other more obscure. Suppose also that people who know both restaurants regard them as being of equal merit (equal in quality, service, value for money, accessibility, etc). If people are asked which is their favorite, a DJ effect is bound to occur. The reason is that of the many people who know the popular restaurant, most do not know the more obscure one exists and cannot mention it if asked for their favorite. In contrast, of the few people who know the obscure restaurant, most also know the popular one. Hence they will "split their vote"—they are equally likely to mention either restaurant as their favorite (or say "undecided") because we have supposed the two restaurants are of equal merit to those who know both. Of the many people who know the popular restaurant, most therefore will rate it their favorite, whereas of the few who know the obscure one, only about half will say that *it* is their favorite. This is a classic double jeopardy effect.

A similar argument applies behaviorally. Not only will fewer people go to eat at the more obscure restaurant, but (unless they eat out often) they will not go there frequently because about half the time they will go to the widely known one (which they regard as of equal merit). In contrast, most of the many who patronize the widely known one will go there relatively often because they do not even know of the obscure one. For DJ effects to develop, one therefore need assume no differences between the two restaurants other than in their overall exposure and resulting popularity—that is, in how widely they happen to be known and therefore patronized.

The paradox, if there is one, is why two restaurants of equal "merit" should differ in how well they are known. This phenomenon is common in competitive markets—brands may be very similar yet differ dramatically in market share because of what marketers do (or have done in the past). The marketing challenge for the more obscure restaurant is that to increase its sales (without changing its whole nature, e.g. its quality and/or prices), it must not only make itself better known, but also deserve being as well regarded as is the more popular one ("of equal merit") by its new customers, and continue to be so.

TABLE 5
Beliefs About Brand Attributes: DJ and Exceptions

Brand[a]	% Buying the Brand Regularly	% of Regular Buyers of Brand Who Say It: "Tastes Nice"	% of Regular Buyers of Brand Who Say It: "Is Fun for Children to Eat"
Raisin Bran	32	59	11
Cheerios	31	44	35
Corn Flakes	27	47	7
Sugar Frosted Flakes	18	51	36
All Bran	16	20	4
Honey-Nut Cheerios	16	38	39
Froot Loops	15	27	86
Rice Chex	9	37	14
Crispy Wheats N'Raisins	8	32	12
Coco Puffs	5	21	70
Boo Berry	1	10	83

[a]Breakfast cereals, USA, 1986 (Castleberry and Ehrenberg 1990).

Quantitative Models

Stochastic models of buying behavior have been developed that predict the size as well as the presence and direction of DJ trends for competitive brands. We outline three models for DJ in buying behavior, in increasing order of sophistication. Each predicts DJ just from the fact that the brands differ in popularity (i.e., market share), using no information about their prod-

uct positioning, promotional backup, or other factors.

First we give an oversimplified artificial example to provide intuitive insight. All consumers are assumed to be identical. Each buys the product twice a year and each time chooses one of two brands, A and B, with fixed independent probabilities of .7 and .3. We need to compare how many customers each brand has in the year, and how often they buy it. (The same mathematics applies if consumers can make three or more purchases, or can choose from three or more brands.)

To work out how many consumers buy brand A at least once in a year, it is easiest to calculate first how many do *not* buy the brand in the year. As a consumer's probability of not buying A on a given purchase occasion is $(1 - .7) = .3$, it is $.3^2 = .09$ for not buying A on either purchase occasion. The proportion of consumers who buy A at least once is therefore .91 (91%). But brand A's per capita sales are 1.4 (i.e., $.7 \times 2$). The average purchase frequency per buyer of A is therefore $1.4/.91 = 1.54$.

The corresponding calculations for brand B show that its per capita sales of .6 must be made up of 51% buying it in the year on average 1.18 times. In summary, we have for the year:

	Purchase Prob.	Per Capita Sales	% Buying at Least Once	Av. Purchases Per Buyer of Brand
Brand A	.7	1.4	91	1.54
Brand B	.3	.6	51	1.18

This is the DJ effect: compared with brand A, the smaller brand B has fewer buyers and they buy the brand less often.

The other two models are much more realistic in that they allow for consumer heterogeneity. One is usually referred to in the literature as $w(1 - b)$ and the other as the Dirichlet. The $w(1 - b)$ model relates b_x (the proportion of consumers buying brand X at least once in the period analyzed) and w_x (how often on average they buy it then) to the corresponding values b_y and w_y for brand Y. It states that $w_x(1 - b_x) = w_y(1 - b_y) = w_o$, where w_o is a constant (estimated as the average value of $w(1 - b)$ for all the itemized brands). The predicted value of w_x for a given b_x is therefore $w_o/(1 - b_x)$. Hence the smaller b, the smaller w must be, which is double jeopardy.

The model follows by simple algebra from two independence assumptions (Ehrenberg 1972, 1988, Section 11.5; Ehrenberg and Bound 1990):

1. Buying of different brands is independent across consumers (e.g., the proportion of households that buy brand X in the analysis period is b_x, irrespective of whether or not they also buy brand Y),
2. Brands do not differ in how often their customers on average buy the total product category (i.e., any brand).

Both assumptions hold approximately in real life. Hence the $w(1 - b)$ model itself should do so also.

The third model, the Dirichlet, is more flexible and also much wider ranging (e.g., Chatfield and Goodhardt 1975; Ehrenberg 1988; Ehrenberg and Goodhardt 1976; Goodhardt, Ehrenberg, and Chatfield 1984, who also give other references). First, it relaxes both assumptions 1 and 2. Second, it predicts not only b and w for each brand (with a DJ trend), but also many other aggregate features of buyer behavior such as the incidence of 100%-loyal buyers as shown in Table 4 (again with a DJ trend).

As the model reflects, when a purchase is made and which brand is then chosen generally appear very irregular and can be thought of as occurring "as if at random" with specified probabilities, even though individual consumers have their varying and probably deterministic reasons for doing what they do. The technicalities are that the Dirichlet model uses four probability distributions to specify the ways individual consumers buy. Two are for *how often* they buy, each consumer buying the product category according to a Poisson distribution, with the long-run average buying rates of different consumers following a Gamma distribution. The third and fourth distributions are for *brand choice*, each consumer buying the different brands according to a multinomial distribution, with the distribution of such probabilities across consumers following a particular "Dirichlet" type of multivariate beta distribution. The model is for a market that is (a) stationary, with no trends from period to period, and (b) unsegmented, the various distributions being mutually independent. The choice of these distributions is supported both empirically and by statistical theory—for example, given an unsegmented market, the mixing distribution for the brand-choice probabilities *must* be of the "Dirichlet" type of beta distribution (Mosimann 1962, 1984). Any segmentation or nonstationarity will show up as deviations from the model's predictions.

The Dirichlet model has only three parameters relating to the product category. One reflects the size of the market. The other two reflect how diverse consumers are in (a) how often they buy and (b) their choice of brands (i.e., the overall degree of brand switching in the product category). The three parameters can be estimated from the penetration and average purchase frequency of the product category and of each or any of the itemized brands in a chosen base period. This procedure requires heavy arithmetic—there are no closed algebraic formulas—but is much helped by available software (e.g., Nelson 1986; Uncles 1989).

The central aspect of the Dirichlet model is that once its three product-category parameters have been estimated, the only brand-specific input required is the individual brands' market shares. The middle part of Table 6 illustrates how the $w(1 - b)$ and Dirichlet

TABLE 6
Observed and Predicted Rates of Buying the Brand and the Product, and 100%-Loyal Buyers (rates of buying per buyer of each brand)

Brand[a]	Observed Share (%)	Observed % Buying	Average Frequency of Buying the Brand			% Buyers Who Are 100% Loyal to the Brand		Average Frequency of Buying the Product	
			Observed	w_o / (1 − b)	Dirichlet	Observed	Dirichlet	Observed	Dirichlet
Maxwell House	19	24	3.6	3.1	3.2	20	18	9.5	9.2
Sanka	15	21	3.3	2.9	3.0	20	17	9.2	9.4
Tasters Choice	14	22	2.8	3.0	2.9	24	16	8.8	9.5
High Point	13	22	2.6	3.0	2.9	18	16	8.5	9.5
Folgers	11	18	2.7	2.8	2.9	13	15	9.4	9.7
Nescafé	8	13	2.9	2.7	2.8	15	14	10.5	9.8
Brim	4	9	2.0	2.5	2.6	17	13	9.4	10.1
Maxim	3	6	2.6	2.5	2.6	11	13	11.2	10.1
Average	11	17	2.8	2.8	2.9	17	15	9.6	9.7

[a]Instant coffee, MRCA, USA, 1981 (Uncles 1985).

models predict the DJ effect for the average frequency of buying each brand in terms of both direction and size, and how the Dirichlet also predicts the DJ effect for the incidence of sole buyers. The correlations with the observed values are about .7 or .8.

The Wider Context of DJ

In practice, most buyers of a brand buy some of the competitive brands also and they do so rather often in any period long enough to include several purchases of the product category. For example, buyers of a brand buy instant coffee as a whole (i.e., *any* brand) on average about 9 times in the year, which is more than three times as often as their average of 2.8 purchases of the brand itself. This pattern is both as observed and as predicted by the Dirichlet, as shown in the right columns of Table 6.

It follows that the DJ effect is not due to the buyers of a small brand being light users of the product category as a whole. Instead, buyers of a small brand like Maxim could in principle buy it much more without having to drink more coffee. They simply could buy Maxim more and other brands less and thus counter the DJ trends in Table 6—but that does not occur. Consumers mostly choose more than one brand in the course of a year. That is, they habitually tend to opt for some variety in their brand choice, even under strictly stationary conditions when there are no special promotions (etc.). The observed data bear out the theory's prediction that they will mostly buy each brand relatively infrequently. That is the context in which the double jeopardy trend for smaller brands occurs.

DJ in Attitudes and Behavior

McPhee's initial explanation of double jeopardy for people's attitudinal responses, as noted before, was in terms of their lower exposure to or familarity with the less popular items. Links with the preceding *behavioral* DJ patterns also have been developed (e.g., Barwise and Ehrenberg 1985, 1987, 1988).

Thus, in comparison with large brands, low-market-share brands are bought less frequently by their few buyers—the purely behavioral DJ effect. Also, however, infrequent buyers of a brand have been widely found to say they like the brand less than do its more frequent buyers (e.g., they are less likely to give a positive attitudinal or belief response). Because a small brand has a higher proportion of infrequent buyers, it receives less positive average attitudinal responses from its customers than a more popular brand receives from *its* customers. This is the *attitudinal* DJ effect. The same explanatory mechanism applies also to the liking and viewing of regular TV series.

Implications

We have noted the wide occurrence of double jeopardy patterns and that there are parsimonious theories accounting for their presence, direction, and in many cases also their *size*. All these explanations are statistical manifestations of the relative popularity or market shares of the competitive items. There is no need to invoke other marketing factors for explanation (product formulation, advertising, price, etc). These factors generally would have to act in *ad hoc* ways (e.g., to account for DJ for very different kinds of product categories, and also for store choice, for TV channels and programs, and so on, and not only behaviorally but also for attitudinal responses). These marketing factors do, however, account for the different items' differing popularity, and also may lead to *deviations* from the regular pattern. We now briefly discuss some implications.

Above all, knowing about double jeopardy should simply make practitioners look at their markets differently. They will be more likely to notice any DJ patterns in their own markets. They also will know that these patterns are normal. In particular, they will

know that if a brand has a lower repeat-buying level than others, they need not immediately rush into remedial action. Instead, they first can assess whether the low repeat rate is perhaps just normal for a brand of that size.

Market analysts eventually will stop being surprised to find DJ in their data. There will probably also increasingly be counter-examples. We would expect some major exceptions when the competitive items are not similar (perhaps Cadillacs vs. Toyotas—Colombo and Morrison 1989, p. 89). Theoretically, double jeopardy need not show through in the presence of very marked product differentiation, though in practice it often does.

Theorists of consumer behavior (e.g., Cooper and Nakanishi 1988) must acknowledge, or at least allow implicitly, that buyers of smaller brands tend to be less loyal. Unless contrary assumptions are imposed deliberately (e.g., in terms of product differentiation or "added values" for a brand), any theory that involves consumers, such as how pricing or advertising might work, must at least be consistent with the occurrence of DJ effects.

We now consider more specific implications of DJ in the contexts of share-building strategies, new brand introductions, niche brands, and cashing in on deviations.

Share-Building

DJ has implications for the way the sales of an established brand can be increased. Common marketing thinking here has been to formalize two extreme options (e.g., Raj 1985; Wind and Mahajan 1981):

- *The penetration option:* increasing the number of buyers of the brand, but not how often they buy it.
- *The loyalty option:* increasing how often the brand's present buyers buy it, but not how many of them there are.

Suppose a brand is bought by 10% of the population in a year on average three times and that the aim is to double the brand's sales. The penetration option would be to get twice as many consumers, that is, 20% still buying it three times on average. The loyalty option would be to get the present customers to buy the brand twice as often, that is, 10% buying it on average six times. Innumerable intermediate options also exist in principle to get new buyers *and* more purchases per buyer in some proportion (a popular choice in many marketing plans). None of these options look implausible *a priori*. However, in practice, the DJ pattern implies that, within the limits of approximation that we have illustrated, there is only one single option.

The feasible option is for the penetration of the brand to almost double to about 18%, combined with a slight increase in the average purchase frequency, say to about 3.3 times a year. This outcome would be close to the penetration option. There can be deviations from these targets but, as illustrated in the tables, they would generally be small. To be radically different would mean being almost unique in "bucking the trend." This may seem to be just what the enterprising marketing manager should do—but not out of ignorance, especially not when the normal market structure is empirically and theoretically as broadly established as double jeopardy. Anything like the loyalty option would be going right against the grain and correspondingly painful, or risky at best.

We know of no reports of large increases in the average purchase frequency of a brand. In contrast, when Colgate Palmolive's dishwashing liquid doubled its sales in Germany over a period of five years fairly recently, it achieved this gain by a large increase in its penetration (b) coupled with a small increase in the average number of purchases per buyer (w), in line with the DJ pattern discussed here (Drehmann 1987).

The evidence is that in a dynamic situation, when the sales of a brand change, DJ applies both before the change and afterward (i.e., when sales have settled down again). However, little, if anything, is known about the intervening process—for example, to what extent present buyers change their buying patterns and whether some extra buyers come in or drop out, and if so whether they are light or heavy buyers, or both.

More generally, it is instructive to envisage a simple speculative scenario of how sales might increase. Suppose that because of some sales-enhancing advertising, this year's sales have gone up ("Glory be!"). This increase could have resulted from everyone's propensity to buy the brand going up by the same proportion. In a given period such as a year, more people would then buy the brand, and on average would buy it somewhat more often, with the brand "riding up the DJ curve."

To illustrate numerically, we can go back to the first oversimplified stochastic model in the last section. Brand B had a .3 probability of being bought by each consumer, all of whom made two purchases of the product category in the year. Annual per capita sales of brand B were .6 (i.e., .3 × 2), made up of 51% buying it on average 1.18 times. Suppose advertising for brand B has now increased everyone's probability of buying B to .4, giving it annual per capita sales of .8 (= .4 × 2). By the same kind of arithmetic as before, we can calculate that these higher sales are due to 64% of consumers now buying B an average of 1.25 times each. Sales of B have increased with more buyers buying more often. Similarly, brand A's probability of being bought must drop from .7 to .6 because of the failure to defend against B's advertising push: A is now bought by 84% of consumers 1.43 times each. Sales of A have decreased, with fewer buyers buying less often.

	Purchase Prob.	Per Capita Sales	% Buying at Least Once	Av. Purchases Per Buyer of Brand
Before B's Advertising				
Brand A	.7	1.4	91	1.54
Brand B	.3	.6	51	1.18
After B's Advertising				
Brand A	.6	1.2	84	1.43
Brand B	.4	.8	64	1.25

This hypothetical example shows how sales can vary despite the double jeopardy constraint and how the DJ pattern can persist despite the sales changes.

Sometimes marketers try to increase people's frequency of buying their brand by finding and promoting new uses for it (examples are Arm & Hammer baking soda for deodorizing refrigerators, Johnson's baby oil and talc for adults, Schweppes Tonic Water as a straight soft drink, or Vaseline Petroleum Jelly for varied new uses). Such attempts at extended usage are not always successful. But when they do succeed, the new use is likely to carry over to competitive brands. The result is higher purchase frequencies across the board and a reestablished DJ effect. In the same way, seasonal variations in product usage (e.g., Wellan and Ehrenberg 1990) or differences in consumption levels between large and small households tend to apply across a product category as a whole without disturbing any DJ patterns.

New Brand Targets

Double jeopardy also provides some background information for planning new brands (Ehrenberg 1971, 1990; Wellan and Ehrenberg 1988). The DJ pattern helps in predicting the repeat-buying target of a new brand once its sales have stabilized.

Table 1, for instance, implies that a new brand of instant coffee, once it is established, will be bought at an average rate of about three times a year by its buyers, however many buyers it may obtain. More precisely—because of DJ—the target would be slightly less than three times if the brand is expected to be a small one. A very different average purchase frequency, such as say six purchases a year, would mean that the new brand has been successfully positioned very differently indeed from all other brands in the market. Few marketing plans attempt as much for their new brands. Even fewer are successful in achieving such a result, let alone in sustaining it.

Niche Brands

Some niche brands are thought of as being bought relatively often by relatively few people. This notion raises issues of the definition of market segments. However, within any market that actually includes some non-niche brands, a very heavily bought small brand would be a departure from DJ. Such a situation is possible if the brand's exceptional "niche" properties specifically or even uniquely fit its particular users or usages. Because the general double jeopardy trend would be in the opposite direction, such cases ought to stand out very clearly as significant exceptions. Other than for the Spanish-language and religious TV channels noted before, no very dramatic evidence has been documented (see Kahn, Kalwani, and Morrison 1988 for some nondramatic empirical analyses).

Counter-examples of niche brands strikingly bucking the trend would be welcome. Current evidence suggests that in practice most niche brands are perhaps just brands with small shares of the market—brands that appeal especially to a small group of consumers or for certain special usage occasions, but are *not* bought exceptionally often by their buyers. This issue could be an area for further research.

Deviations from DJ

Knowing that DJ patterns tend to exist helps in recognizing not only any major exceptions, but also smaller though still sizable deviations. The low purchase frequency of 2.0 for Brim instant coffee in Table 1 (vs. a theoretical 2.6 in Table 6) is an example. Rather than jumping immediately to some brand-specific rationalization (e.g., "Brim is rather strong; therefore people must be using less"), one first should establish whether the low value of 2.0 occurs consistently for the brand. Table 1 is from MRCA diary-panel data in 1981, and a low purchase frequency for Brim also occurred for IRI scanner-panel data in the same year—but it did *not* recur later (Davis et al. 1990). The low 2.0 therefore may not have been a general characteristic of Brim as such, but a temporary deviation due perhaps to an out-of-stock position in 1981 or to exceptionally heavy sales promotions having attracted incremental light, once-only buyers that year. Typically, much work is usually needed just to diagnose and properly interpret a deviation, quite apart from then establishing how to cash in on it profitably.

An isolated deviation has been found for the sixth largest heart drug in Britain in 1987. This was prescribed on average 10 times that year by those doctors who prescribed it at all, rather than the expected 5 times. This level is quite a marked deviation from the general DJ pattern for medical prescriptions (Stern 1990).

The manufacturer was promoting the drug by supplying a free personal computer to doctors who prescribed it frequently enough (at no financial cost to themselves). The brand was therefore no longer altogether "similar" to its competitors, in what seemed perhaps a rather tangible way (a free PC). The size of the effect was nonetheless not dominant (i.e., 10

prescriptions vs. 5 expected), because the prescribing doctors still prescribed *other* drugs for hypertension (the drug's diagnosis category) on average about 50 times in the year. This is in line with the total level of prescriptions for hypertension drugs generally and with the predictable pattern of category usage that is illustrated in Table 6. It seems that the doctors were being influenced only where there was an uncertain choice between the drug and fairly close substitutes or even look-alikes.

One case of deviations that appear systematic has been reported recently, for private label brands in the U.K. These brands obtain a somewhat higher average purchase frequency (about 20% or more) than their market shares or penetrations would warrant, in comparison with the w(1 − b) or Dirichlet models (Ellis 1989). The explanation is not that repeat-buying loyalty for private labels is higher than normal, but that consumers' access to any particular supermarket chain's private label is necessarily restricted. In other words, it seems that the penetration b for private labels in the w(1 − b) model is low rather than that the repeat-buying measure w is high; within their own stores, private label brands tend to have very high market shares.

An occasional deviation seems to occur also for major market leaders. In our consulting experience, some leaders have a somewhat higher-than-expected level of repeat buying (i.e., they behave like an even bigger brand than they already are), but this deviation does not occur universally.

Summary Conclusions

Overall, the message is that frequent-purchase markets almost invariably show a regular or "lawlike" double jeopardy pattern whereby smaller brands tend to attract somewhat less loyalty, with deviations that are mostly relatively small and so far little understood. Not many such empirically and theoretically based generalizations can be made in marketing (Anderson 1983; Jacoby 1978; Leone and Schultz 1980), though DJ is not the only one even in just the narrow area of buyer behavior (e.g., Ehrenberg 1990; Keng, Ehrenberg, and Barnard 1990). Both marketing practitioners and scholars of consumer behavior should recognize that their markets contain such a predictable pattern, and why it occurs.

Managers should capitalize on the DJ pattern, mainly in tactical planning and evaluation but also in longer-term considerations of brand equity (e.g., Barwise et al. 1989; Leuthesser 1988). Trying to buck the DJ trend might look suspiciously like trying to make aeroplanes fly by waiting for breakdowns in the law of gravity. Indeed, people have successfully built very varied aircraft, from gliders to rockets, all using the laws of aerodynamics to cope with the law of gravity—going with the grain of the lawlike relationships rather than against it. Marketing history similarly shows that even within the constraint of a regularity such as double jeopardy, marketers can develop highly varied brands and adopt dynamic marketing policies, and can do so successfully.

REFERENCES

Anderson, Paul F. (1983), "Marketing, Scientific Progress, and Scientific Method," *Journal of Marketing*, 47 (Fall), 18–31.

Barnard, Neil R. and Andrew S. C. Ehrenberg (1990), "Robust Measures of Consumer Brand Beliefs," *Journal of Marketing Research* (forthcoming).

Barwise, T. P. (1986), "Repeat-Viewing of Prime-Time US Programs," *Journal of Advertising Research*, 28 (August–September), 9–14.

——— and A. S. C. Ehrenberg (1984), "The Reach of TV Channels," *International Journal of Research in Marketing*, 1 (1), 37–49.

——— and ——— (1985), "Consumer Beliefs and Brand Usage," *Journal of the Market Research Society*, 27, 81–93.

——— and ——— (1987), "The Liking and Viewing of Regular TV Programs," *Journal of Consumer Research*, 14 (June), 63–70.

——— and ——— (1988), *Television and Its Audience*. Newbury Park, CA, and London: Sage Publications, Inc.

———, C. J. Higson, J. A. Likierman, and P. R. Marsh (1989), *Accounting for Brands*. London: Institute of Chartered Accountants.

Castleberry, S. R. and A. S. C. Ehrenberg (1990), "Brand Usage: A Factor in Consumer Beliefs," *Marketing Research* (forthcoming).

Chatfield, Christopher and Gerald Goodhardt (1975), "Results Concerning Brand Choice," *Journal of Marketing Research*, 12 (February), 110–13.

Colombo, R. A. and D. E. Morrison (1989), "A Brand Switching Model with Implications for Marketing Strategies," *Marketing Science*, 8, 89–106.

Cooper, L. G., and M. Nakanishi (1988), *Market-Share Analysis*. Boston: Kluwer.

Davis, R. E., A. S. C. Ehrenberg, K. Hammond, and M. D. Uncles (1990), "The Dirichlet for 35 Product-Categories." London Business School: CMaC Working Paper.

Drehmann, M. (1987), personal communication.

Ehrenberg, A. S. C. (1971), "Predicting the Performance of New Brands," *Journal of Advertising Research*, 11 (6), 3–10.

——— (1972, 1988), *Repeat-Buying: Theory and Applications*, 2nd ed. London: Charles Griffin; New York: Oxford University Press.

——— (1975), "The Structure of an Industrial Market:

Aviation Fuel Contracts," *Industrial Marketing Management*, 4 (5), 273–85.
——— (1990), "New Brands and the Existing Market." London Business School: CMaC Working Paper.
——— and J. A. Bound (1990), "Prediction and Predictability: A Case Discussion." London Business School: CMaC Working Paper.
——— and G. J. Goodhardt (1976), *Decision Models and Descriptive Models in Marketing*. Cambridge, MA: Marketing Science Institute.
——— and ——— (1988), "The Double Jeopardy Effect for UK Daily Papers." London Business School: CMaC Working Paper.
Ellis, K. (1989), "Private Label Buying Behaviour," PhD thesis, London University.
Goodhardt, G. J., A. S. C. Ehrenberg, and C. Chatfield (1984), "The Dirichlet: A Comprehensive Model of Buying Behaviour," *Journal of the Royal Statistical Society*, A 147, 621–55.
———, ———, and M. A. Collins (1975), *The Television Audience: Patterns of Viewing*. Aldershot, UK: Gower Press (updated edition 1987).
Jacoby, Jacob (1978), "Consumer Research: State of the Art Review," *Journal of Marketing*, 42 (April), 87–96.
Kahn, Barbara E., Manohar U. Kalwani, and Donald G. Morrison (1988), "Niching Versus Change-of-Pace Brands," *Journal of Marketing Research*, 25 (November), 384–90.
Keng, Kau Ah and A. S. C. Ehrenberg (1984), "Patterns of Store-Choice," *Journal of Marketing Research*, 21 (November), 399–408.
———, ———, and N. R. Barnard (1990), "Competitive Brand-Choice: Japan and the West." London Business School: CMaC Working Paper.
Leone, Robert P. and Randall L. Schultz (1980), "A Study of Marketing Generalizations," *Journal of Marketing*, 44 (Winter), 10–18.
Leuthesser, L., ed. (1988), *Defining, Measuring, and Managing Brand Equity*. Cambridge, MA: Marketing Science Institute.
Martin, G. R. (1973), "The Theory of Double Jeopardy," *Journal of the Academy of Marketing Science*, 1 (Fall), 148–55.
McPhee, W. N. (1963), *Formal Theories of Mass Behavior*. New York: The Free Press.
Meneer, P. (1987), "Audience Appreciation—A Different Story from Audience Numbers," *Journal of the Market Research Society*, 29, 241–54.
Mosimann, J. E. (1962), "On the Compound Multinomial Distribution, the Multivariate B-distribution, and Correlations Among Proportions," *Biometrika*, 44, 65–82.
——— (1984), "Size and Shape Analysis," in *Encyclopedia of the Statistical Sciences*, S. Kotz and N. L. Johnson, eds. New York: John Wiley & Sons, Inc.
Nelson, J. F. (1986), *GAPM*. Niverville, NY: Recurrent Statistics.
Raj, S. P. (1985), "Striking a Balance Between Brand Popularity and Brand Loyalty," *Journal of Marketing*, 49 (Winter), 53–9.
Shuchman, A. (1968), "Are There Laws of Consumer Behavior?" *Journal of Advertising Research*, 8 (3), 19–28.
Stern, P. (1990), personal communication.
Uncles, M. D. (1985), "Buying Patterns in the US Coffee Market." London Business School: CMaC Working Paper.
——— (1989), "BUYER: Software for the Dirichlet." London Business School: CMaC Report.
——— and A. S. C. Ehrenberg (1988), "Patterns of Store-Choice: New Evidence from the USA," in *Store Choice, Store Location, and Market Analysis*, N. R. Wrigley, ed. London: Routledge and Kegan Paul.
——— and ——— (1990), "Aviation Fuel Contracts in Europe," *International Journal of Research in Marketing* (forthcoming).
Wellan, D. and A. S. C. Ehrenberg (1988), "A Successful New Brand: Shield," *Journal of the Market Research Society*, 30, 35–44.
——— and ——— (1990), "Seasonal Segmentation," *Marketing Research* (forthcoming).
Wind, Yoram and Vijay Mahajan (1981), "Market-Share: Concepts, Findings and Directions for Future Research," in *Review of Marketing 1981*, Ben Enis and K. J. Roering, eds. Chicago: American Marketing Association.
Wrigley, N. R. and R. Dunn (1984), "Stochastic Panel-Data Models of Urban Shopping Behaviour," *Environment and Planning A*, 16, 629–50, 759–78.

Reprint No. JM543106