Even the social sciences have laws

Who says that the social sciences are not quantitative? Even in a field supposed to be dominated by people's impulses to buy — that of marketing — there are striking regularities.

A MINOR brand usually has the worst of two worlds: compared with major brands, it has fewer buyers and they are usually less loyal. They buy the brand less often and they like it less. This phenomenon is called Double Jeopardy (DJ).

In marketing, the pattern is almost universal, much as the planets are always almost spherical. Anybody could have noticed it, but for a long time did not. Although the US sociologist William McPhee described Double Jeopardy 25 years ago, most marketing people have remained unaware of it. The research question is therefore not so much why DJ arises, but why the pattern been so often missed?

To illustrate the prevalence of DJ, suppose there are just two restaurants in town: A is widely known, B less well so. Suppose that the two restaurants are of equal merit in every respect to those who know both. What then happens if people in general are asked which is their favourite? People who know B as well as A will "split their vote", because both restaurants are of equal merit. But people who know only A will all vote for it. That is DJ in action.

Much the same happens when people have to choose between similar items differing significantly in popularity or market shares. Marketing people have documented the phenomenon thoroughly in the past 40 years in many countries and a great variety of circumstances: motor-cars, retail chains, grocery brands (in over 50 products), television and radio programmes, newspaper reading, comic strips, politicians and even consumers' attitudes to the items in question.

Experience has shown that the buying patterns of competing products may usually be represented by the Dirichlet distribution, of the form $Cp^{\alpha-1}q^{\beta-1}r^{\gamma-1}...$, in which p, q, r, represent consumer preferences (over a finite range, say [0,1]), α, β ,γ ,... are the corresponding market shares and the constant C is a function of α, β, γ,... This formulation successfully and rather precisely predicts many regularities, including DJ.

The model needs only one measure for each brand: its market share. Other market influences, such as differences in product formulation, advertising expenditure, price, availability or whatever, are not explicitly involved. They will have given brands their widely differing market shares, but they do not affect brand loyalty beyond that, either in the theory or in practice.

There are many irregularities in the marketing process that might be expected to override DJ, which is supposed to happen when competitive items are very similar. But even competitive items differ somewhat, at least in name. Yet the facts show DJ is the rule, not the exception.

There is an extreme example in the London newspapers: *The Times* and the mass-appeal *The Sun* differ even to the naked eye (although the owner is the same). But there is still DJ; not only do fewer people read *The Times*, but they read it less often. Exceptions to the DJ rule are few and far between and have specific explanations.

DJ would be less remarkable if customers of a small brand had limited needs and satisfied them with that one brand. But the opposite is what happens. In general, buyers of brand X tend to buy other brands as well, and in total (over time) more often than they buy brand X itself. Consumers generally spread their choices across a portfolio of competitive items.

There are practical benefits of this knowledge. For example, managers who know about DJ can more accurately evaluate the intrinsic value of their brand. If they recognize that it is normal for a small brand to command the lesser loyalty, they will be better able to allocate marketing budgets, to set targets for new brand development and to interpret the results of market testing.

Thus for established brands, DJ confirms that the only way of doubling sales is to attract almost twice as many buyers to purchase the brand slightly more often, not to persuade all current buyers to purchase twice as often (which would require an upheaval of market structure.) Even the now fashionable "niche" brands, often designed especially to attract few but exceptionally loyal customers, suffer the same DJ effects as small brands: fewer buyers with relatively low loyalty. No striking exceptions have been reported.

Given the ubiquity of the phenomenon of DJ, it is not surprising that its effects have been discovered more than once. More than 20 years ago, it was first noted (with surprise) that different brands of a category of packaged goods commanded similar loyalty, measured by repeat-buying. Then a subpattern became apparent: such small variations in loyalty as there were systematically decreased with the market share of a brand. But that trend was then recognized to be just what McPhee had noted, explained, and named as Double Jeopardy a few years earlier when analysing radio announcers' popularity.

Remarkably, neither marketing academics nor practitioners have generally been aware of DJ in their markets. One reason is that people seldom expect there to be lawlike regularities in social science ("Is it a science?"), and therefore do not even look for them. In this they are oddly aided and abetted by modern statistics, which concentrates almost exclusively on analysing single sets of data ("Is it significant?") instead of many sets of data ("Does it generalize?").

Another reason why the DJ phenomenon has often been overlooked is that statistical data are often unhelpfully communicated. The figure below gives data on aviation fuel contracts in Europe, with the brands listed in order of decreasing market share. It is plain that the companies supplying aviation fuel have very different market penetrations (percentage of airlines who are customers) and that, as market penetration decreases, so does the number of contracts per customer (a measure of loyalty).

None of the sophisticated statistical procedures of modern management science (regression, factor analysis, multidimensional scaling or whatever) are needed to see the pattern, which may nevertheless be hidden if the numbers are not rounded to two effective digits and, most importantly, if the companies are not ordered in a relevant way.

"Brand"	Percent airline customers	Contracts per customers
Shell	73 **(72)**	3.5 **(3.7)**
Minors	51 **(60)**	3.5 **(3.1)**
BP	44 **(44)**	2.5 **(2.6)**
Total	28 **(31)**	2.5 **(2.3)**
Mobil	28 **(29)**	2.3 **(2.3)**
Exxon	28 **(27)**	2.1 **(2.3)**
Chevron	19 **(16)**	1.7 **(2.1)**

DJ in airline fuel. Figures in bold are Dirichlet predictions.

Such low-level data communication techniques are seldom practised but sorely needed. They help to uncover patterns and to suggest whether these patterns generalize. Large companies (and universities) spend much time and money collecting data on their markets and worrying about it. But such data often conceal general or lawlike patterns that can be documented and established, leading to far better interpretation. Do university departments that receive fewer applications also have fewer of their offers taken up? That would be normal, another DJ effect. When belief in unguided market forces is as widespread as at present, a better understanding of how competitive markets and their lawlike patterns actually work would not be out of place. And how does Double Jeopardy affect you?

Andrew Ehrenberg

Andrew Ehrenberg is professor of marketing at the South Bank Business School, and visiting professor at the Stern School, New York University.