
The dubious assumptions of segmentation and targeting

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Discusses Mitchell's recent proposal for astrological segmentation which demonstrates the extremes to which segmentation and targeting can be taken if we uncritically accept their core assumptions. Proposes that although Mitchell's proposal can be subjected to a number of minor criticisms, it can only be finally disposed of by critically examining whether astrological segments really are associated with a stable set of preferences, and whether targeting these segments actually gives a higher return than other approaches. Once the stability of segments, the logic of targeting, and the empirical evidence are examined, it turns out that not only is Mitchell's approach unsupported, but so are most other segmentation and targeting efforts.

Introduction

The marketing community was provided recently with a startling argument by Mitchell[1] – that we could use astrology in market segmentation. At first sight this appears to be an amusing suggestion, perhaps heralding a paradigm shift in marketing which might also involve the examination of goat livers in forecasting, or the observation of the pecking of the sacred chickens before sending out the salesforce.

On closer examination we can see that Mitchell is not really claiming that astrology is valid. His real argument is far more subtle. Although it can be subjected to a number of minor criticisms, his argument can only finally be disposed of by challenging some of the key assumptions involved in the practice of segmentation and targeting.

This raises a broader issue. If we wish to reject Mitchell's approach because its underlying assumptions are false, why does the marketing community usually accept uncritically the underlying assumptions of segmentation and targeting? In fact, the real problem for Mitchell's argument is not that these assumptions are false for astrological segmentation, but that they are usually false no matter what sort of segmentation and targeting is attempted.

Mitchell's argument

Rather than require that astrology be correct, Mitchell's underlying argument only requires that people identify with their horoscopes, and that we can segment and target particular groups based on this fact. More formally, the argument looks something like this:

- many people read the horoscopes for their sun sign;
- people who read the horoscopes for their sun sign identify with the characteristics of their sun sign;
- the characteristics that consumers identify with will be reflected in their preferences; and

- we can therefore group consumers into 12 preference segments based on their sun signs.

So far, this does not include explicitly all the ideas required to support segmentation, but by drawing on both Mitchell and a recent summary of segmentation contained in Green and Krieger[2] we can complete the argument:

- consumer preferences will be relatively homogeneous within these segments, but relatively heterogeneous between these segments; and
- payoffs may be greater when companies match their products and marketing mixes to particular segments within a market.

Therefore, according to Mitchell's logic, payoffs may be greater when we target a particular astrological segment with a product and marketing mix which match that segment's preferences.

Green and Krieger[2] note that: Preference homogeneity for products/services can be related to either person variables (e.g. demographic characteristics, psychographic characteristics, product usage, current brand loyalties etc.) or situational variables (e.g. type of meal in which beverage is consumed, buying for oneself versus a gift for someone else, etc.) and their interactions.

Mitchell clearly intends a person's astrological sun sign to be just another variable of the sort already to be found in this exhaustive list. Even if we challenge successfully some of his current premisses, it does not undermine the argument that preference homogeneity *could* be related to the psychographic variables of astrological sun sign, or indeed the demographic variable of birth date.

Some major problems

The major problems with Mitchell's argument turn out to be problems with segmentation studies generally. The problem is the lack of empirical evidence for two key assumptions – that the particular segments really are associated with a specific set of preferences, and that targeting segments actually gives a better return than other approaches.

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The plausibility of Mitchell's argument only arises because we have become used to accepting most segmentation and target marketing uncritically without questioning these underlying assumptions. There is very little evidence that practitioners or academics bother either to investigate the reality and stability of their segments, or to predict and measure the effects on the target market. Under these circumstances astrological segmentation is just as good as most other forms of segmentation – but this does not make it valid. Rather, it highlights the fact that most segmentation and targeting efforts are based on dubious assumptions which, if false, would then invalidate the whole process.

In particular, there are three criticisms which undermine the key assumptions of segmentation and target marketing. These are the criticism from: segment identification; the logic of targeting; and falsifying evidence.

The criticism from segment identification Wind[3] discussed a number of methods of identifying segments including the *a priori* approach and the *post hoc* approach. These methods have been subjected to some major criticisms by Hoek *et al.*[4]. In their review article, they point out that segmentation involves a number of assumptions and arbitrary decisions, and that the solutions are often not robust or stable.

Specifically, when using cluster analysis (the most common *post hoc* approach) to identify segments, researchers must make decisions about:

- the basis to be used for segmentation;
- the variables to be used to measure and express this basis;
- the analysis method to be used to identify the segment solutions;
- the number and composition of the segments they choose to have.

With the exception of the choice of analysis method, all of these decisions must be made in the case of *a priori* segmentation as well. Unfortunately, for each of these decisions, there is no reason why one of the alternatives should necessarily produce better results than another, and there are few guidelines about which alternatives are most suitable for different situations; identifying segments appears to be a fundamentally arbitrary process. Hoek *et al.*[4] conclude:

different clustering techniques may produce different solutions, and even the same technique may produce different results for the same set of data, because each technique requires substantial input from the researchers at various stages ... For example, in addition to deciding whether or not to

transform or standardise the variables, analysts must select an algorithm and impose constraints on the extent of data divisions.

Hoek *et al.*[4] cite several studies which suggest that segment membership is not stable over time, and that segment identification is frequently not robust enough to withstand small changes in the data analysed. They also note the point made by Esslemont and Ward[5] that real segments can only be said to exist if several different algorithms locate the same segments (if there are no real segments in the data, cluster analysis will produce notional segments, but different algorithms would then produce different segments). In practice, according to Hoek *et al.* "few researchers describe the results of these or other verification exercises"[4].

Esslemont and Ward[5] did conduct a verification exercise by reanalysing a commercial segmentation study, but found that in this case different methods of cluster analysis gave strikingly different segment solutions. Even without such formal verification exercises, there are still clear indications that *post hoc* segmentation studies give unstable results; for example, the political segmentation study commissioned by the New Zealand Labour Party in preparation for the last election identified approximately twice as many segments as the one commissioned by the New Zealand National Party.

It might seem that Mitchell's proposal is better than many segmentation proposals in that birthdate is certainly a stable demographic variable. However, the 12 astrological groupings of birthdates are arbitrary rather than tightly clustered and well separated groupings. Furthermore, as demonstrated earlier, there is no reason to think that identification with particular personality characteristics will be stable within a star sign. Mitchell's segments are just as unstable as most others.

The criticism from the logic of targeting

Wright and Esslemont[6] have pointed out that if segmentation were successful, with real segments being identified and validated, there is still no logical reason to adopt target marketing. They investigated a number of possible logical formulations of the target marketing argument and noted that:

The only possible justification for targeting would be that it gives a greater *overall* market response than the alternatives, yet our logical analysis has demonstrated that targeting does not necessarily give the best overall market response[6].

There are few guidelines about which alternatives are most suitable for different situations; identifying segments appears to be a fundamentally arbitrary process.

For example they demonstrated that it is a fallacy to claim that we should always target the segment with the greatest response (unless we were forced to choose only one segment, such as a single geographical segment). Segments outside the target group are usually exposed to the marketing mix, and targeting the segment with the greatest response is not necessarily the same as producing the marketing mix with the greatest market response. Wright and Esslemont provided a hypothetical example to demonstrate this point (see Table I).

In this case, leakage of the pensioner marketing mix into the yuppy segment means that the greatest overall market response comes from targeting the less responsive segment. Some might protest that leakage might also occur the other way, and Wright and Esslemont would not dispute this: they would, however, point out that this is an empirical question, and that there is no logical reason to conclude that targeting the segment with the highest response will necessarily produce the greatest overall response.

If separate delivery of the marketing mix to segments was possible (perhaps due to geographic segmentation, database marketing or personal selling), then "leakage" of the marketing mix to non-targeted segments could be eliminated. In this case, it would be true to say that the optimum marketing mix would not be the same for all segments. However, Wright and Esslemont demonstrated that this still does not justify targeting the segment with the greatest response, nor does it establish that the mix should be tailored to each segment. It is quite possible, for example, that a mass-marketing effort could have a better overall return. Wright and Esslemont offer the following hypothetical example to demonstrate this point (see Table II).

In this example the best result is not obtained by spending all the budget on the yuppy mix, or by dividing the budget into two to get half the "optimum" response from each segment. Rather, it is achieved by spending the whole budget on a "suboptimum" mass marketing effort.

Of course both tables are merely hypothetical examples, and segment response will not necessarily follow this structure, but this is exactly the point Wright and Esslemont are making – that the structure of market response is an empirical question, and that there is no logical justification for choosing targeting over mass marketing, or vice versa. Wright and Esslemont concluded:

... targeting is only logically supported in the rare occasions where an organisation can only operate in one segment, as may be the case with geographical segmentation of retail operations. It is also possibly, but not necessarily, the best approach when leakage can be avoided between different segments, such as in database marketing, personal selling, and in some cases of geographic segmentation. In other cases there is no logical reason ... to support the assertion that it is the best approach[6].

In the absence of logical proof, the question of whether to use targeting must therefore be answered empirically.

The criticism from falsifying evidence

In fact the empirical evidence which is available falsifies rather than supports segmentation and targeting theory.

The most important of the empirical criticisms is implicit in the extensive work of Ehrenberg and his colleagues on the patterns of repeat purchasing[7-9]. The first published use of this work to criticize market segmentation came from Collins[10], who claimed that

Table I

Response to \$10,000 advertising (\$)

	Yuppy response	Pensioner response	Market response
Yuppy mix	150,000	0	150,000
Pensioner mix	70,000	100,000	170,000

Source: [6]

Table II

Optimum mix for \$10,000 advertising (\$)

	Yuppy response	Pensioner response	Market response
Yuppy mix	150,000	0	150,000
Pensioner mix	0	100,000	100,000
"Suboptimum" mix	90,000	90,000	180,000

Source: [6]

his results were common to a large number of product fields he has examined; this work is discussed here in detail. Ehrenberg and Goodhardt[11] also published similar criticisms of market segmentation demonstrating, among other things, that the same people purchase products which are aimed at completely different segments.

Collins first used panel data to demonstrate that highly loyal customers only represent a very small proportion of purchasers, and argued that the relatively low brand loyalty in the product classes he examined demonstrated that perfect segmentation simply did not exist. He then investigated whether imperfect segmentation existed, by calculating a duplication ratio (*D*) to determine whether purchases were clustered into particular subgroups of brands. The result was that in his data he found no pair of brands for which the purchase of one brand reduced the likelihood of the purchase of other brands, so he concluded that there was no pair of brands which appealed to different segments.

Collins also found that duplication of purchase between brands could be predicted accurately without market segmentation, simply by using the average *D* value for the product category and the market penetration for each brand. Furthermore, there were no brands with low penetration and high buying rates, which we would expect from the segmentation and targeting efforts of smaller brands. Collins therefore concluded that, for most brands, the bulk of sales will be to the mass market[10].

Collins did not wish to claim that market segments never exist, but merely that “not all consumers can be placed in a segment and most brands do not operate within a definable segment”. In fact, he did identify some brands which he called “segment brands”. These were found to have slightly higher than expected repurchase rates, but this was often due to limited availability (as with private label brands), and the effect was small in any event. Furthermore, the buyers of these segmented brands were only slightly less likely to buy other brands than non-buyers. Consider the example of a segmented brand E presented in Table III.

Table III demonstrates that the purchasers of a segment brand still buy other brands almost as much as everybody else, and this type segmentation bears little resemblance to the assumptions at the heart of the process of segmentation and targeting. Based on his extensive analysis of sets of panel data, Collins concluded that:

there is usually little segmentation in the sense of one brand appealing to one segment of consumers and another brand appealing

Table III

Penetration of brands A-D (%)

	Penetration among buyers of brand E	Penetration among non-buyers of brand E
A	70	80
B	33	41
C	22	22
D	20	17
Average	36	40

Source: Adapted from [10]

to another segment ... if [segmentation] exists, it fails to lead to any ... patterning of behaviour in brand choice[10].

Additional work has recently emerged which provides further support for these conclusions; in a recent international study using consumer panel data, Hammond *et al.* found that:

data on over 20 grocery products ... shows that in terms of commonly-used classification measures, brands which are broadly similar are generally not bought by different segments of the population[12].

The extensive panel data which underlies the work of Collins[10] and Hammond *et al.*[12] provides compelling evidence against segmentation and targeting, but we do not need to rely solely on this work to demonstrate the empirical weakness of segmentation and targeting.

For example, further evidence can be found in McGuinness *et al.*[13], who reported a study on product sampling for three new fast-moving consumer products in New Zealand. The demographic target market of one brand was identified as men and women aged 16-25 years, although this was approximated in an omnibus survey by those under 30 years. The resulting brand trial and conversion rates are reported in Table IV. As the segments are of different sizes, the percentage results provided by McGuinness *et al.*[13] have also been multiplied by the size of each segment, obtained from census data[14], to allow direct comparisons of segment response.

Although trial and conversion rates are relatively higher for the target segment, there is much less difference in the absolute response between this segment and the 30-49 year olds. Absolute trial and conversion are also higher outside the target segment (411,000 and 225,000 respectively) than within it (256,000 and 207,000 respectively). These results occur despite the inclusion of the 25-29 year-old group inflating the size of the target segment by about 50 per cent[14].

For the other two brands in the study, no significant differences were reported between

He found no pair of brands for which the purchase of one brand reduced the likelihood of the purchase of other brands.

target segment and non-target segment trial and conversion rates. It seems that, in this case, target marketing had very little effect, and fewer sales came from the target markets than from elsewhere.

Another example comes from a study of new entrants in the United Kingdom detergent market. Lomax *et al.*[15] provide the results of a multidimensional scaling exercise used to position the new entrant (Wisk), well away from the company's existing brand (Persil). This is reproduced as Figure 1, and clearly demonstrates the very distinct targeting of Wisk and Persil.

Despite the use of the brand preference map to target a different segment, panel data show that more of Wisk's purchasers came from Persil than from any other brand. In fact, all brands lost share to the new product strictly in proportion to their market share. An exact share order effect was not reproduced for the

other new brands in this study, but in 24 out of 29 cases the percentage of new brand purchasers drawn from each of the existing brands was within three points of the existing brand's market share. An approximate share order effect is thus clearly visible in the data, and the sales of new brands clearly come from the mass market, and not from specific groups of customers who prefer particular sets of brands.

Although these two examples were not selected in any systematic way, they do demonstrate that it is relatively easy to find empirical results that show the failure of segmentation and target marketing. Yet it is very hard to find any studies that demonstrate that segmentation and target marketing lead to higher sales, or that there are discrete groups of consumers who prefer particular brands.

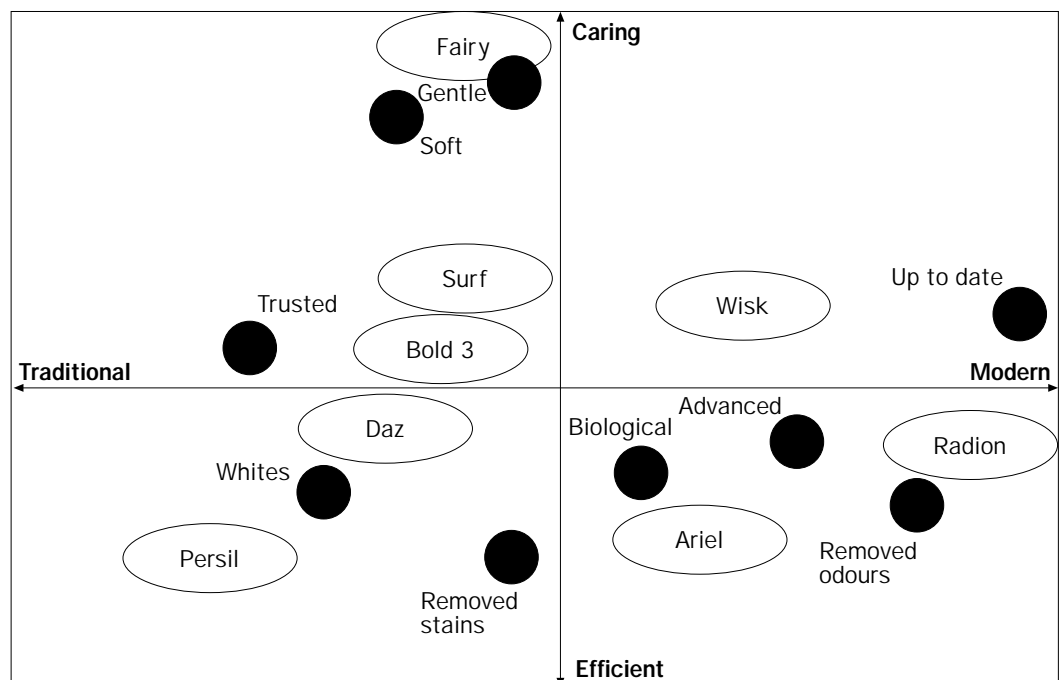
Some forms of segmentation do produce stable, robust preference segments. For example, Collins[10] did find real segmentation in the duplication of purchases between brands of a particular product type (such as canned soup); different forms of a particular product category, therefore, do seem to form genuine segments, and it is interesting to note that Nielsen retail data are broken into just this sort of segment. Geographic and demographic segmentation may also form stable robust segments, and there is some evidence that choice modelling can infer consumer preference segments, although

Table IV
 Trial and conversion rates by segment

	Age group (and size)					
	15-29 (827,000)		30-49 (943,000)		50+ (819,000)	
	%	N	%	N	%	N
Trial	31	256,000	28	264,000	18	147,000
Conversion	25	207,000	16	151,000	9	74,000

Source: [13,14]

Figure 1
 Detergent brand image map



membership of these segments may be unstable.

Unfortunately, except in the case of geographic segmentation, database marketing and personal selling, other segments are usually exposed to the marketing mix aimed at the target segment, with unknown effects. Consequently, target marketing with separate marketing mixes to separate segments is usually not possible. Furthermore, there is no logical reason to expect that targeting even stable, robust segments will be better than other approaches, especially as the empirical evidence indicates that segmentation and targeting does not usually achieve any important results.

A final defence

Despite the evidence that segments are frequently unstable and that targeting is ineffective, supporters of segmentation (and astrology) are likely to offer a final argument in support of their position. The argument goes something like this: the fact is, these methods can help to improve managerial understanding of the marketplace, and help to generate ideas about marketing actions; there is overwhelming evidence from business that, when they are applied correctly, these methods result in a higher overall market response.

While this gives up any claim that astrology or segmentation theory are true, it effectively puts forward a new argument – that they are instrumentally useful. Given the problems with segmentation and targeting theory this new claim should be treated with caution. In particular, there are two problems with this argument.

The first problem is that the evidence in favour of this argument is anecdotal. Anecdotal evidence is subject to a number of possible biases, most especially to the risk of selective reporting. How do we know that there are not an equal number of cases in which segmentation and targeting proved disastrous? If the positive outcomes of segmentation and targeting cannot be shown to outweigh the negative outcomes, why should we use it?

The second problem is that there is no particular reason to give segmentation and targeting the credit for improved performance. In particular, there may well be an “activity effect” such that any carefully considered and properly supported initiative will help to improve business position. If segmentation (or astrology) cannot be shown to have a

greater impact than the “activity effect”, there is no reason to use it.

To accept the final defence without evidence would be like prescribing a new medicine without knowing how often it worsened rather than improved patients’ conditions, or recommending observing the pecking of the sacred chickens before battle because the ancient Romans had so many years of military success following this practice.

Conclusion

Mitchell’s proposal has illustrated that the justification for segmentation and targeting is usually speculative rather than factual, and that speculative justifications allow any sort of segmentation at all to be proposed.

Before any segmentation effort, including astrological segmentation, can be justified properly, we need evidence that two key assumptions are true; namely that the segments are associated with a stable set of preferences, and that targeting these segments really does give a higher return than other approaches, such as mass marketing. If these assumptions cannot be justified, then at the very least some evidence should be provided that segmentation and targeting will have a positive effect more often than a negative effect, and that this effect is greater than achievable through any other carefully considered and properly supported marketing initiative.

While Mitchell is right to suggest that astrological segmentation is as good as most other bases for segmentation, this does not make his approach valid. Instead it highlights the widespread and uncritical acceptance by the marketing community of some very dubious assumptions. Rather than turn the spotlight on Mitchell, perhaps we should be reconsidering our own use of complex, expensive and often futile segmentation and targeting efforts.

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Application questions

- 1 Does market segmentation and the production of differential strategies really work? Can it be cost-justified? Think about this one from your experience within your own organization.
- 2 Review Mitchell's original paper (*MD*, 33,1) and this one. What do they contribute together to theory and practice of effective marketing?