directiveanalytics
Guiding Strategic Marketing Decisions

maxDIFF

Maximum Difference Scaling (MaxDiff)

Maximum Difference Scaling (MaxDiff) is a statistical approach for obtaining preference or mportance scores for multiple items (e.g., brand preferences, product features, advertising claims). It is a relatively new technique developed as an alternative to conjoint analysis. The methodology was developed to alleviate respondent fatigue by reducing the number of options typically shown during a traditional paired comparison exercise. By forcing trade-offs, instead of using rating scales (which tend to provide very similar top-end scores), MaxDiff provides highly differentiated results across all items being tested. While not a replacement for conjoint analysis, it is easier to use (for the researcher, respondent, and end client) and applicable to a wider variety of research situations.

Methodological Considerations

One of the primary benefits of MaxDiff is that it allows for a large number of items to be traded off against each other, efficiently, while preventing rating scale bias. It has a wide variety of applications and may be considered any time a rating, ranking or constant sum scale would be used.

One limitation to consider when using MaxDiff is that it can become cumbersome for the respondent if too many attributes are tested on a small sample size. Additionally, the model provides relative rank order data, which limits statistical applications. It is also not as robust in handling pricing data as conjoint analysis.

Examples

MaxDiff has a wide variety of market research applications:

- It may be used in product development to prioritize benefits or features that are most important to potential customers.
- In advertising, MaxDiff may be used to identify which messages are most favored by key audiences.
- In product testing, a variety of prototypes can be assessed to determine which has the greatest potential for success.
- It may be used in brand preference studies to identify a company's market position, relative to its competitors.
- For needs-based studies, MaxDiff can identify which attributes are critical versus those consumers are willing to sacrifice.

Applications

- Product development
- Messages for packaging
- Brand preference
- Category needs/ preference
- Category purchase behavior
- Category usage patterns
- Channel/outlet preferences
- Prioritizing investment of resources
- Precursor to needs-based segmentation

Maximum Difference Scaling provides superior and more highly differentiated preference scores for options or features tested, allowing for more definitive direction and decision making compared to rank order exercises

About us

At Directive Analytics we provide our clients with the consumer insight and strategic action plans necessary to set themselves apart and grow their business. We offer a blend of the methodological expertise and rigor of a traditional research company along with the consultative approach of a marketing consultancy. Our people are the key to our success. Directive Analytics professionals bring together expertise in a broad range of industries including, but not limited to, quick service restaurants, consumer packaged goods, computer hardware, retail and financial services. Our collective experiences and education serve as the basis for developing new insights and partnering with our clients to generate the strategic action plans that will differentiate and add value to their business.

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Analytical Approach

The implementation of MaxDiff begins with the selection of a set of attributes to be investigated. For example:

List of Influential Reasons in the Selection of a Vacation Destination

- Proximity to beaches
- Four star hotel rating
- Gourmet cuisine
- Access to full service spa
- Active night life
- Child care services offered
- Pool on premises
- All inclusive meal plans
- Exercise facility available
- Free continental breakfast
- Golf courses
- Casino

In a Maximum Difference Scaling exercise, respondents are shown a set of potential options and asked to pick the one which is most influential and least influential in their decision.

When considering different vacation destinations, among the four attributes shown here, which is the most and least important?

Most Important	Attribute	Least Important
	Proximity to beaches	
	Gourmet cuisine	
	Active night life	
	Exercise facility available	

Respondents typically complete twelve or more of these sets, where each contains a different subset of items. The combinations of items are carefully selected, using an experimental design, to show each item an equal number of times (typically two or more times across all sets).

Responses are analyzed using Hierarchical Bayesian techniques to derive attribute importance scores at the individual respondent level. This will allow for a relative rank order and priority to be developed for each item measured. MaxDiff provides results that have greater between-item and between-respondent discrimination, and greater predictive accuracy than either monadic ratings or paired comparisons (Cohen 2003). As an example of Cohen's findings, a comparison of results obtained from both methods is presented below:

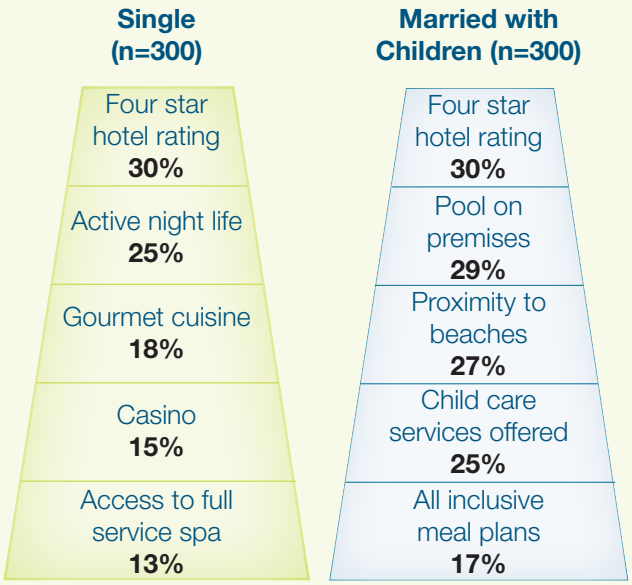
Traditional Importance Top 2 Box versus MaxDiff Importance Scores

	Traditional Importance		MaxDiff Importance	
	Top 2 Box	Rank	% Most Imp.	Rank
Proximity to beaches	95	1	10.2	3
Four star hotel rating	94	2	25.0	1
Active night life	92	3	1.0	10
Pool on premises	90	4	18.6	2
Gourmet cuisine	89	5	4.1	11
Access to full service spa	89	5	5.5	7

As illustrated by this example, Maximum Difference Scaling provides highly differentiated preference scores for the options or features tested, allowing for more definitive direction and decision making compared to a stated importance exercise. While the standard rating scales are easy to use, they tend to deliver results indicating that everything is "highly important." MaxDiff is rating scale free. It forces respondents to choose between options, delivering rankings showing the relative importance of the items rated. Additionally, the experimental design controls for potential order and context biases. Overall, the procedure is easy for respondents to complete, for researchers to compile, and for clients to understand.

MaxDiff is often used as a precursor to segmentation analysis. Since the procedure produces unidimensional interval-level scale data, it can be easily incorporated into segmentation models. Further analysis of the earlier example suggests that a segmentation analysis could yield interesting results, as top influential reasons differ dramatically between the two groups examined.

Top 5 Influential Reasons in the Selection of a Vacation Destination by Marital Status



Base: Total Respondents

Reference

Cohen, Steven H. (2003) "Maximum Difference Scaling: Improved Measures of Importance and Preference for Segmentation." *2003 Sawtooth Software Conference Proceedings, Sequim WA.*

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