

MaxDiff Analysis

MaxDiff market research and data
analysis

Products and buying decisions

INTRODUCTION

How do people buy products?

- People buy products by „**weighing**” each product (*its features*) and „**calculating**” **total benefit (utility)** for them
- Car: I prefer cars with known brands
- Pizza: I prefer spicy pizzas
- Jeans: I prefer blue regular fit jeans

Buying decision

- People will **most probably buy** a product that has the **highest benefit** (utility) for them
- Buying decision is not **exact** because there are always additional influences not explained by the attributes defined – that is why the decision is probabilistic, but based on the relations between the attribute values

A short explanation of the MaxDiff analysis

MAXDIFF ANALYSIS

MaxDiff analysis

- Choice-based – respondents choose the best and the worst option between a **few alternatives** – a good simulation of the **buying process**

Molimo odaberite Vama najbolju i najlošiju opciju među navedenim opcijama

*Opcije:

NAJBOLJA		NAJLOŠIJA
<input checked="" type="radio"/>	4 vrste sira	<input type="radio"/>
<input type="radio"/>	lovačka	<input checked="" type="radio"/>
<input type="radio"/>	calzone	<input type="radio"/>

[?](#) Kliknite na kružić (radio dugme) za odabir

MaxDiff analysis

- MaxDiff analysis estimates **the values (coefficients) of the products** used to calculate their utilities
- With products' utilities, multinomial logit model gives us the probability that a product will be chosen as best/worst from a group of products:

$$P(prod_i) = \frac{e^{U_i}}{e^{U_1} + \dots + e^{U_n}}$$

MaxDiff analysis

- A simpler version of the CBC (Choice Based Conjoint) analysis
- Easier for the respondents because they have **less information** to process (full products are shown, not their specific features)

Description of steps in a MaxDiff project implementation

STEPS

Step 1: problem definition

- The first step is the problem definition, e.g.:
 - We are **planning a new product** and we want to see which one would do the best in the market
 - We are interested in how do **people value** our products

Step 2: products definition

- Definition of the **products** that we wish to analyse, e.g.:
 - Cars: Mercedes, Fiat, Opel
 - Pizzas: vegetarian, spicy, with mushrooms
 - Jeans: slim, regular, skinny fit

Step 3: design definition

- Design definition means building and combining **alternatives (products)** into **questions** and **surveys**
- With respect to (typically) a **large number** of all possible combinations, we choose only a part of them, and this part has to be chosen so that we **can calculate the coefficients** for the products

Step 4: design testing

- Design has to be tested by **simulating** answers to check if there are any **problems**

resp.id	ques	alt	lokacija	email	best_choice	worst_choice
1	1	s tunom	blizu pizzerije	abc@bc.com	1	0
1	1	calzone	blizu pizzerije	abc@bc.com	0	0
1	1	povrtna	blizu pizzerije	abc@bc.com	0	1
1	2	bolonjez	blizu pizzerije	abc@bc.com	1	0
1	2	lovačka	blizu pizzerije	abc@bc.com	0	1
1	2	4 vrste sira	blizu pizzerije	abc@bc.com	0	0
1	3	lovačka	blizu pizzerije	abc@bc.com	1	0
1	3	losos	blizu pizzerije	abc@bc.com	0	1
1	3	4 godišnja doba	blizu pizzerije	abc@bc.com	0	0
1	4	miješana	blizu pizzerije	abc@bc.com	0	1
1	4	rukola/pršut	blizu pizzerije	abc@bc.com	1	0
1	4	4 godišnja doba	blizu pizzerije	abc@bc.com	0	0
1	5	pikantna	blizu pizzerije	abc@bc.com	0	1
1	5	sa salamom	blizu pizzerije	abc@bc.com	0	0
1	5	bolonjez	blizu pizzerije	abc@bc.com	1	0
1	6	sa salamom	blizu pizzerije	abc@bc.com	1	0
1	6	4 godišnja doba	blizu pizzerije	abc@bc.com	0	1
1	6	calzone	blizu pizzerije	abc@bc.com	0	0
2	1	s tunom	daleko od pizzerije	0001abc@g.com	0	0
2	1	calzone	daleko od pizzerije	0001abc@g.com	0	1
2	1	povrtna	daleko od pizzerije	0001abc@g.com	1	0
2	2	bolonjez	daleko od pizzerije	0001abc@g.com	0	0
2	2	lovačka	daleko od pizzerije	0001abc@g.com	1	0
2	2	4 vrste sira	daleko od pizzerije	0001abc@g.com	0	1
2	3	lovačka	daleko od pizzerije	0001abc@g.com	1	0
2	3	losos	daleko od pizzerije	0001abc@g.com	0	0
2	3	4 godišnja doba	daleko od pizzerije	0001abc@g.com	0	1
2	4	miješana	daleko od pizzerije	0001abc@g.com	0	0

Step 5: survey implementation

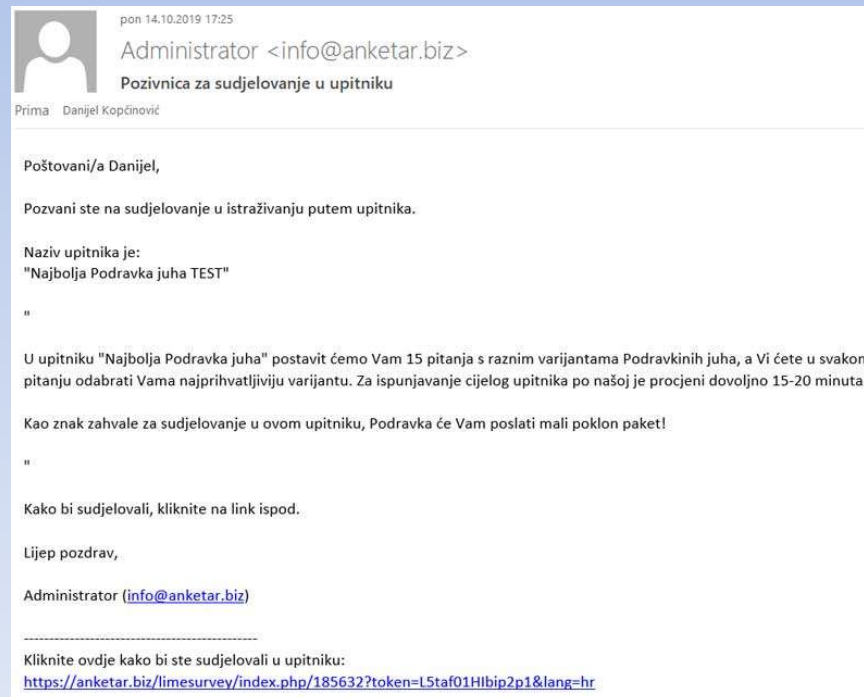
- The design, which is in a „code” form, has to be **implemented** as a survey in a tool/system for conducting surveys

The screenshot shows a web interface for managing surveys. On the left, a sidebar lists several questions under the heading 'Pitanja'. The main area on the right is titled 'Izmijeni opcije odgovora q4qu1 (Q: 201)' and shows a table of answer options for a specific question. The table has columns for 'Kod' (Code), 'Opcije odgovora' (Answer options), and 'Akcije' (Actions). The language is set to 'Hrvatski (Osnovni jezik)'.

Kod	Opcije odgovora	Akcije
A1	<code><p style="text-align: center;">5 minuta</p> <p style="text-align: center;">kocka</p> <p style="text-align: center;">za 5 tanjura</p></code>	[Edit] [Save] [Delete]
A2	<code><p style="text-align: center;">10 minuta</p> <p style="text-align: center;">kocka</p> <p style="text-align: center;">za 5 tanjura</p></code>	[Edit] [Save] [Delete]
A3	<code><p style="text-align: center;">15 minuta</p> <p style="text-align: center;">vrećica</p> <p style="text-align: center;">za 3 tanjura</p></code>	[Edit] [Save] [Delete]

Step 6: initiating the survey

- By using a **users database** (newsletter subscribers, registered users, *online pool...*), initiate the survey



Step 7: checking the answers

- **Check** the answers and **exclude** from the analysis those that were e.g.:
 - always picking the same alternative (1st, 2nd...)
 - answering too quickly (less than a few seconds per question)
- This is an important step because „unreal” answers can significantly **decrease the model quality**, and sometimes even completely **disable** the model creation

Step 8: results analysis

- Using the given answers, calculate the **coefficients for products analyzed** and with them calculate e.g.
 - **the best** and **the worst** product
 - predicted **sales share** for some combinations of interest
 - **the most beneficial combination/offer** of products
- **Respondents segmentation**

Step 9: using the results

- Using the results analysis, make the **business decisions** about new products, changing the existing or planned products, customer segmentation...
- With the MaxDiff methodology, business decisions will be aligned with the customers valuations and this will ensure the **customer satisfaction** and **income/profit maximization**

Why use the MaxDiff analysis

CONCLUSION

Why use the MaxDiff analysis

- MaxDiff analysis is based on a reliably good model of making buying decisions (random utility model, used for more than 40 years in a few variants)
- Answers are given by the buyers
- A very good simulation of a real purchase
- Relatively simple to implement

Contact and information

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