Assignment 5: Conjoint Analysis

Rajwinder Mahal, Shandhra Ramana, Shayan Toor, Pratheek Kumar, Jasmit Tamber

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Prof. Rajeev Tyagi

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Introduction

In this report, we are going to conduct conjoint analysis to find out attributes that provide most value to our customers. As a product manager at Zoom, our goal is to find out what attributes consumers value most so that we can make adjustments to our offerings to provide the most value to our customers. Since a lot of consumers are shifting towards remote work, we would like to find the bundle of benefits that provide our users the most value as compared to our competitors. For this analysis, we will Google Meet as one of our competitors.

Attributes & Levels

- Brand
    - Zoom
    - Google
- Price
    - $8
    - $12
    - $16
- Engagement
    - Polls
    - Reactions (e.g. thumb ups, hand raise, etc)
    - Comments (chat)
- Collaboration
    - Screen share
    - Breakout rooms
    - Meeting Notes (white boarding)
- Customer Support
    - Standard support (self-help online, community forum)
    - 24/7 Standard support (ticketing, live chat)
    - 24/7 Priority support (1 hour response time, ticketing, live chat & phone)

Relative Valuations of Attributes

If we look at relative importance of attributes, we found that price has the highest relative importance of 38.2%. Price is followed by collaboration and customer support with relative importance of 22% and 17.5%, respectively. Finally, engagement and brand name has the lowest relative importance of 11.4% and 10.9, respectively. Based on this information, we can conclude that consumers put the highest relative importance to price and that most consumers on average are price sensitive. We also found that collaboration and customer support is an important attribute for consumers. So, based on this information, we can say that our product has to focus heavily on pricing, collaboration features and excellent customer support. Moreover, if we look at price levels, we found that $8 is the most preferred, followed by $12. For engagement, respondents put higher value to have polls and comments than reactions. Similarly, screen share and breakout rooms have higher utility than meeting notes, and most respondents prefer to have priority customer support. Looking at these attributes, we can conclude that our product offering should focus on lower price, screen share for collaboration and excellent customer support. The output for relative importance of attributes is in appendix figure 2.

Relative Valuations of Attributes across Respondents

Looking at our first respondent, we found that price has the highest relative importance (44.6%) as compared to other attributes. We also found that Customer Support is the second most

important attribute with a relative importance of 24.3%. These are followed by collaboration and engagement with both having similar relative importance of 16.5% and 14.6%, respectively. Finally, the brand has a relative importance of 0% and thus, we can conclude that this consumer is very price sensitive and doesn't care at all about the brand. Also, this respondent's relative importance for attributes is very similar to what we found in the previous section.
If we look at our fifth respondent, we can see that brand has the highest relative importance of 44.1%. This respondent is also price sensitive with a relative importance of 36.2%. This is followed by engagement and collaboration with relative importance of 11.8% and 7.5%, respectively. We also found that this respondent doesn't care much about customer support and that it has a relative importance of 0.4%. This respondent is different in the sense that the average respondent gives the lowest relative importance to brand but this respondent gives highest relative importance to brand and lowest to customer support. It is possible that this respondent has technical background and thus, there's no need for customer support. It is also possible this respondent is using other products from the same brand and thus, prefers to use products and services from the same brand. The output for all respondents with relative importance for each attribute is in appendix figure 1.

Finally, if we look at appendix figure 2, we can see that the standard deviation for price and engagement is very small which means that the relative importance of these attributes is very similar across respondents. Brand name has a slightly higher standard deviation as compared to other attributes and this is because of some respondents giving highest relative importance to brand. Overall, the relative importance of attributes among respondents is very similar.

Consumer Choice Simulation & Analysis

Offering #1:
Google Meet (competitor): $8, Polls, Screen Share, 24/7 Standard Support
Zoom (me): $16, Polls, Screen Share, Priority Support

The appendix figure 5 shows each respondent's utility given this product offering #1. Also, the probability that each of the respondents will choose Zoom (me) over Google Meet (competitor) is in appendix figure 9. Our analysis shows that respondent #9 is most likely to choose our offering over Google Meet with a probability of 34.1%. This is followed by respondent #10 who have a probability of 29.5% to choose Zoom over Google Meet. Most of the other respondents have a probability of less than 10% to choose our product offering and are thus not likely to use Zoom over Google Meet given these offerings. Also, it is important to note that although respondent #9 and #10 have a probability of 34.1% and 29.5%, respectively, to choose our offering over Google Meet, it is still less than 50% and thus, they are more likely to choose Google Meet over Zoom. Moreover, given this offering, the probability an average customer will choose Zoom over Google Meet is 4.7% (Appendix Figure 12). Based on this information, it is clear that consumers are more likely to choose our competitor given these offerings. Therefore, this product offering will not be effective at competing with our competitor.

Offering #2:
Google Meet (competitor): $8, Polls, Screen Share, Standard Support
Zoom (me): $8, Comments (chat), Screen Share, 24/7 Standard Support

The appendix figure 6 shows each respondent's utility given this product offering #2. Also, the probability that each of the respondents will choose Zoom (me) over Google Meet (competitor) is in appendix figure 10. Looking at these probabilities in appendix figure 10, we found that respondent #10 is most likely to choose our product offering over our competitor with a

probability of 95.3%. The respondent #4 is the next one who is most likely to choose our product offering with a probability of 67.3%. Both respondent #8 and #5 are least likely to choose our product offering with a probability of 1.7% and 6.6%, respectively. However, as a manager, we are interested in knowing whether an average consumer will choose our product offering #2 over our competitor. To figure this out, we calculated probability an average consumer/respondent will choose our product offering #2 over our competitor. And after doing the calculations, we found that there is a 73% probability that an average consumer will choose our product offering #2 (appendix figure 12). As we can see that this probability is higher than 50% and thus, we can conclude that consumers are mostly likely to choose our product over our competitor if product offering #2 is offered.

Offering #3:
Google Meet (competitor): $8, Polls, Screen Share, 24/7 Standard Support
Zoom (me): $12, Comments (chat), Screen Share, Priority Support

The appendix figure 7 shows each respondent's utility given this product offering #3. Also, the probability that each of the respondents will choose Zoom (me) over Google Meet (competitor) is in appendix figure 11. Our analysis of these probabilities shows that respondent #9 and #10 are most likely to choose our product over competitors with a probability of 70.8% and 85.4%, respectively. However, most other respondents are not much likely to use our product over the competitor since the probabilities are less than 50%. This is also clear if we look at the probability of whether an average consumer will choose our product offering #3 over our competitor, and we found that there is 24% probability that an average consumer will choose our product offering over our competitor (appendix figure 12). Since this is less than 50%, we can conclude that consumers are not much likely to choose our product offering #3 given the competitor's product offering. Therefore, this product offering #3 is not effective at competing with our competitor's product offering.

Overall, we think product offering #2 is the best option to compete with Google Meet. Given this product offering, the probability that an average consumer will choose our product over our competitor is 73%. One reason for this is that price is one of our product attributes that has the highest relative importance of 38.2% which means that our potential customers are price sensitive. And when we looked at raw utilities, we found that $8 price provides the most utility to our respondents, and because we are offering this product design #2 at $8, our customers will have the higher overall utility as compared to our competitor as well as our own other product offerings. Moreover, our product offering includes screen share for collaboration and screen share is one of the attributes that respondents give the highest utility among other available collaboration methods. And because collaboration has the second highest relative importance after price, combination of $8 and screen share gives consumers/respondents a higher overall utility and thus, making this product design a better option as compared to other offerings.

Conclusion

Our analysis found that price, collaboration, and customer support are some of the attributes that respondents relatively prefer more as compared to other attributes. We also found that the brand has the lowest relative importance which is good for Zoom because it is competing with a well known brand Google. This means that consumers will be willing to try new product offerings even if they are from brands they currently don't use or prefer. Finally, our product offering #2 with a lower price, moderate customer support and screen share for collaboration is the most effective for competing with Google Meet.

Appendix

Figure 1: Relative importance of attributes for each respondent

sys_RespNum	Brand_Importance	Price per month_Importance	Engagement_Importance	Collaboration_Importance	Customer Support_Importance
1	0.000	0.446	0.146	0.165	0.243
3	0.086	0.301	0.015	0.485	0.114
4	0.021	0.416	0.160	0.295	0.109
5	0.441	0.362	0.118	0.075	0.004
8	0.006	0.391	0.061	0.226	0.316
9	0.004	0.446	0.022	0.114	0.413
10	0.209	0.310	0.275	0.177	0.028

Figure 2: Relative importance of attributes

	Brand_Importance	Price per month_Importance	Engagement_Importance	Collaboration_Importance	Customer Support_Importance
Average	0.109	0.382	0.114	0.220	0.175
Min	0	0.301	0.015	0.075	0.004
Max	0.441	0.446	0.275	0.485	0.413
Standard Deviation	0.164	0.060	0.091	0.137	0.153

Figure 3: Raw utilities of respondents

sys_RespNum	Brand_Zoom_Raw_Utility	Brand_Google_Raw_Utility	Price per month_$8_Raw_Utility	Price per month_$12_Raw_Utility	Price per month_$16_Raw_Utility	Engagement_Polls_Raw_Utility	Engagement_Reactions (e.g. thumbs up, hand raise)_Raw_Utility	Engagement_Comments_Raw_Utility	Collaboration_Screen share_Raw_Utility	Collaboration_Breakout rooms_Raw_Utility	Collaboration_Meeting Notes (white boarding)_Raw_Utility	Customer Support_Standard (self-help online and community forums)_Raw_Utility	Customer Support_24/7 Standard Support (ticket & live chat)_Raw_Utility	Customer Support_24/7 Priority Support (1 hour response time; ticket, live chat & phone)_Raw_Utility
1	0.000	-0.000	2.479	0.531	-3.010	0.200	-0.999	0.799	1.209	-0.385	-0.824	-1.803	0.618	1.186
3	-0.280	0.280	0.934	0.100	-1.034	0.060	-0.040	-0.020	2.074	-0.974	-1.100	-0.490	0.235	0.255
4	0.117	-0.117	2.581	-0.453	-2.127	0.278	-1.044	0.766	2.017	-0.694	-1.322	-0.412	-0.412	0.825
5	-1.321	1.321	0.981	0.206	-1.187	0.236	-0.472	0.236	0.202	-0.249	0.047	-0.010	-0.005	0.015
8	-0.039	0.039	3.140	-1.158	-1.982	0.405	-0.018	-0.388	1.245	0.469	-1.714	-2.437	0.736	1.701
9	0.010	-0.010	0.879	0.376	-1.255	0.022	0.042	-0.064	0.357	-0.189	-0.169	-0.833	-0.312	1.145
10	0.974	-0.974	1.398	0.089	-1.487	0.148	-1.354	1.206	0.557	0.537	-1.094	-0.088	-0.088	0.176

Figure 4: Average raw utilities across respondents

	Brand_ Zoom_ Raw_Ut ility	Brand_G oogle_R aw_Utili ty	Price per month _$8_R aw_Uti lity	Price per month_ $12_Ra w_Utili ty	Price per month_ $16_Ra w_Utili ty	Engageme nt_Polls_ Raw_Utili ty	Engagem ent_ Reacti ons (e.g. thumbs up, hand raise)_ Raw_ Utility	Engagement _Comments _Raw_Utilit y	Collab oratio n_Scr een share_ Raw_ Utility	Collab oration _Break out rooms_ Raw_U tility	Collab oration _Meeti ng Notes (white boardi ng)_Ra w_Util ity	Custo mer Suppo rt_Sta ndard (self-h elp online and comm unity forum s)_Ra w_Uti lity	Cust omer Supp ort_2 4/7 Stan dard Supp ort (tick et & live chat) _Ra w_Ut ility	Custo mer Supp ort_2 4/7 Priori ty Supp ort (1 hour respo nse time;)	Bran d_Im porta nce	Price per mont h_Im porta nce	Engage ment_I mporta nce	Collabo ration_I mportan ce	Custo mer Supp ort_I mport ance
Average	**-0.07 7**	**0.077**	**1.77 0**	**-0.04 4**	**-1.72 6**	**0.193**	**-0.55 5**	**0.362**	**1.09 4**	**-0.21 2**	**-0.88 2**	**-0.8 68**	**0.1 10**	**0.75 7**	**0.1 09**	**0.3 82**	**0.114**	**0.220**	**0.17 5**

Figure 5: Utility for each respondent for Offering #1
Google Meet (competitor): $8, Polls, Screen Share, 24/7 Standard Support
Zoom (me): $16, Polls, Screen Share, Priority Support

	Respo ndent	Brand	Price	Engagement	Collaboration	Customer Support	**Total Utility**
Zoom	1	0	-3.010	0.200	1.209	1.186	-0.415
Google		-1	2.479	0.200	1.209	0.618	3.506
Zoom	3	-0.280	-1.034	0.060	2.074	0.255	1.075
Google		0.280	0.934	0.060	2.074	0.235	3.583
Zoom	4	0.117	-2.127	0.278	2.017	0.825	1.11
Google		-0.117	2.581	0.278	2.017	-0.412	4.347
Zoom	5	-1.321	-1.187	0.236	0.202	0.015	-2.055
Google		1.321	0.981	0.236	0.202	-0.005	2.735
Zoom	8	-0.039	-1.982	0.405	1.245	1.701	1.33
Google		0.039	3.140	0.405	1.245	0.736	5.565
Zoom	9	0.010	-1.255	0.022	0.357	1.145	0.279
Google		-0.010	0.879	0.022	0.357	-0.312	0.936
Zoom	10	0.974	-1.487	0.148	0.557	0.176	0.368

Google		-0.974	1.398	0.148	0.557	0.110	1.239

Figure 6: Utility for each respondent for Offering #2
Google Meet (competitor): $8, Polls, Screen Share, Standard Support
Zoom (me): $8, Comments (chat), Screen Share, 24/7 Standard Support

	Respondent	Brand	Price	Engagement	Collaboration	Customer Support	**Total Utility**
Zoom	1	0	2.479	0.799	1.209	-1.803	2.684
Google		-1	2.479	0.200	1.209	0.618	3.506
Zoom	3	-0.280	0.934	-0.020	2.074	-0.490	2.218
Google		0.280	0.934	0.060	2.074	0.235	3.583
Zoom	4	0.117	2.581	0.766	2.017	-0.412	5.069
Google		-0.117	2.581	0.278	2.017	-0.412	4.347
Zoom	5	-1.321	0.981	0.236	0.202	-0.010	0.088
Google		1.321	0.981	0.236	0.202	-0.005	2.735
Zoom	8	-0.039	3.140	-0.388	1.245	-2.437	1.521
Google		0.039	3.140	0.405	1.245	0.736	5.565
Zoom	9	0.010	0.879	-0.064	0.357	-0.833	0.349
Google		-0.010	0.879	0.022	0.357	-0.312	0.936
Zoom	10	0.974	1.398	1.206	0.557	-0.088	4.047
Google		-0.974	1.398	0.148	0.557	-0.088	1.041

Figure 7: Utility for each respondent for Offering #3
Google Meet (competitor): $8, Polls, Screen Share, 24/7 Standard Support
Zoom (me): $12, Comments (chat), Screen Share, Priority Support

	Respondent	Brand	Price	Engagement	Collaboration	Customer Support	**Total Utility**
Zoom	1	0	0.531	0.799	1.209	1.186	3.725
Google		-1	2.479	0.200	1.209	0.618	3.506
Zoom	3	-0.280	0.100	-0.020	2.074	0.255	2.129
Google		0.280	0.934	0.060	2.074	0.235	3.583
Zoom	4	0.117	-0.453	0.766	2.017	0.825	3.272
Google		-0.117	2.581	0.278	2.017	-0.412	4.347
Zoom	5	-1.321	0.206	0.236	0.202	0.015	-0.662
Google		1.321	0.981	0.236	0.202	-0.005	2.735
Zoom	8	-0.039	-1.158	-0.388	1.245	1.701	1.361
Google		0.039	3.140	0.405	1.245	0.736	5.565
Zoom	9	0.010	0.376	-0.064	0.357	1.145	1.824
Google		-0.010	0.879	0.022	0.357	-0.312	0.936
Zoom	10	0.974	0.089	1.206	0.557	0.176	3.002
Google		-0.974	1.398	0.148	0.557	0.110	1.239

Figure 8: Average Utility for each Offering (for an average consumer)

	Offering #	Brand	Price	Engagement	Collaboration	Customer Support	**Total Utility**
Zoom	1	-0.077	-1.726	0.193	1.094	0.757	0.241
Google		0.077	1.770	0.193	1.094	0.110	3.244
Zoom	2	-0.077	1.770	0.362	1.094	0.110	3.259
Google		0.077	1.770	0.193	1.094	-0.868	2.266
Zoom	3	-0.077	-0.044	0.362	1.094	0.757	2.092
Google		0.077	1.770	0.193	1.094	0.110	3.244

Figure 9: Probability table for each respondent choose Zoom (me) for offering #1. Using the LOGIT rule and total utility calculated in appendix figure 5.

Respondents	**Probability**
Probability R1 choose Zoom (me) over Google (competitor)	0.019
Probability R3 choose Zoom (me) over Google (competitor)	0.075
Probability R4 choose Zoom (me) over Google (competitor)	0.038
Probability R5 choose Zoom (me) over Google (competitor)	0.008
Probability R8 choose Zoom (me) over Google (competitor)	0.014
Probability R9 choose Zoom (me) over Google (competitor)	0.341
Probability R10 choose Zoom (me) over Google (competitor)	0.295

Figure 10: Probability table for each respondent choose Zoom (me) for offering #2. Using the LOGIT rule and total utility calculated in appendix figure 6.

Respondents	**Probability**
Probability R1 choose Zoom (me) over Google (competitor)	0.305
Probability R3 choose Zoom (me) over Google (competitor)	0.203
Probability R4 choose Zoom (me) over Google (competitor)	0.673
Probability R5 choose Zoom (me) over Google (competitor)	0.066
Probability R8 choose Zoom (me) over Google (competitor)	0.017
Probability R9 choose Zoom (me) over Google (competitor)	0.357
Probability R10 choose Zoom (me) over Google (competitor)	0.953

Figure 11: Probability table for each respondent choose Zoom (me) for offering #3. Using the LOGIT rule and total utility calculated in appendix figure 7.

Respondents	**Probability**
Probability R1 choose Zoom (me) over Google (competitor)	0.555
Probability R3 choose Zoom (me) over Google (competitor)	0.189
Probability R4 choose Zoom (me) over Google (competitor)	0.254
Probability R5 choose Zoom (me) over Google (competitor)	0.032
Probability R8 choose Zoom (me) over Google (competitor)	0.015
Probability R9 choose Zoom (me) over Google (competitor)	0.708
Probability R10 choose Zoom (me) over Google (competitor)	0.854

Figure 12: Probability that an average respondent will choose Zoom for different offerings. Using the LOGIT rule and total utility calculated in appendix figure 8.

	Probability
Probability an average consumer will choose Zoom (me) over Google (competitor) for **Offering #1**	0.047
Probability an average consumer will choose Zoom (me) over Google (competitor) for **Offering #2**	0.730
Probability an average consumer will choose Zoom (me) over Google (competitor) for **Offering #3**	0.240