Assignment description

So I am doing a Master thesis in marketing trying to inspect if product dimensions ( hedonic, risk, haptic, vertical differentiation) influence price paid when using mobile i.e. if these product dimensions moderate the relationship beetween price paid and mobile. The hypothesis are that product that score higher on hedonic dimension influence consumers in the way they are willing to pay a higher price when using mobile ( and similarly to all other categories).

H4

H2

H1

Price

Paid

Mobile (vs. Desktop PC)

Vertical Differentiation

High vs. Low Risk

Haptic vs. Non-Haptic

Utilitarian vs. Hedonic

Product dimensions

H3

1. My first part of the analyses was to calculate how each of my 30 product categories score on every of mentioned dimension. I did that by creating mean for every product on every dimension from my survey observations. This looks like this:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Category | Hedonic | Haptic | Risk | Vertical1 | Vertical2 |
| Adapter | 1.4211 | 2.5746 | 3.1184 | 4.7368 | 4.9342 |
| Alarm system | 1.3239 | 2.1315 | 4.4310 | 5.2958 | 5.2958 |
| Autographs | 6.2126 | 2.2850 | 3.6319 | 4.0000 | 3.7101 |
| Baby-stroller | 1.5429 | 5.1524 | 3.8200 | 5.2714 | 5.8429 |
| Bathrobe | 2.5462 | 5.9598 | 2.8096 | 4.6867 | 5.2048 |
| Cigars | 6.6373 | 4.0882 | 3.4353 | 5.0588 | 5.0441 |
| Digital camrecorder | 4.1221 | 4.2113 | 4.3887 | 5.8592 | 5.9437 |
| Guitar | 5.4030 | 5.9701 | 4.1821 | 5.6716 | 5.5522 |
| Hammer | 1.6715 | 4.9855 | 2.6029 | 3.5942 | 4.3478 |
| Iron | 1.4300 | 3.7005 | 3.5275 | 5.0870 | 5.7101 |
| Lego | 6.1727 | 4.0789 | 2.9349 | 4.8434 | 4.2289 |
| Liquor | 6.1746 | 2.6614 | 3.3429 | 5.2540 | 5.5714 |
| Mountain bike | 4.6422 | 5.0686 | 4.4118 | 5.9265 | 5.7941 |
| Pet food | 1.4187 | 2.1057 | 2.4659 | 5.1707 | 5.6951 |
| Picture frame | 4.1711 | 4.0789 | 2.2684 | 3.5526 | 5.4737 |
| Pots&pans | 1.8468 | 4.3018 | 3.2108 | 5.2838 | 5.6757 |
| Radio-contolled models | 5.0423 | 3.6296 | 4.4698 | 5.1111 | 5.0635 |
| Robot vacuum | 1.8942 | 2.9365 | 4.5619 | 5.4127 | 5.2540 |
| Router | 2.3778 | 2.0222 | 3.7333 | 4.2667 | 4.4933 |
| Shampoo | 1.7791 | 3.3735 | 3.0554 | 5.1205 | 6.1084 |
| Sitting chair | 1.9552 | 5.5622 | 3.3075 | 4.9851 | 5.6866 |
| Smartwatch | 3.1526 | 4.1687 | 4.4434 | 5.6024 | 5.4578 |
| Snowboard | 6.2598 | 4.4314 | 4.1824 | 5.3382 | 5.2941 |
| Soccer shoes | 3.5176 | 5.6471 | 3.7741 | 5.4824 | 5.6118 |
| Tablet PC | 3.8011 | 4.6452 | 4.5839 | 5.9194 | 6.1452 |
| Tent | 4.4627 | 3.9652 | 3.8418 | 4.8806 | 4.9701 |
| TV | 4.9095 | 2.8025 | 4.6938 | 5.6667 | 6.1852 |
| Video games | 6.2250 | 2.0610 | 4.1829 | 4.9146 | 5.3171 |
| Vinyl records | 6.3429 | 3.2905 | 3.2343 | 4.1429 | 4.5714 |
| Wheel rim | 1.9516 | 2.8172 | 3.7226 | 4.5968 | 4.6452 |

1. Now, in this second part that I am doing I need to establish connection between these dimension, mobile and price paid.

My professor gave me these instructions for R:

**What you would have to do to do it right:**

* **Merge the data (as you said) – this can be done easily in excel. Shouldn’t take more than half an hour max. Without knowledge in R, I think you could not work with the dataset I sent you, so I made you one that is already prepared, and where you just have to add the category characteristics. (I have already done this, table from above)**
* **Do a regression model of the following form: Price paid = a + c \* mobile \* risk + d \* mobile \* hedonic + e \* mobile \* haptic etc.; in R it looks like this:**

**reg2 <- lmer(lprice1 ~ mean\_mobile \* risk + mean\_mobile \* hedonic +  mean\_mobile \* haptic + log\_days\_online + wday + l\_start\_price + price\_infor + lnbuy\_now\_price +**

**(1| newcateg) + (1| customerid),**

**data=da\_prod2, REML = TRUE)**

**> you would only do the first line, I guess, because the rest is too difficult to understand ad hoc now. So that’s a regular OLS regression of ln(price) on the mobile variable and the category characteristics, including a few control variables.**

**> mean\_mobile is the share of bids on mobile (vs. desktop devices). This is your mobile variable. You include this, the characteristics, and their interactions, while their interactions are the important effects because you want to know whether the effect of mobile differs depending on these characteristics (like in your framework).**

**So the idea was that you estimate the models.**

Basically, I need to do a regression to see how these variables and their interactions influence my price paid. Since I am not familiar with R my professor told me I can also do a very simple, ordinary regression model.

The basic thing I want to see is if these dimensions in combination with mobile effect price paid. I need to include mean\_mobile variable that represents my usage of mobile device, the dimensions (hedonic, risk, haptic, vertical1 and vertical2), and their interactions, while their interactions are the important effects because I want to know whether the effect of mobile differs depending on these dimensions.

I would like to have a model based on the equation my prof gave me in order to say for example interaction between hedonic and mobile is significant and positive which means products that load higher on hedonic dimension bought by mobile are usually paid more. Also, I would like the explanation of the model shortly via zoom so I understand how to replicate it.

Dataset attached.