**Multivariate linear regression**

**CASE:** Experiential Retailing: Influence on Young Indian Consumer’s Response **OBJECTIVE:** To identify the impact of all the independent variables i.e., sound, light, layout, music, fragrance etc. on Customers retail’s experience.

**Justification:** Since all the variables are quantitative(numerical) in nature therefore to check the above said objective we will use multivariate regression model.

**Data analysis**:

*Step 1:*

*Hypothesis for multivariate linear regression model:*

**Null Hypothesis(H0):** Overall model is not statistically significant

**Null Hypothesis(H1):** Overall model is statistically significant

**If p < alpha**

=> Reject H0

From the output, **p = 0.0001341, i.e.** less than alpha (0.5).

->Therefore, we reject the null hypothesis(H0) and accept H1.

->**Therefore, the model is Statistically significant.**

*Step 2:*

*Hypothesis for Beta coefficient:*

**H0i (Null hypothesis):** All the Beta Coefficients are not statistically significant.

**H1i:** At least one of the Beta Coefficient is statistically significant.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficients: |  |  |  |  |  |
|  | Estimate | Std.Error | t | P value |  |
| (Intercept) | 0.818982 | 0.707732 | 1.157 | 0.250096 |  |
| shoping.when.bored | 0.009209 | 0.089835 | 0.103 | 0.918567 |  |
| waste.of.time | -0.102435 | 0.110548 | -0.927 | 0.356477 |  |
| wall.colour | 0.175777 | 0.099336 | 1.77 | 0.080015 | . |
| fragrance | 0.084468 | 0.110294 | 0.766 | 0.445669 |  |
| emp.knowledge | -0.367028 | 0.1491 | -2.462 | 0.015635 | \* |
| layout.flooring | -0.078535 | 0.105669 | -0.743 | 0.459183 |  |
| recommend | 0.044022 | 0.124292 | 0.354 | 0.723986 |  |
| emp.concerned | 0.176481 | 0.122625 | 1.439 | 0.153383 |  |
| layout.spacious | -0.151162 | 0.099258 | -1.523 | 0.131102 |  |
| emp.trustworthy | 0.150259 | 0.116543 | 1.289 | 0.200424 |  |
| layout.design.display | 0.030934 | 0.122993 | 0.252 | 0.801963 |  |
| entertain | -0.076202 | 0.162124 | -0.47 | 0.639416 |  |
| enthusiam | 0.172139 | 0.134744 | 1.278 | 0.204527 |  |
| moretime.spent | 0.451503 | 0.116039 | 3.891 | 0.000185 | \*\*\* |
| buy.more | 0.107271 | 0.098752 | 1.086 | 0.28011 |  |
| design.good | -0.053493 | 0.160039 | -0.334 | 0.738926 |  |
| light.dull | 0.108277 | 0.117792 | 0.919 | 0.360307 |  |
| music.bothersome | -0.208864 | 0.104116 | -2.006 | 0.047693 | \* |
| emp.not.assist | 0.12882 | 0.101218 | 1.273 | 0.20623 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficients: |  |  |  |  |  |
|  | Estimate(Beta Coefficient) | Std.Error | t | P value | Signifiant/Insignifiacnt(alpha(0.05)) |
| (Intercept) | 1.13789 | 0.31771 | 3.582 | 0.000508 | \*\*\* |
| wall.colour | 0.1865 | 0.08737 | 2.135 | 0.034985 | \* |
| emp.knowledge | -0.22314 | 0.10351 | -2.156 | 0.033259 | \* |
| moretime.spent | 0.52414 | 0.09432 | 5.557 | 1.91E-07 | \*\*\* |

*Step 3:*

*Regression model*

**Y = alpha + B1x1 + B2x2 + B3x3 + E**

* (Frequency of Visit) = 1.3789 + 0.1865(wall.color) – 0.22314(emp.knowledge) + 0.52414(moretime.spent) + E
* If “emp.knowledge” and “moretime.spent” is constant and also we increase the wall.color by 1 unit “Frequency of Visit” will increase by 18.65%
* After comparing the Beta coefficients we conclude that “moretime.spent” in the retail store is more important and most influencing variable followed by “emp.knowledge” and “wall.color”.

*Step 4:*

***Multi-collinearity:*** *If there is high +ve correlation between the variables then we can say that multicollinearity is present. Multicollinearity should be less than 60%.*

*Text

Description automatically generated with medium confidence*

Since the **vif** value for all the independent variables is **below 5** therefore no multicollinearity is present between the variables.