Toy Horse Recommendation

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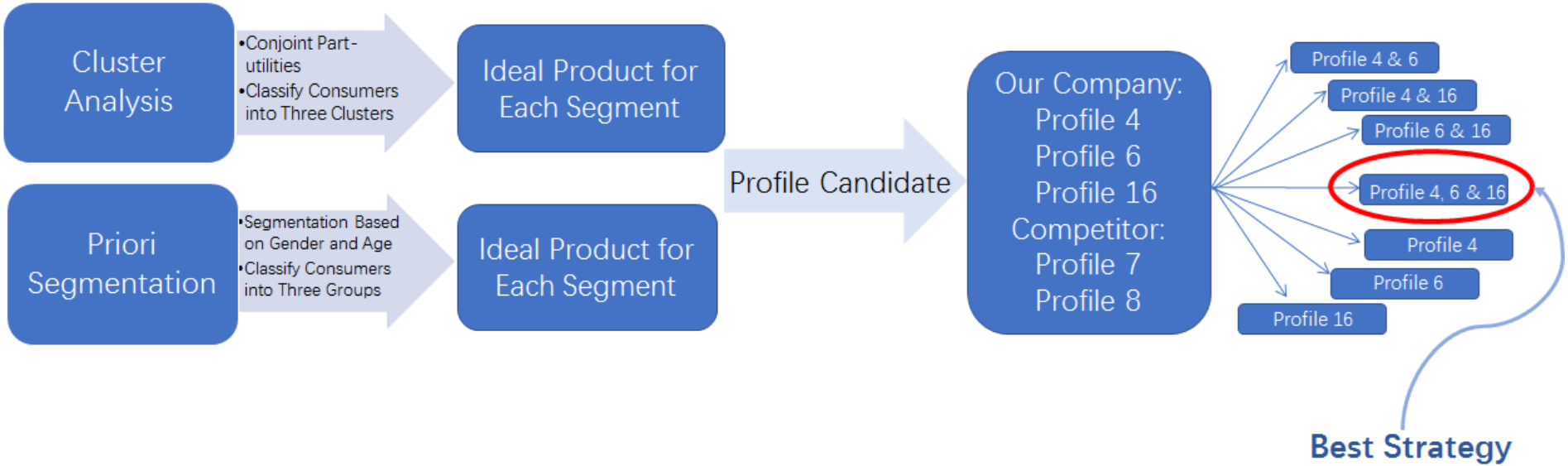
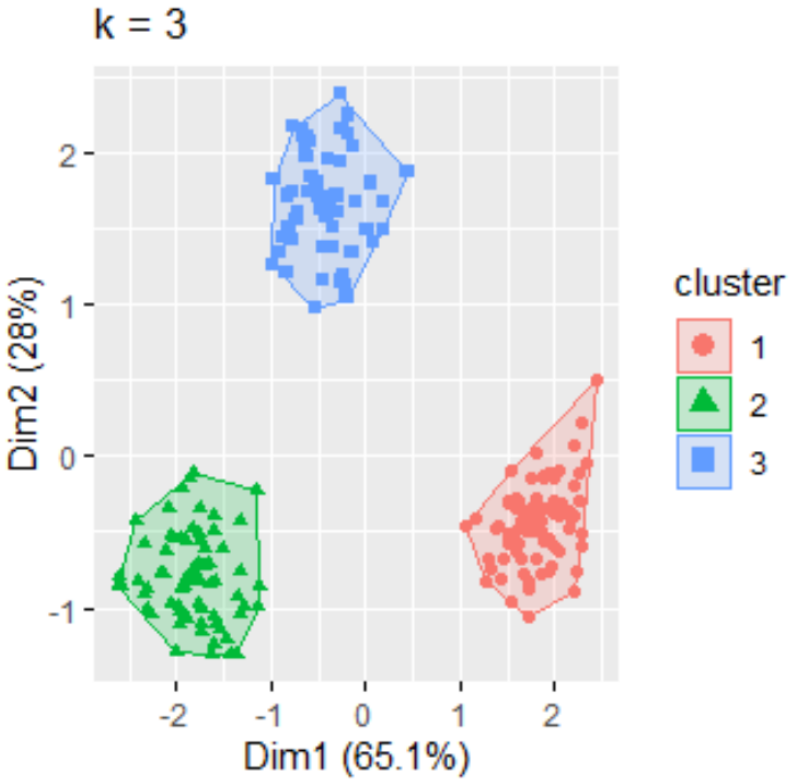
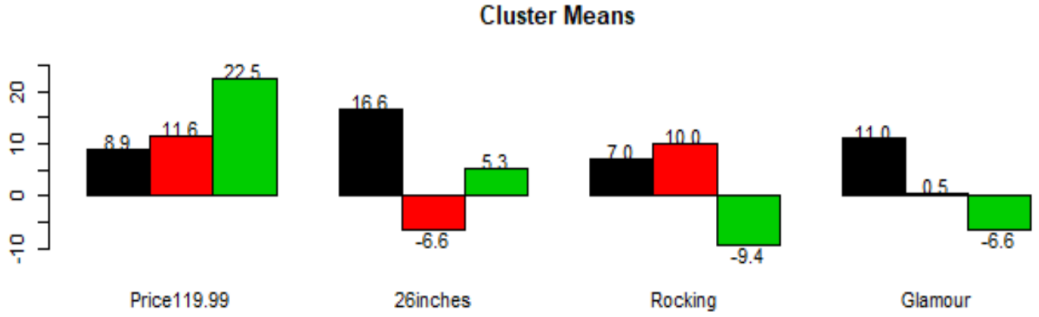
Key Findings



- **Best Scenario Strategy: Launch Profile 4, 6 & 16 (competitor responses taken into account) Profit: $171,322**
- Estimate the conjoint model at the individual level
- Cluster analysis: consumers are divided into three clusters according to their part-utilities
- Priori segmentation: gender and age do affect part-utilities
- 7 Scenarios are taken into account: profitability, cannibalization, competitor responses & long-term performance

Cluster Analysis





Optimal Segment Number: 3

Segment:

- Black: Segment 3
- Red: Segment 2
- Green: Segment 1

Default:

- price: $139.99
- size: 18”
- motion: Bouncing
- style: Racing

Cluster Analysis

Segment Description

	Price	Size	Motion	Style
Segment 1	low price (most price sensitive)	26“	bouncing (most)	racing (most)
Segment 2	low price	18“ (most)	rocking(most)	racing/glamour
Segment 3	low price	26” (most)	rocking	glamour (most)

Cluster Analysis

Product Recommendation

We selected the highest rating product for each segment using that segment's coefficient.

segment	profile	product
1	4	$119.99 26" Bouncing Racing
2	6	$119.99 18" Rocking Racing
3	16	$119.99 26" Rocking Glamour

A Priori Segmentation

Interaction

Age and gender have meaningful difference comparing to the situation without interaction.

```
Call:
lm(formula = ratings ~ (factor(price) + factor(size) + factor(motion) +
    factor(style)) * factor(gender) + (factor(price) + factor(size) +
    factor(motion) + factor(style)) * factor(age) + factor(gender) *
    factor(age), data = df_new)

Residuals:
    Min      1Q  Median      3Q     Max
-45.214 -10.590  -0.642  10.515  47.769

Coefficients:
                                Estimate Std. Error t value Pr(>|t|)
(Intercept)                      38.1916     1.0488  36.415  < 2e-16 ***
factor(price)1                   16.1093     0.9105  17.692  < 2e-16 ***
factor(size)1                     2.2297     0.9105   2.449 0.014390 *
factor(motion)1                   0.8286     0.9105   0.910 0.362898
factor(style)1                   -1.5307     0.9105  -1.681 0.092843 .
factor(gender)1                   2.8533     1.3130   2.173 0.029846 *
factor(age)1                     -3.7369     1.3301  -2.809 0.004993 **
factor(price)1:factor(gender)1   -3.5725     1.0740  -3.326 0.000890 ***
factor(size)1:factor(gender)1     3.4197     1.0740   3.184 0.001466 **
factor(motion)1:factor(gender)1   4.1420     1.0740   3.857 0.000117 ***
factor(style)1:factor(gender)1    5.7238     1.0740   5.329 1.05e-07 ***
factor(price)1:factor(age)1       1.7205     1.0706   1.607 0.108158
factor(size)1:factor(age)1        3.7289     1.0706   3.483 0.000503 ***
factor(motion)1:factor(age)1     -3.6540     1.0706  -3.413 0.000651 ***
factor(style)1:factor(age)1      -0.8253     1.0706  -0.771 0.440849
factor(gender)1:factor(age)1      3.4273     1.0741   3.191 0.001432 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 15.01 on 3184 degrees of freedom
Multiple R-squared:  0.2973,    Adjusted R-squared:  0.294
F-statistic: 89.79 on 15 and 3184 DF,  p-value: < 2.2e-16
```

A Priori Sementation

Interaction – Gender & Age

When we consider about gender and age, the preference for different combination of gender and age is:

Female + 3/4 years old:
Price: $119.99
Size: 26”
Motion: Rocking
Style: Glamour

Male + 3/4 years old:
Price: $119.99
Size: 26”
Motion: Bouncing
Style: Racing

Female + 2 years old:
Price: $119.99
Size: 26”
Motion: Rocking
Style: Glamour

Male + 2 years old:
Price: $119.99
Size: 26”
Motion: Rocking
Style: Racing

Based on the preference shown left, the ideal product for each segment is:

Male + 2 years old: Profile 8
Male + 3-4 years old: Profile 4
Female: Profile 16

A Priori Sementation

Product Selection

Based on two segmentation methods, we found out that the highest utility product for each segment is the same, inferring that the preference may derive from the demographic difference.

Cluster Analysis	Priori Segmentation	Price	Size	Motion	Style	Product
Segment 1	Male + 3-4 years old	$119.99	26”	bouncing	racing	4
Segment 2	Male + 2 years old	$119.99	26”	rocking	racing	8
Segment 3	Female	$119.99	26”	rocking	glamour	14

Market Simulation

Profit Cauculation and Competitor Response

Cost = $20,000 * number of prdocuts we will launch

First Year Cost = $20,000/3* number of products not in the existing set (1st year)

Revenue of Each Product = $95.99 (wholesaler price) - variable cost

Profit = market share * individual profit - cost

Competitor current product: $139.99, 26” Rocking Racing

Competitor drop price: $119.99, 26” Rocking Racing

Market Simulation

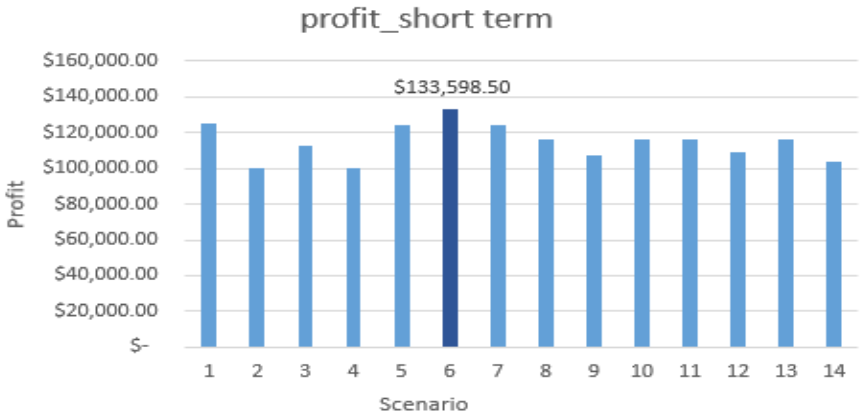
Market Share - no competitor response

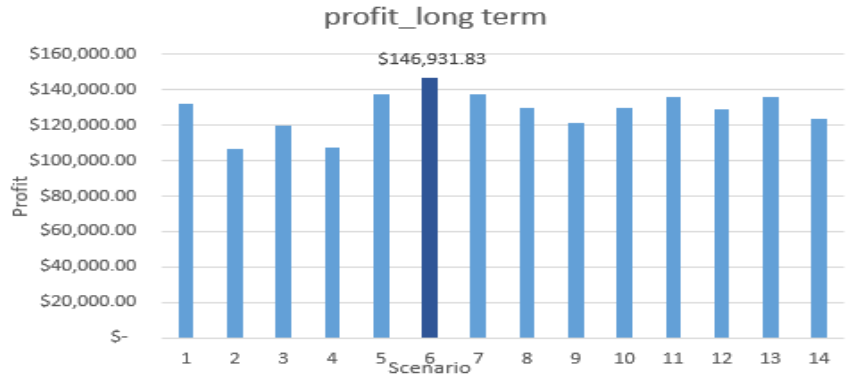
We tested 14 scenarios on the market, assuming that the competitor remain their price at $139.99.

Scenario1-4: Launch one product.
Scenario5-10: Launch two products.
Scenario11-14: Launch three products.

Highest Profit Portfolio:

Launch Profile 4 and Profile 14.
Market Share: 71.84%
Short-Term Profit: $133,598.5
Long-Term Profit: $146,931.83





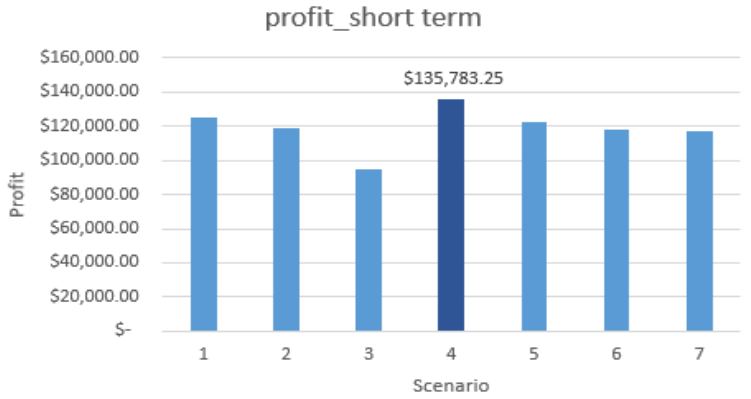
Market Simulation

Market Share - competitor response

We tested 7 scenarios on the market, assuming that the competitor lower their price to $119.99.

Scenario1-3: Launch one product
Scenario4-6: Launch two products.
Scenario7: Launch three products.

Highest Profit Portfolio:
Launch Profile 4 and Profile 14.
Market Share: 72.79%
Short-Term Profit: $135,783.25
Long-Term Profit: $149,116.58



Conclusion

Recommendation

Based on the market share analysis, we are launching these products.

product 4: $119.99, 26”, Racing, Bouncing

product 14: $119.99, 18”, Glamour, Rocking