Marketing Analysis for *Kirin Ichiban*

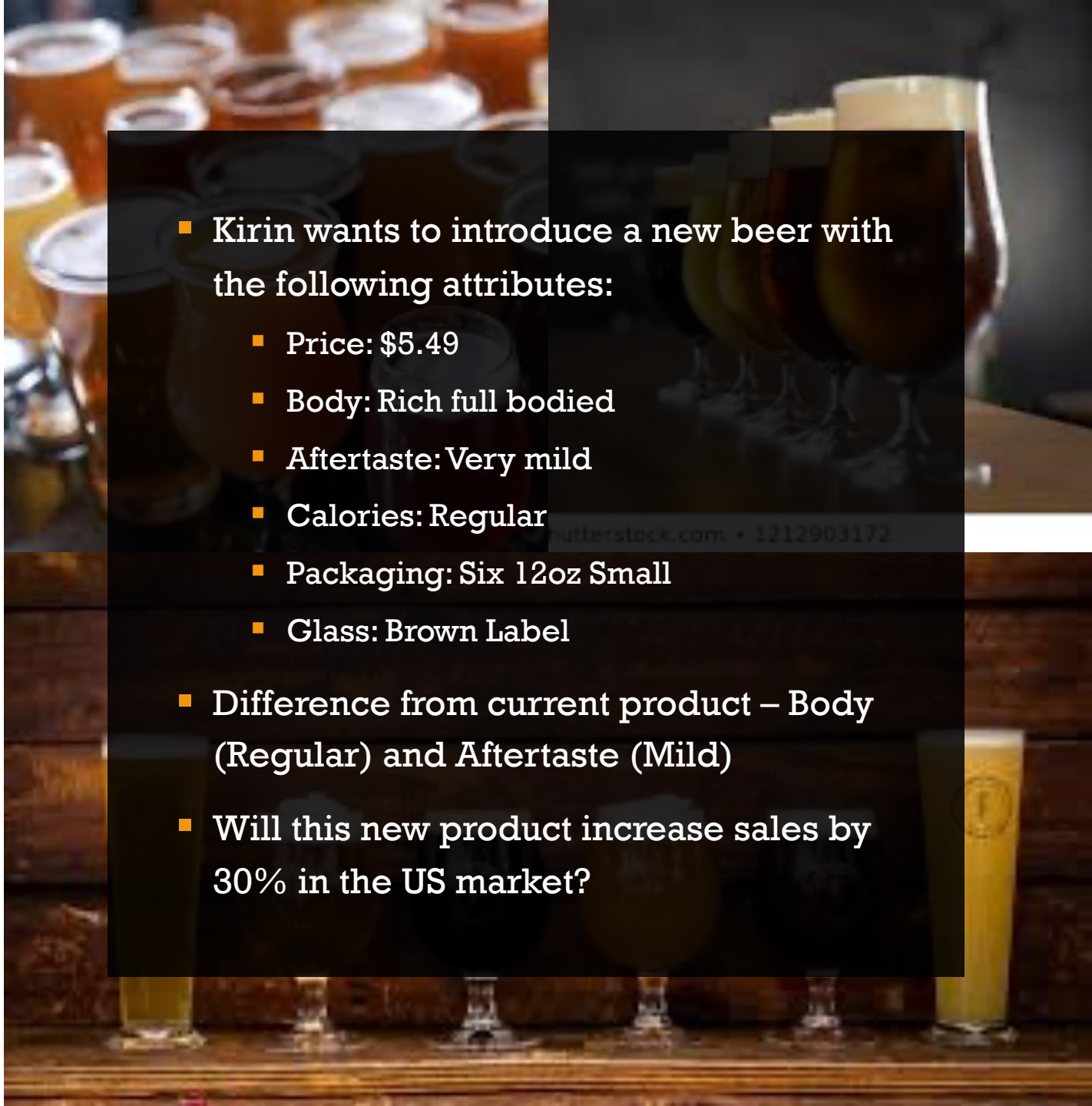
Because we all need a drink

MAR653 – Final Project

Team Y: TeKeya Crenshaw, Jennifer Gibbins, Danuel James, John Fields

December 5,2019

Executive Summary



- Kirin wants to introduce a new beer with the following attributes:
  - Price: $5.49
  - Body: Rich full bodied
  - Aftertaste: Very mild
  - Calories: Regular
  - Packaging: Six 12oz Small
  - Glass: Brown Label
- Difference from current product – Body (Regular) and Aftertaste (Mild)
- Will this new product increase sales by 30% in the US market?

What & How

The VP of Marketing for Kirin Beer wants to increase sales in the US by 30% without raising prices.

Questions

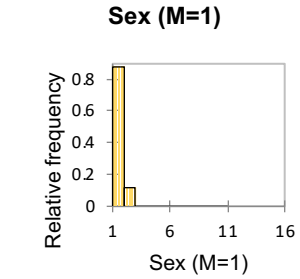
- What consumer preferences and target market(s) are important to consider when launching a new product?
- What is the profile of the typical customer (age, sex, income, etc)?
- What is the top preference in each attribute?
- How can we group/cluster customers to target for promotions/pricing programs?
- Are there any Cross-Sell opportunities? If so, what are they?
- Understanding trade-offs (attributes and features) that a customer is wiling to make
  - New product design
  - New marketing campaigns

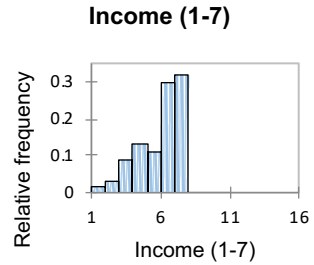
Methods

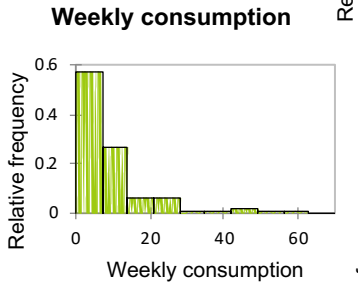
- Research
  - Data discovered on TowardDataScience.com
  - Original source: University of Texas at San Antonio
- Data cleaning and transformation
  - Drawbacks of data used
    - Source cleaned data already
      - Our approach may have been different
      - We don't know how many missing values were in the original data set
- Descriptive statistics
- Cluster analysis
- Linear and/or Logistic Regression with Continuous and Categorical Variables
- Conjoint Analysis

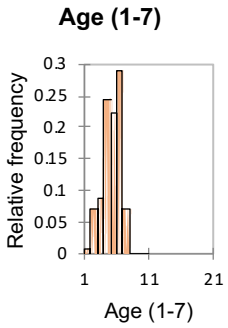
Getting to know our data facilitates better analysis

- Population Statistics
  - 317 responses
  - 7 established beer brands
    - Amstel, Bass, Becks, Corona, Dos Equis, Heineken, Molson, Moosehead, Sapporo, St. Pauli
- Descriptive statistics (median)
  - 35-39 years old
  - Male
  - $50-75K
  - 6 beers per week

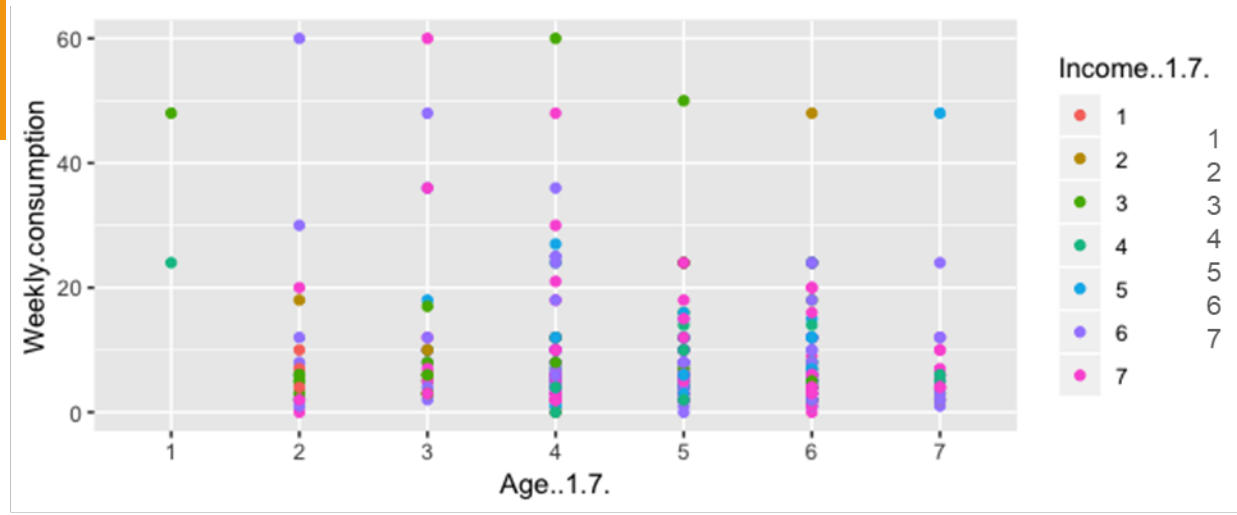








Bottles/cans/glasses of imported or domestic beer consumed



Age 1 Under 21 2 21-24 3 25-29 4 30-34 5 35-39 6 40-45 7 46+ Missing values replaced with 4

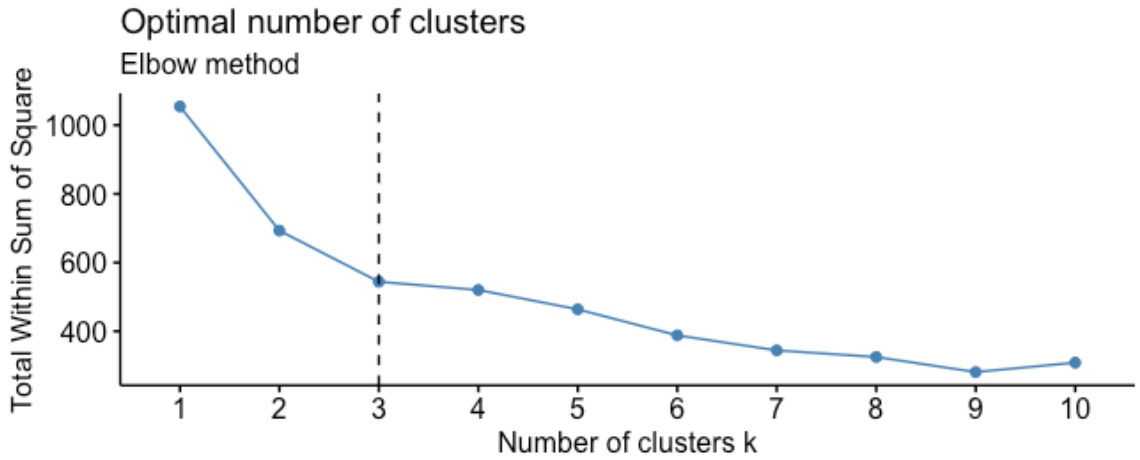
	European	Canadian	Japanese	$6.19	$5.49	$4.79	Rich full bodied	Regular	Crisp and clear	Strong	Mild	Very mild	Full	Regular	Low	Six 12Oz Large	Six 12Oz Small	Four 16Oz	Green Label	Brown Label	Brown Painted	Weekly consump	Age (1-7)	Income (1-7)	Education (1-6)	Sex (M=1)
European	1.00																								
Canadian	-0.35	1.00																							
Japanese	0.29	-0.34	1.00																						
$6.19	0.07	-0.12	0.00	1.00																					
$5.49	-0.31	0.24	-0.05	-0.18	1.00																				
$4.79	-0.34	0.34	-0.13	-0.10	0.20	1.00																			
Rich full bodied	0.01	-0.12	-0.14	-0.03	-0.23	-0.18	1.00																		
Regular	-0.19	0.11	0.07	0.13	-0.06	0.05	-0.28	1.00																	
Crisp and clear	0.12	-0.19	-0.19	-0.09	-0.14	-0.14	0.05	-0.17	1.00																
Strong	-0.25	0.13	0.14	0.07	-0.04	-0.03	-0.14	0.30	-0.23	1.00															
Mild	0.29	-0.35	0.02	-0.11	-0.26	-0.17	0.01	-0.32	0.36	-0.20	1.00														
Very mild	0.05	0.19	-0.12	-0.09	-0.05	0.02	0.07	-0.02	0.00	-0.29	0.15	1.00													
Full	0.24	-0.34	0.15	-0.05	-0.26	-0.21	0.02	-0.14	0.15	-0.14	0.50	0.11	1.00												
Regular	-0.36	0.24	-0.09	-0.15	0.18	0.17	-0.17	0.11	-0.30	0.17	-0.40	-0.18	-0.53	1.00											
Low	-0.22	0.09	-0.16	0.02	-0.01	-0.22	-0.09	0.02	0.01	0.05	-0.31	-0.04	-0.32	0.26	1.00										
Six 12Oz Large	0.24	-0.40	0.04	-0.02	0.02	-0.17	-0.21	-0.08	0.17	-0.18	0.16	-0.07	0.15	-0.25	-0.05	1.00									
Six 12Oz Small	-0.11	0.26	-0.12	0.16	0.00	0.08	-0.01	0.16	-0.18	0.20	-0.32	0.03	-0.13	0.17	-0.16	-0.30	1.00								
Four 16Oz	-0.35	0.18	-0.05	0.01	0.08	0.15	-0.08	0.21	-0.25	0.21	-0.20	-0.21	-0.19	0.02	0.16	-0.07	0.02	1.00							
Green Label	-0.30	0.12	-0.04	0.11	0.07	0.24	-0.10	0.06	-0.09	0.19	-0.01	-0.08	0.07	-0.05	-0.19	-0.03	0.10	0.07	1.00						
Brown Label	0.16	-0.15	0.06	-0.01	0.08	-0.07	-0.14	0.06	-0.13	-0.01	-0.25	-0.22	-0.20	0.20	0.13	-0.10	0.05	-0.30	-0.32	1.00					
Brown Painted	-0.14	0.14	-0.08	-0.27	0.38	0.10	-0.09	-0.06	-0.10	-0.03	-0.29	-0.18	-0.46	0.46	-0.04	-0.09	-0.14	0.06	-0.24	0.52	1.00				
Weekly consumption	-0.04	0.06	-0.11	0.03	0.04	-0.06	0.05	0.02	0.01	-0.12	-0.15	-0.03	-0.10	0.07	0.08	-0.05	-0.01	0.06	-0.04	0.07	0.14	1.00			
Age (1-7)	-0.06	0.08	-0.01	-0.06	0.06	0.06	0.11	0.01	-0.04	0.06	-0.14	-0.11	0.00	0.01	-0.01	-0.14	0.07	-0.04	0.02	0.07	0.06	-0.13	1.00		
Income (1-7)	0.04	-0.04	0.10	0.00	-0.08	-0.07	0.20	-0.06	-0.02	0.04	-0.04	-0.02	0.04	-0.04	0.02	-0.16	0.02	-0.12	-0.03	0.09	-0.03	-0.05	0.26	1.00	
Education (1-6)	-0.05	-0.02	0.12	-0.02	-0.07	0.04	0.11	-0.03	0.00	0.10	0.00	0.07	-0.03	-0.08	0.02	-0.09	-0.08	0.01	-0.03	-0.05	-0.02	-0.14	0.02	0.26	1.00
Sex (M=1)	0.12	-0.13	0.12	0.05	-0.04	-0.08	0.00	-0.02	0.00	0.09	0.00	-0.07	0.04	-0.11	-0.05	0.02	-0.06	0.02	-0.03	-0.01	-0.01	-0.18	-0.03	-0.04	0.04

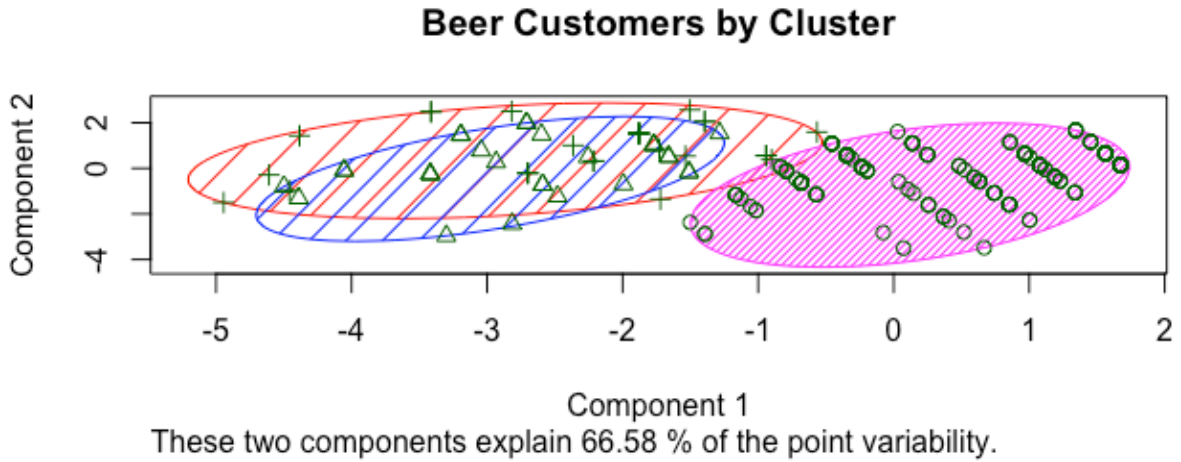
Correlation

K-means clustering

Psychographic Data:

- Adapt to new situations
- Make friends easily
- Don't like to be tied to timetable
- Like to take chances
- Like to travel abroad
- Like ethnic food
- Knowledgeable about beer





1st regression results

```
Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)       3.389e+01  2.922e+03   0.012  0.99075
European          1.431e-02  2.927e-02   0.489  0.62493
Canadian          2.205e-02  3.392e-02   0.650  0.51565
Japanese         -5.940e-02  2.976e-02  -1.996  0.04595 *
X6.19            -2.973e-02  3.365e-02  -0.883  0.37698
X5.49            -2.064e-03  3.293e-02  -0.063  0.95002
X4.79            -1.935e-02  3.383e-02  -0.572  0.56742
Rich.full.bodied -3.329e-02  2.575e-02  -1.293  0.19611
Regular           6.587e-03  6.804e-02   0.097  0.92288
Crisp.and.clear   9.567e-02  3.391e-02   2.821  0.00479 **
Strong           -7.543e-02  3.936e-02  -1.916  0.05532 .
Mild             -1.127e-01  3.979e-02  -2.832  0.00463 **
Very.mild        -3.446e-02  3.184e-02  -1.082  0.27917
Full             -5.269e-04  2.750e-02  -0.019  0.98472
Low              -1.153e-02  3.423e-02  -0.337  0.73623
Six.12Oz.Large   -1.505e-02  3.373e-02  -0.446  0.65542
Six.12Oz.Small   -1.501e-02  5.084e-02  -0.295  0.76784
Four.16Oz         2.914e-02  3.451e-02   0.844  0.39854
Green.Label      -6.167e-02  4.601e-02  -1.341  0.18008
Brown.Painted    -1.617e-02  4.408e-02  -0.367  0.71369
Age..1.7.2       -1.503e+01  1.668e+03  -0.009  0.99281
Age..1.7.3       -1.468e+01  1.668e+03  -0.009  0.99298
Age..1.7.4       -1.437e+01  1.668e+03  -0.009  0.99313
Age..1.7.5       -1.451e+01  1.668e+03  -0.009  0.99306
Age..1.7.6       -1.497e+01  1.668e+03  -0.009  0.99284
Age..1.7.7       -1.541e+01  1.668e+03  -0.009  0.99263
Income..1.7.2     1.682e+00  1.785e+00   0.942  0.34594
Income..1.7.3     1.812e-01  1.533e+00   0.118  0.90589
Income..1.7.4     8.885e-01  1.569e+00   0.566  0.57112
Income..1.7.5     1.651e+00  1.608e+00   1.027  0.30456
Income..1.7.6     2.943e-01  1.492e+00   0.197  0.84361
Income..1.7.7     5.515e-01  1.500e+00   0.368  0.71306
Education..1.6.2 -1.870e+01  2.400e+03  -0.008  0.99378
Education..1.6.3 -1.661e+01  2.400e+03  -0.007  0.99448
Education..1.6.4 -1.509e+00  3.393e+03   0.000  0.99965
Education..1.6.5 -1.658e+01  2.400e+03  -0.007  0.99449
Education..1.6.6 -1.733e+01  2.400e+03  -0.007  0.99424
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

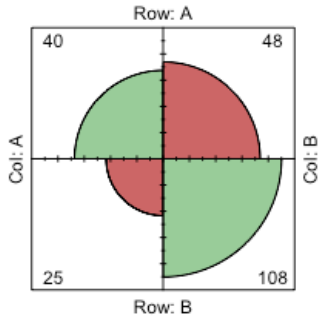
2nd regression results

```
Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)       0.98790    0.36150   2.733  0.00628 **
Japanese         -0.03749    0.01893  -1.980  0.04766 *
Crisp.and.clear   0.08110    0.02628   3.085  0.00203 **
Mild             -0.07830    0.01967  -3.981 6.86e-05 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Hit Rate

	FALSE	TRUE
0	40	48
1	25	108

ACCURACY
TRAINING = 67%
TEST = 60%

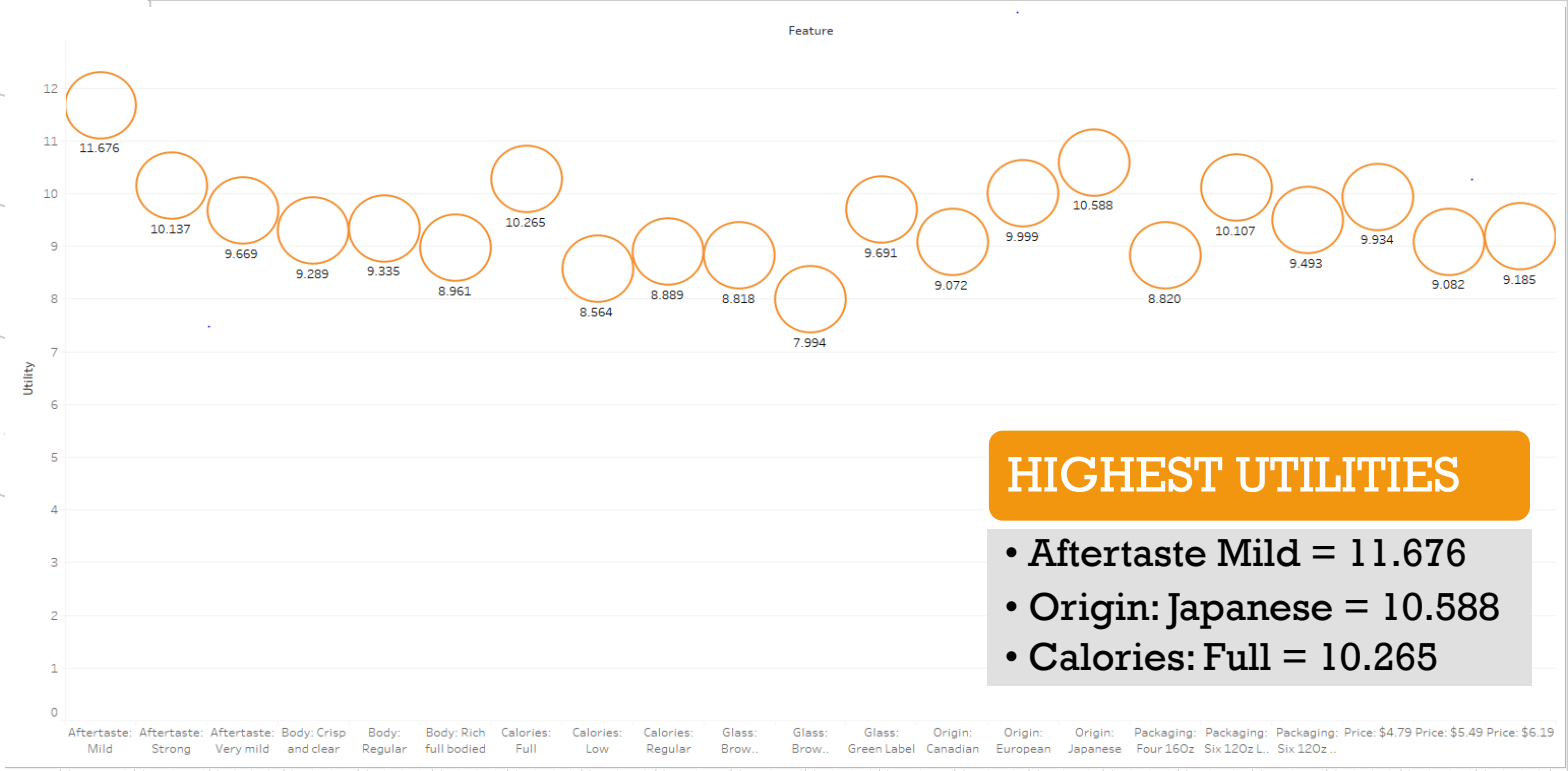


Gender removed due to imbalanced data

Logistic Regression

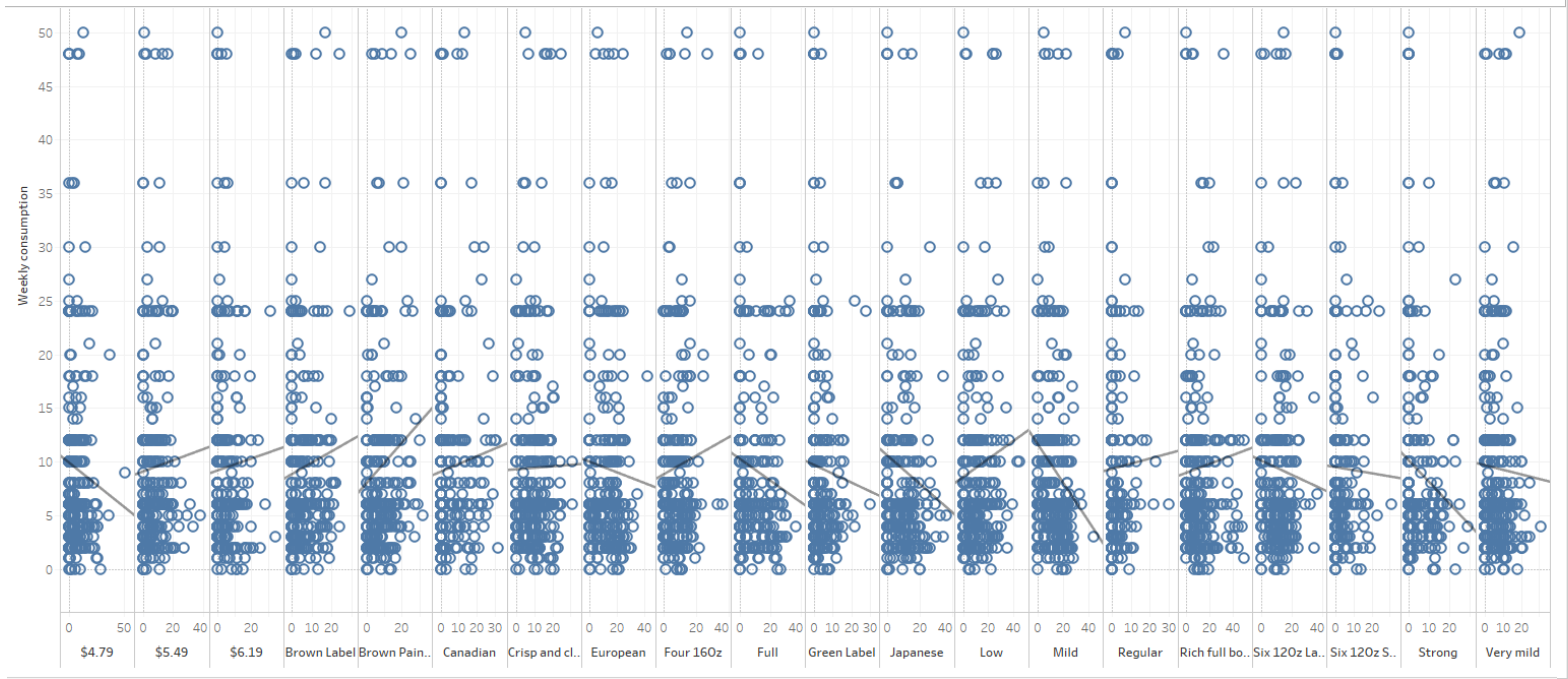
Dependent Variable = Weekly Consumption
Consumption Above Median = 1
Consumption Below Median = 0

Conjoint using Tableau



HIGHEST UTILITIES

- Aftertaste Mild = 11.676
- Origin: Japanese = 10.588
- Calories: Full = 10.265



Preferences based on Conjoint Analysis

Attribute	Preference	Utility
Aftertaste	Mild	11.68
Body	Regular*	9.34
Calories	Full	10.27
Glass	Green label	9.69
Origin	Japanese	10.59
Packaging	Six 12oz large	10.11
Price	$4.79*	9.93

*Negligible difference between attributes

	Orgin		Price	Body		Aftertaste		Calories		Package		Glass			Demographics					Psychographics							
Segment Size (# of People)	European vs Canadian	Japanese vs Canadian	$1.40 price difference	Full bodied vs Regular	Crisp and clear vs Reg	Strong vs. Very Mild	Mild vs. Very Mild	Full vs Reg	Low vs Reg	Six 12Oz Small vs Large	Four 16Oz vs 6 12oz LG	Brown Label vs. Green label	Brown Painted vs. Green label	Segment Size (# of People)	Weekly consumption	Age (1-7)	Income (1-7)	Education (1-6)	Sex (M=1)	Adapt to new situations	Make friends easily	Don't like to be tied to timetable	Like to take chances	Like to travel abroad	Like ethnic food	Knowledgeable about beer	Segment Size (# of People)
259	6.35	4.11	5.13	9.35	7.63	-1.95	6.58	1.34	3.29	-7.92	-3.22	2.05	4.15	259	9.51	4.69	5.44	4.55	1.13	3.54	3.38	3.58	3.23	3.66	3.53	3.02	259
29	6.76	-0.31	5.00	9.45	9.55	-5.21	5.17	0.03	3.38	-8.00	-5.00	3.17	6.62	29	10.79	4.90	5.72	4.31	1.07	3.45	2.93	3.41	2.76	1.52	3.31	3.55	29
29	10.48	5.76	3.10	8.03	7.62	-2.66	8.17	7.31	5.69	-7.34	-4.72	3.59	2.83	29	7.21	5.38	5.31	3.93	1.07	3.24	3.10	3.52	2.62	1.97	3.14	1.72	29
Mean	6.77	3.86	4.93	9.24	7.80	-2.31	6.60	1.76	3.51	-7.87	-3.52	2.30	4.25	Mean	9.42	4.77	5.45	4.47	1.12	3.50	3.31	3.56	3.13	3.31	3.47	2.95	Mean

Preferences based on Clusters

		Heineken, St Pauli, Grolsch	Becks	Bass/ Guiness	Amstel Light	Molson, Labatt, Moosehead	Corona, Dos Equis, Tecate	Sapporo	Kirin New	Kirin Old
	Shares	**13.1%**	**10.4%**	**13.0%**	**12.4%**	**4.2%**	**34.0%**	**3.4%**	**6.1%**	**3.4%**
Class	Segment size									
1	259	13%	12%	13%	11%	4%	34%	4%	6%	4%
2	29	14%	4%	7%	17%	7%	42%	2%	5%	2%
3	29	12%	6%	23%	20%	3%	24%	3%	6%	3%

Conjoint Analysis – Market Share

Kirin Old - Original Market Share = 4.1%

Kirin Old + New - Estimated Market Share = 9.5%

Recommendations & Conclusion

- Kirin should introduce a new beer which is rich full bodied with a very mild aftertaste
- Kirin New will provide increased sales of 132% (target was 30%)
  - Overall market share increase from 4.1% to 9.5%
  - Assumption – beer sales stay flat
- Cross-sell New Kirin and Old Kirin
  - But need to be conscious of potential to cannibalize Old Kirin market share
- Marketing themes
  - Like to travel abroad
  - Don't like to be tied to a timetable
  - Adapt to new situations
  - Like ethnic food (not Applebee's)

References

- Data Source: https://drive.google.com/file/d/1b7dwLbSRKAcUHeEcXHamdVrz6SV5gCMv/view