



# Alexander Chang

NURS 741| Big Data Analytics

# Background

This is a fun analysis that seeks to fulfill two goals:

- 1) Answer if a country's happiness score & alcohol consumption affects their net approval of Trump
- 2) Serve as practice for R's data visualization tools



More Booze = Happier?



Which type of Booze produces most happiness?



Why do we see these trends?



# The Data Sources



World Health Organization,  
Global Information System on  
Alcohol and Health (GISAH),  
2010



Sustainable  
Development Solutions  
Network, World  
Happiness Report 2015.



Pew Research Center,  
World Trust of Trump  
2017





## World Health Organization, Global Information System on Alcohol and Health (GISAH), 2010

country	beer_servings	spirit_servings	wine_servings	total_litres_of_pure_alcohol
Afghanistan	0	0	0	0.0
Albania	89	132	54	4.9
Algeria	25	0	14	0.7
Andorra	245	138	312	12.4
Angola	217	57	45	5.9
Antigua & Barbuda	102	128	45	4.9
Argentina	193	25	221	8.3
Armenia	21	179	11	3.8
Australia	261	72	212	10.4
Austria	279	75	191	9.7
Azerbaijan	21	46	5	1.3



# Sustainable Development Solutions Network, World Happiness Report 2015.

Country	Happiness.Rank	Happiness.Score	Whisker.high	Whisker.low	Economy..GDP.per.Capita.	Family	Health..Life.Expectancy.	Freedom	Generosity	Trust..Government.Corruption.	Dystopia.Residual
Mongolia	1	7.53700017929077	7.594444482058287	7.47955553799868	1.61646318435669	1.53352355957031	0.796666502952576	0.635422587394714	0.36201223731041	0.315963834524155	2.27702665328979
	2	7.52199983596802	7.58172806486487	7.46227160707116	1.48238301277161	1.55112159252167	0.792565524578094	0.626006722450256	0.355280488729477	0.40077006816864	2.31370735168457
	3	7.50400018692017	7.62203047305346	7.38596990078688	1.480633020401	1.6105740070343	0.833552122116089	0.627162635326385	0.475540220737457	0.153526559472084	2.32271528244019
Switzerland	4	7.49399995803833	7.56177242040634	7.42622749567032	1.56497955322266	1.51691174507141	0.858131289482117	0.620070576667786	0.290549278259277	0.367007285356522	2.2767162322998
Finland	5	7.4689998626709	7.52754207581282	7.41045764952898	1.44357192516327	1.5402467250824	0.80915766954422	0.617950856685638	0.24548277258873	0.38261154294014	2.4301815032959
Netherlands	6	7.3769998550415	7.42742584124207	7.32657386884093	1.50394463539124	1.42893922328949	0.810696125030518	0.585384488105774	0.470489829778671	0.282661825418472	2.29480409622192
Canada	7	7.31599998474121	7.38440283536911	7.24759713411331	1.47920441627502	1.48134899139404	0.83455765247345	0.611100912094116	0.435539722442627	0.287371516227722	2.18726444244385
New Zealand	8	7.31400012969971	7.3795104418695	7.24848981752992	1.40570604801178	1.54819512367249	0.816759705543518	0.614062130451202	0.500005125999451	0.382816702127457	2.0464563369751
Sweden	9	7.28399991989136	7.34409487739205	7.22390496239066	1.49438726902008	1.47816216945648	0.830875158309937	0.612924098968506	0.385399252176285	0.384398728609085	2.09753799438477
Australia	10	7.28399991989136	7.35665122494102	7.2113486148417	1.484414935112	1.51004195213318	0.84388679265976	0.601607382297516	0.477699249982834	0.301183730363846	2.06521081924438
Israel	11	7.21299982070923	7.27985325649381	7.14614638492465	1.37538242340088	1.37628996372223	0.83840399980545	0.405988603830338	0.330082654953003	0.0852421000599861	2.80175733566284
Costa Rica	12	7.0789999961853	7.16811166629195	6.98988832607865	1.10970628261566	1.41640365123749	0.759509265422821	0.580131649971008	0.214613229036331	0.100106589496136	2.89863920211792
Austria	13	7.00600004196167	7.07066981211305	6.94133027181029	1.48709726333618	1.4599449634552	0.815328419208527	0.567766189575195	0.316472321748734	0.221060365438461	2.1385064125061
United States	14	6.99300003051758	7.07465674757957	6.91134331345558	1.54625928401947	1.41992056369781	0.77428662776947	0.505740523338318	0.392578780651093	0.135638788342476	2.2181134223938



## Pew Research Center, World Trust of Trump 2017

Country	net_approval	Approve	Disapprove	DK/Refused
Canada	-64	15	79	5
France	-81	9	90	1
Germany	-88	5	93	2
Greece	-71	11	82	7
Hungary	-62	13	75	12
Italy	-49	18	67	15
Netherlands	-83	8	91	2
Poland	-35	17	52	31
Spain	-83	8	91	1
Sweden	-87	6	93	1
United Kingdom	-66	14	80	6
Russia	-22	27	49	24

# Analysis – Booze vs Happiness

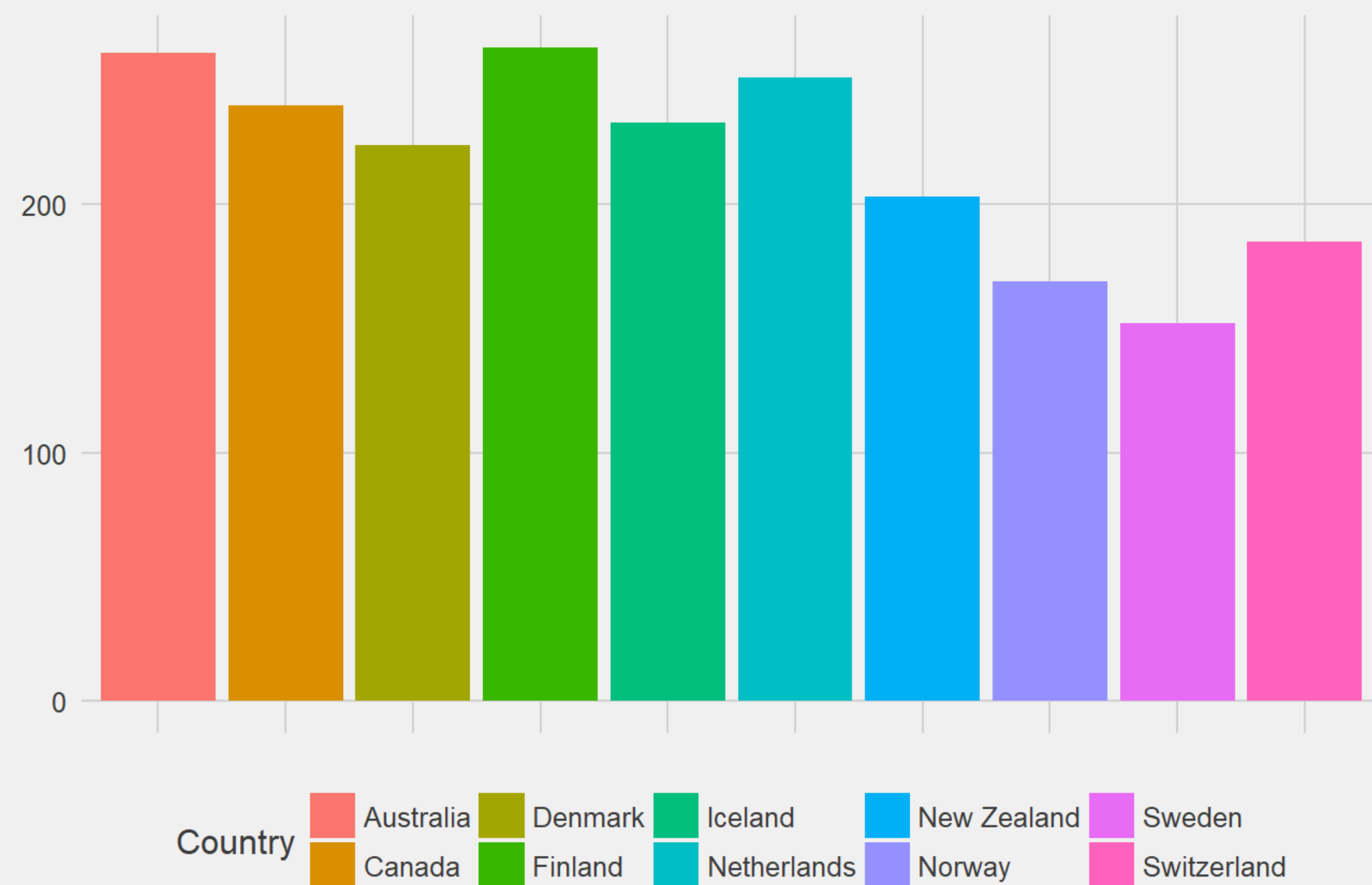
Happiness Score ~ Beer Servings = 0.51

Happiness Score ~ Wine Servings = 0.499

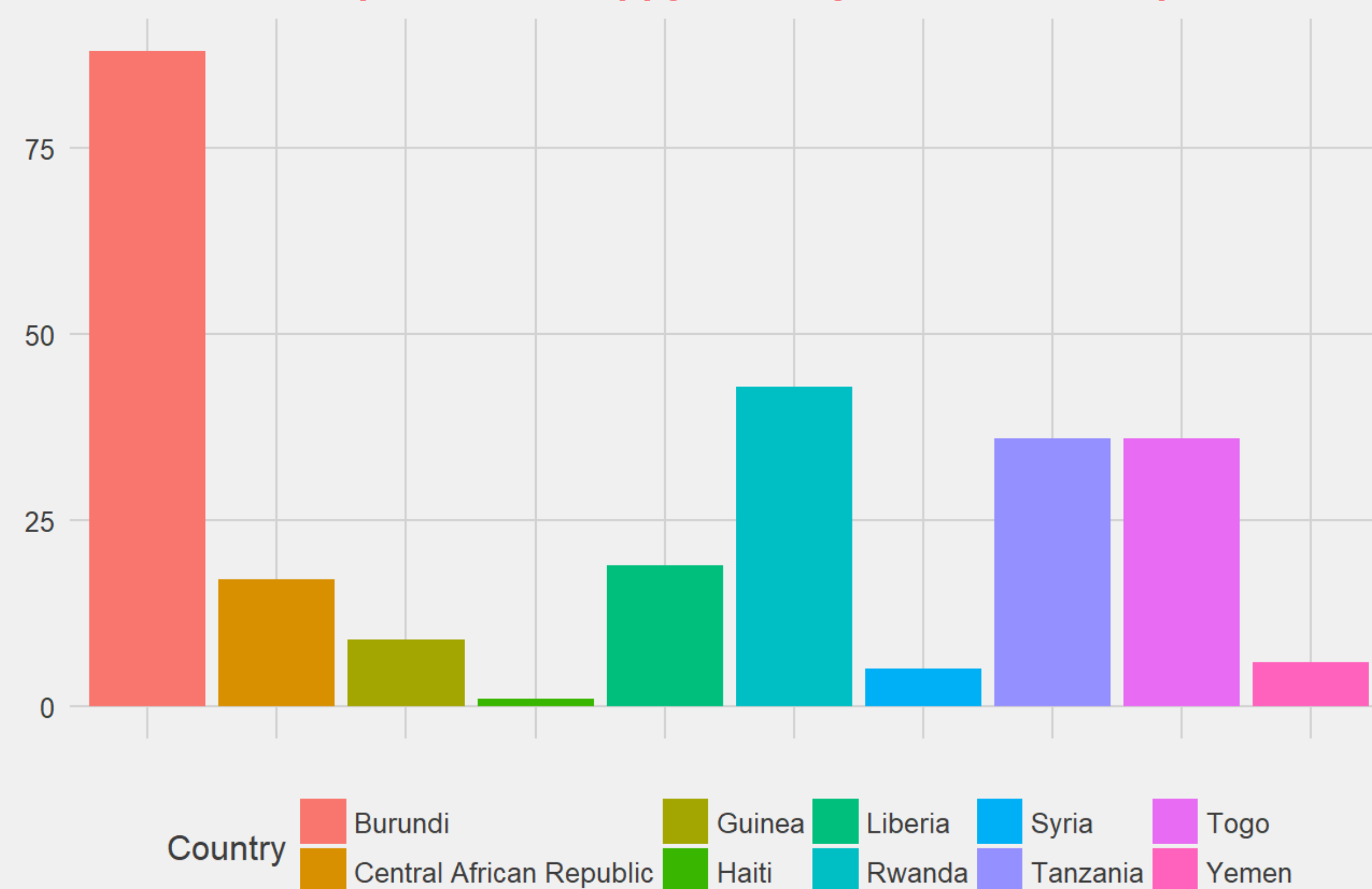
Happiness Score ~ Spirit Servings = 0.29

# Analysis – Booze vs Happiness

*Bar Chart of Top 10 Most Happy Country's Beer Consumption*



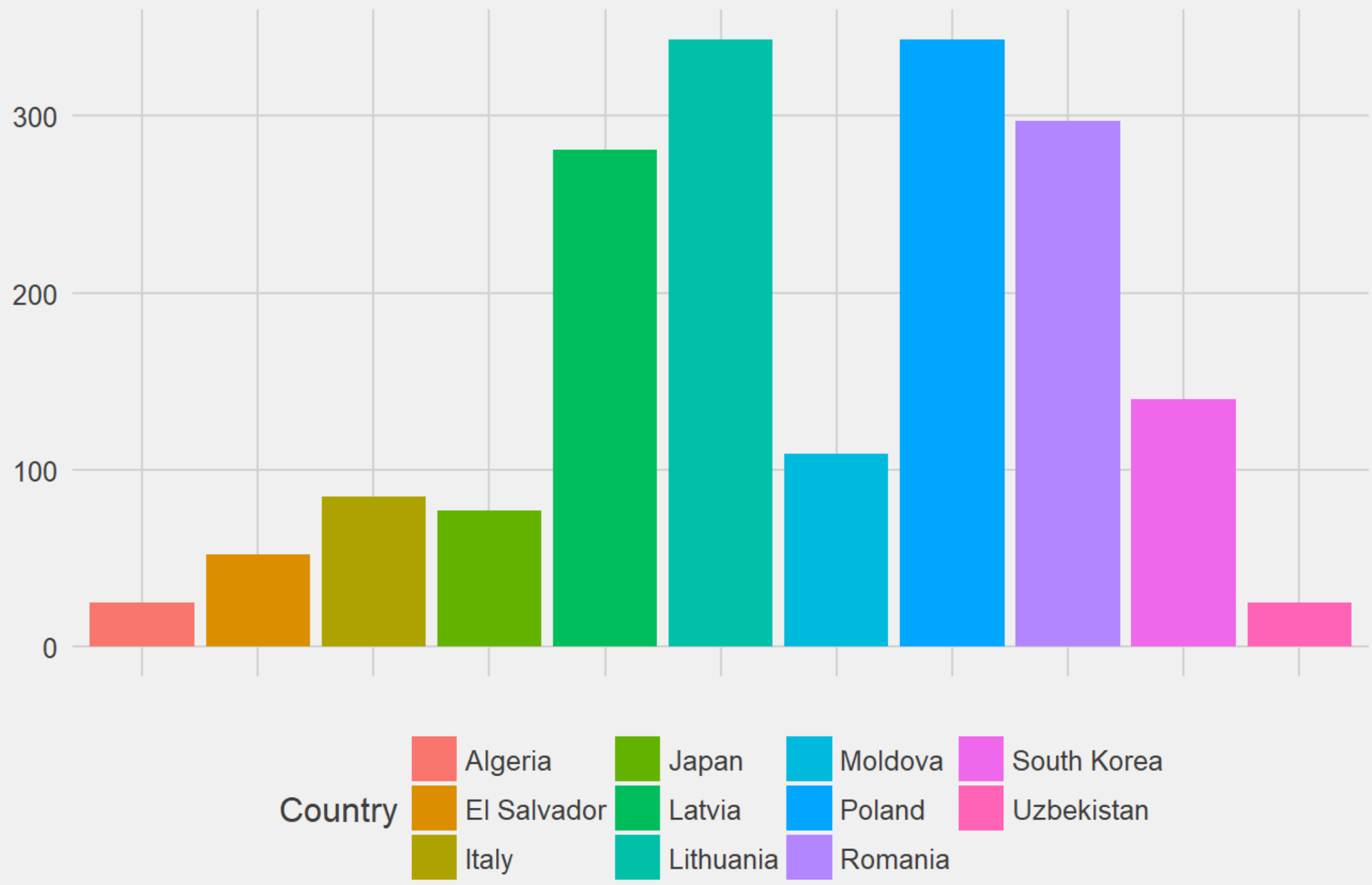
*Bar Chart of Top 10 Least Happy Country's Beer Consumption*



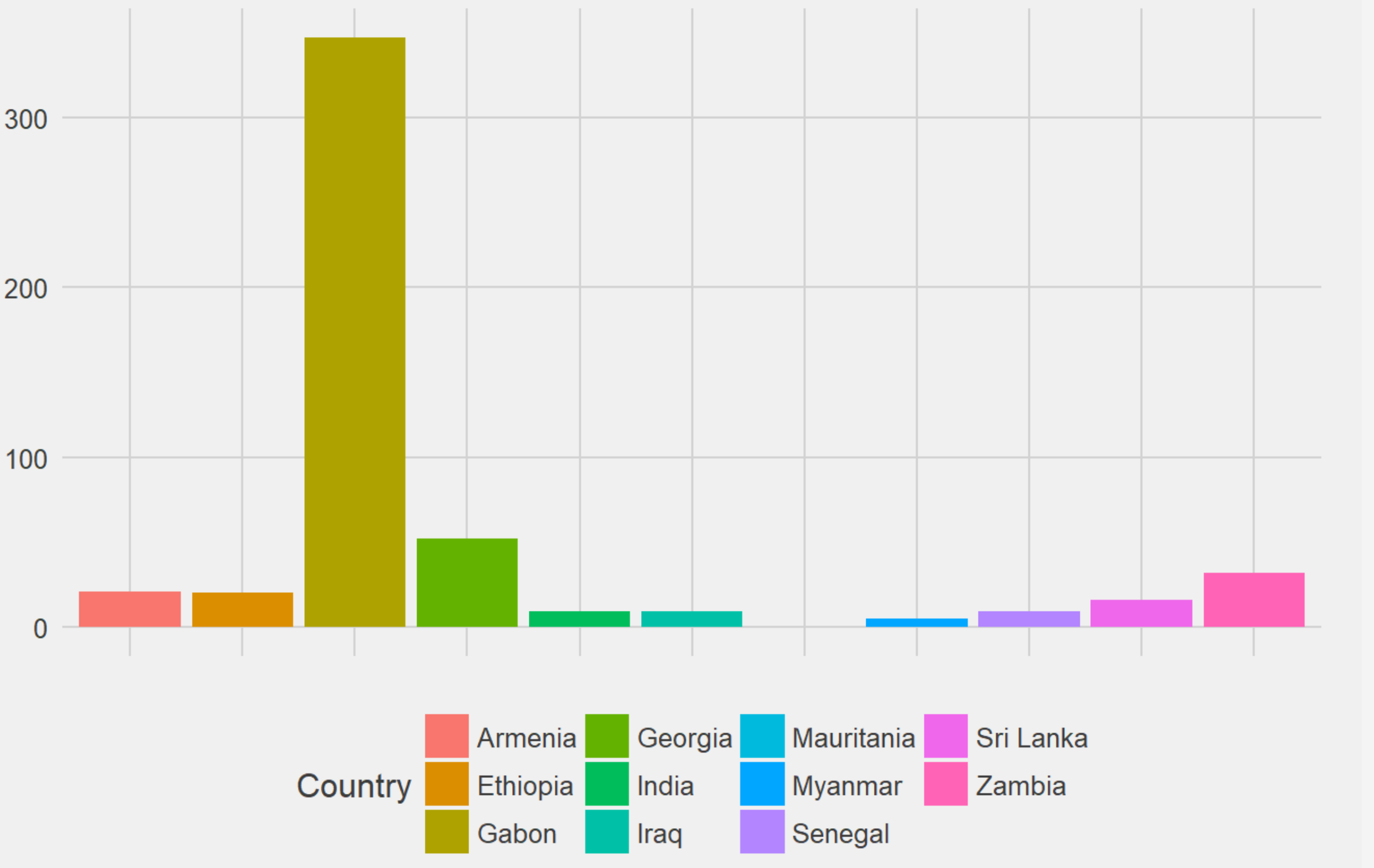


# Analysis – Booze vs Happiness

Bar Chart of Upper Quartile Most Happy Country's Beer Consumption

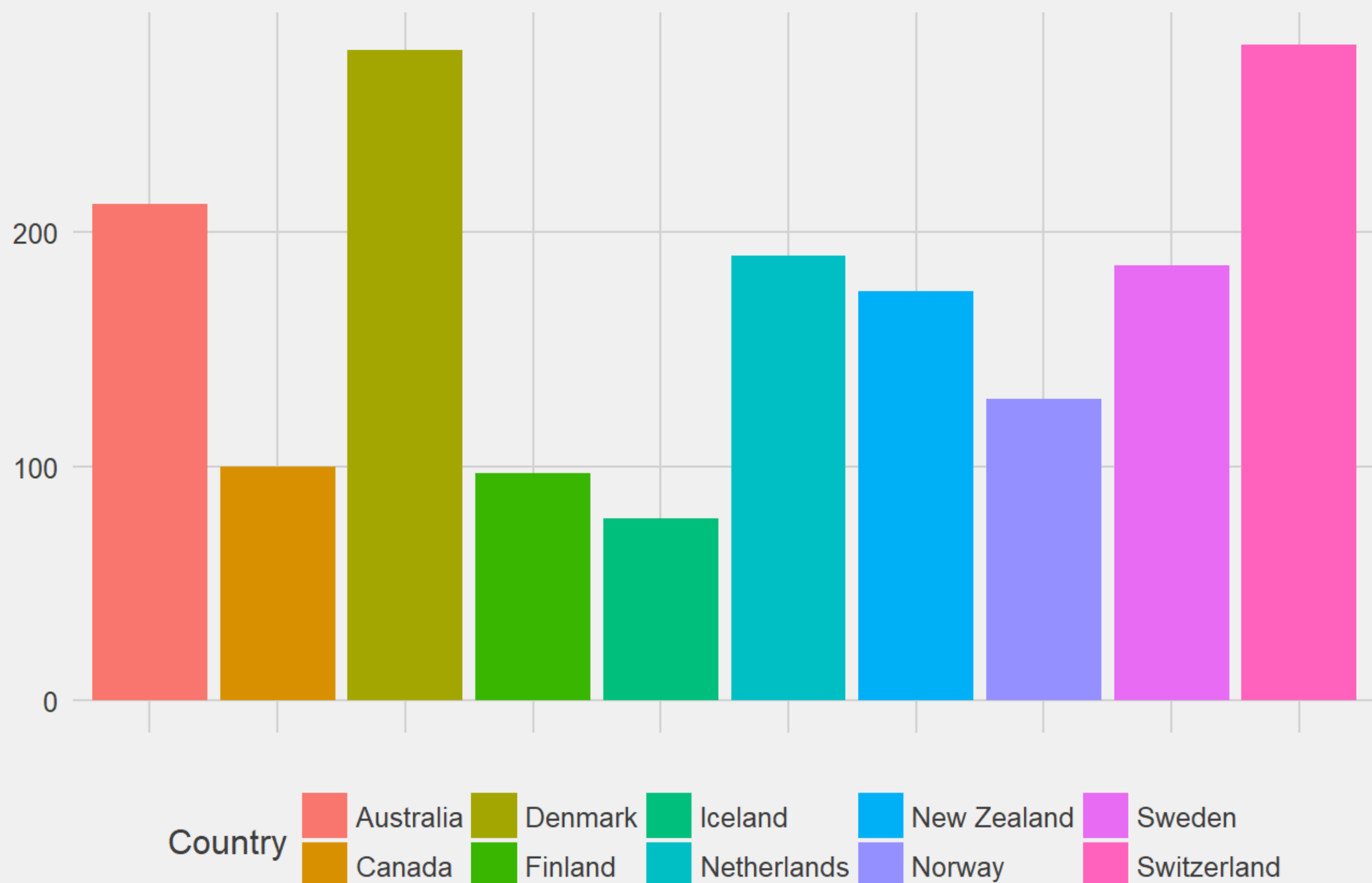


Bar Chart of Lower Quartile of Least Happy Country's Beer Consumption

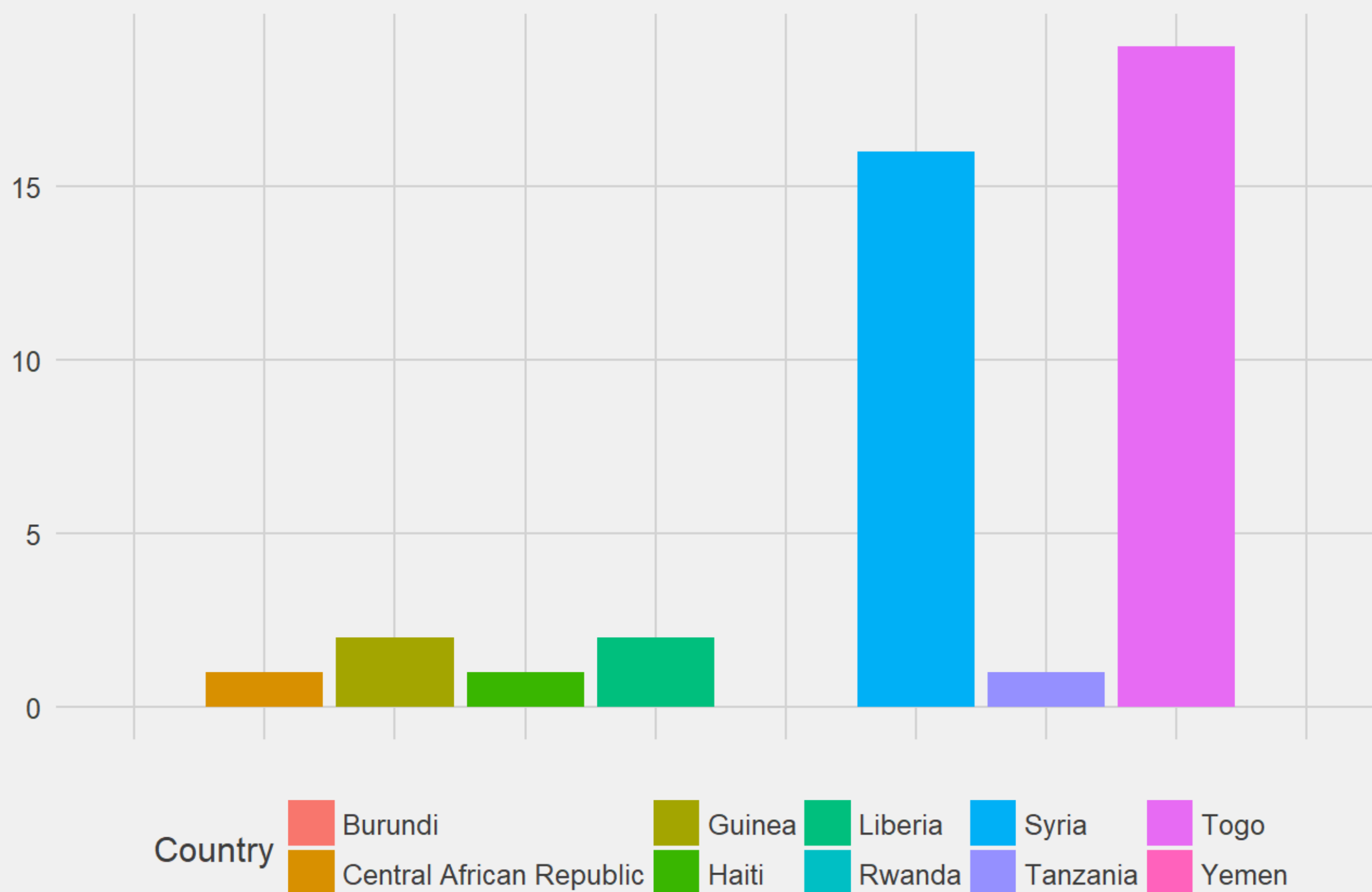


# Analysis – Booze vs Happiness

*Bar Chart of Top 10 Most Happy Country's Wine Consumption*

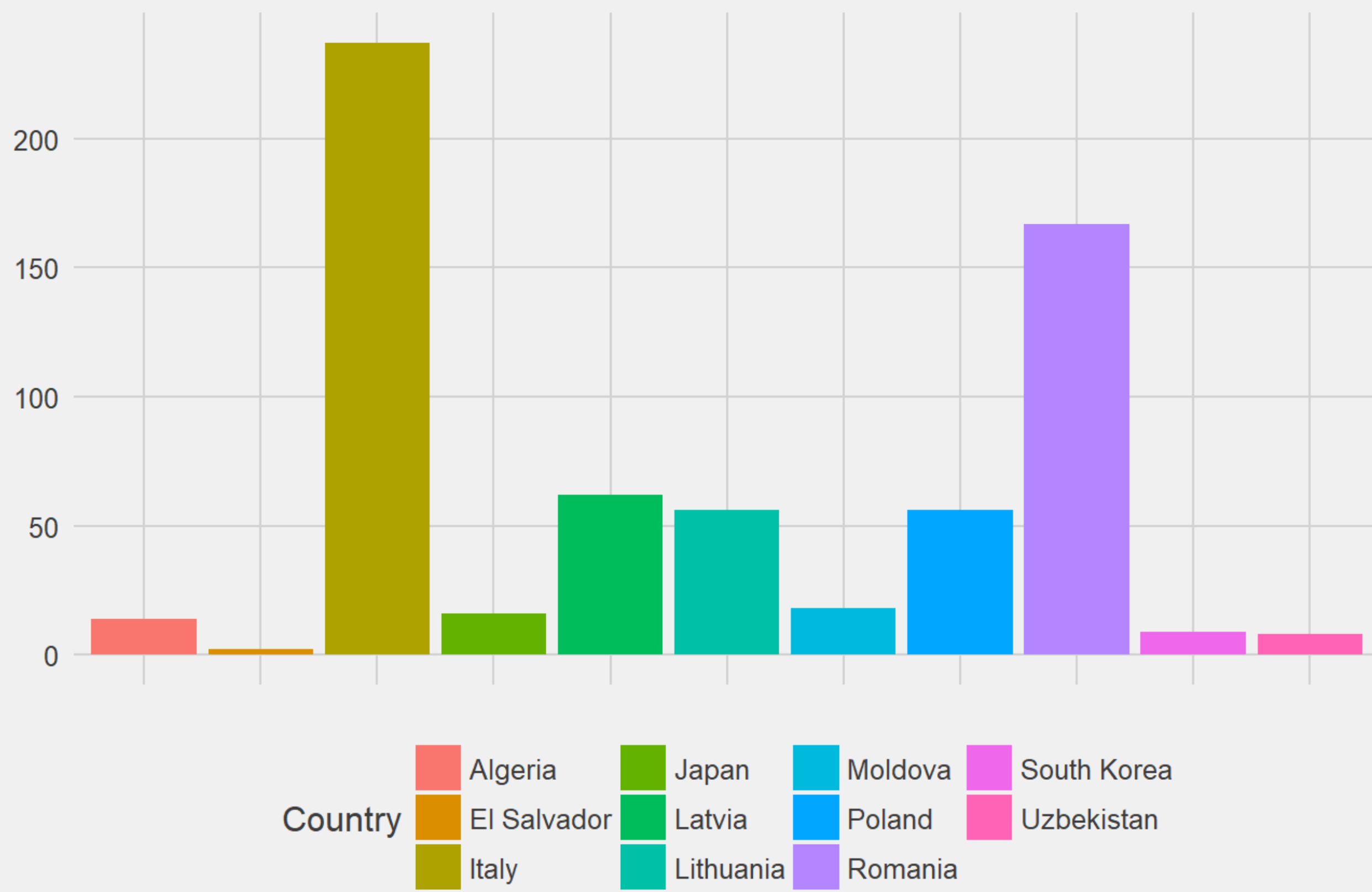


*Bar Chart of Top 10 Least Happy Country's Wine Consumption*

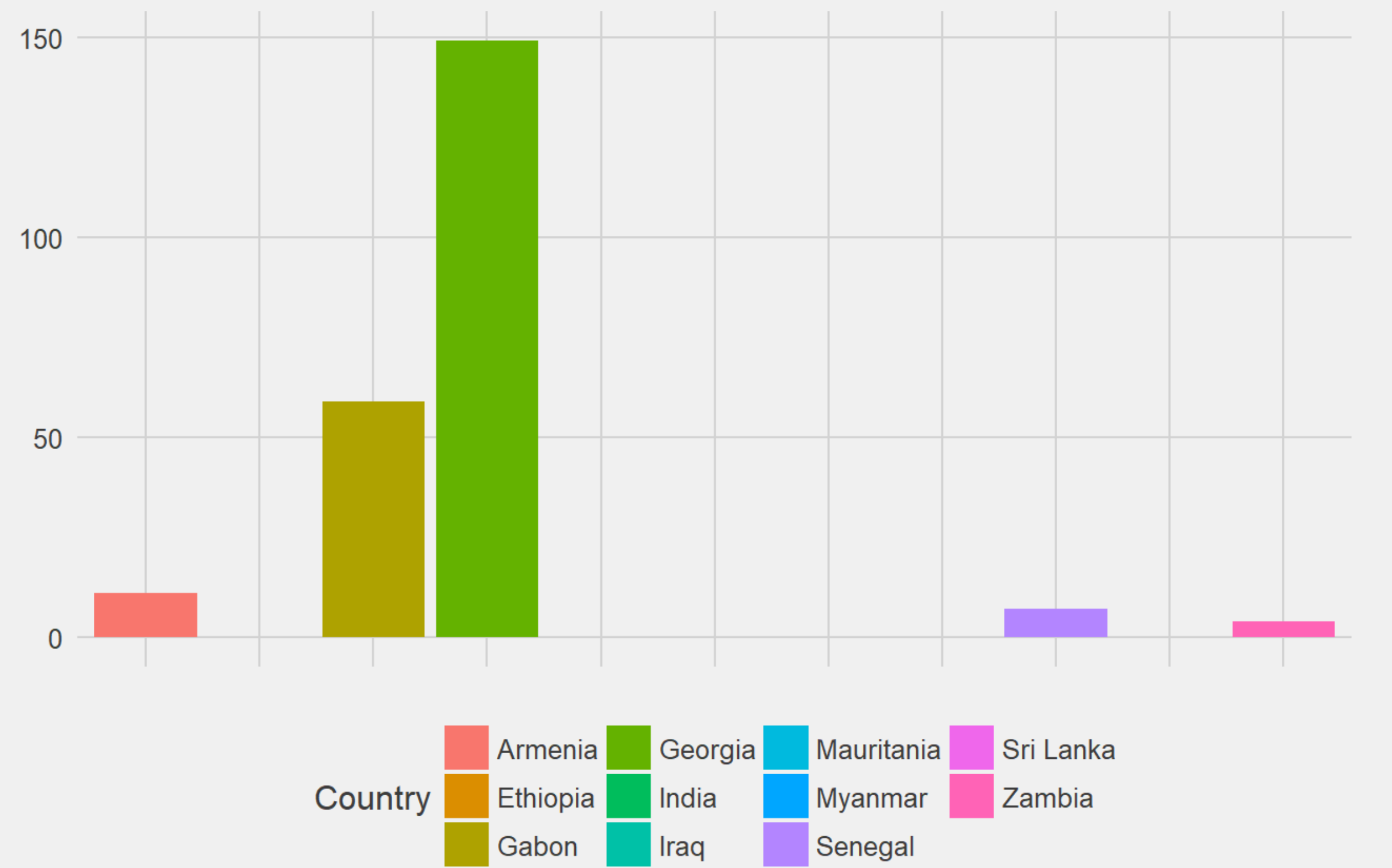


# Analysis – Booze vs Happiness

Bar Chart of Upper Quartile Most Happy Country's Wine Consumption

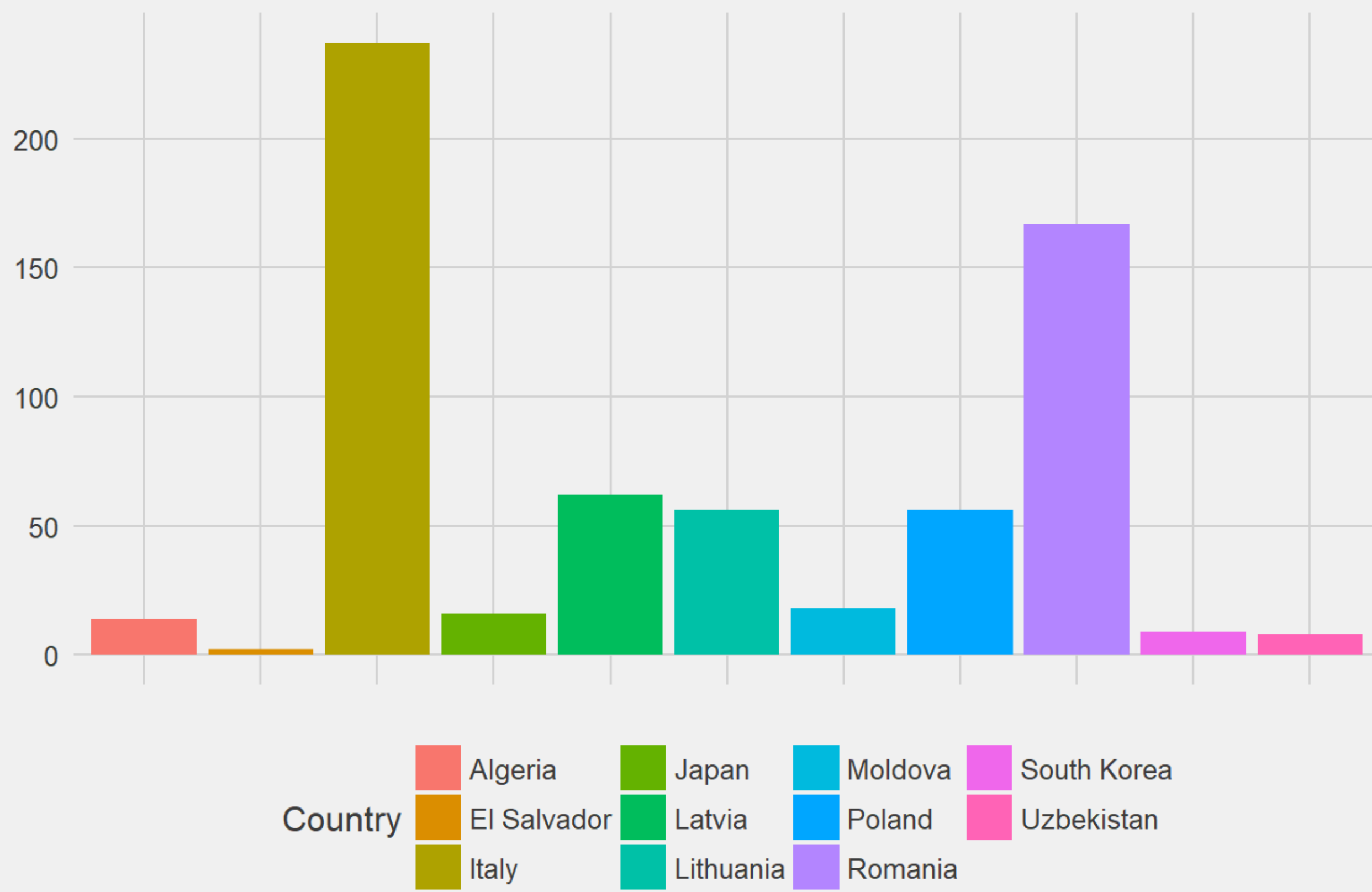


Bar Chart of Lower Quartile of Least Happy Country's Wine Consumption

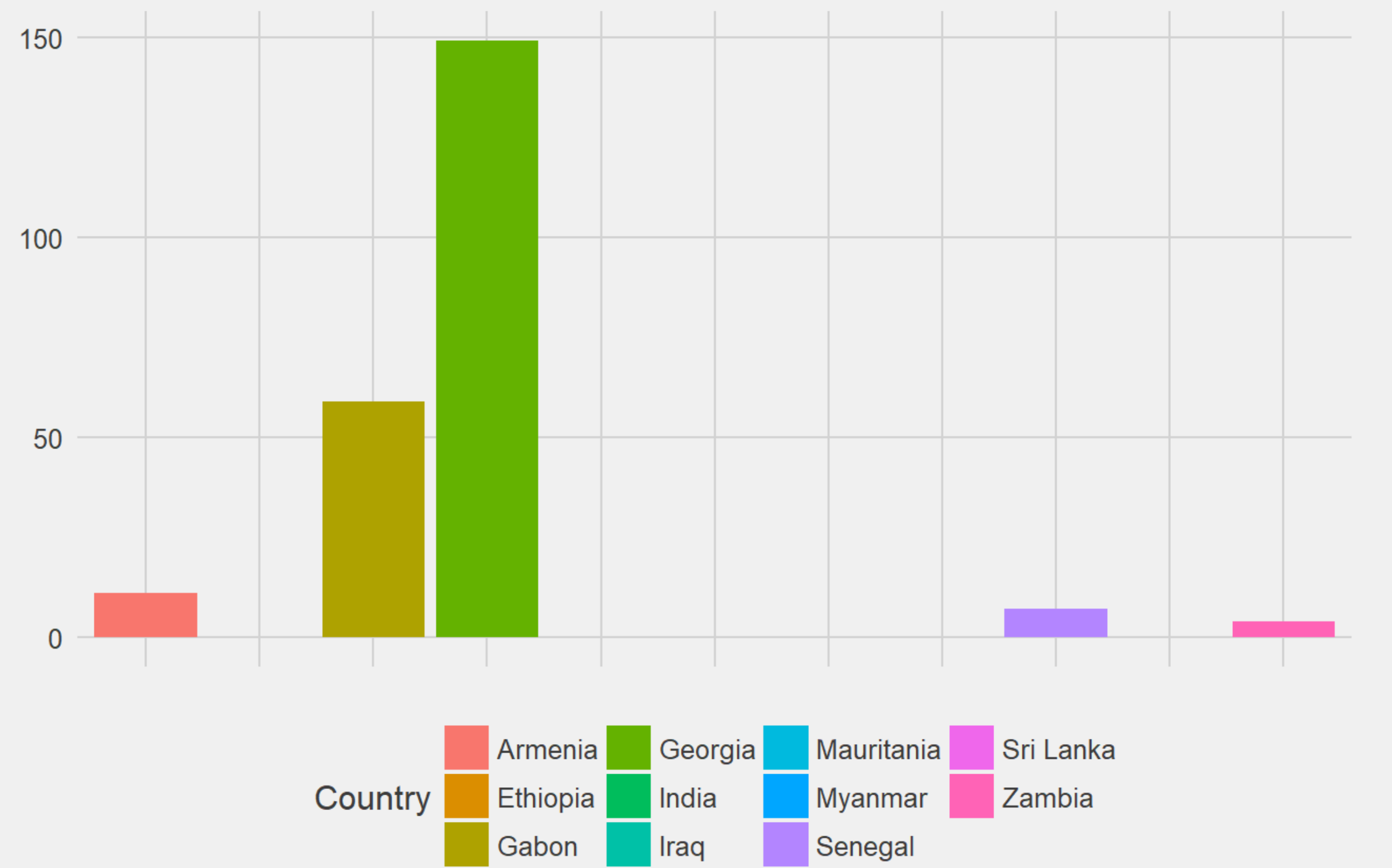


# Analysis – Booze vs Happiness

Bar Chart of Upper Quartile Most Happy Country's Wine Consumption



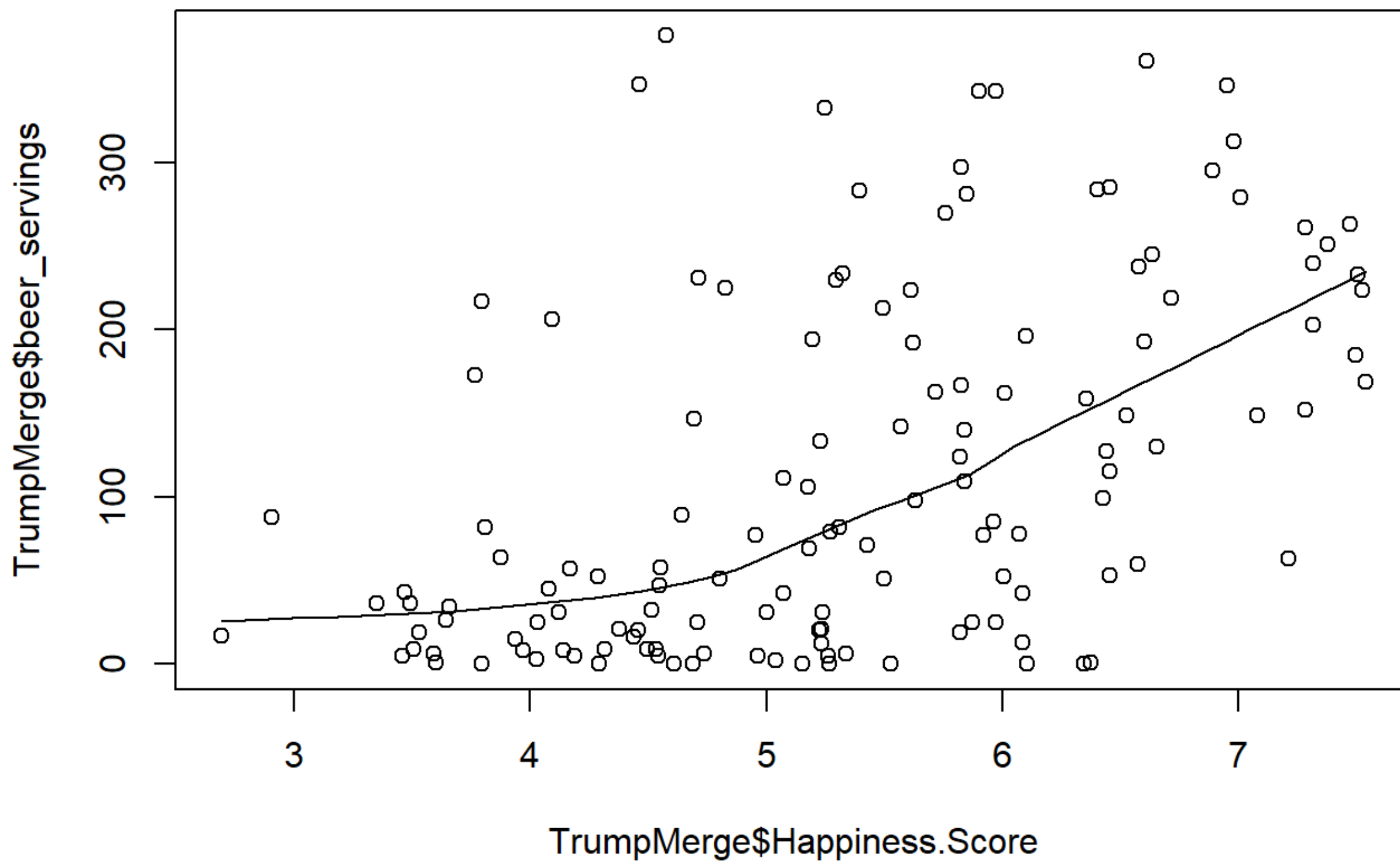
Bar Chart of Lower Quartile of Least Happy Country's Wine Consumption





# Analysis – Booze vs Happiness

Happiness Score vs Annual Cans of Beer per Capita



Call:

```
lm(formula = Happiness.Score ~ beer_servings, data = TrumpMerge)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.29928	-0.68846	0.06917	0.76413	2.14555

Coefficients:

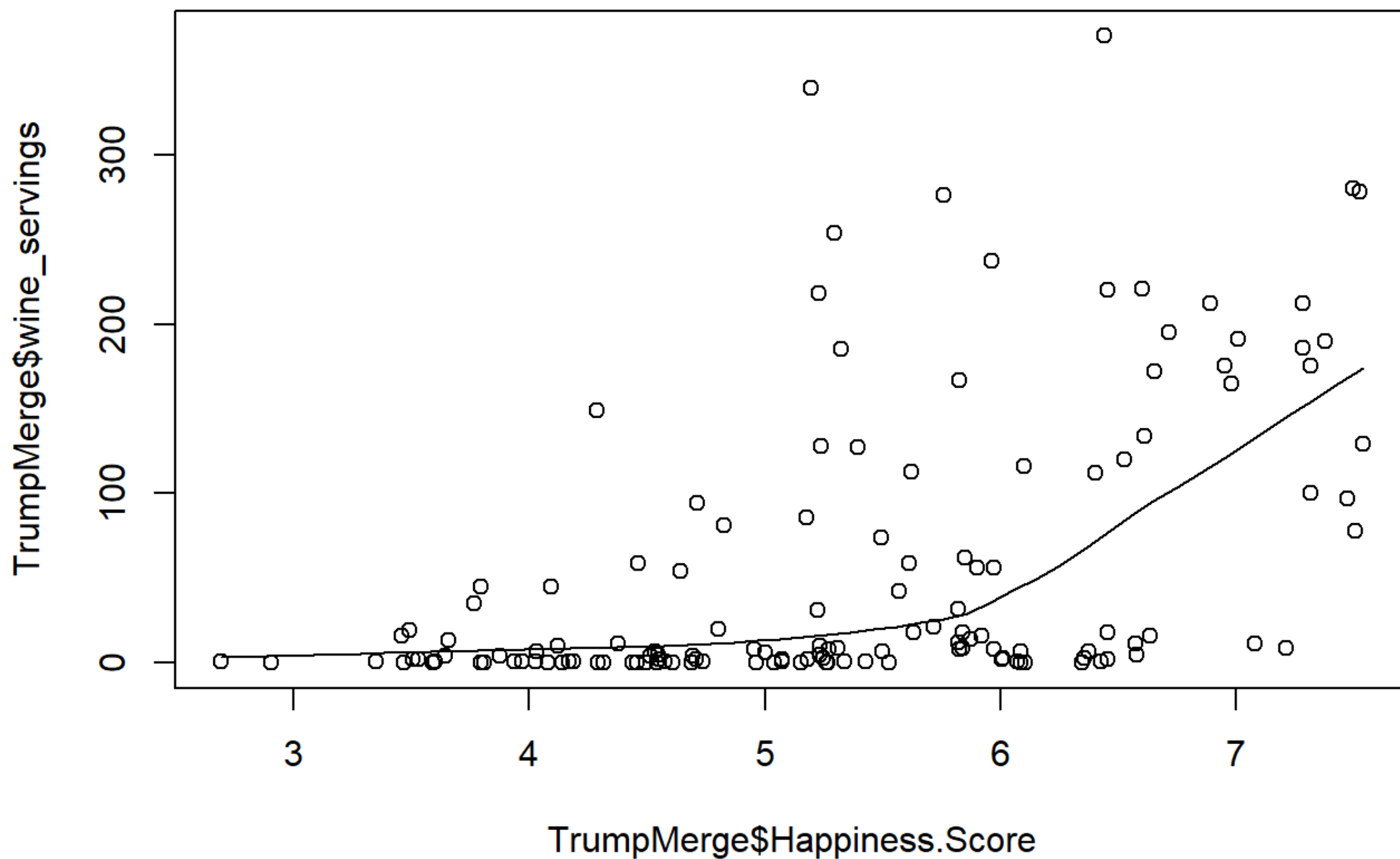
	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	4.7226462	0.1239787	38.092	< 2e-16 ***
beer_servings	0.0054731	0.0007981	6.858	2.28e-10 ***

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

# Analysis – Booze vs Happiness

Happiness.Score Vs Annual glasses of wine per capita



Call:

```
lm(formula = Happiness.Score ~ wine_servings, data = TrumpMerge)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.27468	-0.79968	0.08013	0.74931	2.19087

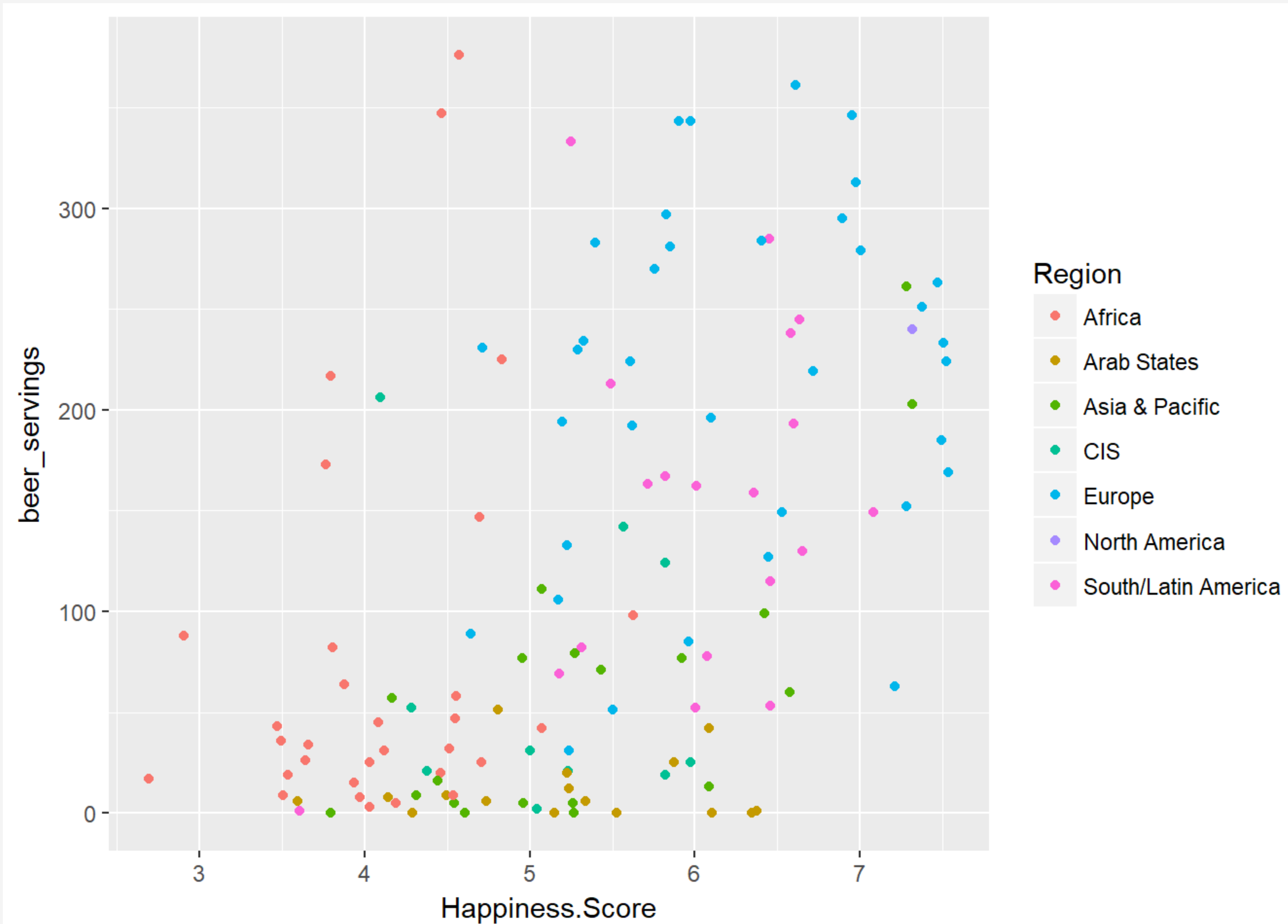
Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	4.960872	0.102843	48.238	< 2e-16 ***
wine_servings	0.006807	0.001019	6.678	5.78e-10 ***

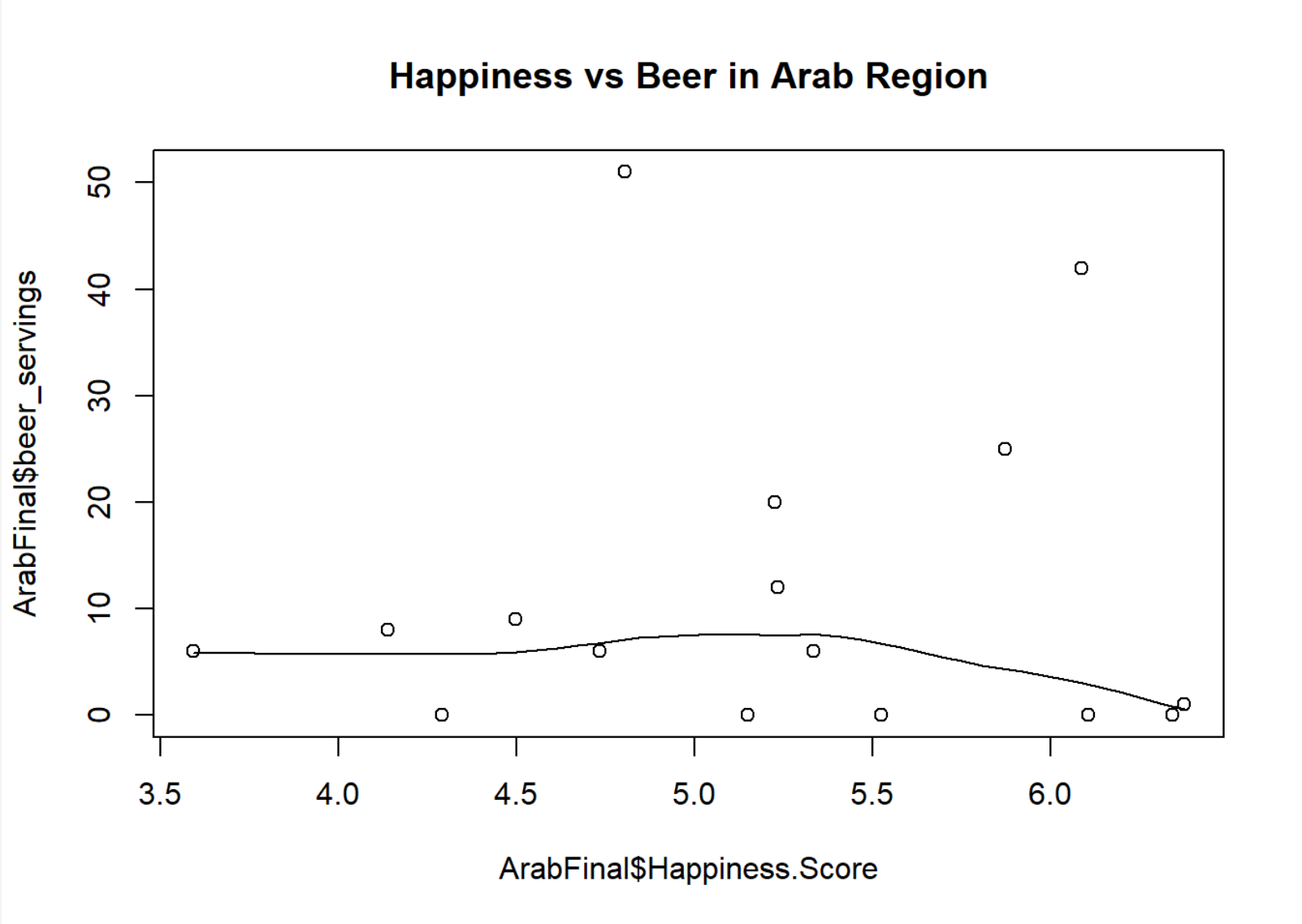
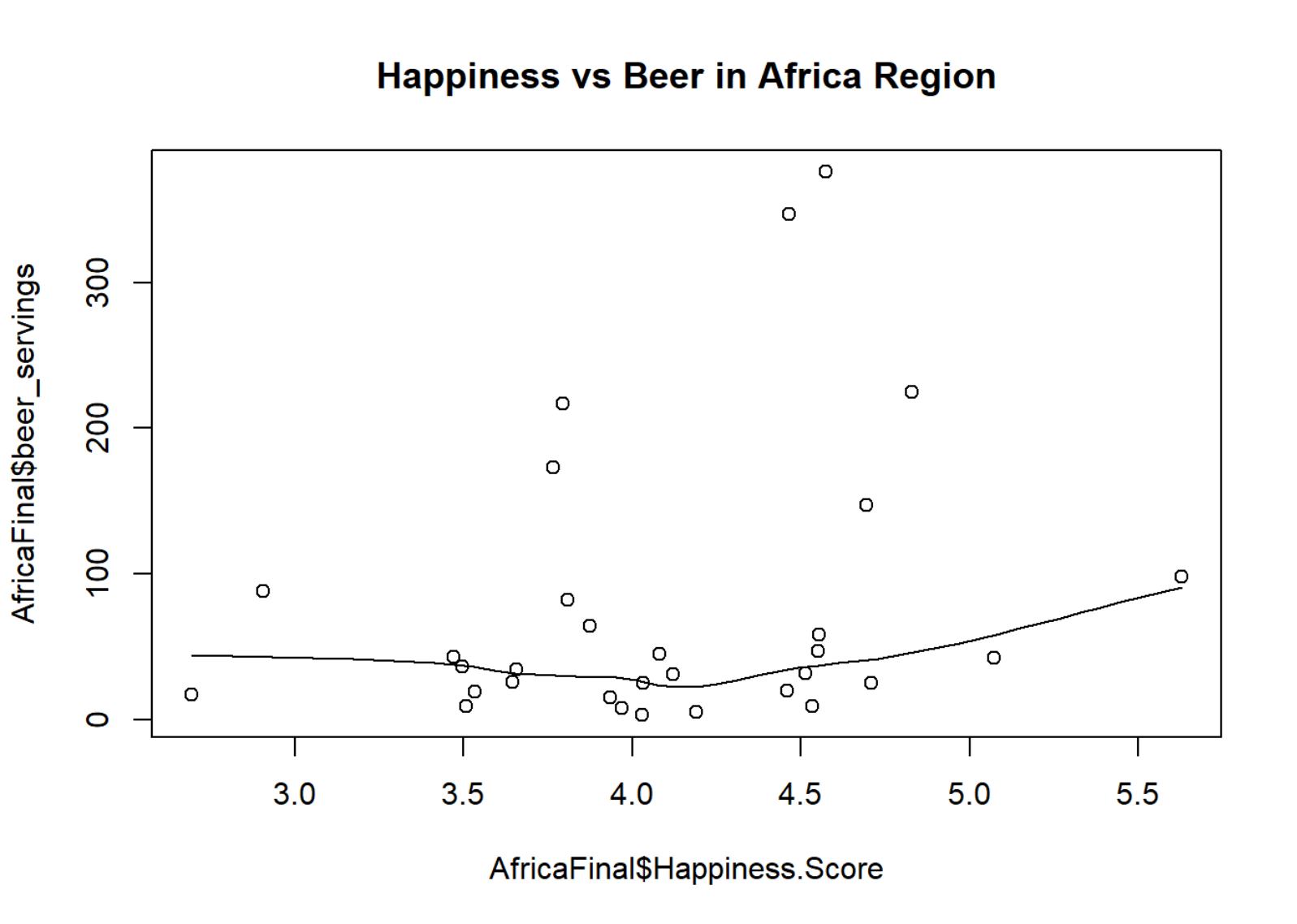
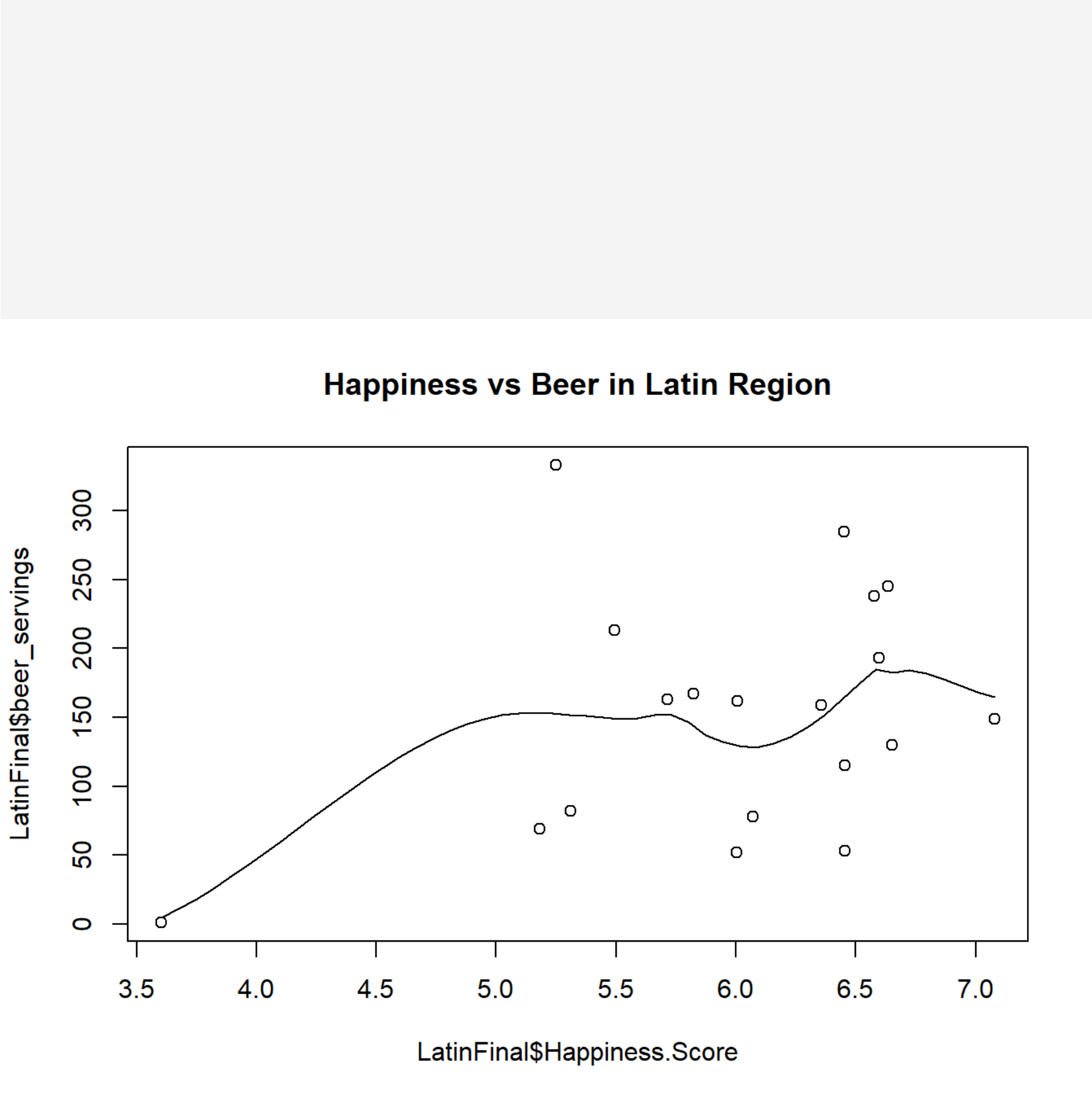
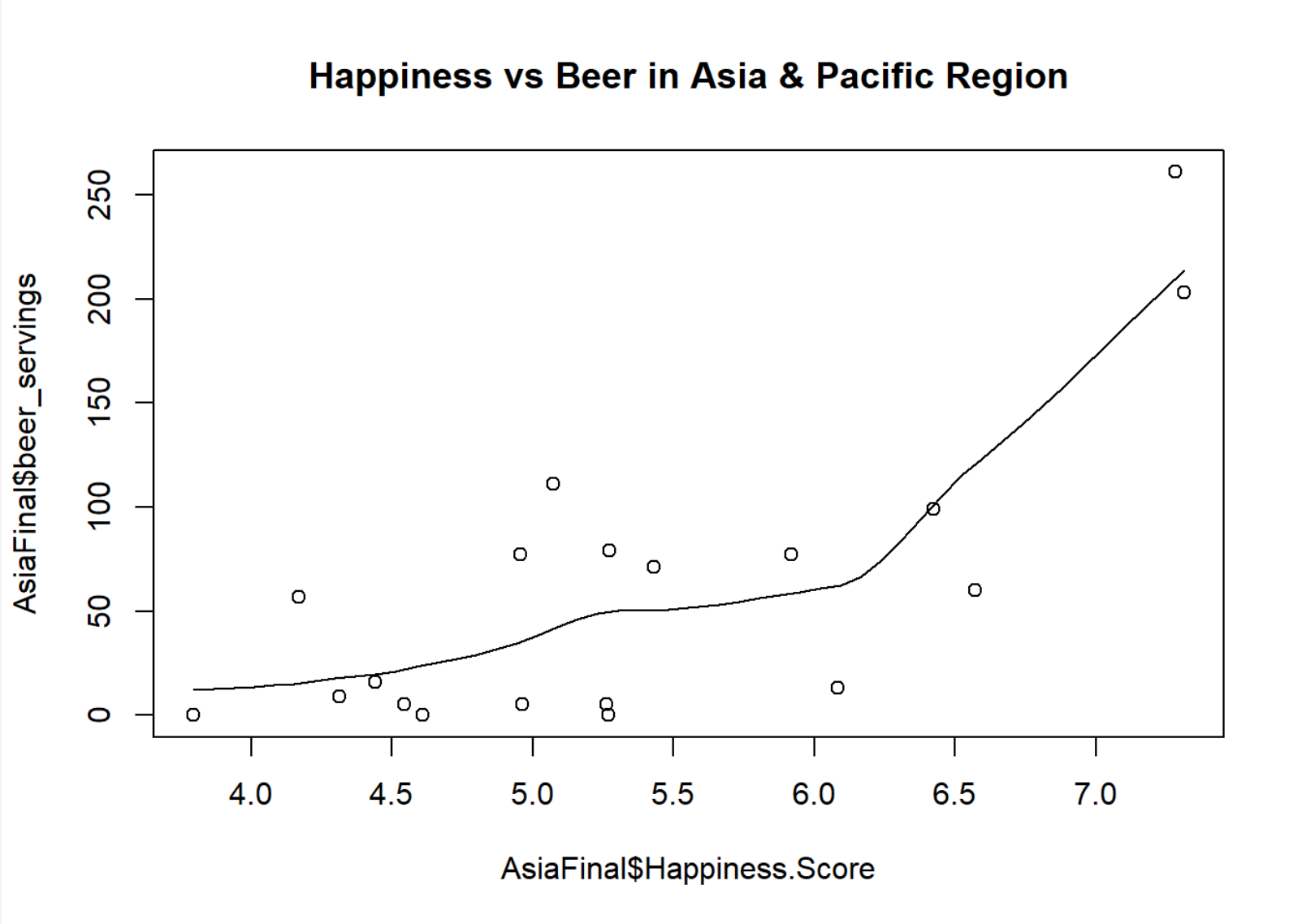
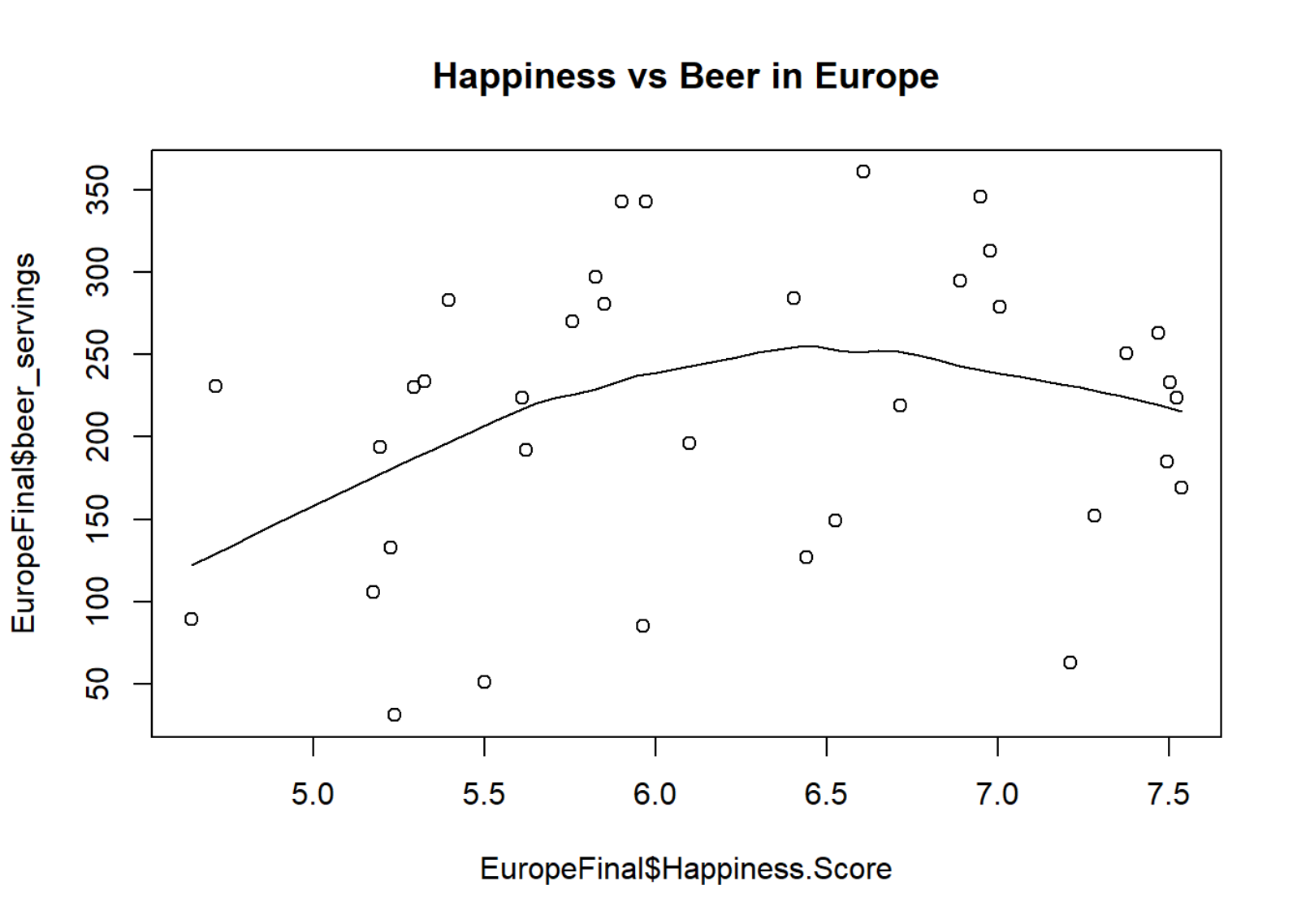
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

# Analysis - Happiness by Region (Beer)

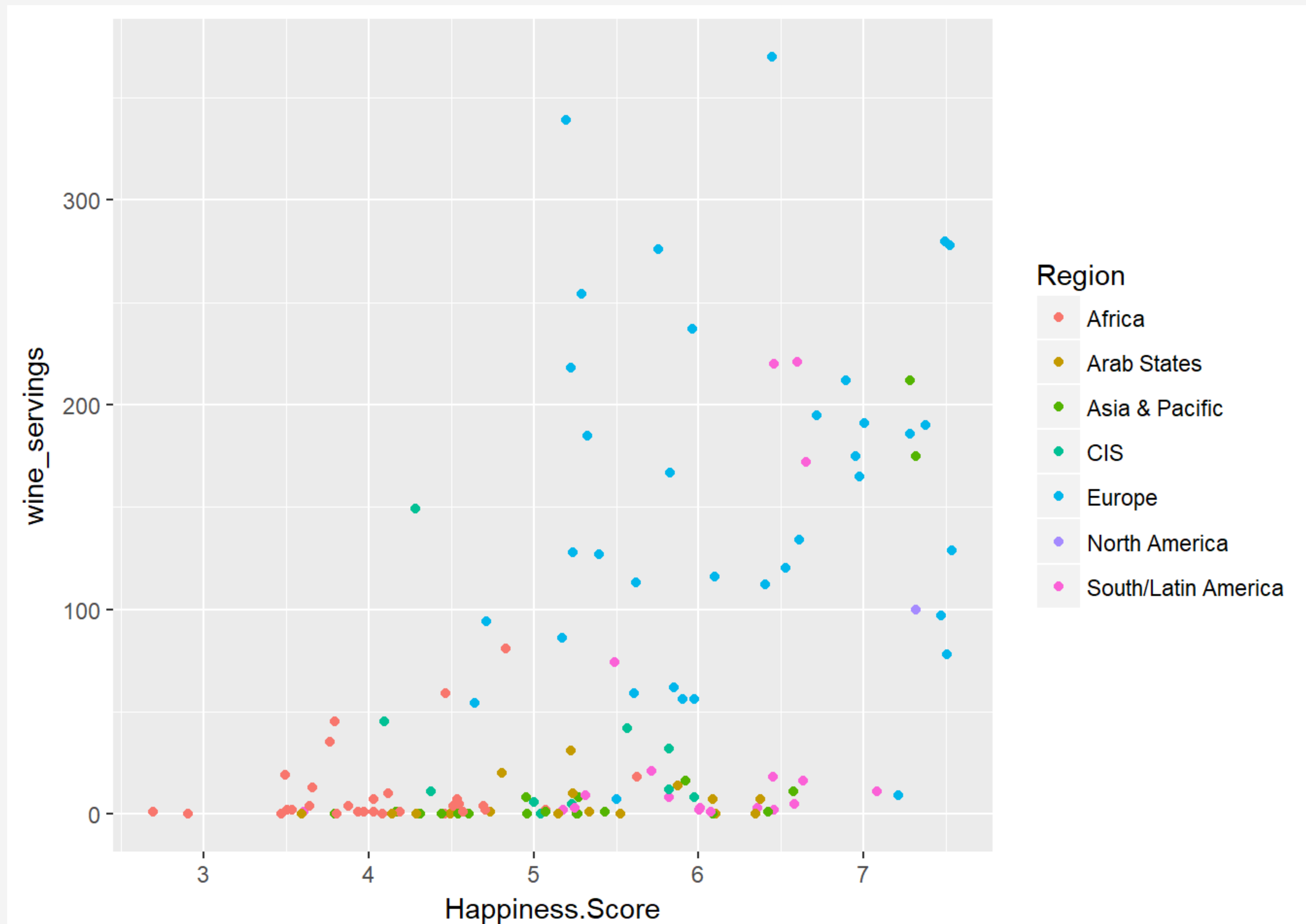


# Analysis – Happiness by Region (Beer)



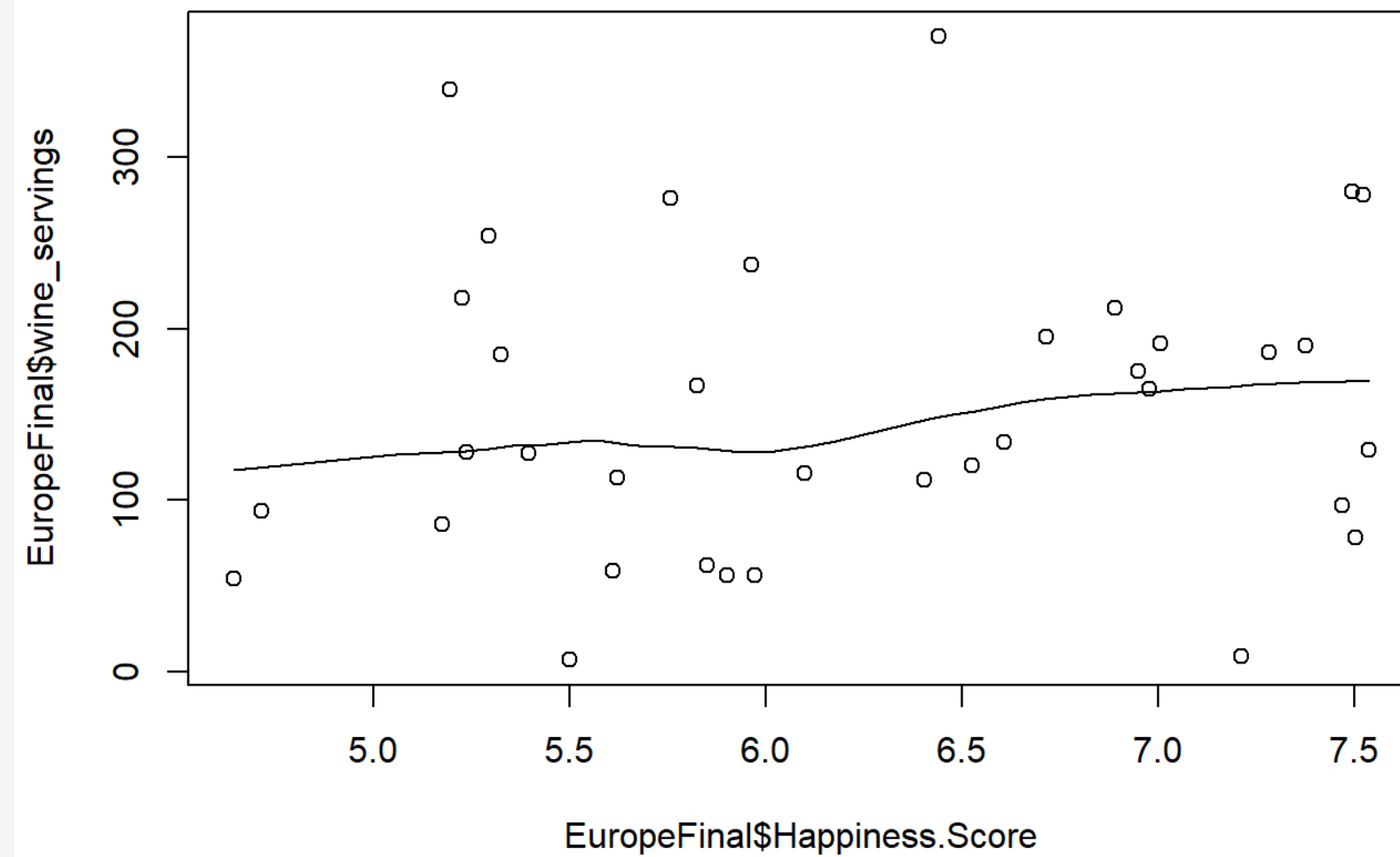


# Analysis - Happiness by Region (Wine)

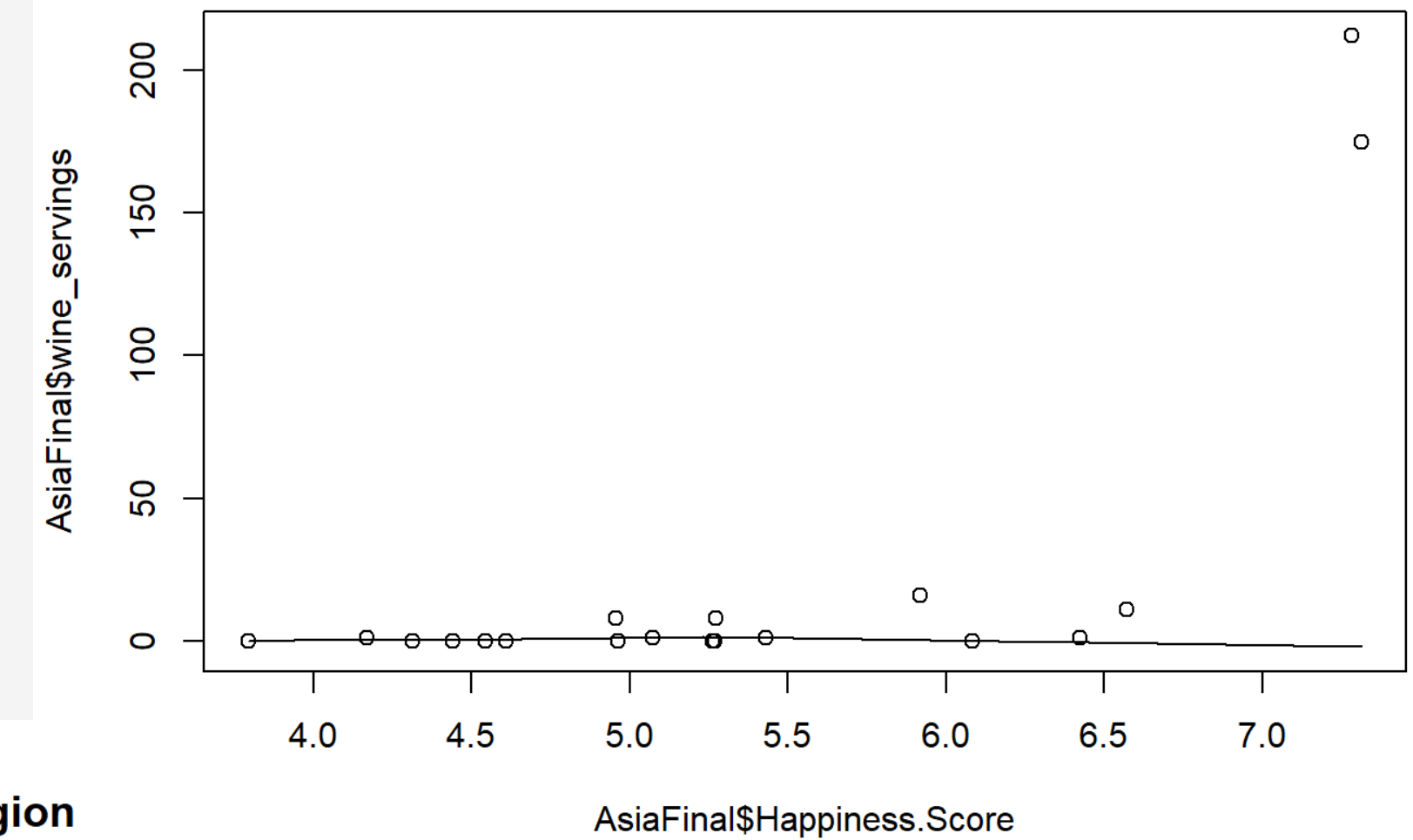


# Analysis - Happiness by Region (Wine)

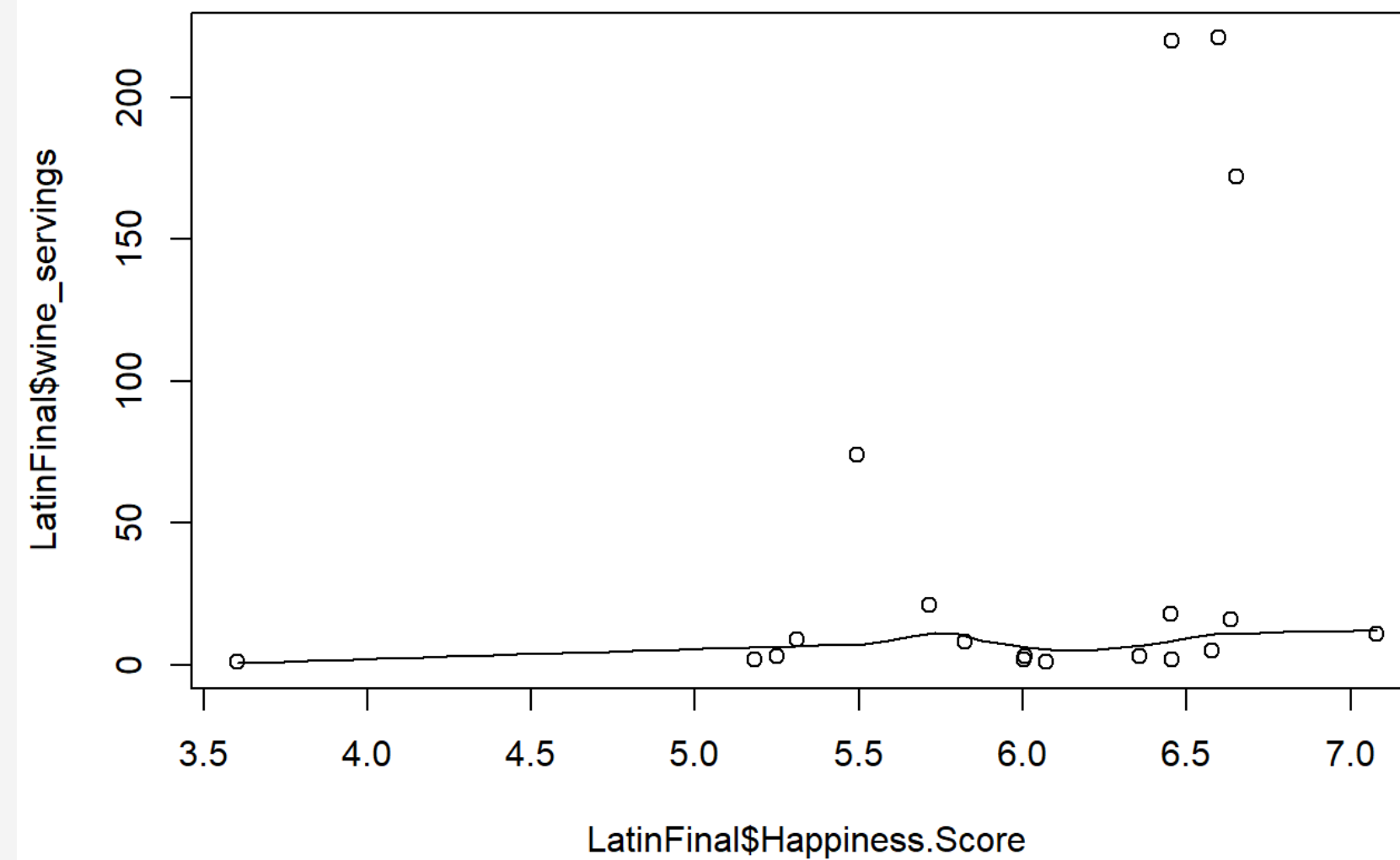
Happiness vs Wine in Europe Region



Happiness vs Wine in Asia Region



Happiness vs Wine in Latin/South America Region



# Analysis – Trump & ...Happiness

Call:

```
lm(formula = net_approval ~ Happiness.Score, data = final2)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-36.656	-14.342	2.184	11.980	38.383

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	26.70	18.76	1.423	0.164338
Happiness.Score	-13.46	3.16	-4.259	0.000168 ***

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 17.35 on 32 degrees of freedom

Multiple R-squared: 0.3618, Adjusted R-squared: 0.3418

F-statistic: 18.14 on 1 and 32 DF, p-value: 0.0001684

# Analysis – Trump & ...Happiness w/Booze

	Df	Sum of Sq	RSS	AIC
<none>			8136.3	192.24
+ total_litres_of_pure_alcohol	1	27.24	8109.1	194.13
+ beer_servings	1	6.06	8130.3	194.22
+ spirit_servings	1	0.00	8136.3	194.24
– wine_servings	1	1499.21	9635.5	195.99
– Happiness.Score	1	1958.76	10095.1	197.58



# Analysis – Trump & ...Happiness w/Booze

Call:

```
lm(formula = net_approval ~ Happiness.Score + wine_servings,  
    data = final2)
```

Residuals:

Min	1Q	Median	3Q	Max
-37.218	-11.786	0.555	9.305	38.183

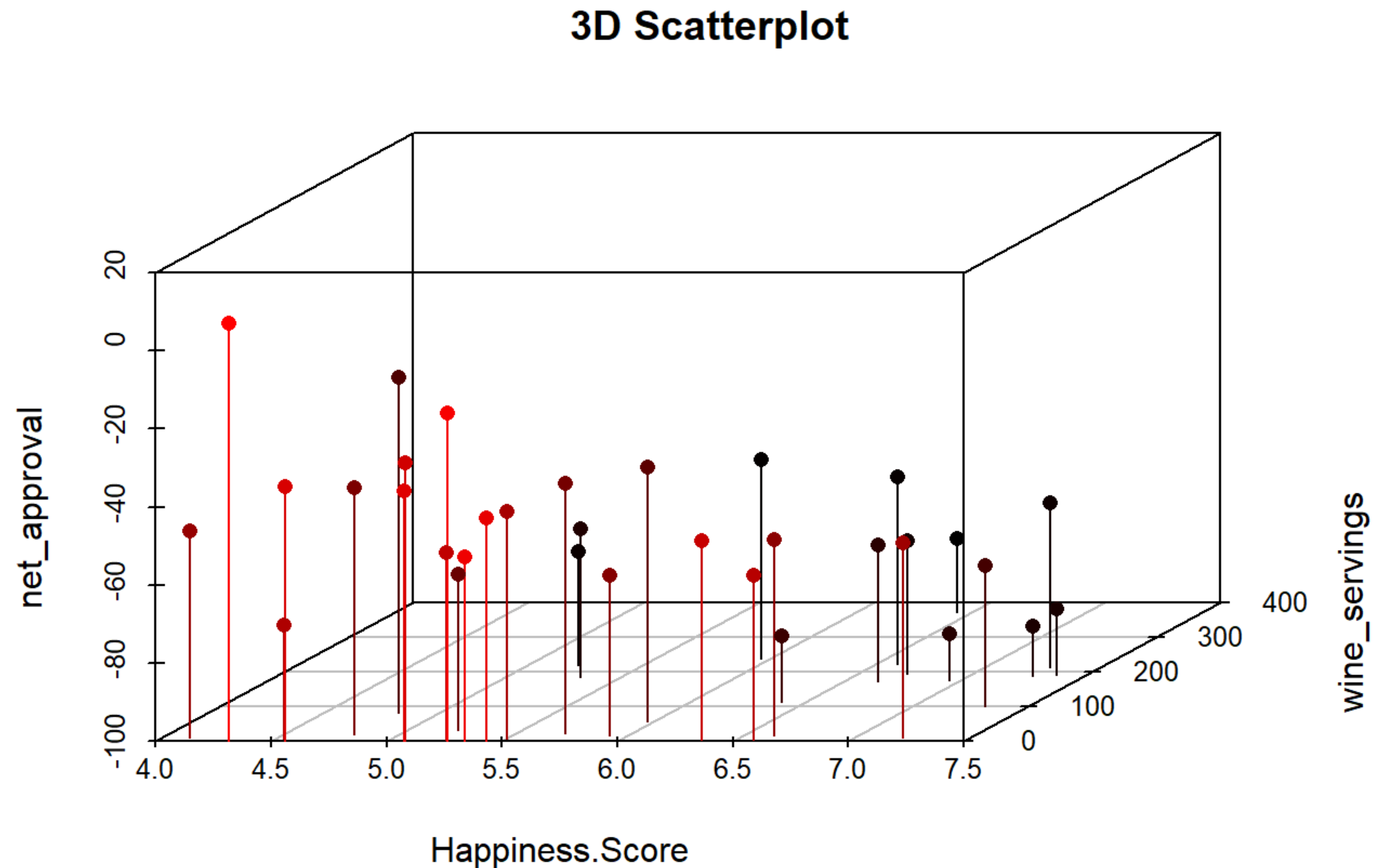
Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	9.10746	18.99607	0.479	0.6350
Happiness.Score	-9.33721	3.41791	-2.732	0.0103 *
wine_servings	-0.07796	0.03262	-2.390	0.0231 *

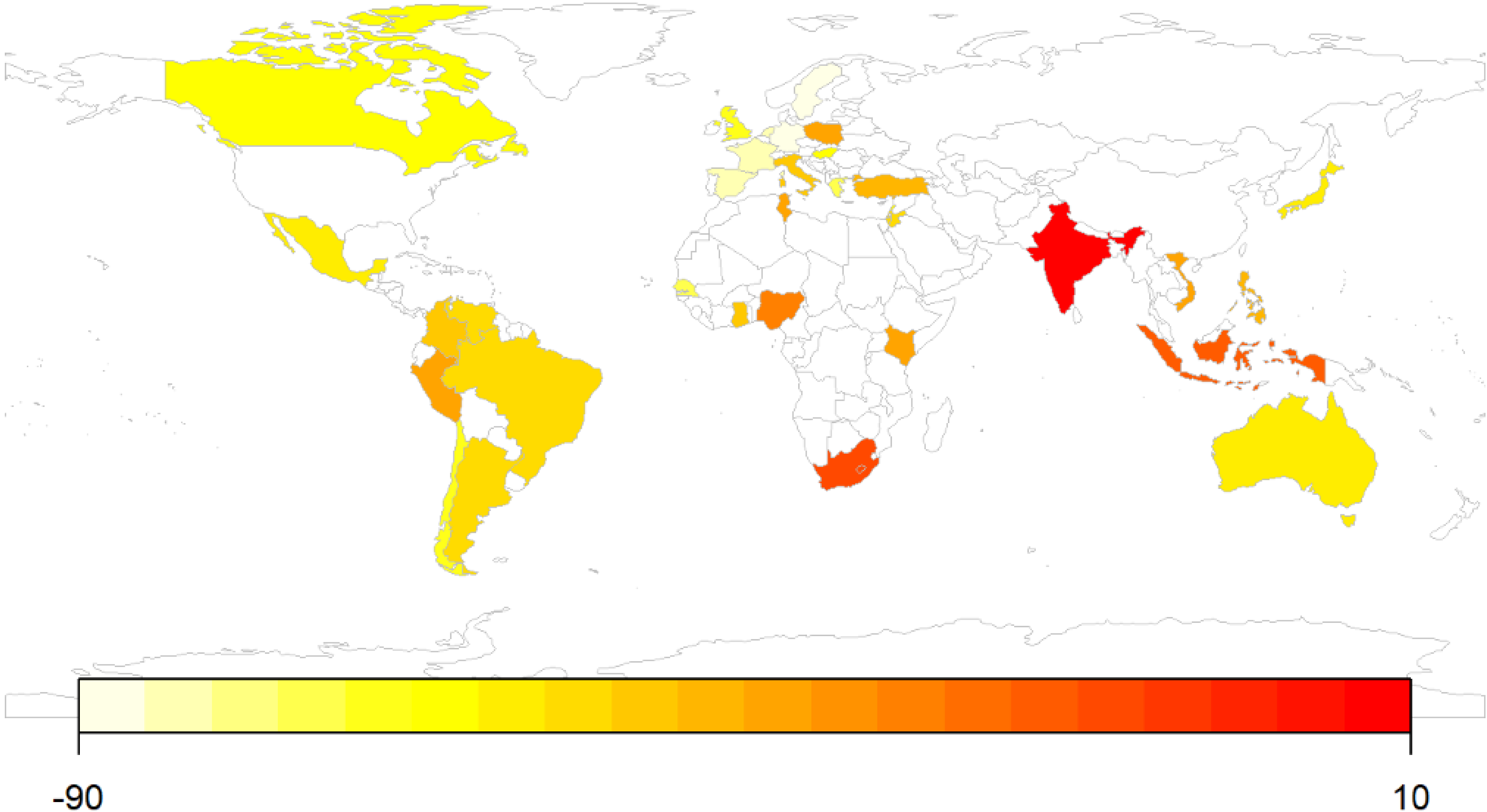
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

# Analysis - Trump & ...Happiness w/Booze



## net\_approval





# Conclusion



If you're a country that drinks, you're happier, and if you so happen to drink wine, you probably don't approve of Trump's leadership.