Assignment 6: Probabilistic Approaches

Group members:

Yumeng Lu

Zhaoxuan Ren

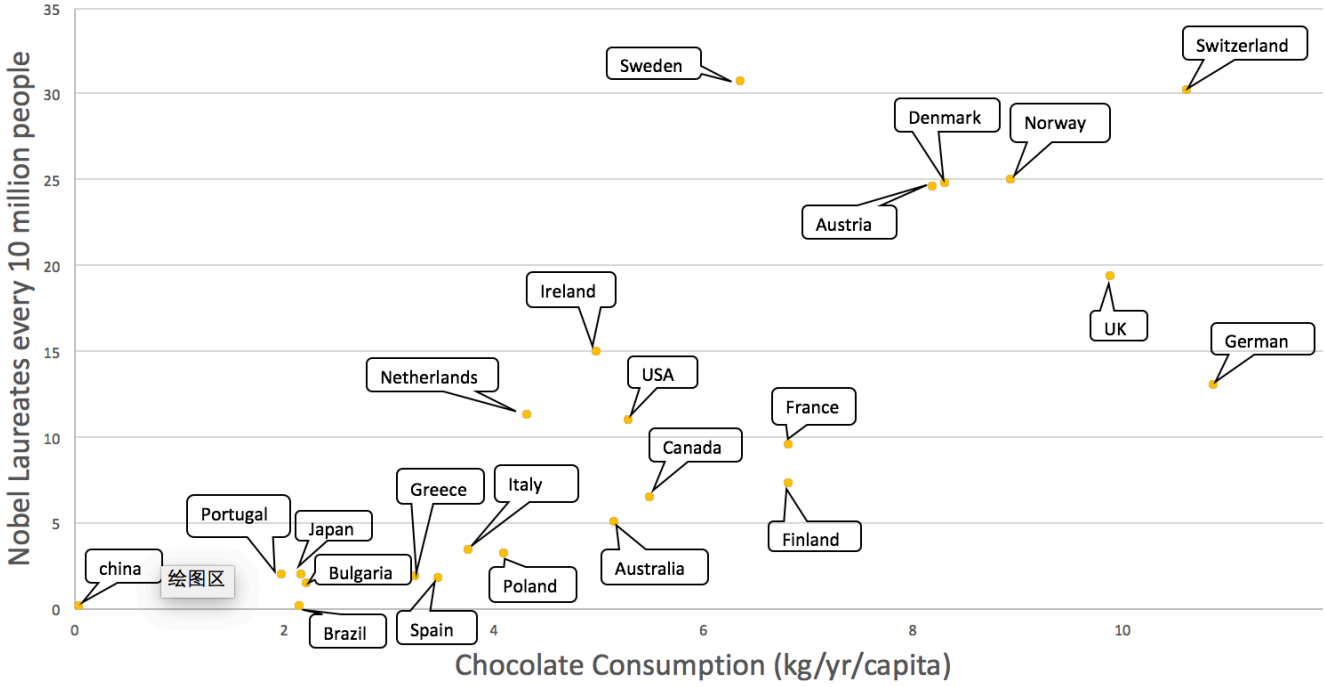
Tao Li

According to the links and document provided on the Course Web, we got the data that average chocolate consumption per capita from 2000 to 2010 and Nobel laureates every 10 million people in a given country.

Country	**chocolate consumption**	**laureates/10 million**
Germany	10.87545	13.013
UK	9.89	19.315
Denmark	8.310909	24.695
Austria	8.196364	24.577
Finland	6.818182	7.268
Sweden	6.36	30.677
France	6.826364	9.473

Netherlands	4.328333	11.226
Italy	3.773636	3.345
Poland	4.102222	3.108
Spain	3.474545	1.735
Greece	3.261818	1.826
Portugal	1.990909	1.932
Bulgaria	2.218	1.399
Switzerland	10.61909	30.125
Norway	8.943636	24.947
USA	5.300909	10.97
Australia	5.156364	5.006
Brazil	2.158182	0.048
Japan	2.18	1.896
Ireland	4.99	14.93
Canada	5.5	6.4
China	0.05	0.065

Fig 1



We use SPSS to analyze the relation between chocolate consumption and Nobel laureates.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.796[a]	.633	.616	6.291962

a. Predictors: (Constant), chocolate

The R=0.796 and R^2=0.633

Correlations

		chocolate	laureates
chocolate	Pearson Correlation	1	.796**
	Sig. (2-tailed)		.000
	N	23	23
laureates	Pearson Correlation	.796**	1
	Sig. (2-tailed)	.000	
	N	23	23

**. Correlation is significant at the 0.01 level (2-tailed).

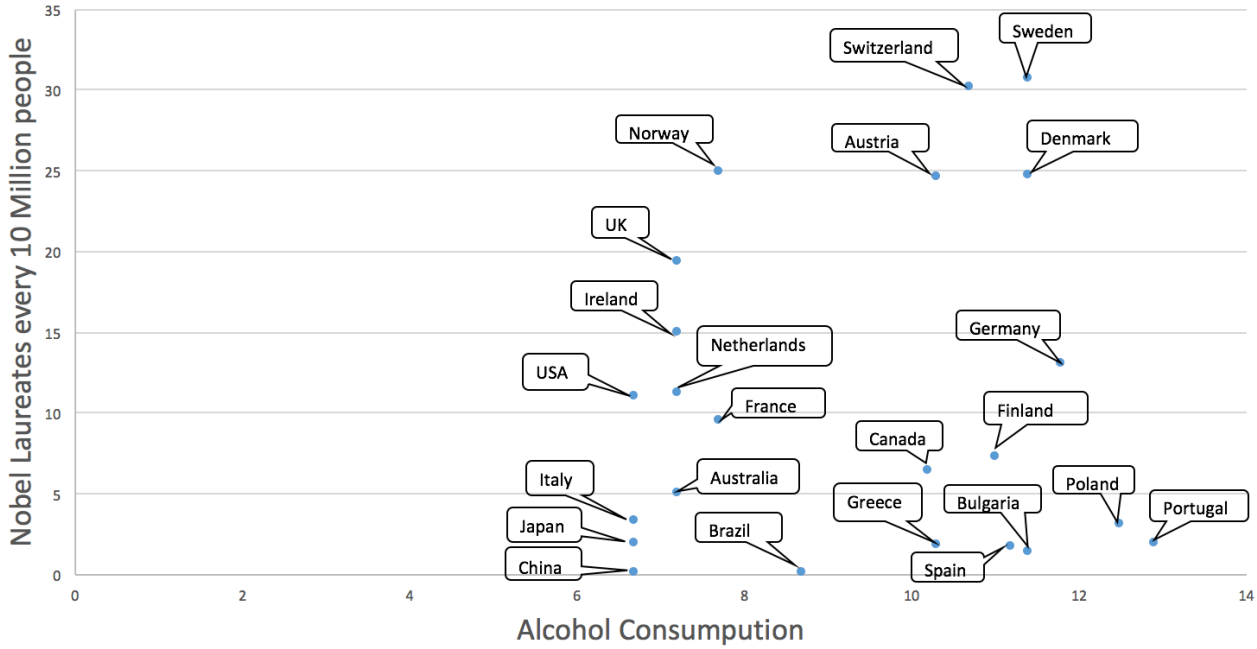
P=0.796

Although the correlation coefficient showed some potential relationship between those two variables, I still think the assumption between those two variables is not scientific and rigorous. From my point of view, if we assume that a relation maybe exists in variables, we need to get the data in a certain period of time and consider the confounding variables. But the paper on Course Web didn't do such thing. In general, it's almost like an interesting article rather than a scientific paper. Except of chocolate consumption, I've seen some news about alcohol can improve human cognition before. When I checked the alcohol consumption per capita of country, I got some data. The following table and figure can show the relationship between alcohol consumption and Nobel Laureates.

Country	**Alcohol Consumption**	**Nobel**
Germany	11.8	13.013
UK	7.2	19.315
Denmark	11.4	24.695
Austria	10.3	24.577
Finland	11	7.268
Sweden	11.4	30.677
France	7.7	9.473
Netherlands	7.2	11.226
Italy	6.7	3.345
Poland	12.5	3.108

Spain	11.2	1.735
Greece	10.3	1.826
Portugal	12.9	1.932
Bulgaria	11.4	1.399
Switzerland	10.7	30.125
Norway	7.7	24.947
USA	6.7	10.97
Australia	7.2	5.006
Brazil	8.7	0.048
Japan	6.7	1.896
Ireland	7.2	14.93
Canada	10.2	6.4
China	6.7	0.065

Fig 2



From the plot above, the relationship between two variables is pretty poor. The points are dispersing. Therefore, I used SPSS to generate the correlation coefficient:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.094[a]	.009	-.038	10.339743

a. Predictors: (Constant), Alcohol

R=0.94 and R^2=0.009

Correlations

		Alcohol	laureates
Alcohol	Pearson Correlation	1	.094
	Sig. (2-tailed)		.669
	N	23	23
laureates	Pearson Correlation	.094	1
	Sig. (2-tailed)	.669	
	N	23	23

P=0.094

The results prove that the relationship is really poor. So I believe there is no relationship between the alcohol consumption and the Nobel Laureates, which indicates that alcohol cannot improve human cognition.