

SEAN KRONZ BIVARIATE DATA PDF

1. Analysis PDF: Analyze your data thoroughly. Include a complete regression analysis (Minitab -STAT>Regression>Regression).
2. Analysis PDF: Describe the *method of collection* and *purpose* of the study. Cite your source if acquired from Internet or journals. Describe the sample used in the study (or if two studies were used, describe both samples). Explain in detail how the sample was obtained. (Just saying it was randomly chosen is not sufficient.) Be sure to include the sample size(s), and a description of the population of interest.
3. Analysis PDF: Organize the data collected and summarize the data. Provide the original data (Save the Minitab worksheet as an .xls file, open it in Excel and copy the cells from there). Provide a copy of the summary of the counts and any relevant descriptive statistics (From Minitab - STAT>Basic Statistics> Display Descriptive Statistics).

Data Analysis

The samples I used are 50 years of DOW Jones yearly returns and 50 years of the lower limit of the average income of the top 5%. The question trying to be clarified by this data is, is there a relationship between the Dow Jones yearly return and the lower limit of the average income of the top 5%. It is important to remember correlation does not mean causation when looking at the results of any data. However, this does not apply to heavily to my data though because there was little to no correlation between my two variables.

Regression Analysis: Stock versus Income

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	52.4	52.39	0.21	0.647
Income	1	52.4	52.39	0.21	0.647
Error	48	11851.1	246.90		
Total	49	11903.5			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
15.7130	0.44%	0.00%	0.00%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	6.12	4.38	1.40	0.169	
Income	0.000016	0.000036	0.46	0.647	1.00

Regression Equation

Stock = 6.12 + 0.000016 Income

Fits and Diagnostics for Unusual Observations

Obs	Stock	Fit	Resid	Std Resid	
9	-33.84	9.08	-42.92	-2.80	R
42	38.32	6.65	31.68	2.07	R
43	-27.57	6.62	-34.19	-2.23	R

R Large residual

The method of collection for my data was finding official documents of the information i needed. For my lower limit of the median income of the top 5% I went to the US census cite and found an excel spreadsheet with the information. This US census data was collected via mail polls and door to door polls asking all US citizens information about themselves, including their income. For my average DOW Jones yearly return I found a table on a website containing all the data. This data was collected by simply recording values from the DOW Jones over a period of one year and finding the percent difference over that one year span. My population of interest for the income was the income of the top 5% because the top 5% is the most likely income class to invest in the stock market. The sample size I took was 50 data points which correlates to a 50 year span.

<http://tradingninvestment.com/stock-market-historical-returns/>

<https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html>

Descriptive Statistics: Income, Stock

Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
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Income	50	0	105489	8878	62779	19000	45659	97710
159364	225251							
Stock	50	0	7.85	2.20	15.59	-33.84	-2.46	7.39
19.77	38.32							

Data

Income	Stock	Prediction	Residual
225251	13.415	9.720016	3.694984
214462	-2.233	9.547392	-11.7804
206568	7.519	9.421088	-1.90209
205128	26.499	9.398048	17.10095
191156	7.257	9.174496	-1.9175
186000	5.528	9.092	-3.564
180485	11.023	9.00376	2.01924
180001	18.819	8.996016	9.822984
180000	-33.837	8.996	-42.833
177000	6.432	8.948	-2.516
174012	16.288	8.900192	7.387808
166000	-0.608	8.772	-9.38
157152	3.148	8.630432	-5.48243
154120	25.322	8.58192	16.74008
150002	-16.763	8.516032	-25.279
150499	-7.104	8.523984	-15.628
145220	-6.186	8.43952	-14.6255
142000	25.221	8.388	16.833
132199	16.099	8.231184	7.867816
126550	22.641	8.1408	14.5002

119540	26.014	8.02864	17.98536
113000	33.452	7.924	25.528
109821	2.14	7.873136	-5.73314
104639	13.722	7.790224	5.931776
99020	4.174	7.70032	-3.52632
96400	20.32	7.6584	12.6616
94748	-4.342	7.631968	-11.974
91750	26.959	7.584	19.375
85640	11.849	7.48624	4.36276
80928	2.262	7.410848	-5.14885
77106	22.583	7.349696	15.2333
72004	27.658	7.268064	20.38994
68500	-3.74	7.212	-10.952
63500	20.267	7.132	13.135
60086	19.605	7.077376	12.52762
55200	-9.231	6.9992	-16.2302
50661	14.933	6.926576	8.006424
46860	4.19	6.86576	-2.67576
42055	-3.147	6.78888	-9.93588
38000	-17.268	6.724	-23.992
35000	17.86	6.676	11.184
32129	38.324	6.630064	31.69394
30600	-27.574	6.6056	-34.1796
28950	-16.584	6.5792	-23.1632
26555	14.583	6.54088	8.04212
24138	6.113	6.502208	-0.38921

23175	4.818	6.4868	-1.6688
21800	-15.194	6.4648	-21.6588
19850	4.269	6.4336	-2.1646
19000	15.199	6.42	8.779