

Chapter 2 homework answers

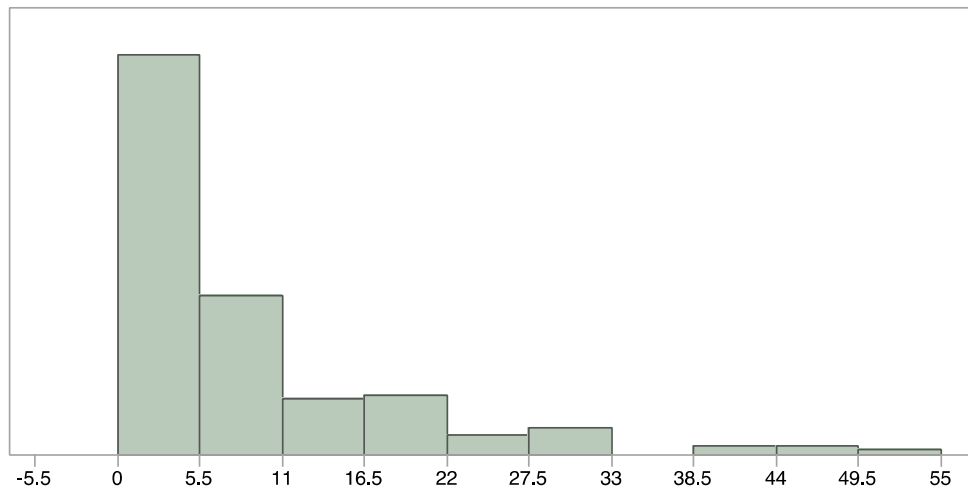
1.

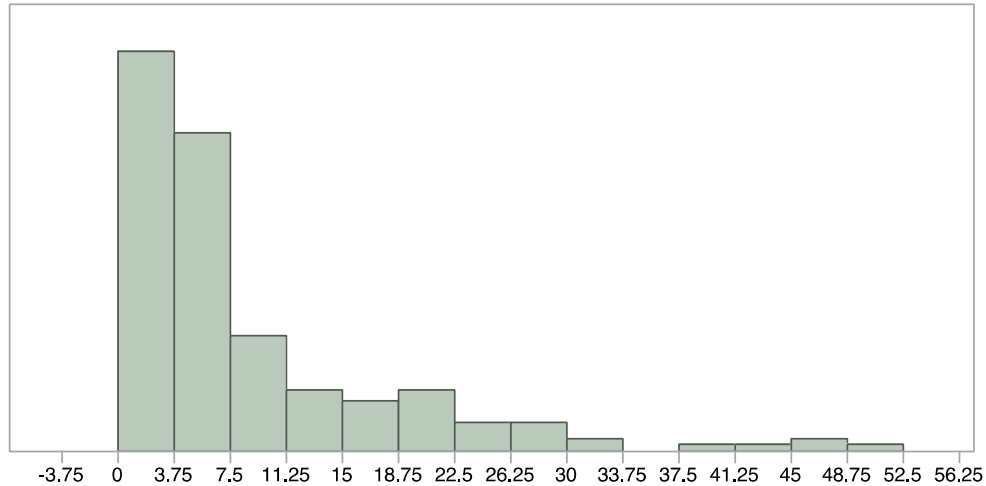
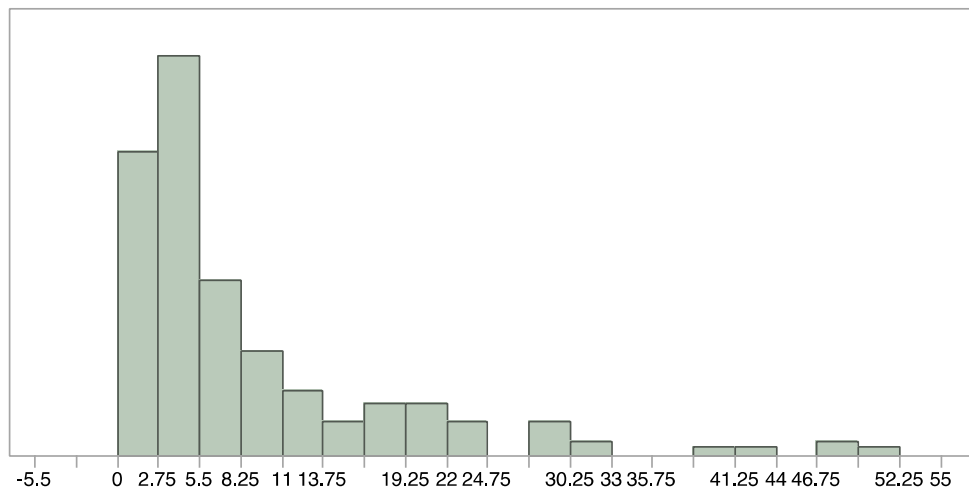
headway.jmp: Distribution of headway

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Distributions

headway



Distributions**headway****Distributions****headway**

These were made using trial and error using the bin width command. It also might be done using the 'hand tool'.

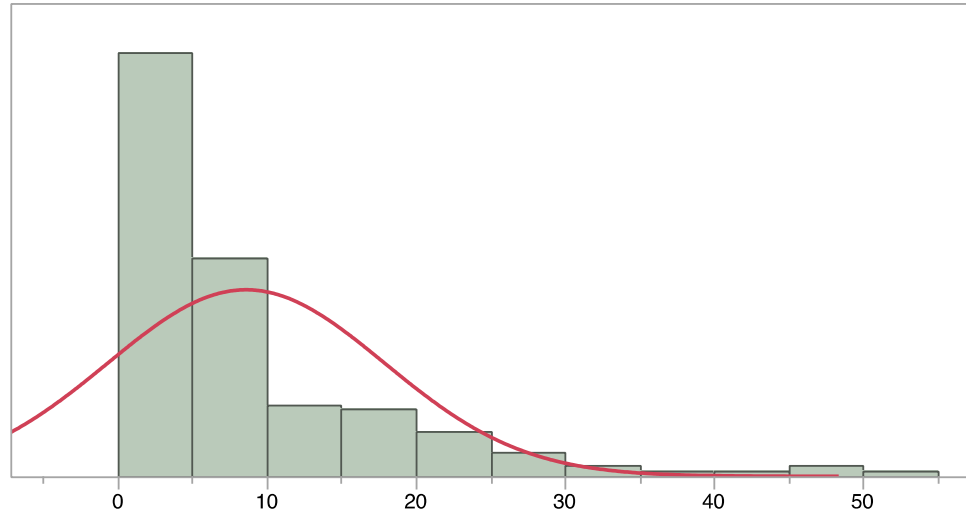
2.

headway.jmp: Distribution of headway

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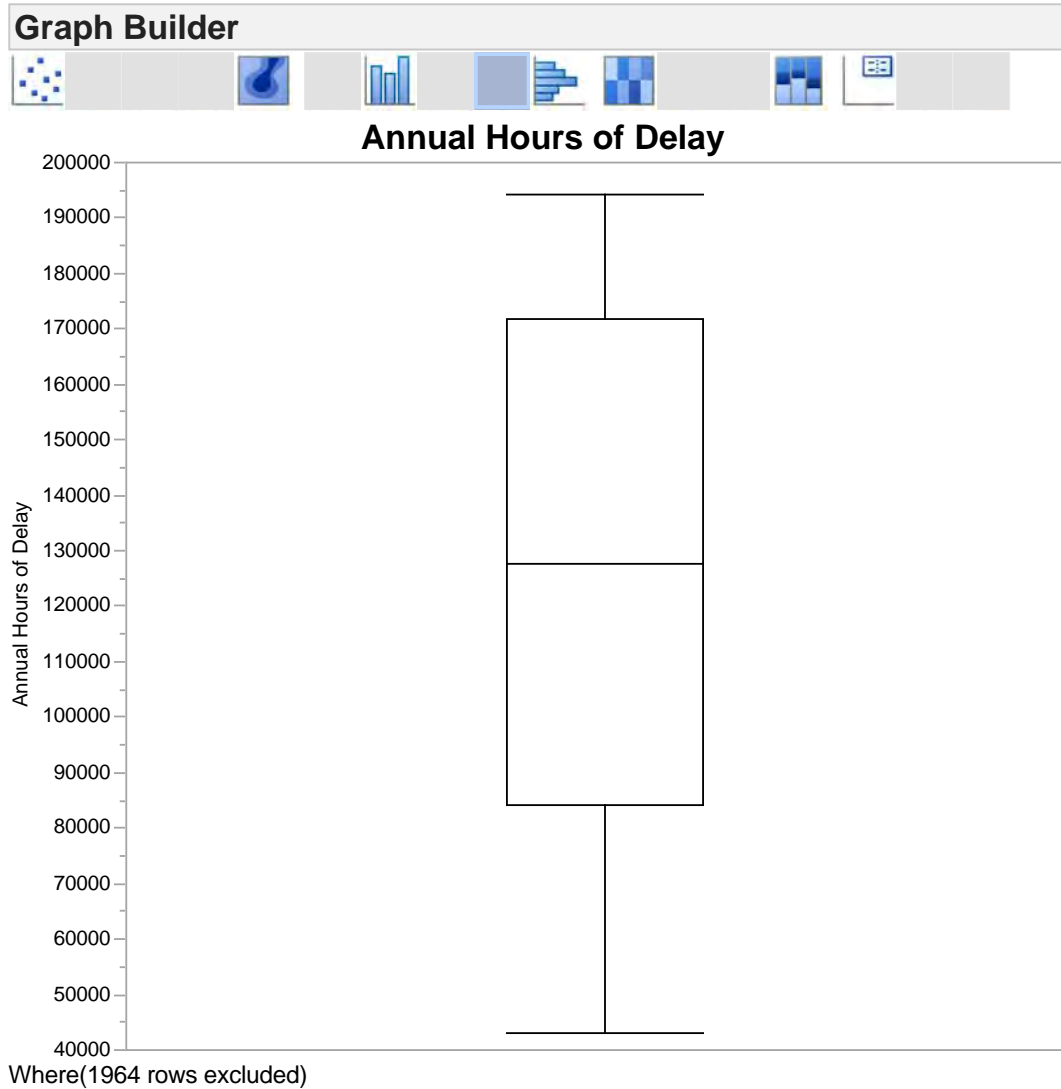
Distributions

headway



— Normal(8.62605,9.29777)

3.



This was done using the graph builder tool. It could also be done using the distribution command, in the analyses menu.

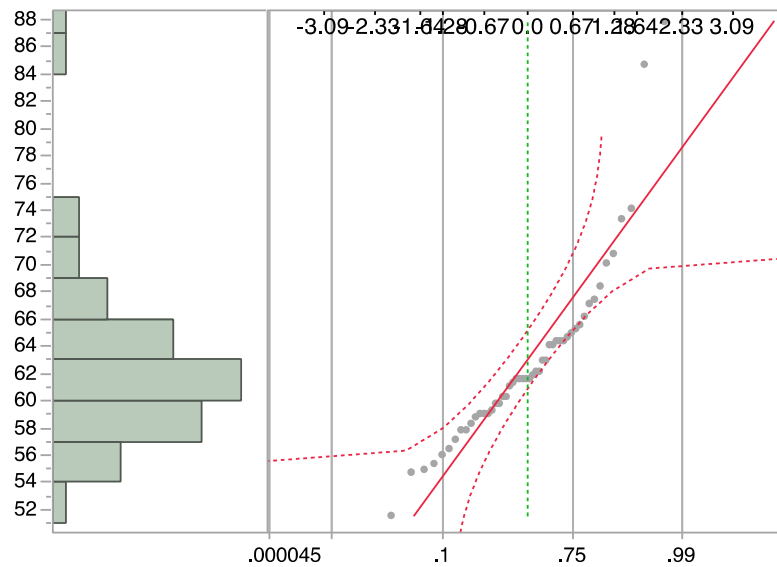
4.

houstonspeed.jmp: Distribution of Column1

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Distributions

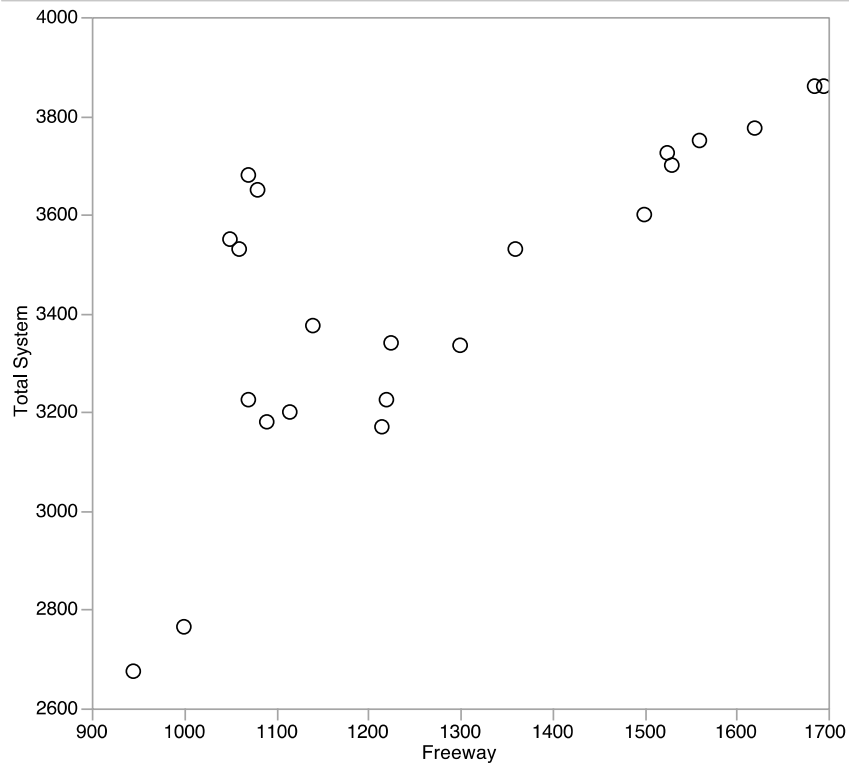
Column1



The data cuts across the 95% confidence interval at about the 75% point. And there seems to be some unusually high values. Still the bulk of the data are not far from normally distributed.

5.

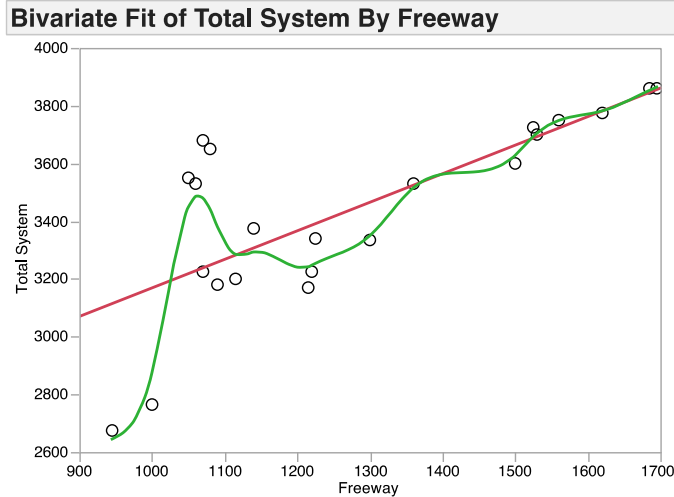
Bivariate Fit of Total System By Freeway



6.

Beaumontmobility.jmp: Fit Y by X of Total System by Freeway

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Linear Fit

Total System = 2180.381 + 0.9884733*Freeway

Summary of Fit

RSquare	0.53703
RSquare Adj	0.513882
Root Mean Square Error	226.8042
Mean of Response	3440.909
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1193379.3	1193379	23.1994
Error	20	1028802.5	51440	Prob > F
C. Total	21	2222181.8		0.0001*

Parameter Estimates

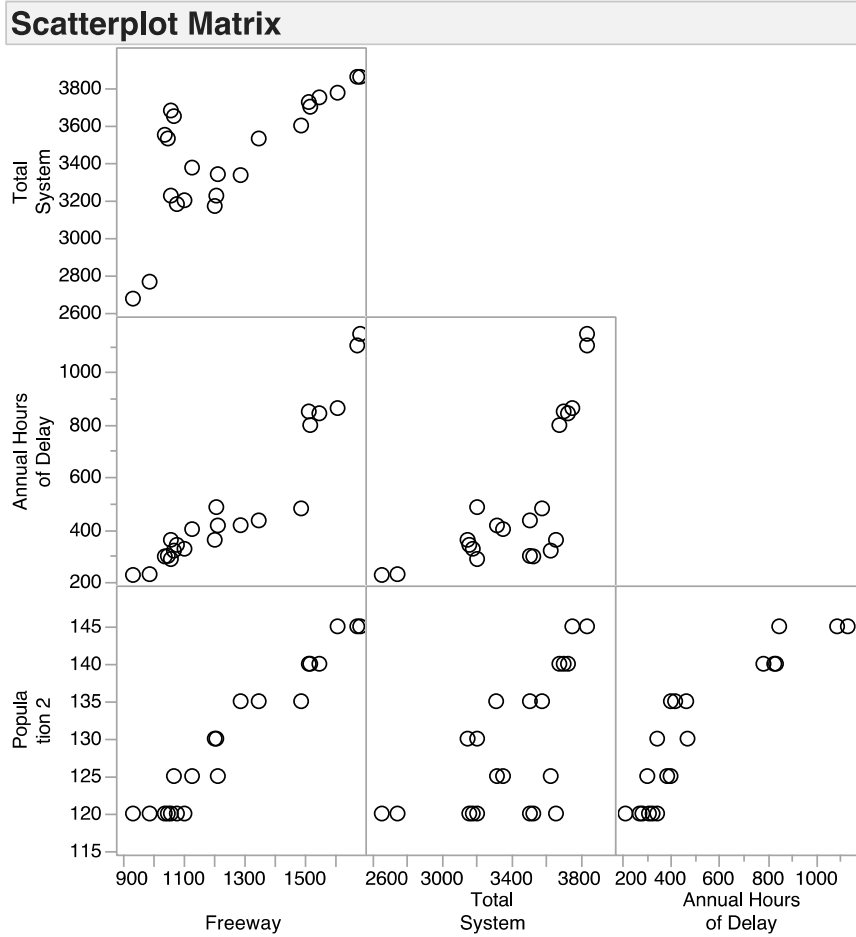
Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	2180.381	266.1361	8.19	<.0001*
Freeway	0.9884733	0.205223	4.82	0.0001*

Smoothing Spline Fit, lambda=10000

R-Square	0.890336
Sum of Squares Error	243693.6

There is an upward trend to the data. It is also clear that there is a wiggly, non-straight line trend in the data.

7.



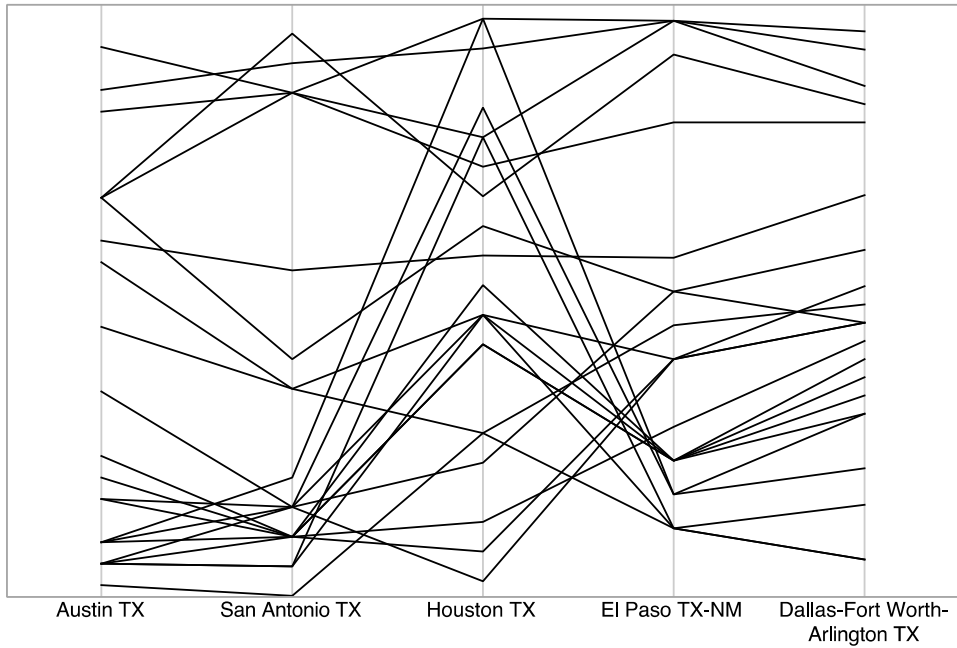
It is clear that the 4 variables are largely linearly related.

8.

untitled 11: Parallel Plot

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Parallel Plot

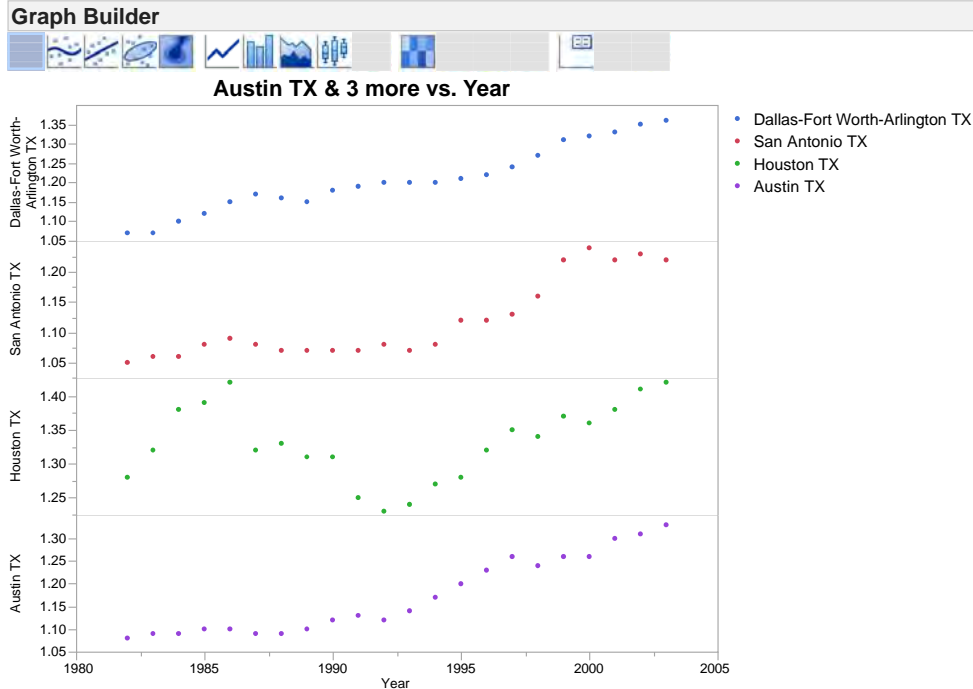


We can conclude that travel time indices are similar for Austin and San Antonio, and have different trends from Houston. Low values in San Antonio correspond to high values in Houston. Houston seems to have traffic patterns not too dissimilar to Dallas-Fort Worth. El Paso seems to be more similar to Austin and San Antonio than the bigger cities.

9.

untitled 11: Graph Builder

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This plot was made using the graph builder. It could also be made using the time series command under the modeling menu.

10. Plots provide a visual overview of what is in the data at the expense of more exact individual values. The old cliché, a picture is worth a 1000 words is often true. In each of the plots above features of the data are apparent that are not from looking, bleary eyed at tables of numbers.