

Exploratory Data Analysis of:

Example of EDA using the auto.dta Data set

Billy Buchanan

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Chapter 1.

Graphs

Univariate Distributions

Categorical Variables

Bar Graphs.

Figure 1.1: Repair Record 1978

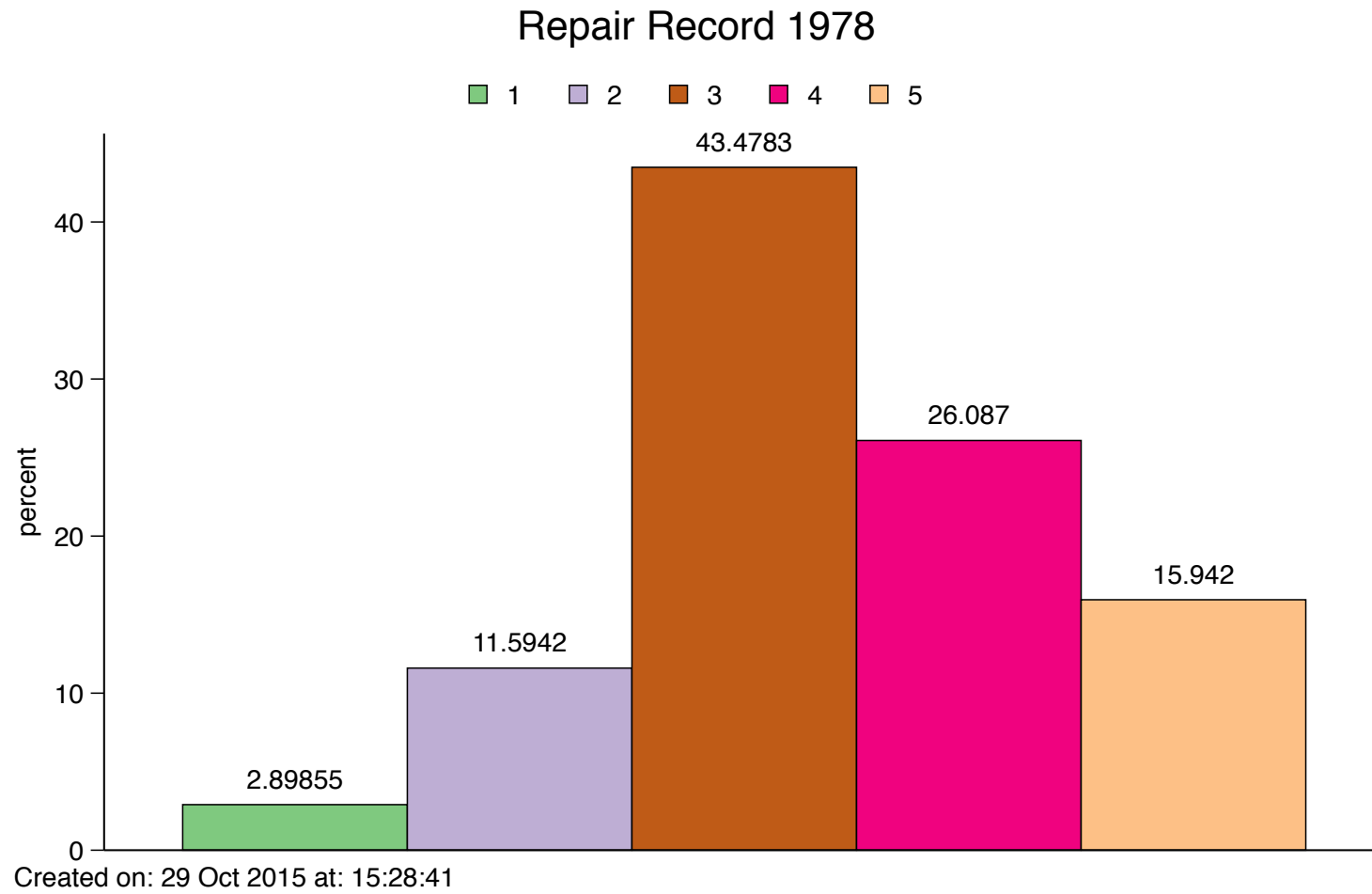
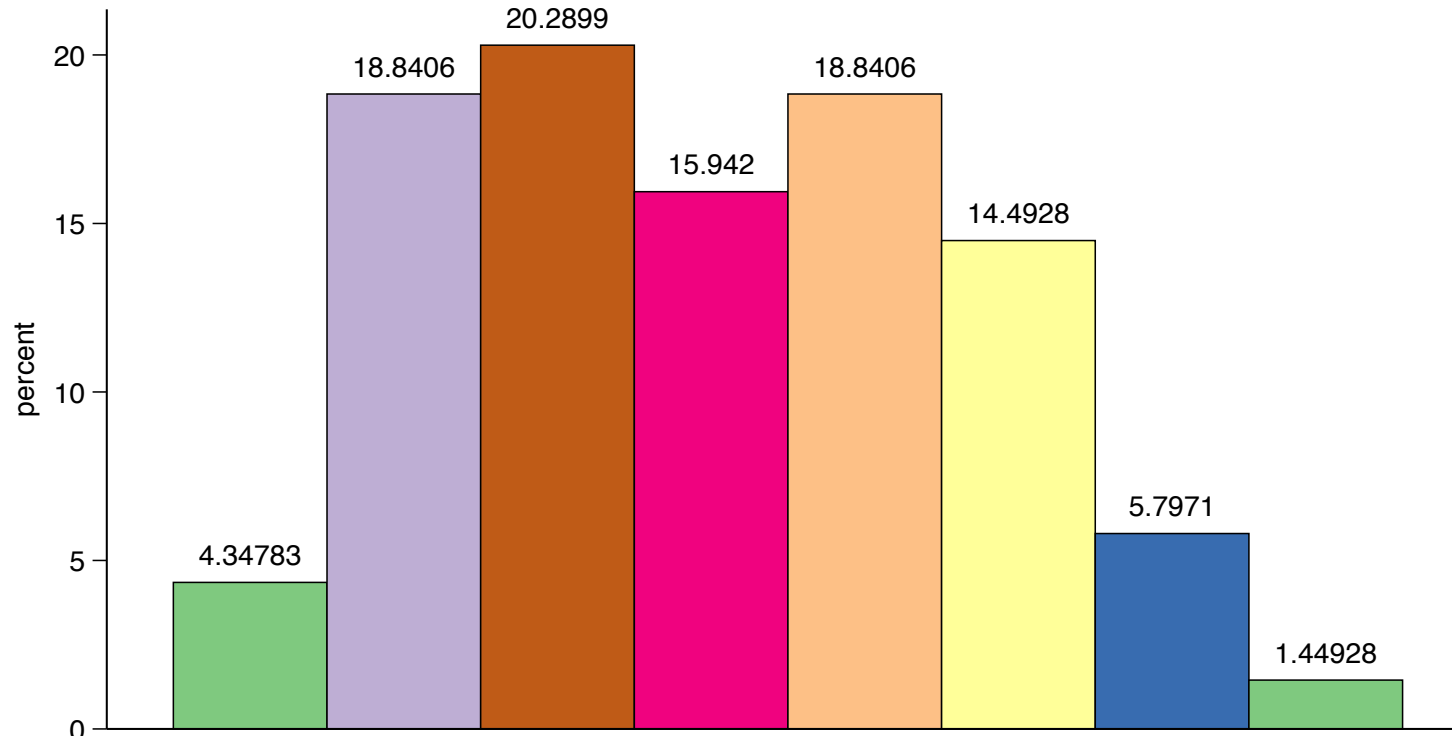


Figure 1.2: Headroom (in.)

Headroom (in.)

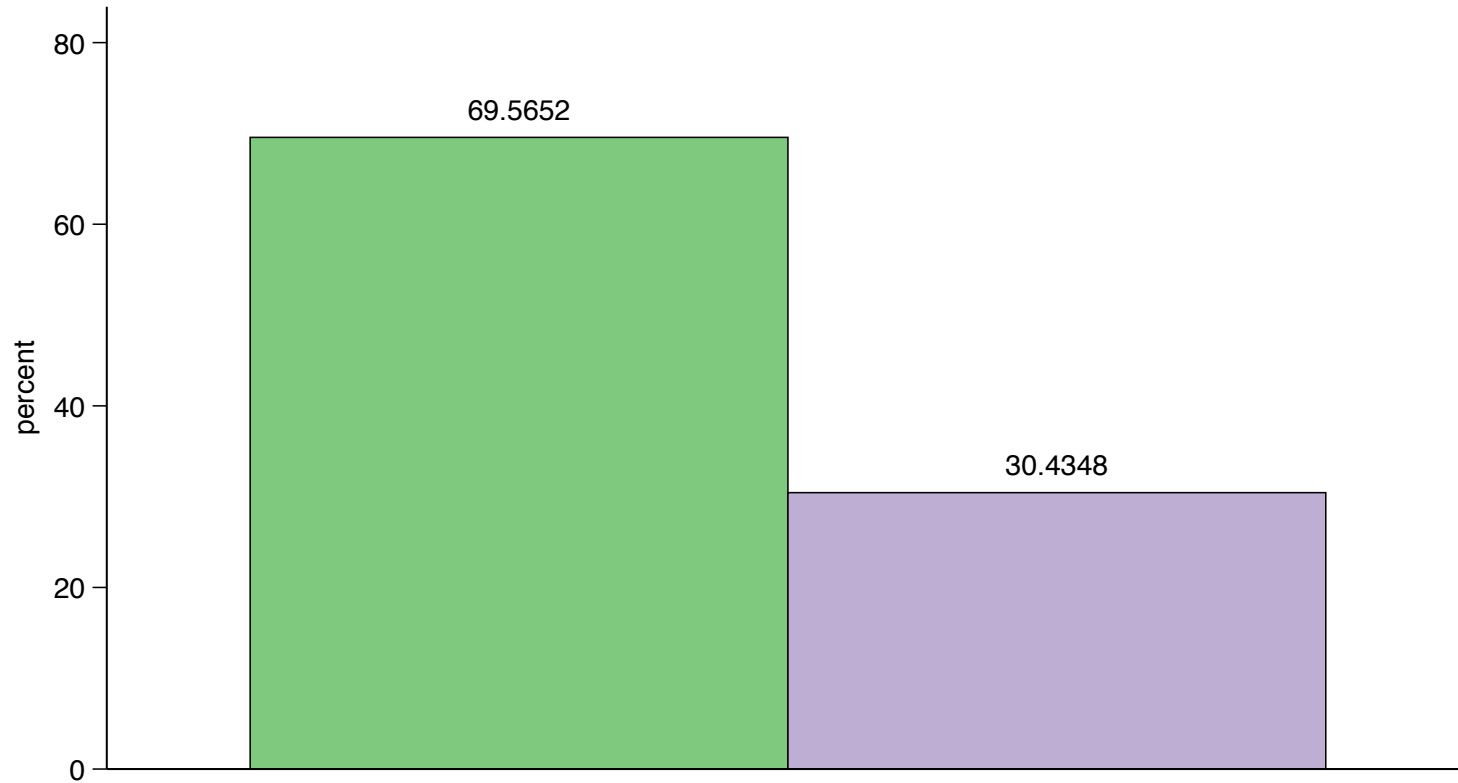


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Figure 1.3: Car type

Car type

Domestic Foreign

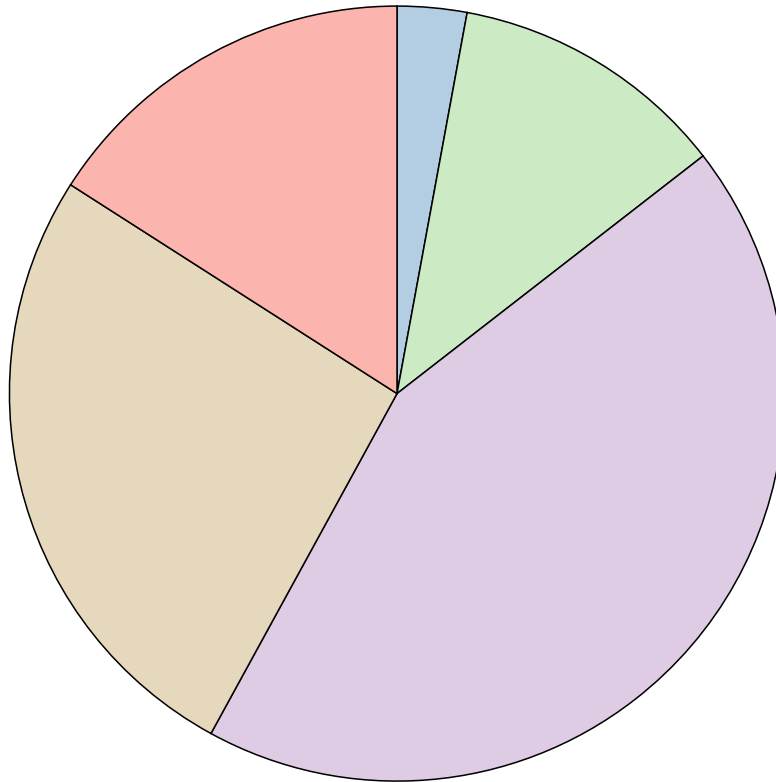


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Figure 1.4: Pie Chart of Repair Record 1978

Repair Record 1978

1 2 3 4 5

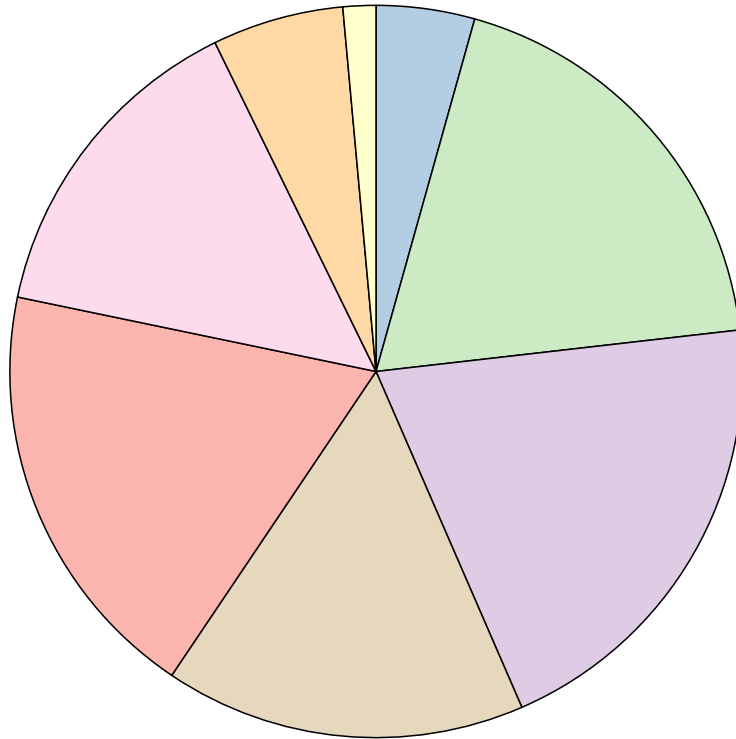


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Pie Charts.

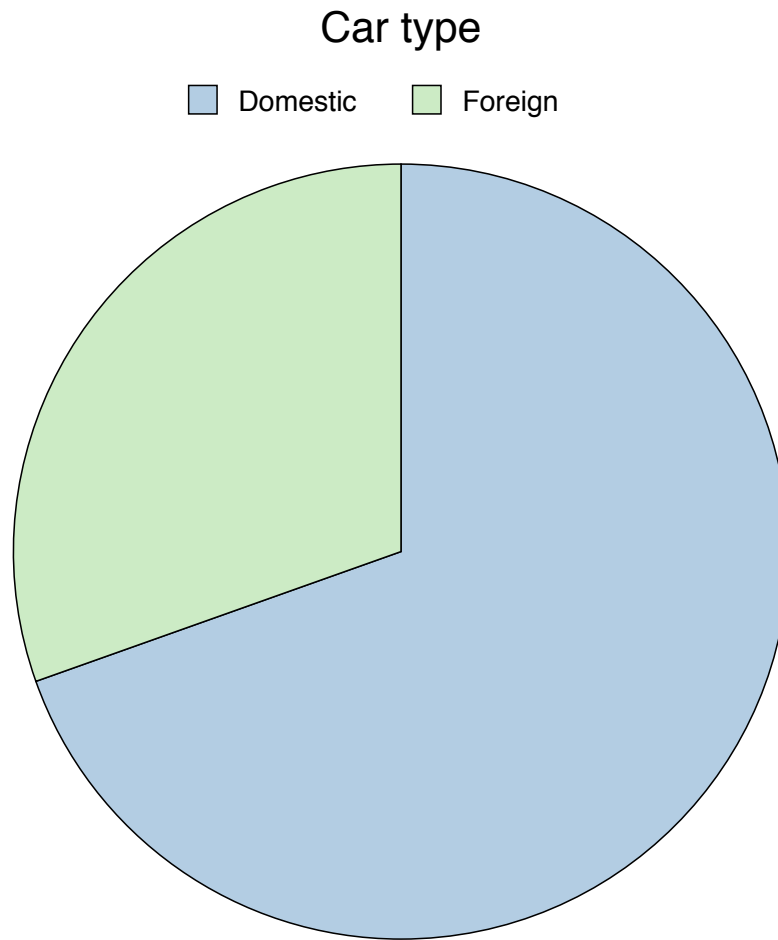
Figure 1.5: Pie Chart of Headroom (in.)

Headroom (in.)



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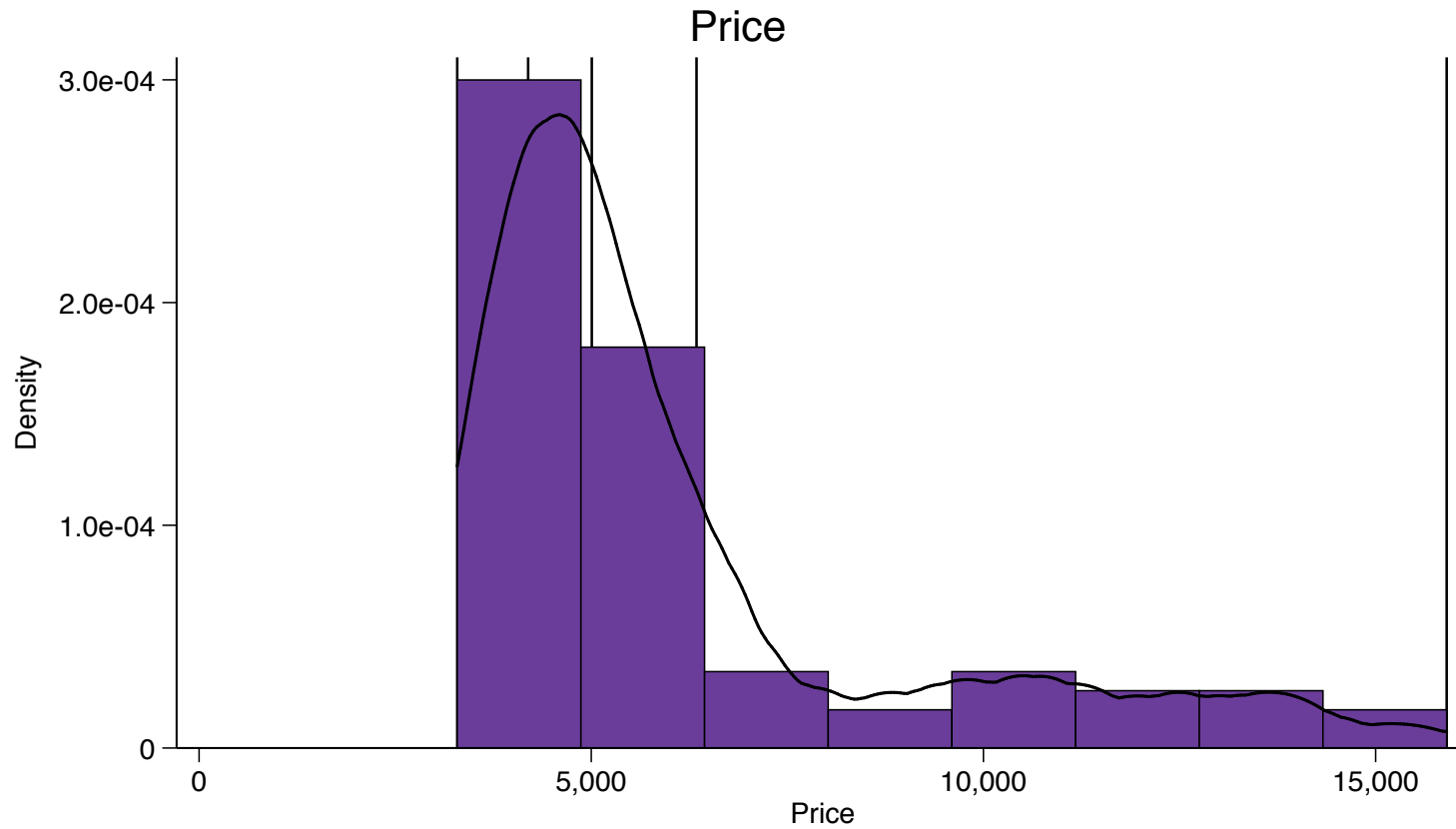
Figure 1.6: Pie Chart of Car type



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Continuous Variables

Figure 1.7: Histogram of Price

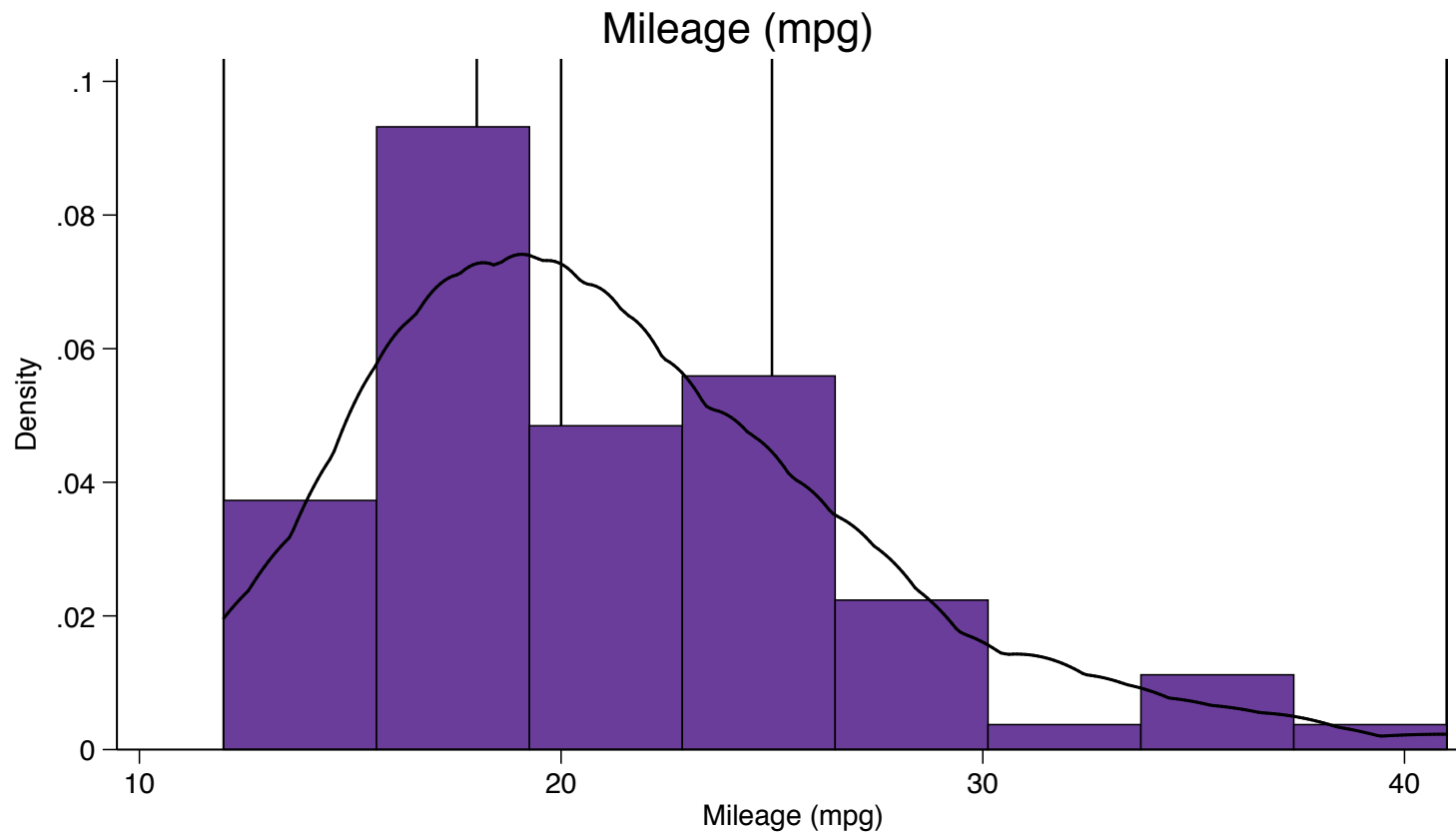


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Vertical lines show locations of Tukey's Five Number Summary
Min = 3291.00 25th %ile = 4195.00 Median = 5006.50 75th %ile = 6342.00 Max = 15906.00
 $\mu = 6165.26$ $\sigma = 2949.50$

Histograms.

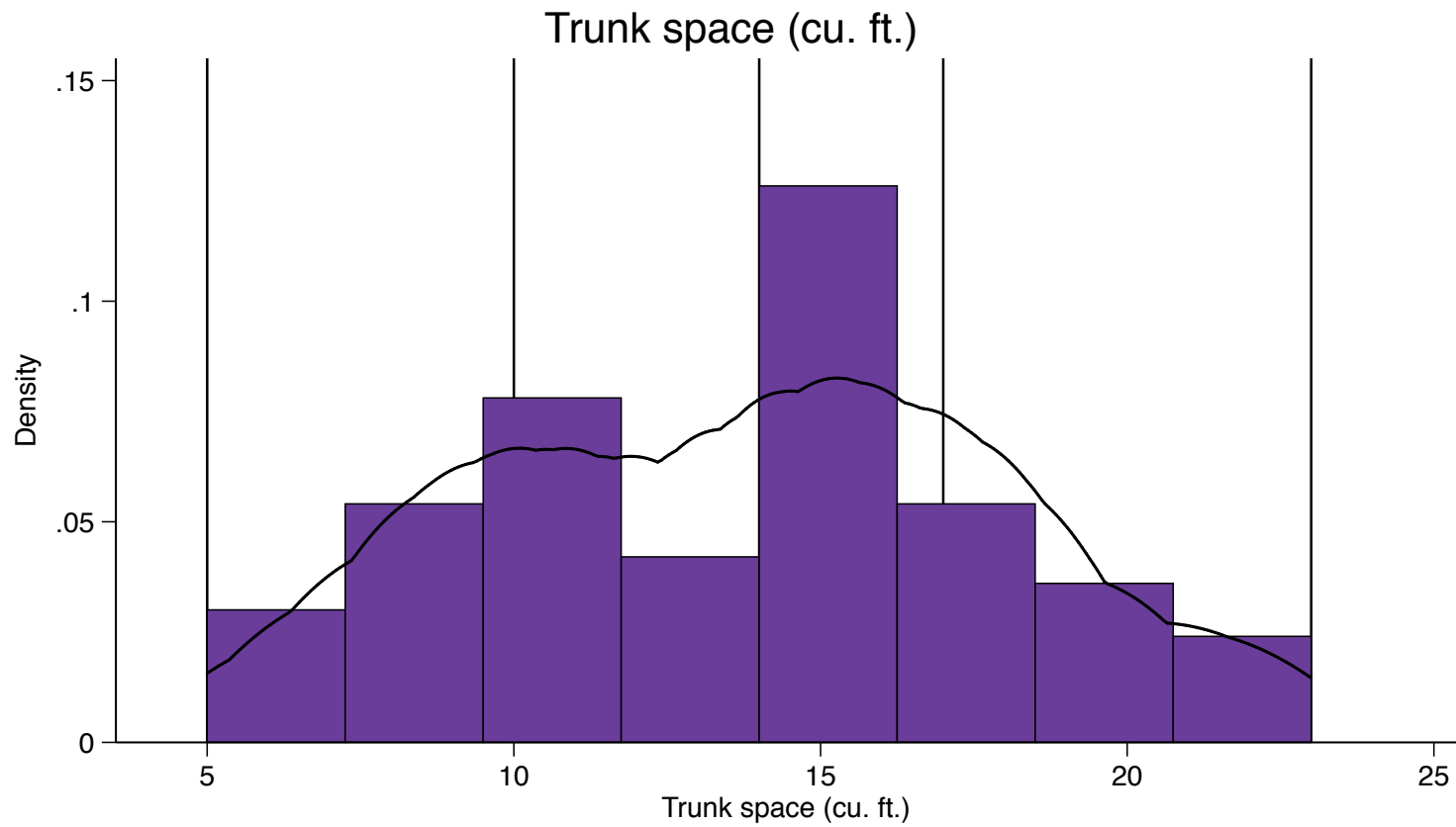
Figure 1.8: Histogram of Mileage (mpg)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 12.00 25th %ile = 18.00 Median = 20.00 75th %ile = 25.00 Max = 41.00
 $\mu = 21.30$ $\sigma = 5.79$

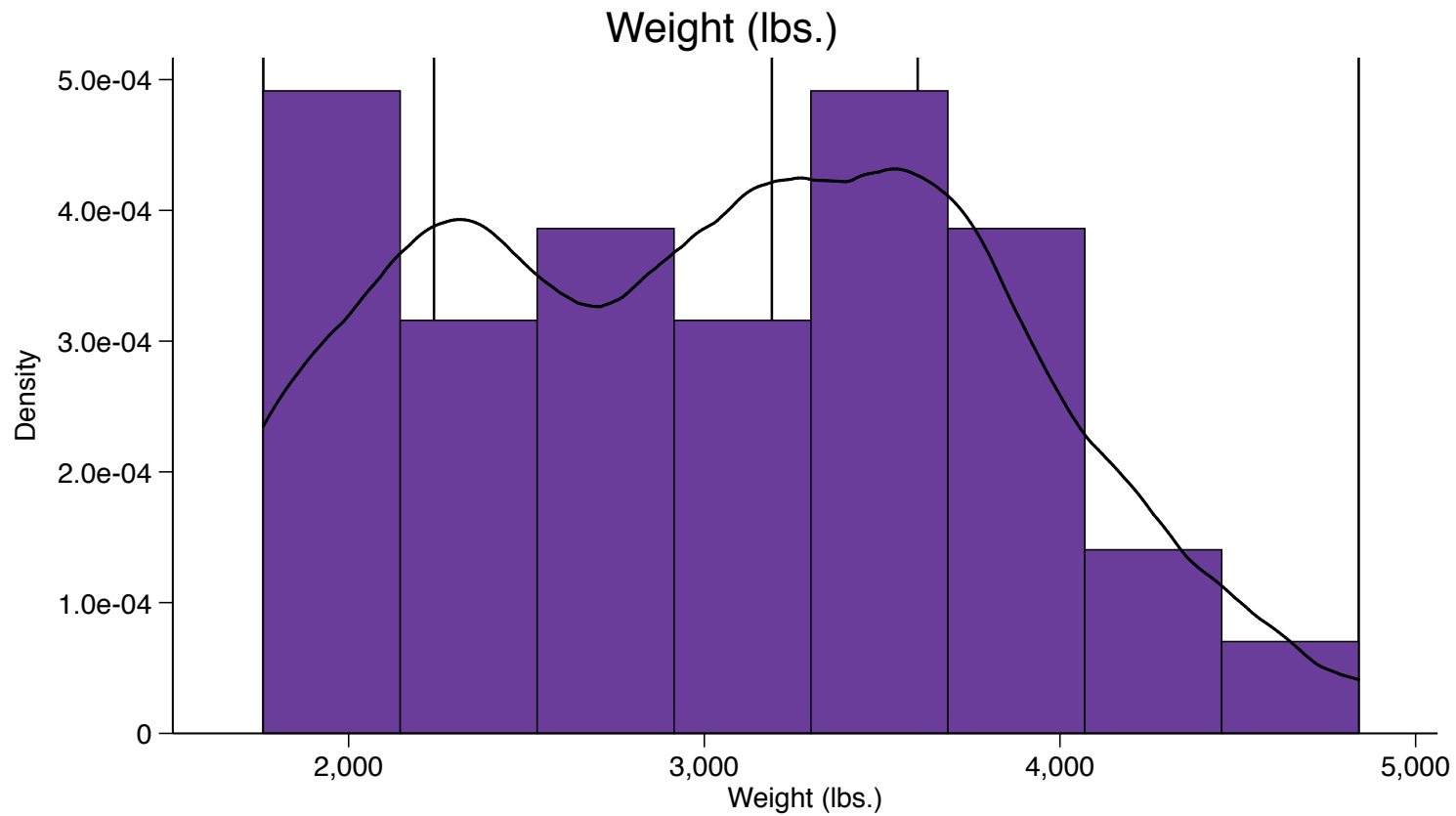
Figure 1.9: Histogram of Trunk space (cu. ft.)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 5.00 25th %ile = 10.00 Median = 14.00 75th %ile = 17.00 Max = 23.00
 $\mu = 13.76$ $\sigma = 4.28$

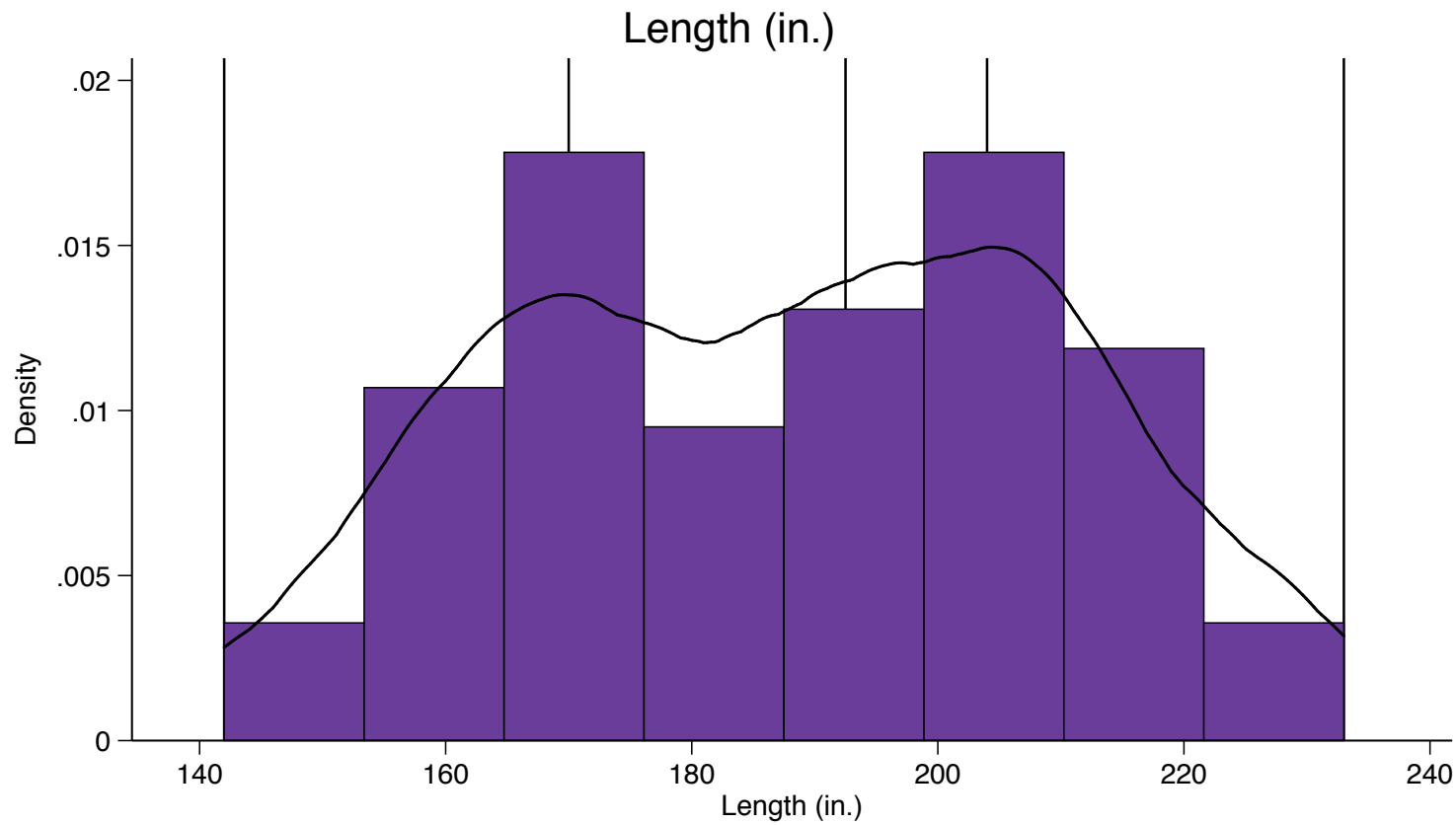
Figure 1.10: Histogram of Weight (lbs.)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 1760.00 25th %ile = 2240.00 Median = 3190.00 75th %ile = 3600.00 Max = 4840.00
 $\mu = 3019.46$ $\sigma = 777.19$

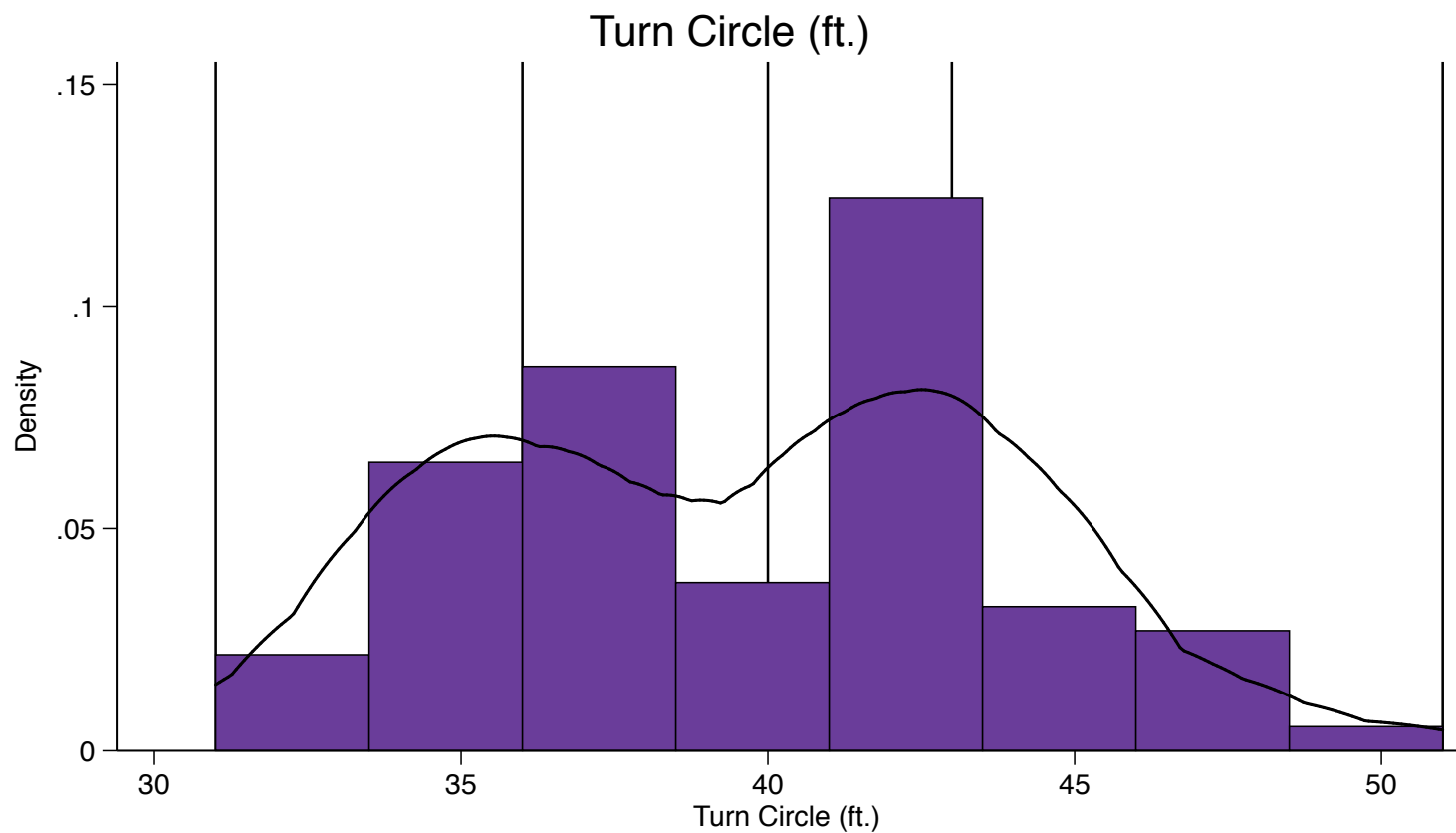
Figure 1.11: Histogram of Length (in.)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 142.00 25th %ile = 170.00 Median = 192.50 75th %ile = 204.00 Max = 233.00
 $\mu = 187.93$ $\sigma = 22.27$

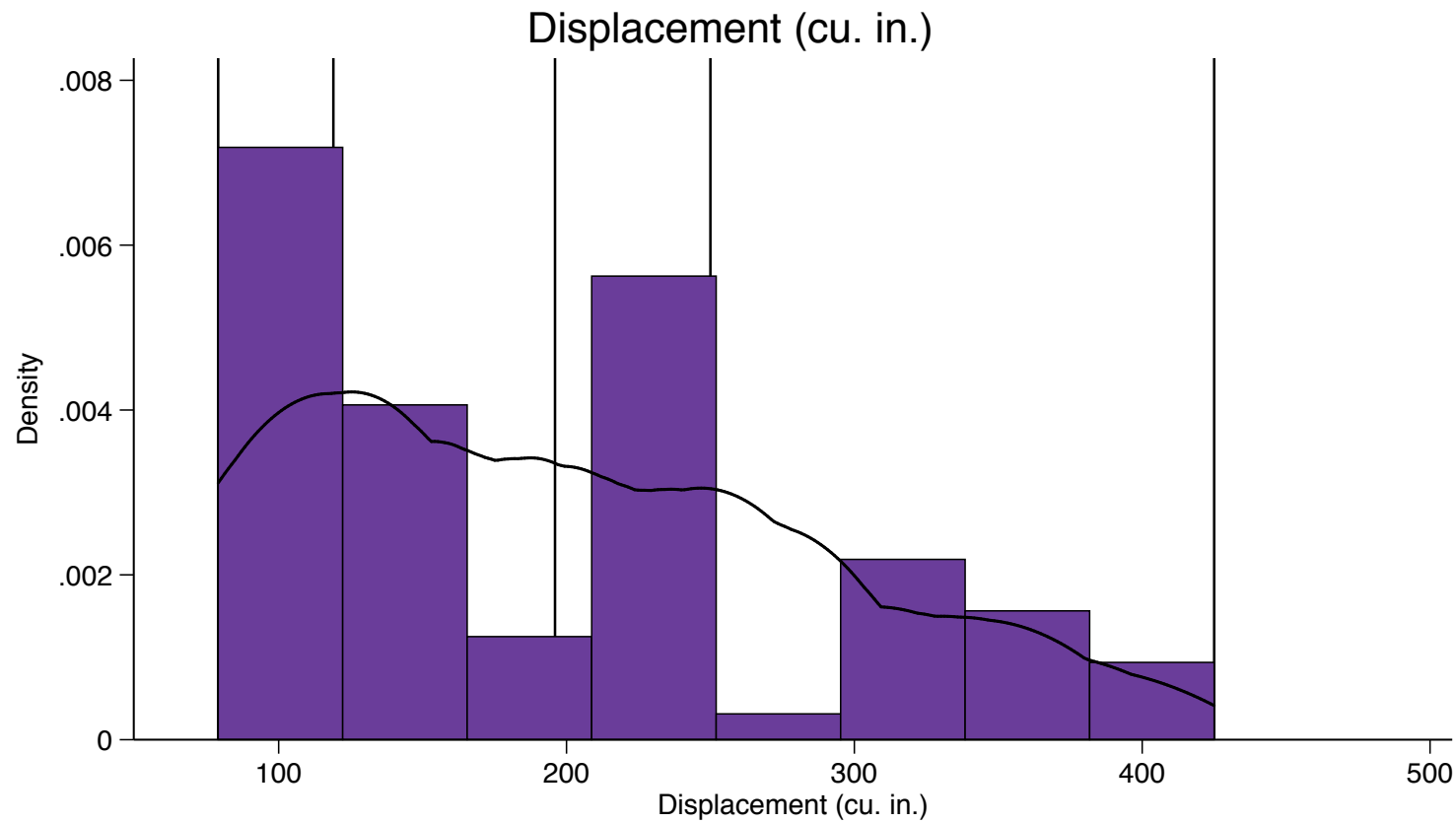
Figure 1.12: Histogram of Turn Circle (ft.)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 31.00 25th %ile = 36.00 Median = 40.00 75th %ile = 43.00 Max = 51.00
 $\mu = 39.65$ $\sigma = 4.40$

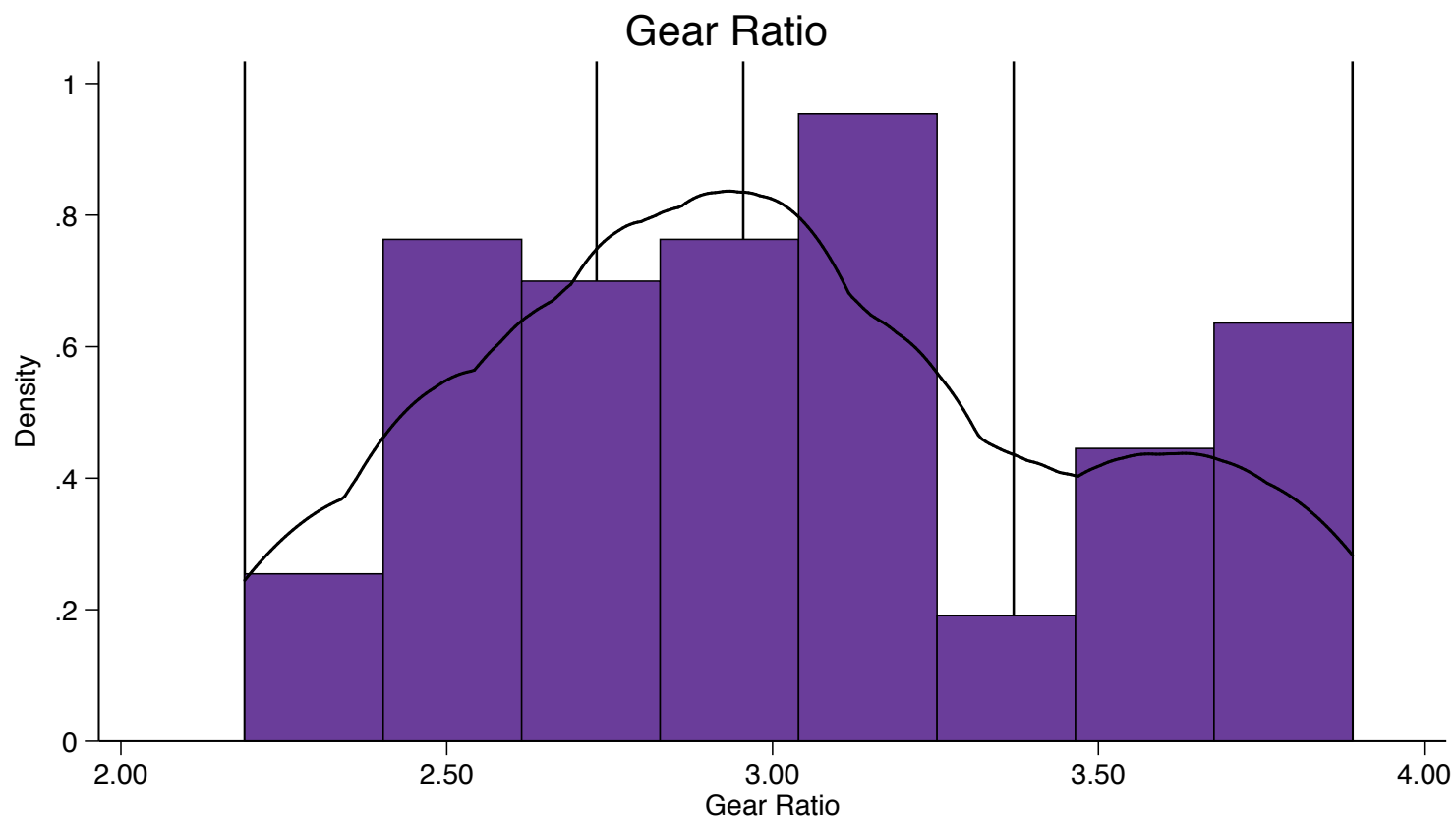
Figure 1.13: Histogram of Displacement (cu. in.)



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Vertical lines show locations of Tukey's Five Number Summary
Min = 79.00 25th %ile = 119.00 Median = 196.00 75th %ile = 250.00 Max = 425.00
 $\mu = 197.30$ $\sigma = 91.84$

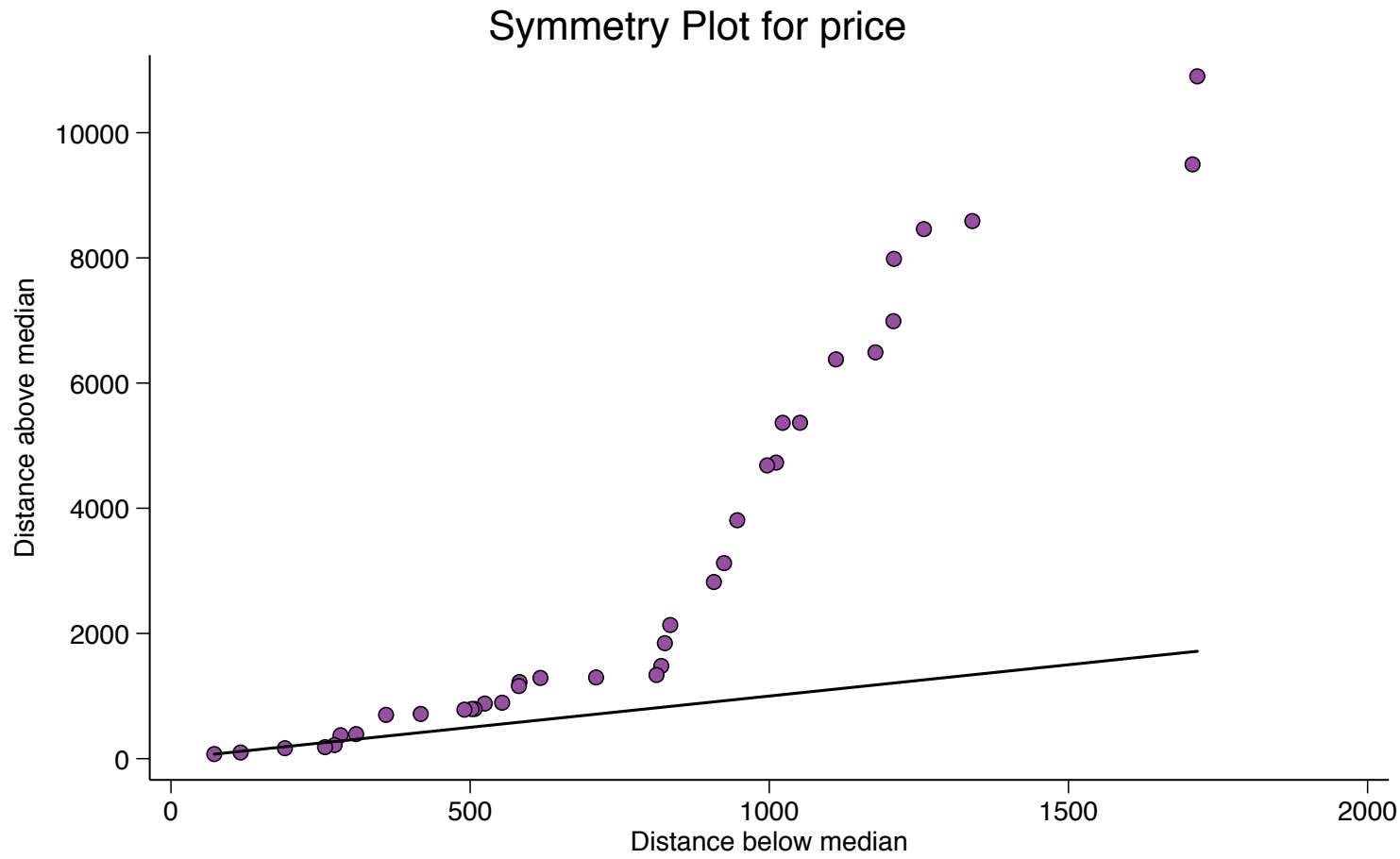
Figure 1.14: Histogram of Gear Ratio



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Vertical lines show locations of Tukey's Five Number Summary
Min = 2.19 25th %ile = 2.73 Median = 2.96 75th %ile = 3.37 Max = 3.89
 $\mu = 3.01$ $\sigma = 0.46$

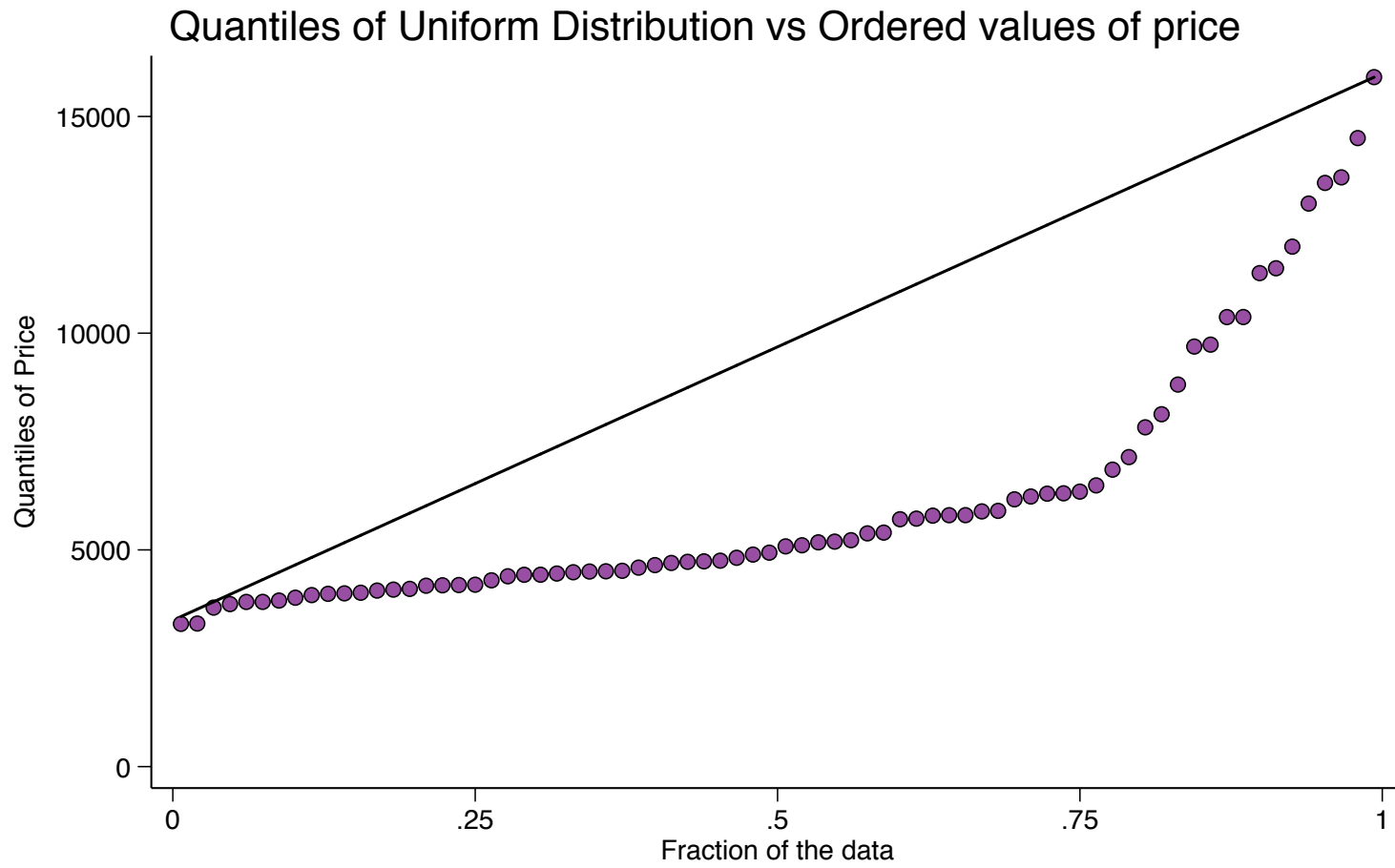
Figure 1.15: Symmetry Plot for Price



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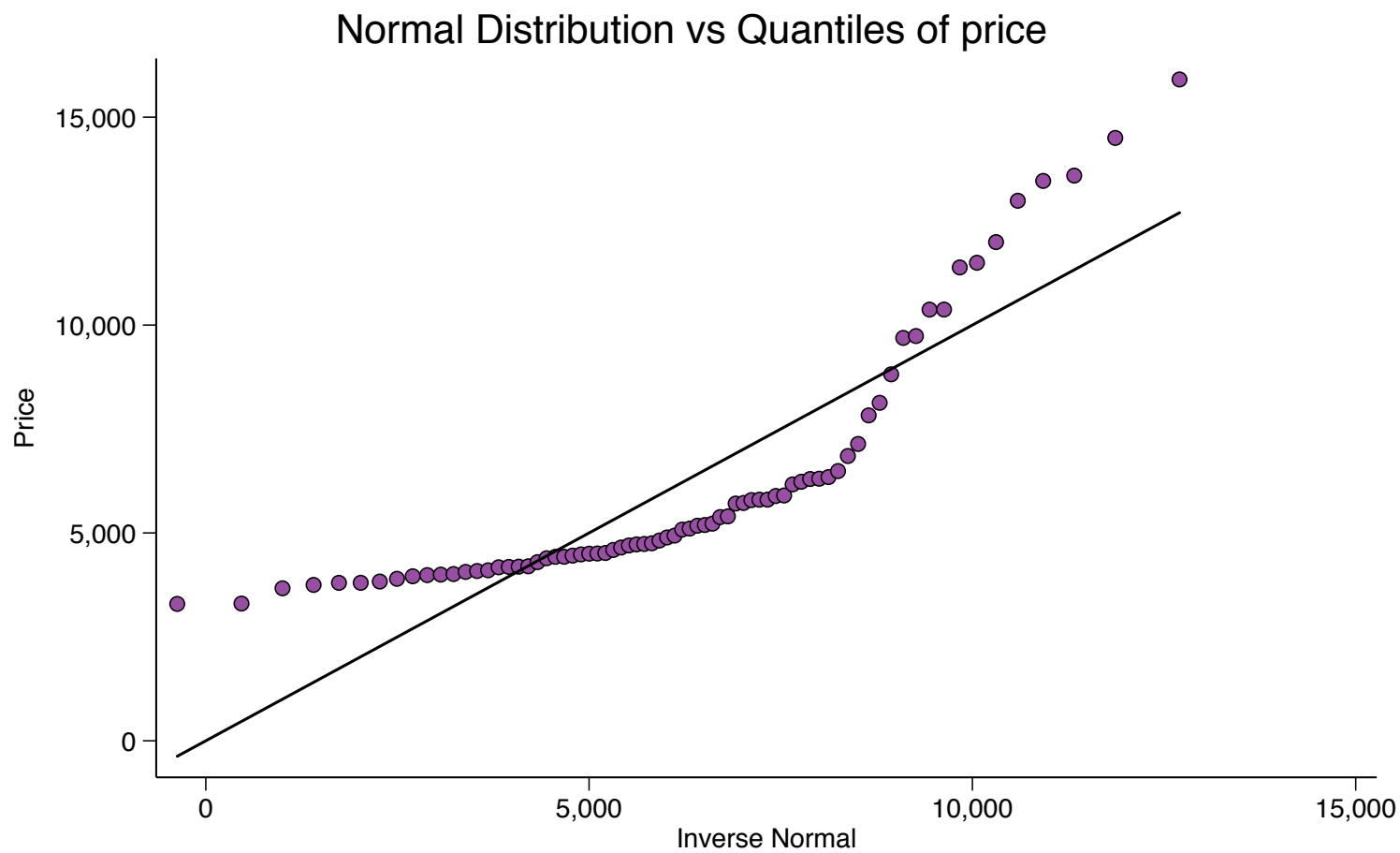
Distribution Diagnostic Plots.

Figure 1.16: Quantiles of Uniform Distribution vs Ordered values of Price



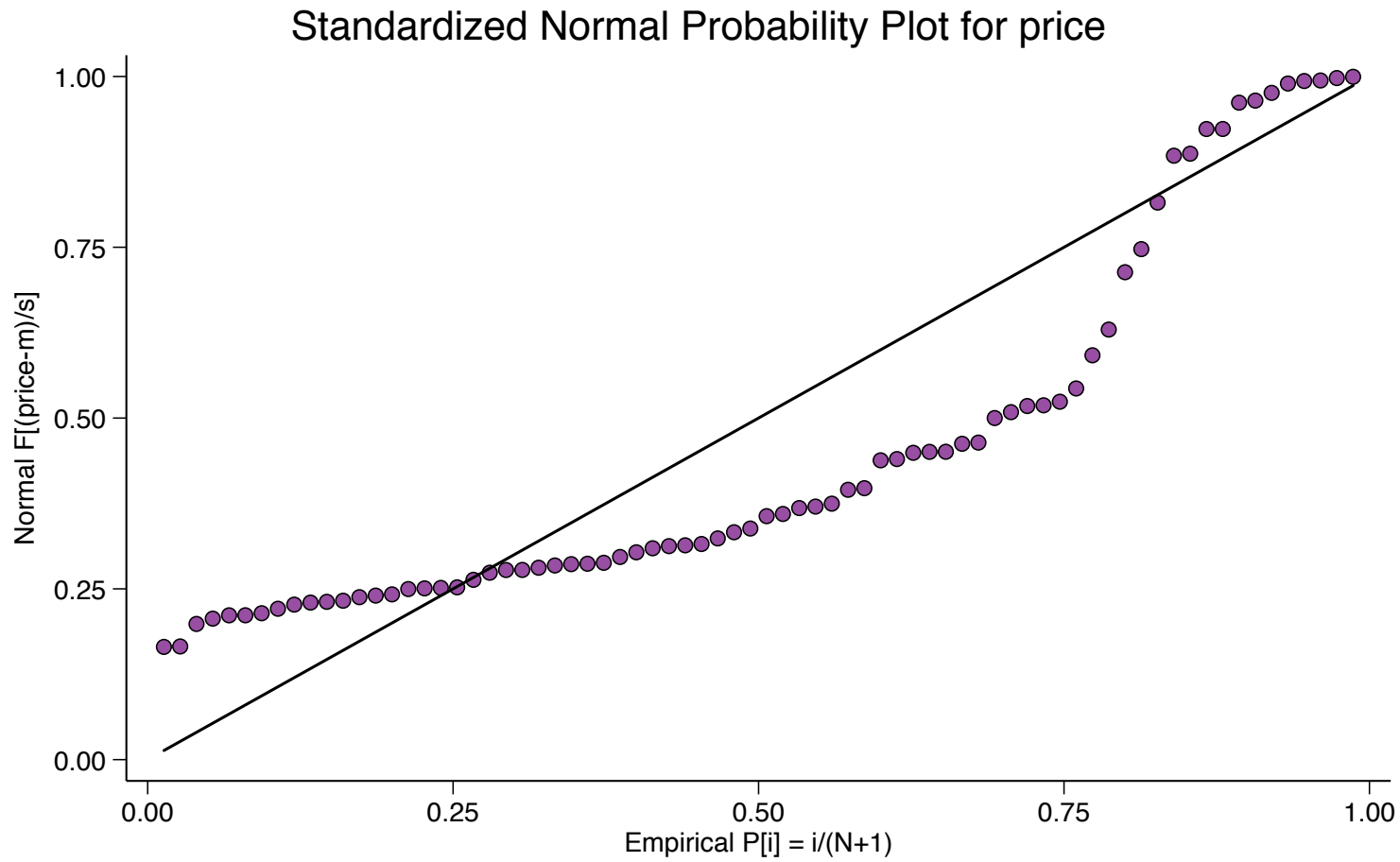
Created on: 29 Oct 2015 at: 15:29:13

Figure 1.17: Normal Distribution vs Quantiles of Price



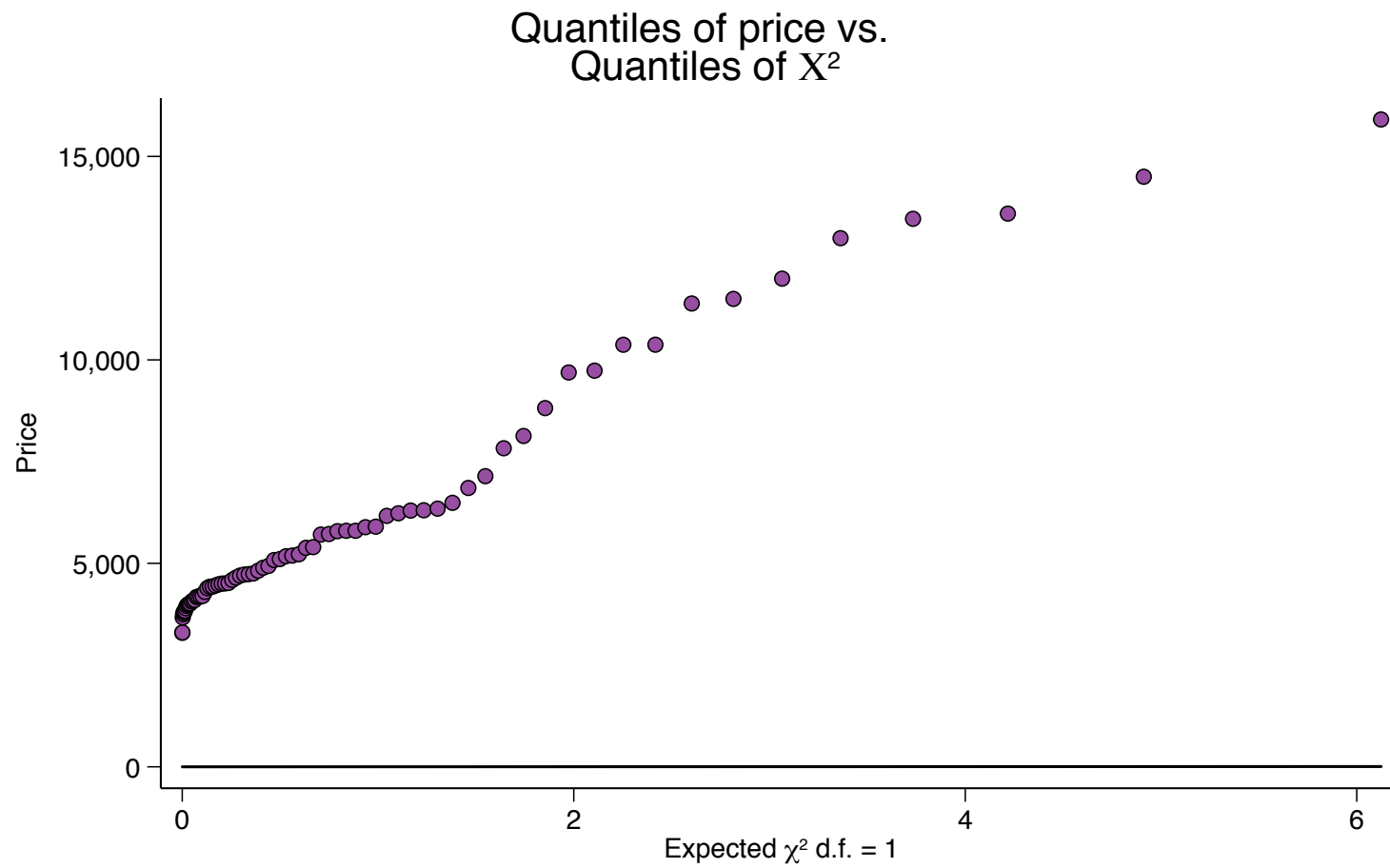
Created on: 29 Oct 2015 at: 15:29:15

Figure 1.18: Standardized Normal Probability Plot for Price



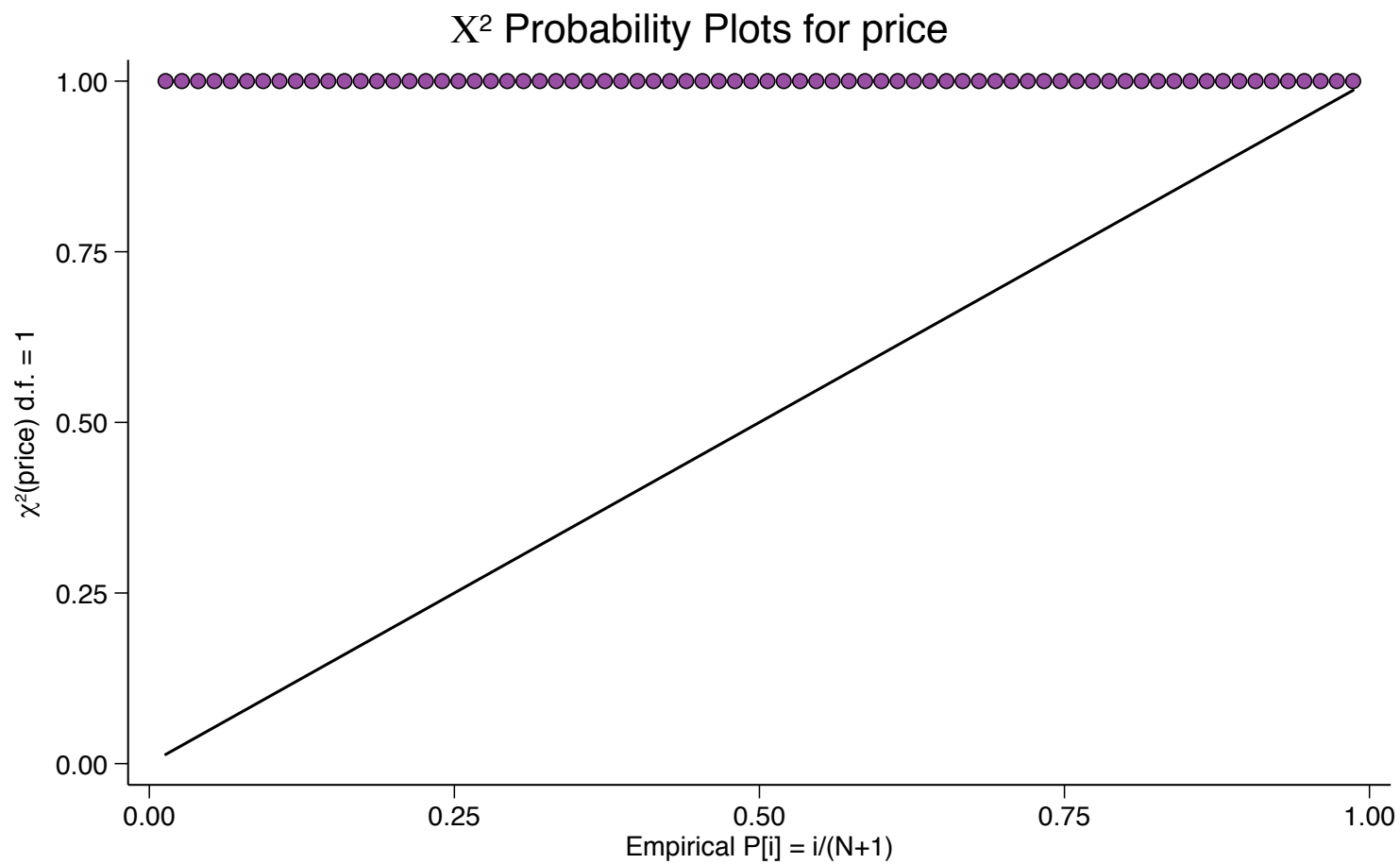
Created on: 29 Oct 2015 at: 15:29:17

Figure 1.19: Chi-Squared Quantiles v. Price



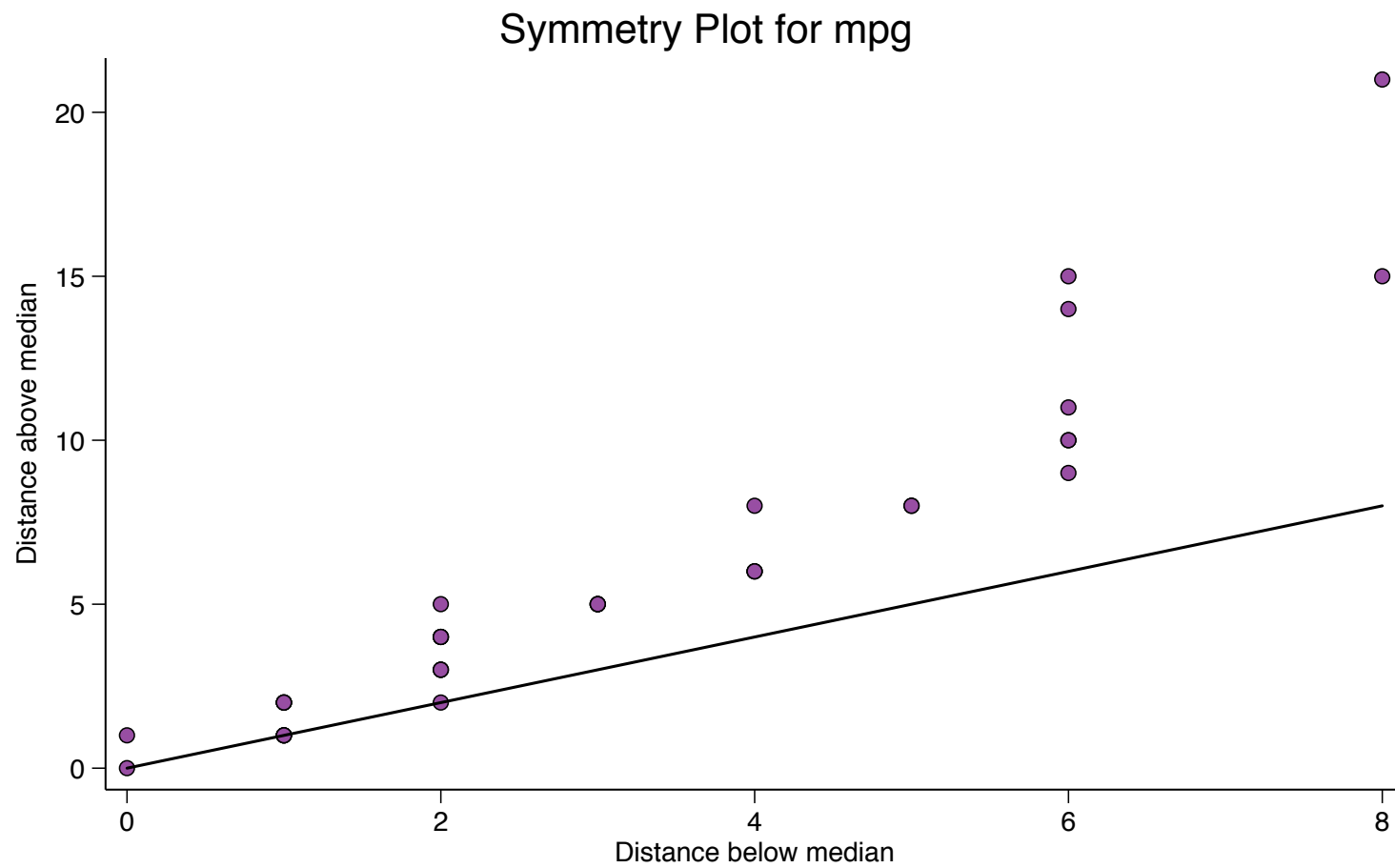
Created on: 29 Oct 2015 at: 15:29:19

Figure 1.20: Chi-Squared Probability Price



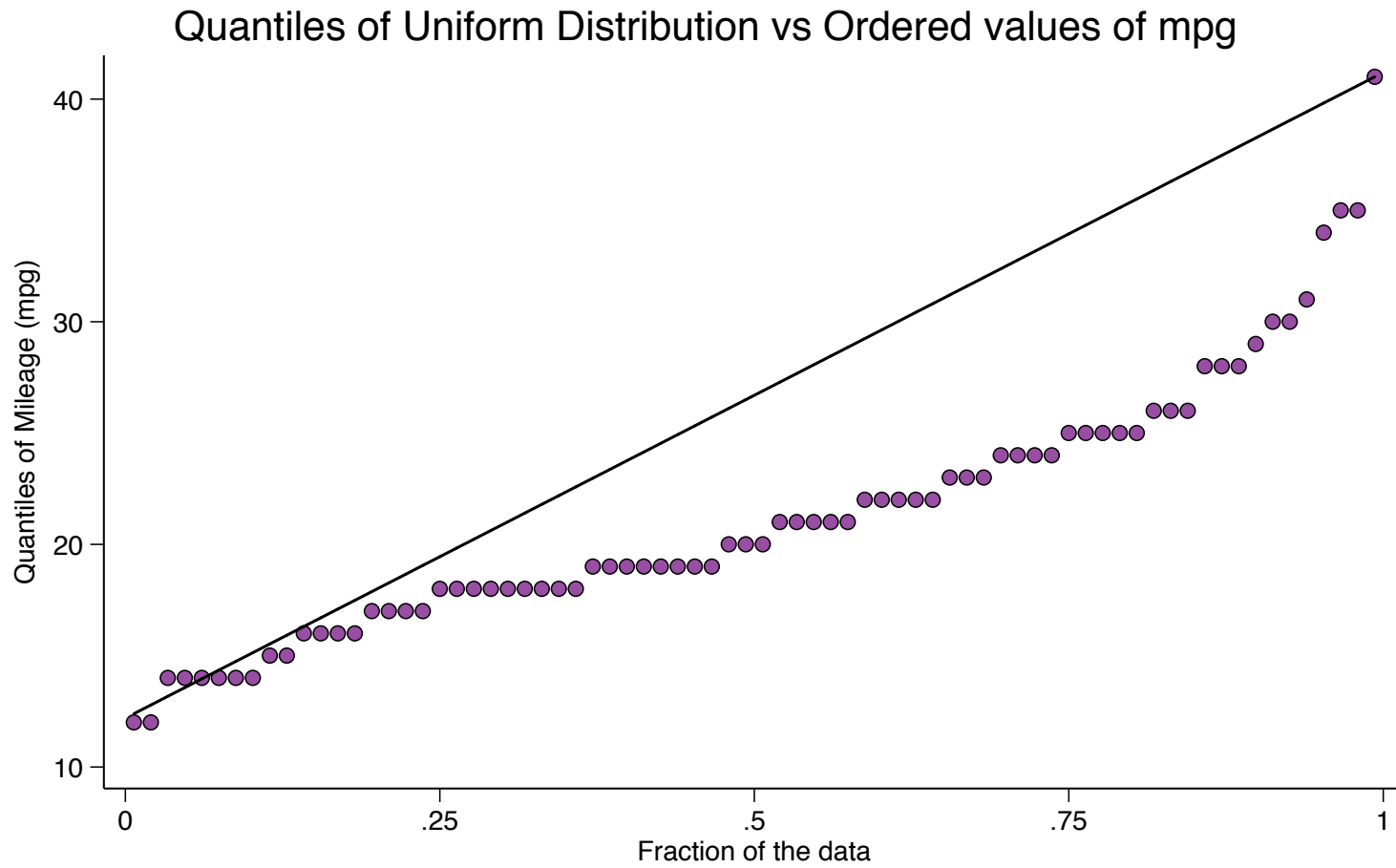
Created on: 29 Oct 2015 at: 15:29:21

Figure 1.21: Symmetry Plot for Mileage (mpg)



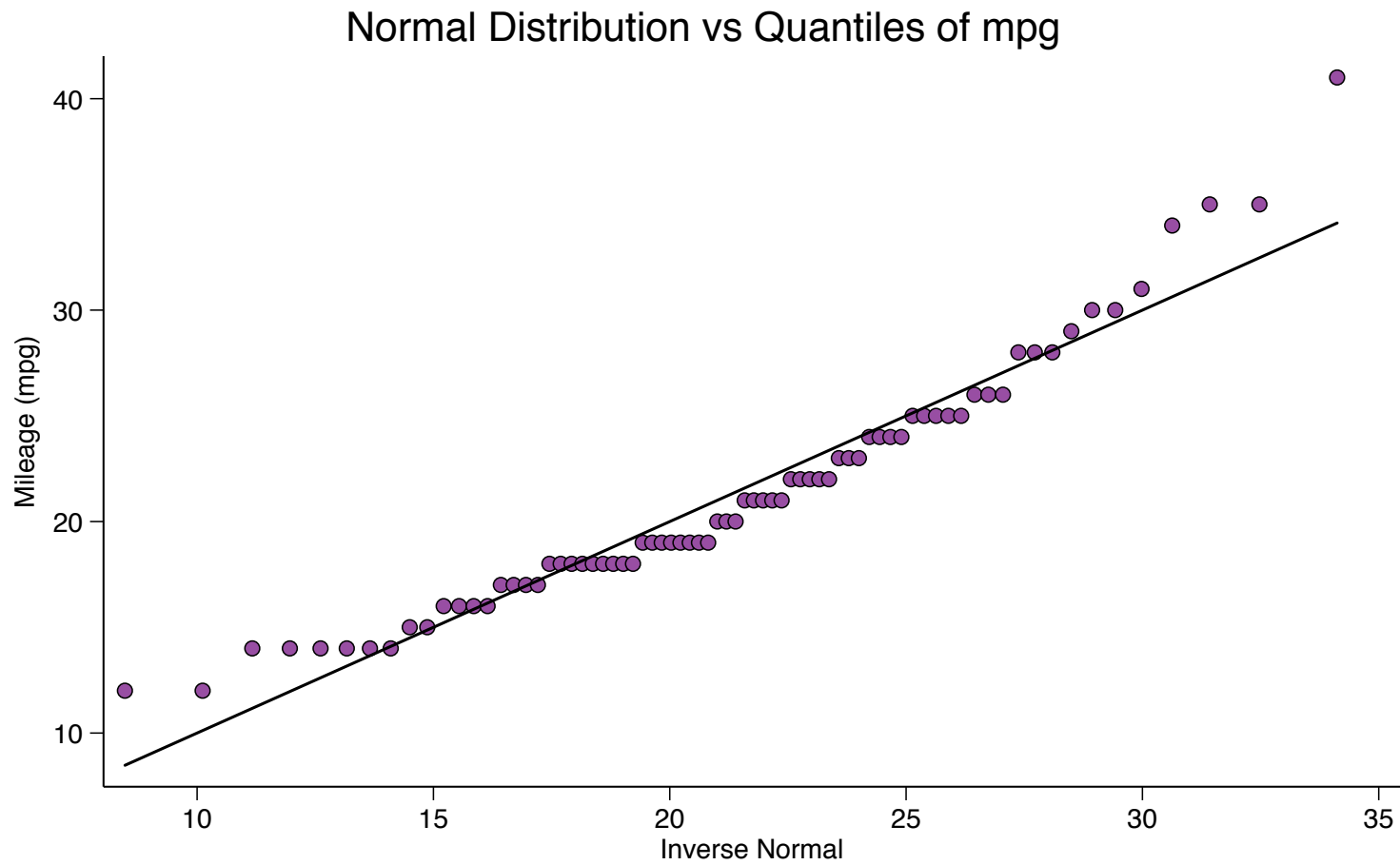
Created on: 29 Oct 2015 at: 15:29:24

Figure 1.22: Quantiles of Uniform Distribution vs Ordered values of Mileage (mpg)



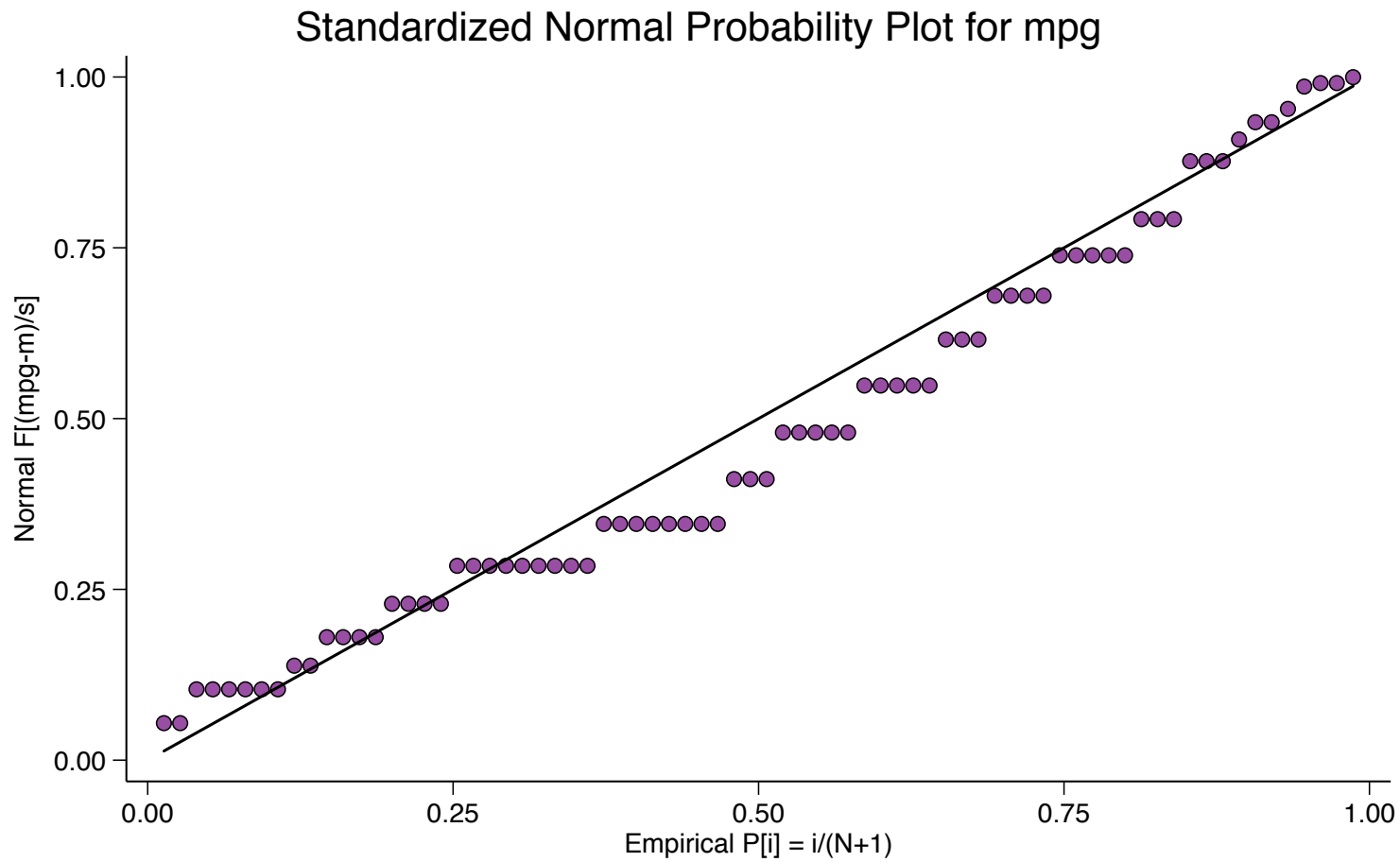
Created on: 29 Oct 2015 at: 15:29:26

Figure 1.23: Normal Distribution vs Quantiles of Mileage (mpg)



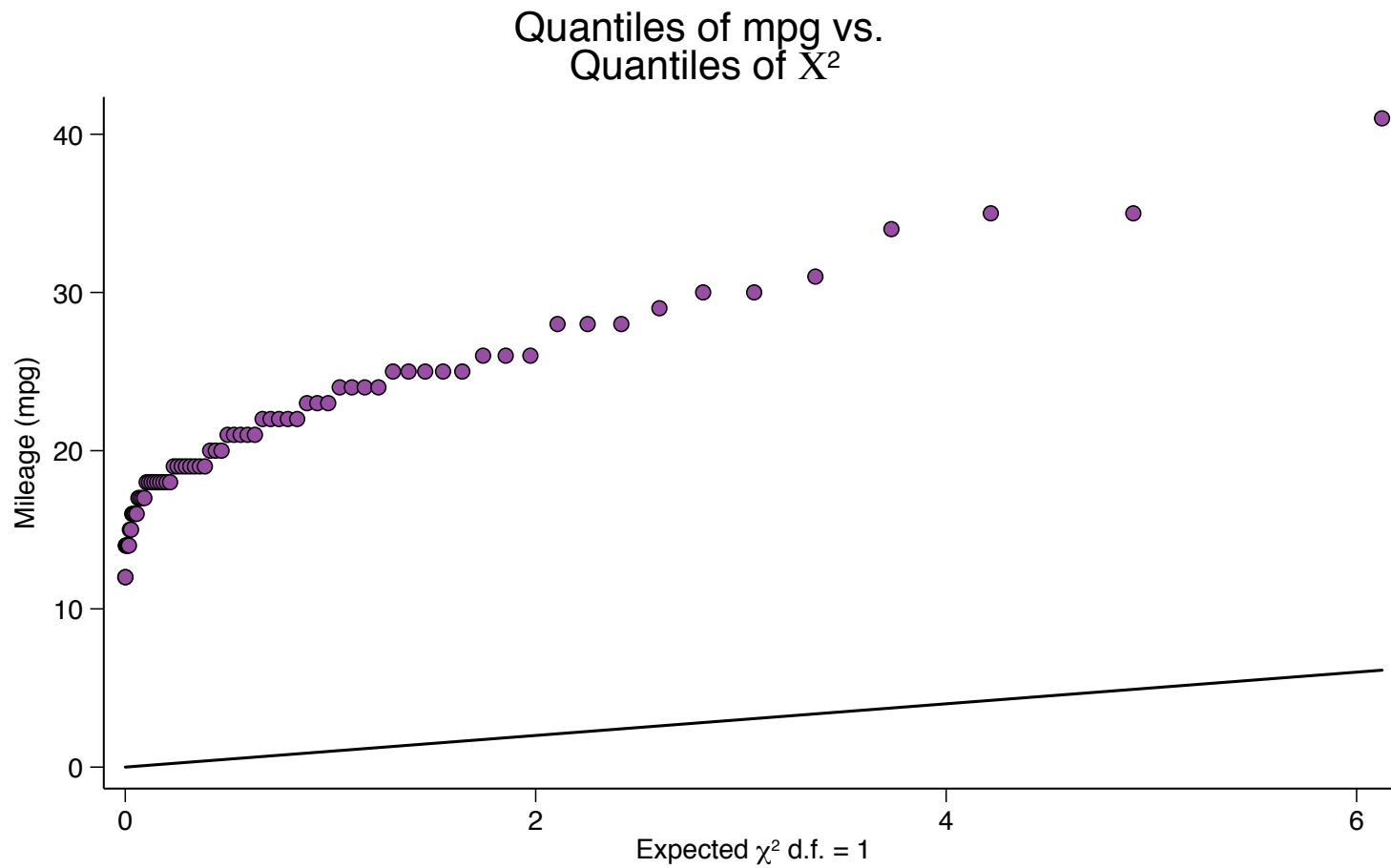
Created on: 29 Oct 2015 at: 15:29:28

Figure 1.24: Standardized Normal Probability Plot for Mileage (mpg)



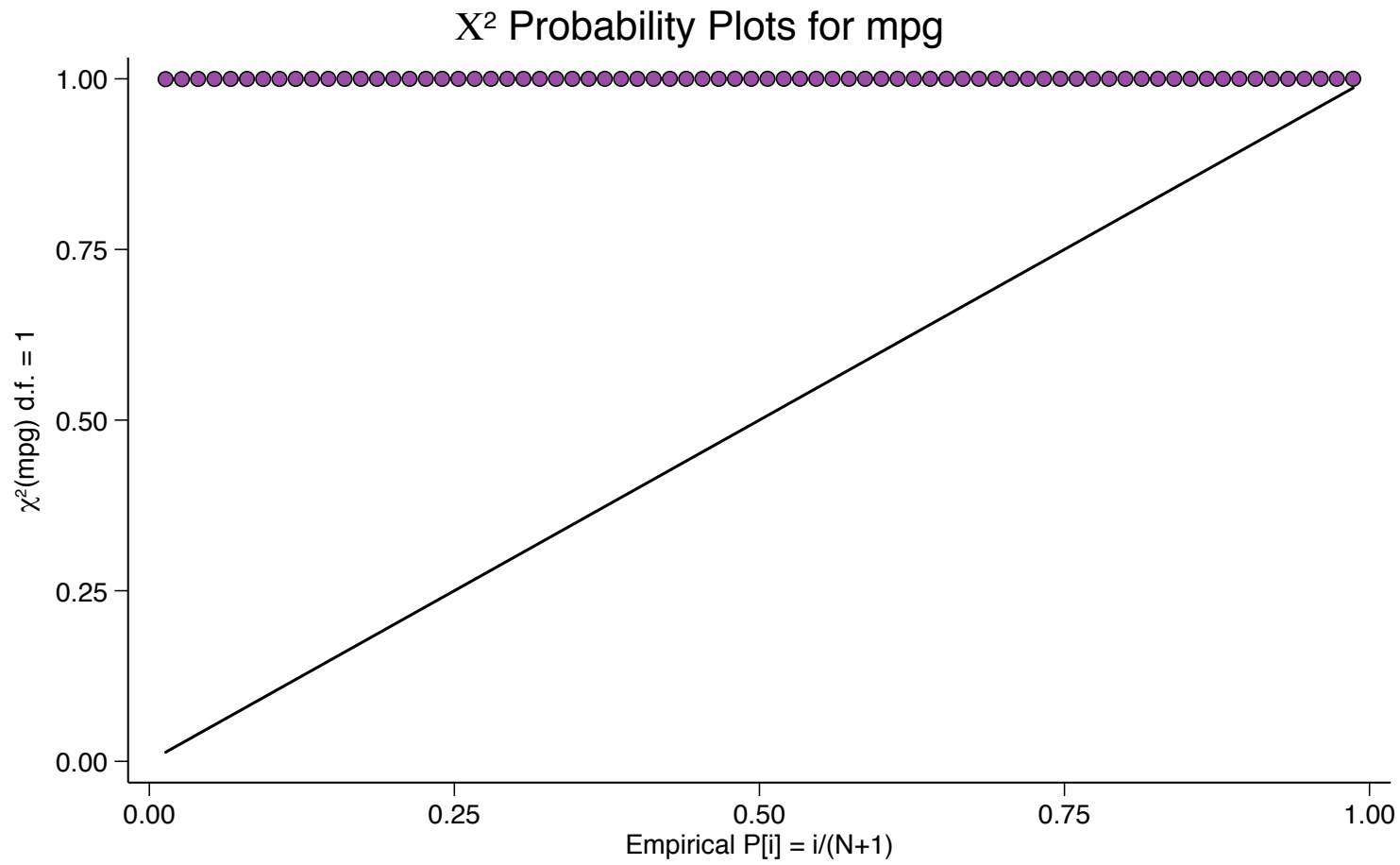
Created on: 29 Oct 2015 at: 15:29:30

Figure 1.25: Chi-Squared Quantiles v. Mileage (mpg)



Created on: 29 Oct 2015 at: 15:29:32

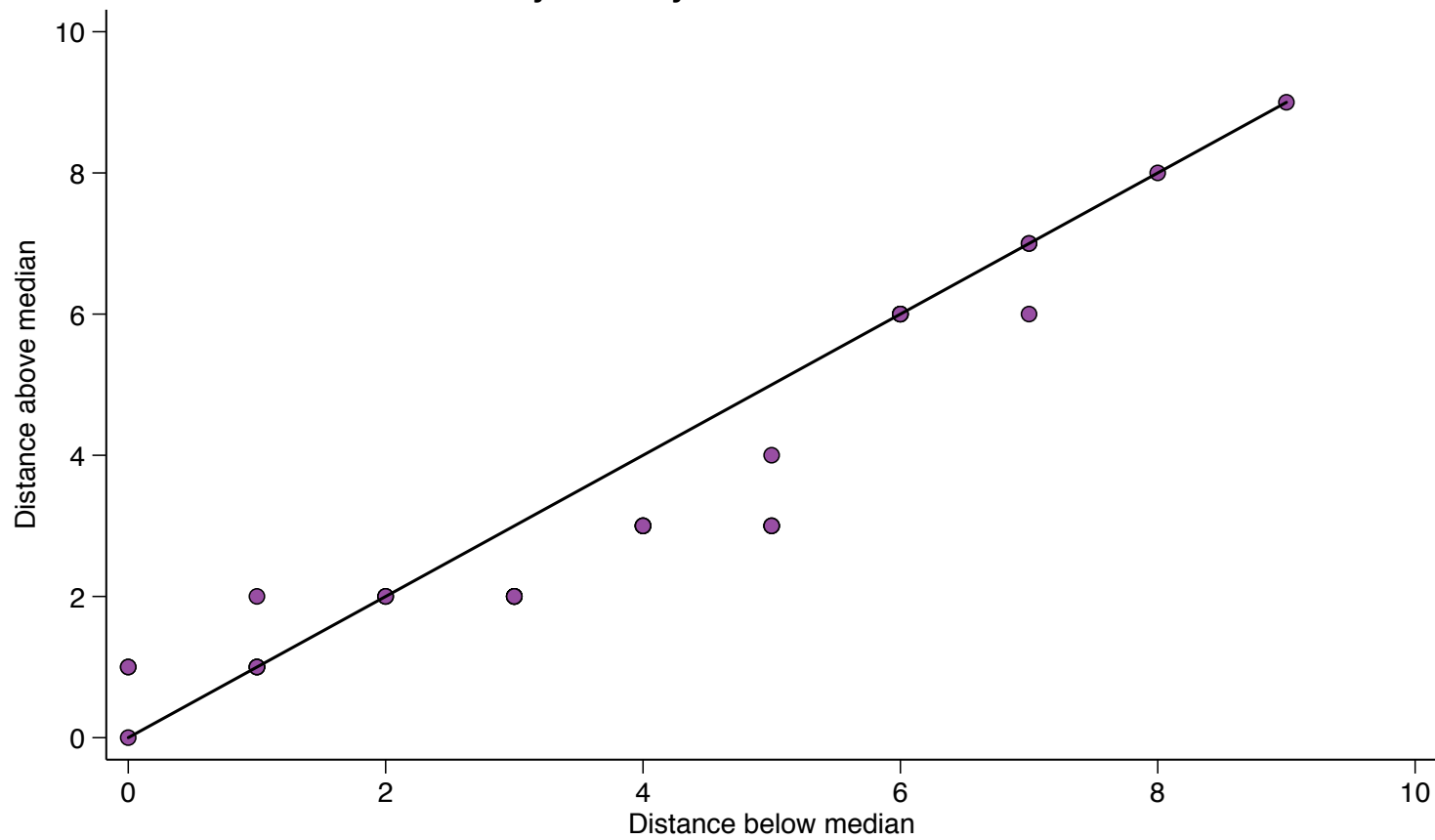
Figure 1.26: Chi-Squared Probability Mileage (mpg)



Created on: 29 Oct 2015 at: 15:29:34

Figure 1.27: Symmetry Plot for Trunk space (cu. ft.)

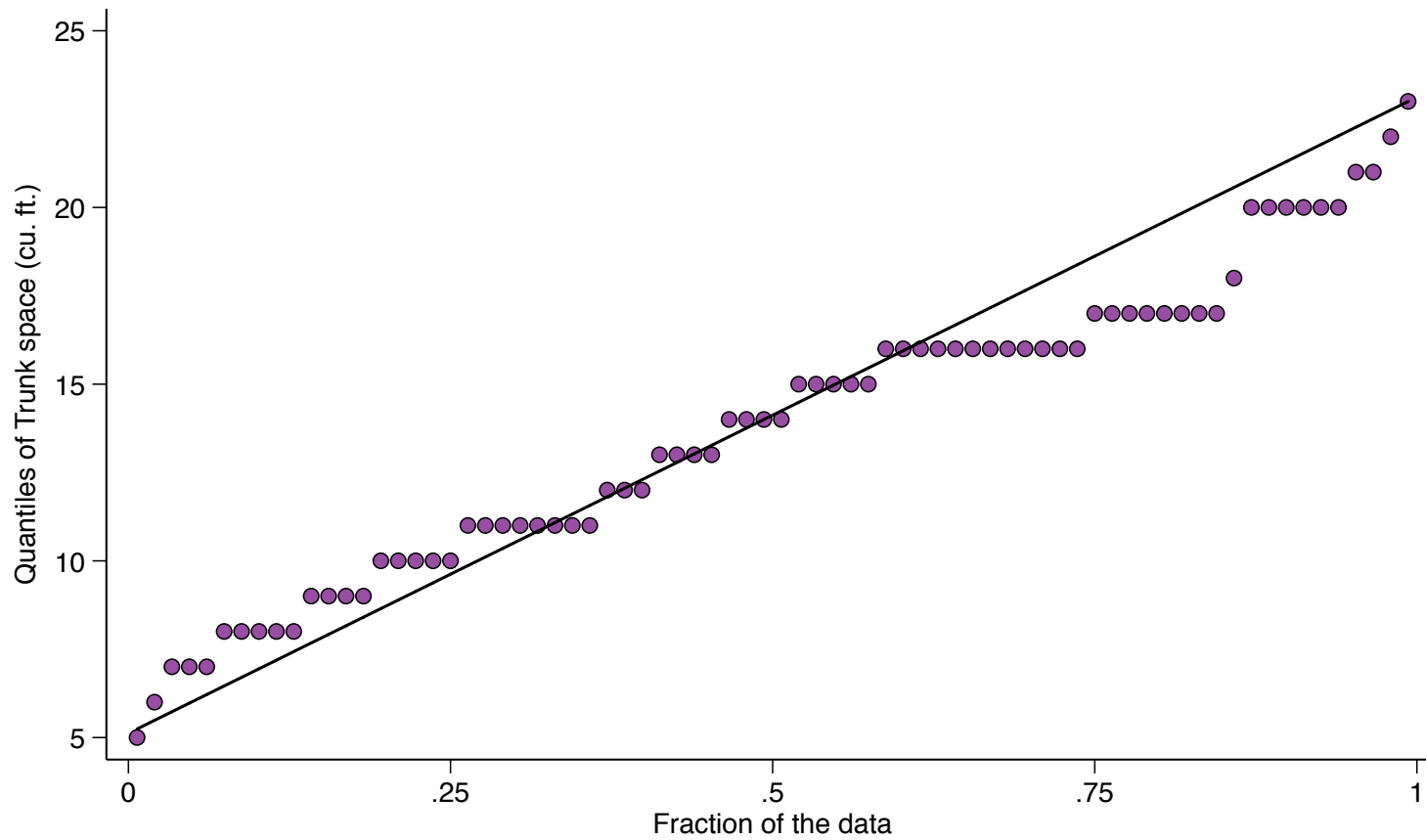
Symmetry Plot for trunk



Created on: 29 Oct 2015 at: 15:29:36

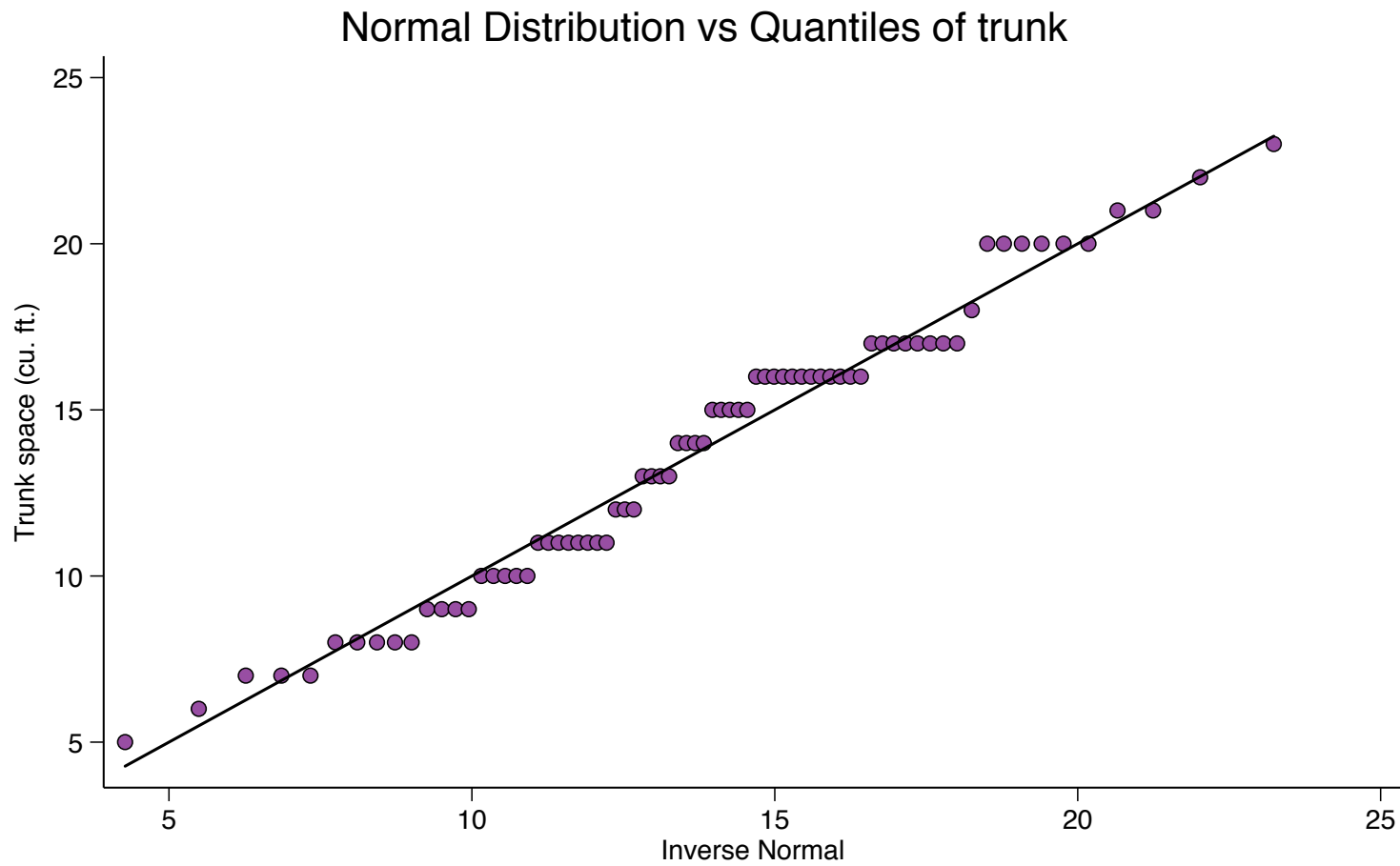
Figure 1.28: Quantiles of Uniform Distribution vs Ordered values of Trunk space (cu. ft.)

Quantiles of Uniform Distribution vs Ordered values of trunk



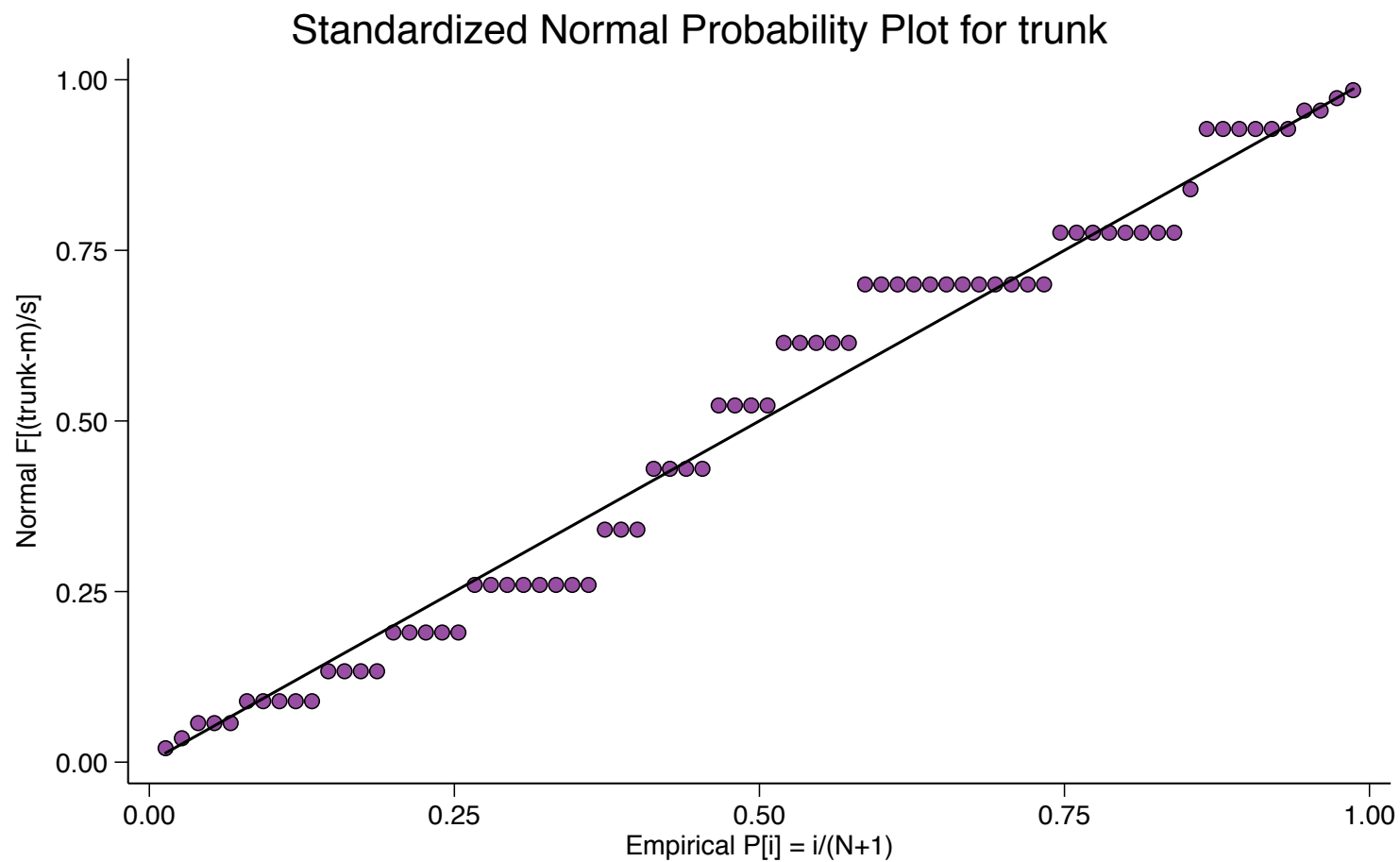
Created on: 29 Oct 2015 at: 15:29:38

Figure 1.29: Normal Distribution vs Quantiles of Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:29:40

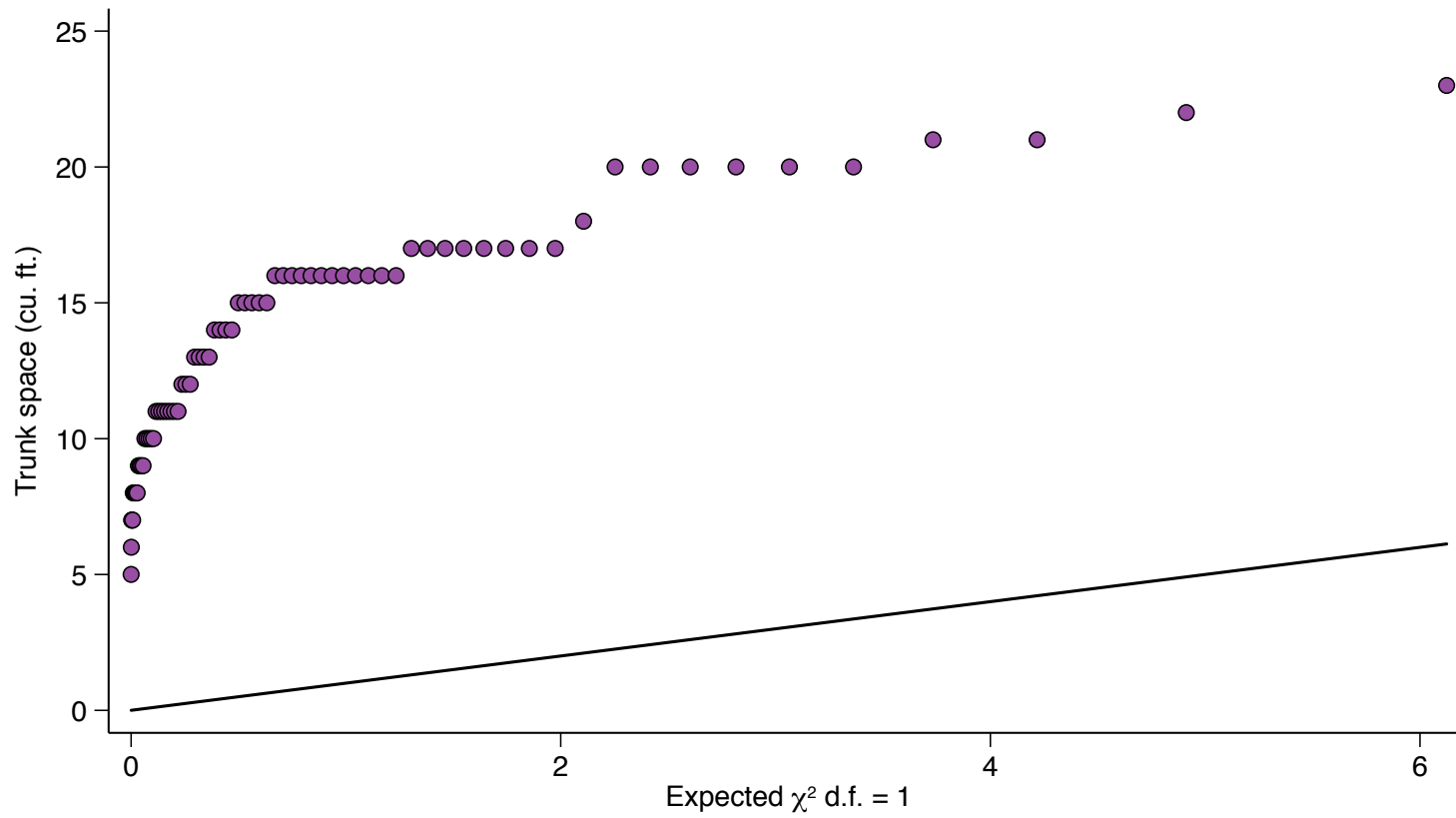
Figure 1.30: Standardized Normal Probability Plot for Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:29:42

Figure 1.31: Chi-Squared Quantiles v. Trunk space (cu. ft.)

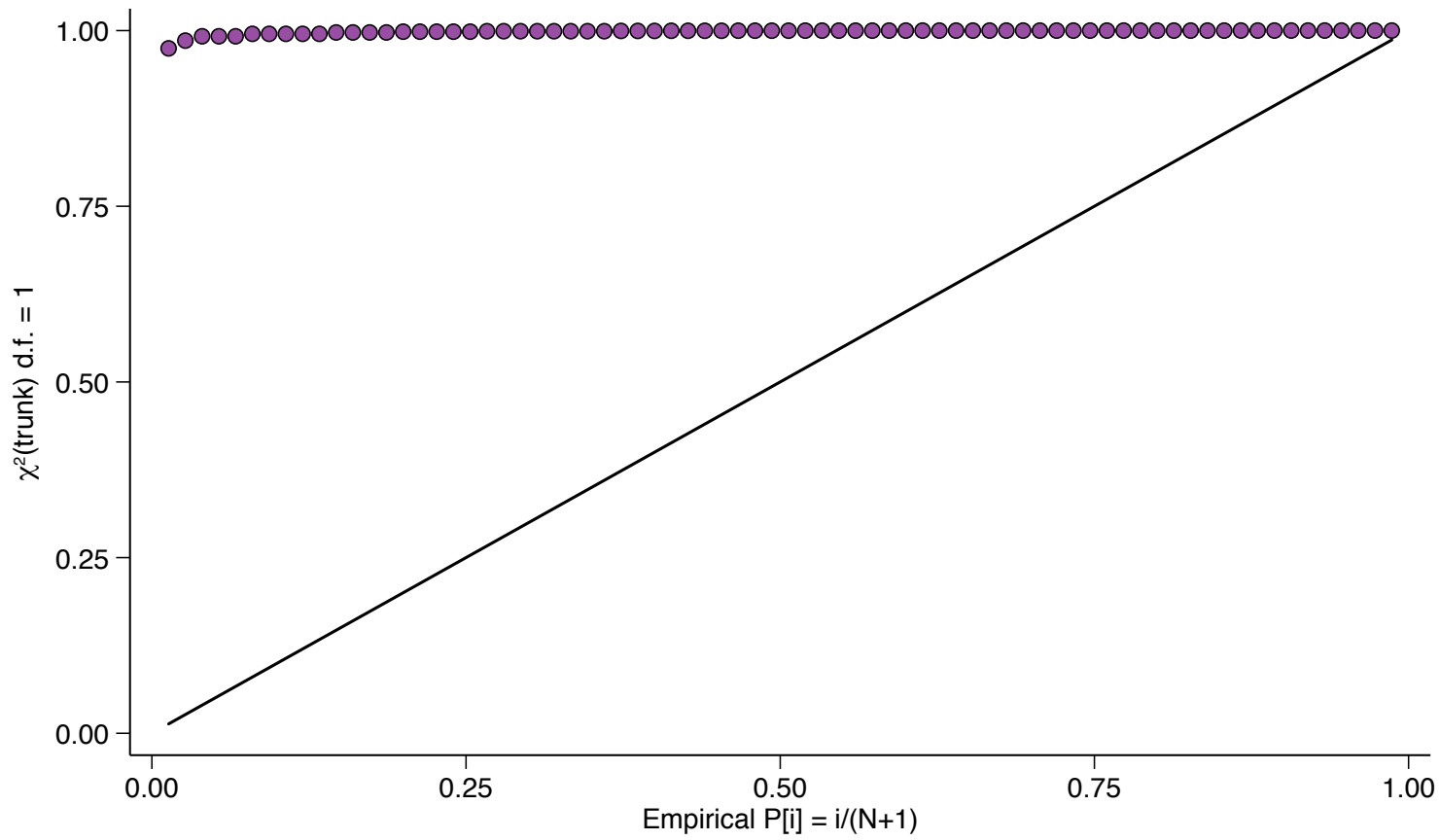
Quantiles of trunk vs.
Quantiles of X^2



Created on: 29 Oct 2015 at: 15:29:45

Figure 1.32: Chi-Squared Probability Trunk space (cu. ft.)

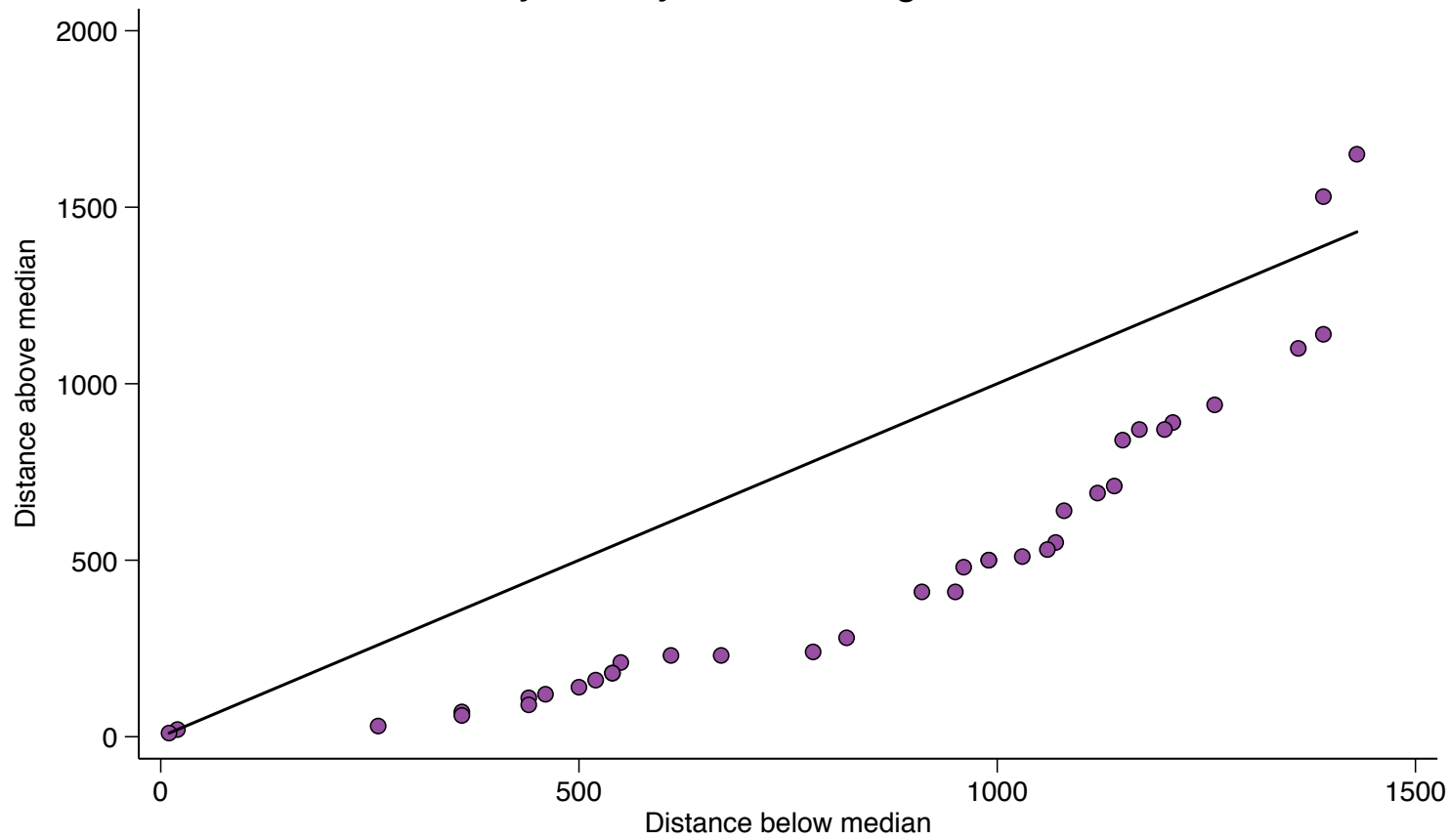
χ^2 Probability Plots for trunk



Created on: 29 Oct 2015 at: 15:29:47

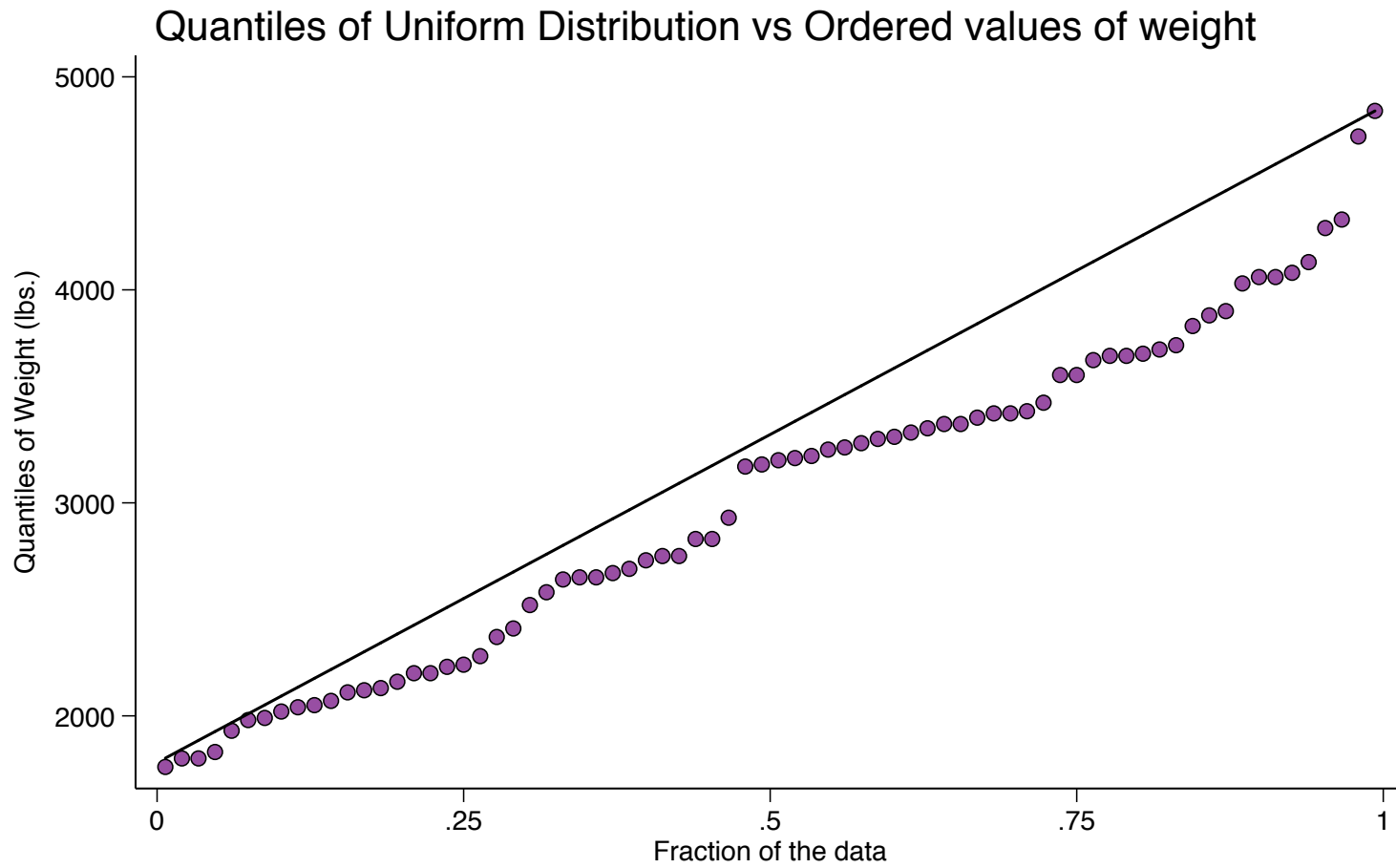
Figure 1.33: Symmetry Plot for Weight (lbs.)

Symmetry Plot for weight



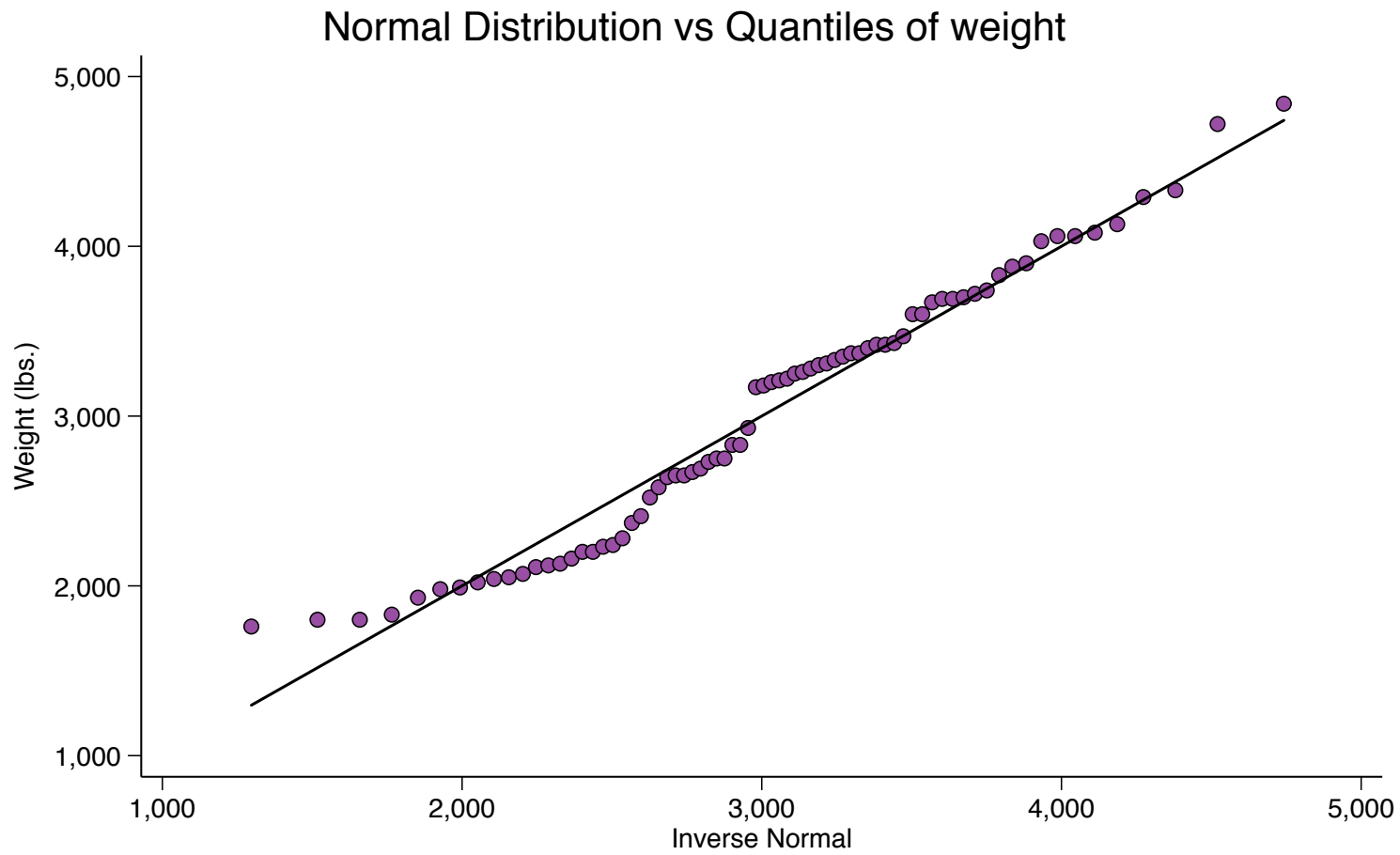
Created on: 29 Oct 2015 at: 15:29:49

Figure 1.34: Quantiles of Uniform Distribution vs Ordered values of Weight (lbs.)



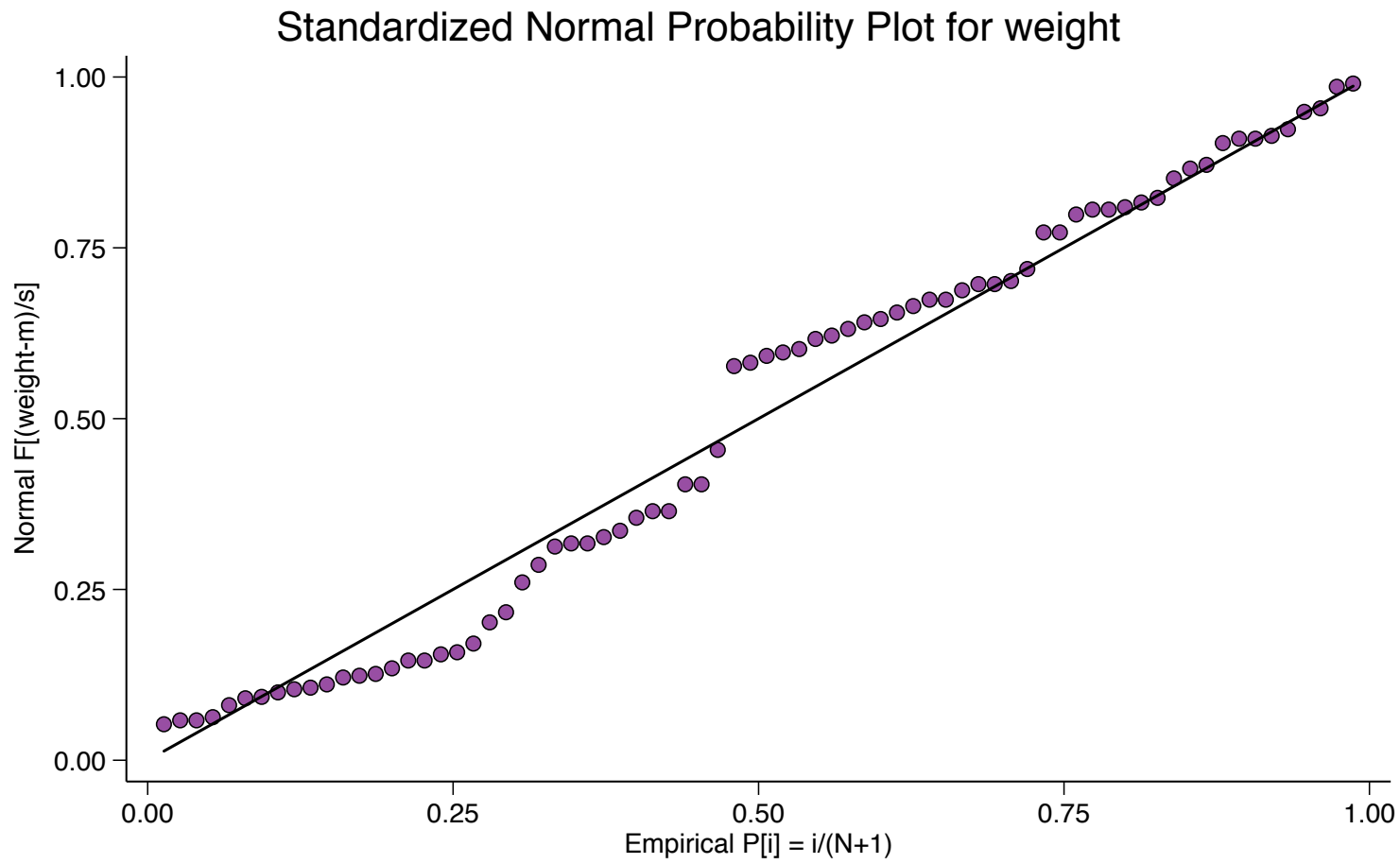
Created on: 29 Oct 2015 at: 15:29:51

Figure 1.35: Normal Distribution vs Quantiles of Weight (lbs.)



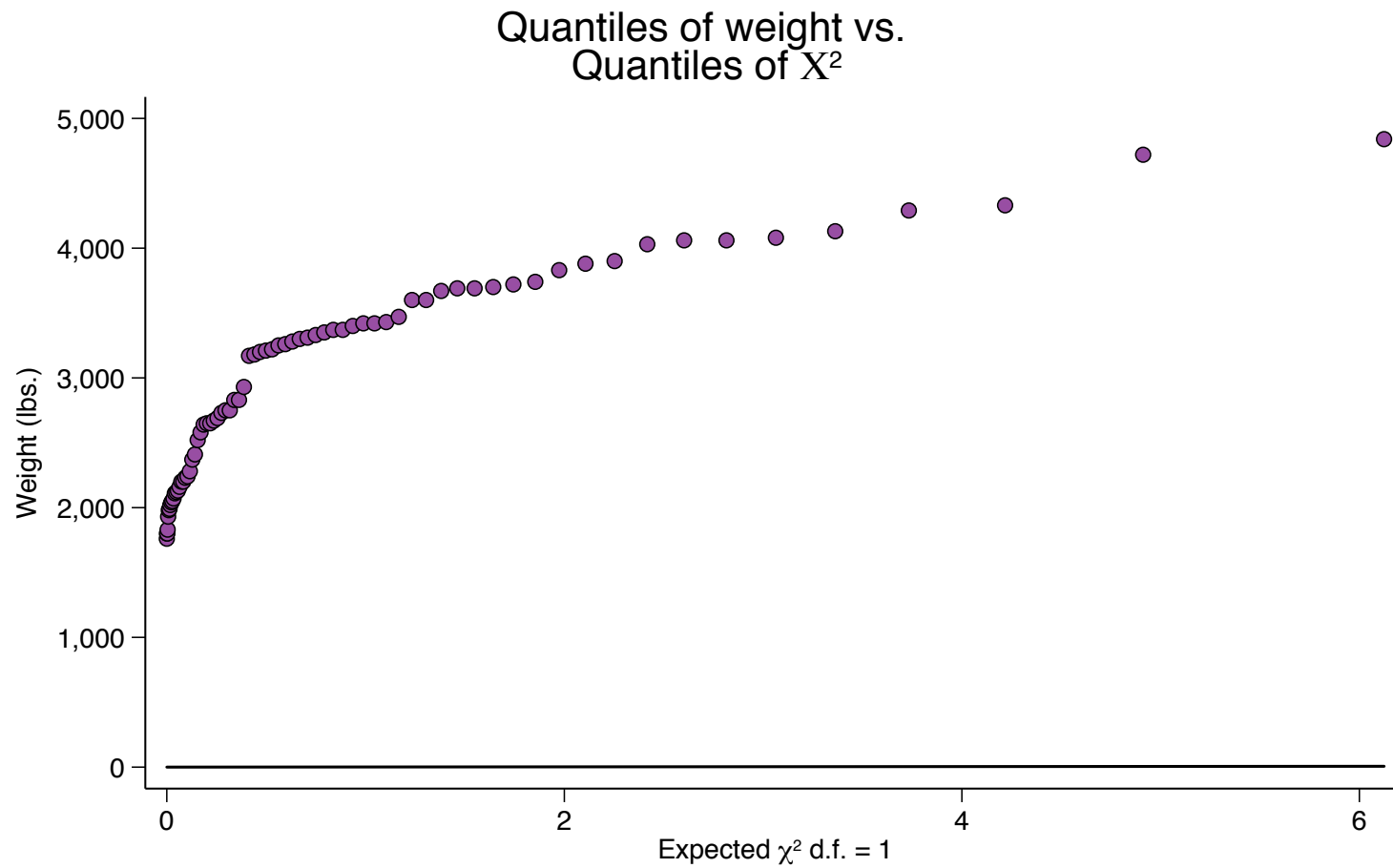
Created on: 29 Oct 2015 at: 15:29:53

Figure 1.36: Standardized Normal Probability Plot for Weight (lbs.)



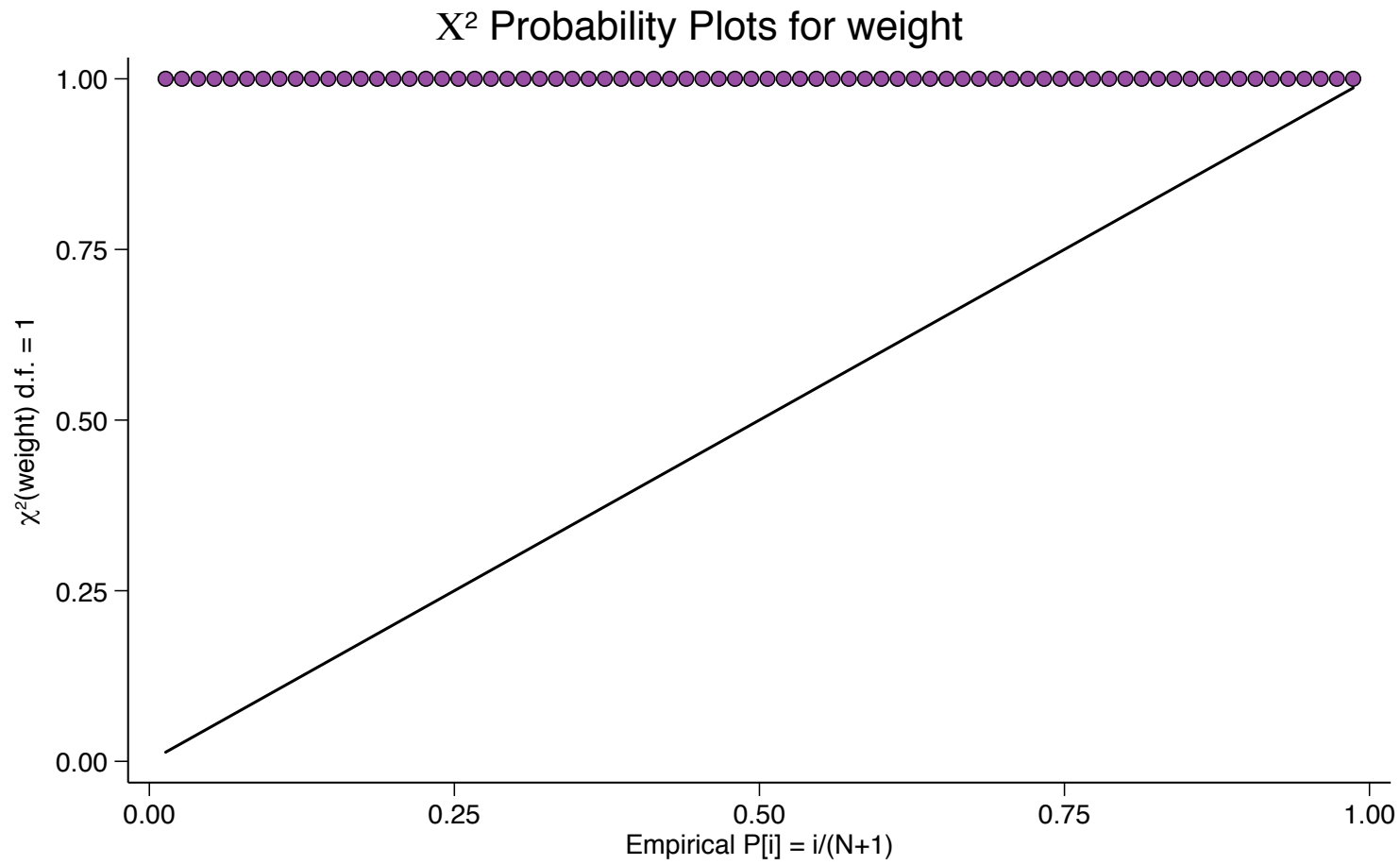
Created on: 29 Oct 2015 at: 15:29:55

Figure 1.37: Chi-Squared Quantiles v. Weight (lbs.)



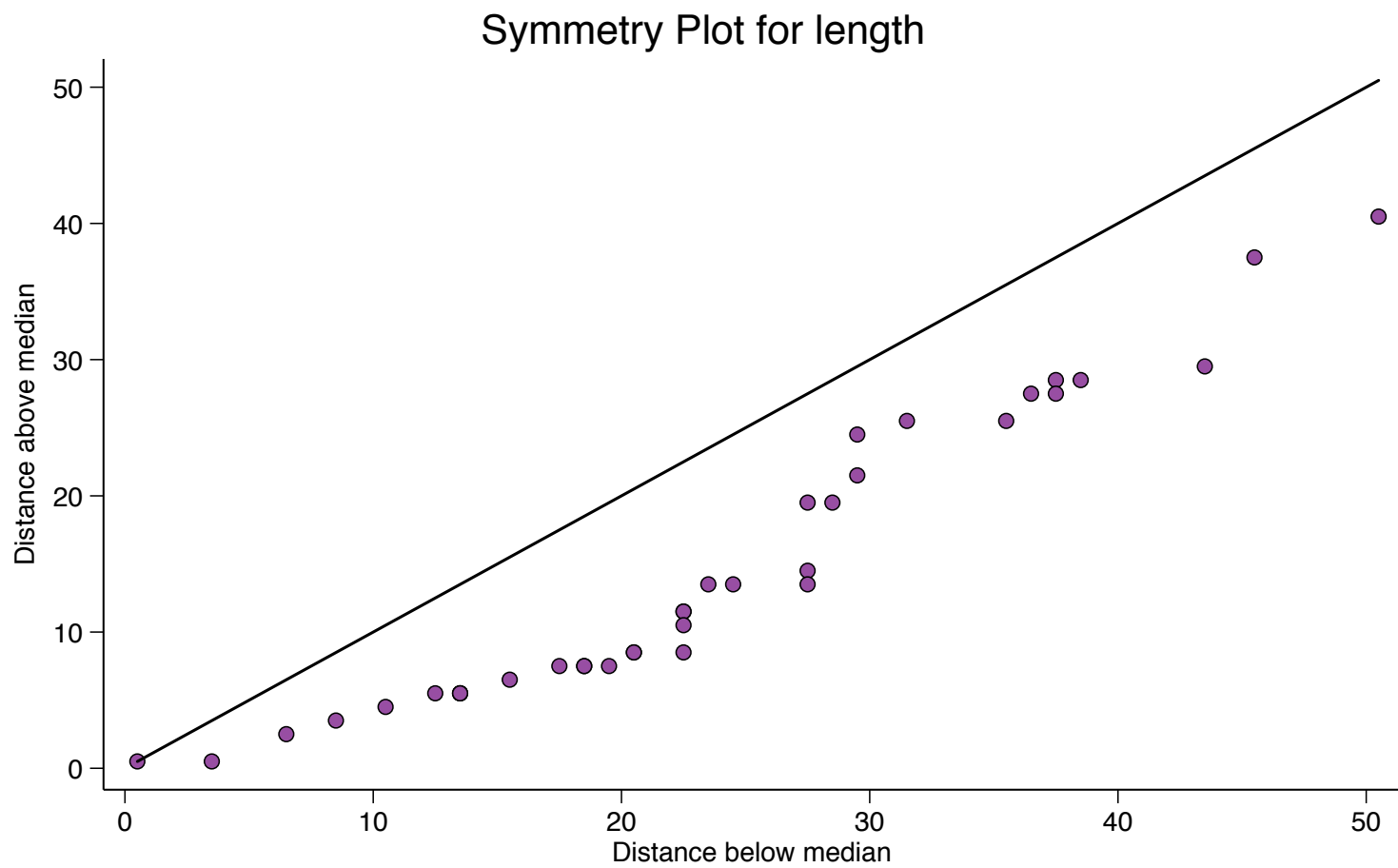
Created on: 29 Oct 2015 at: 15:29:57

Figure 1.38: Chi-Squared Probability Weight (lbs.)



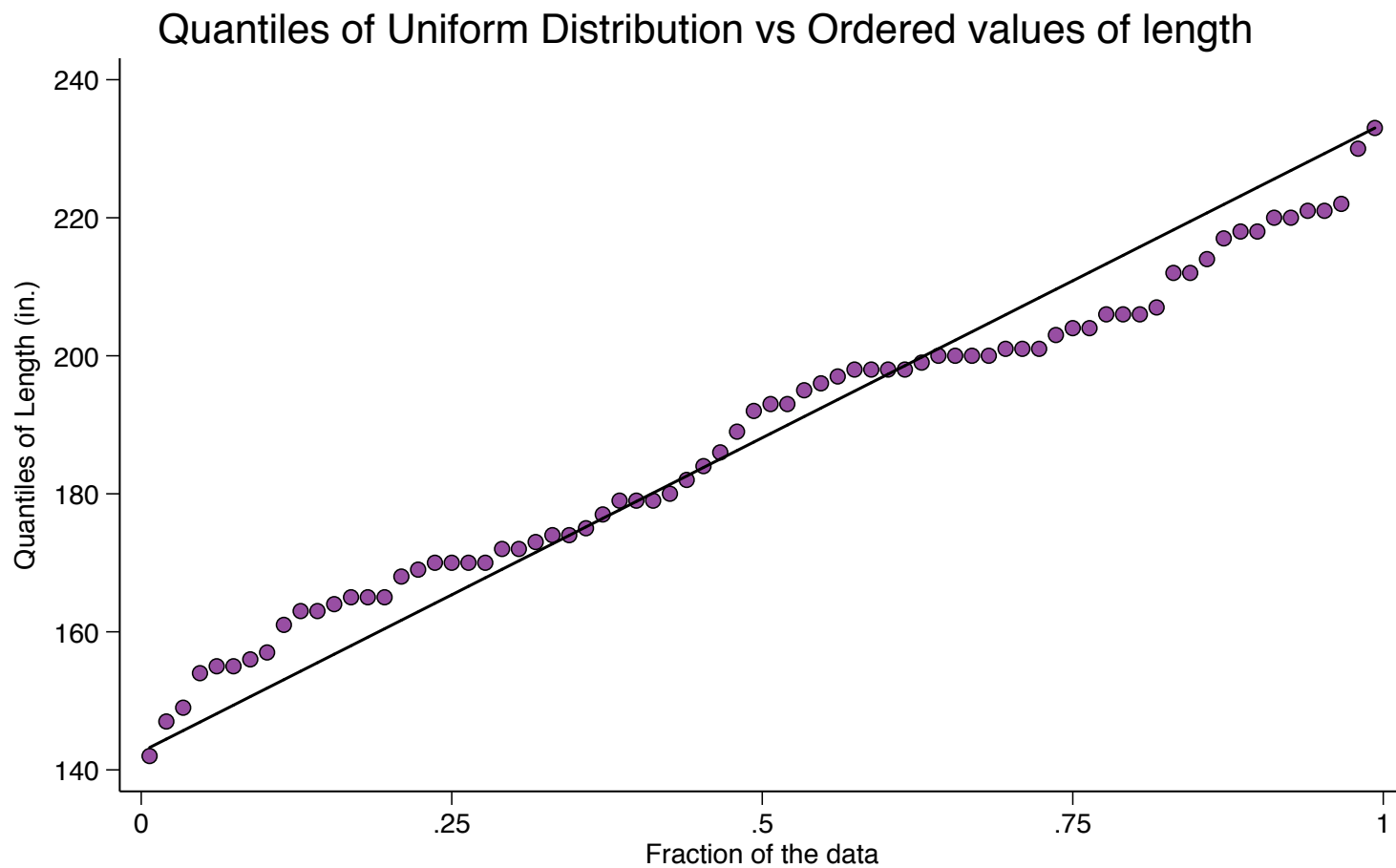
Created on: 29 Oct 2015 at: 15:30:00

Figure 1.39: Symmetry Plot for Length (in.)



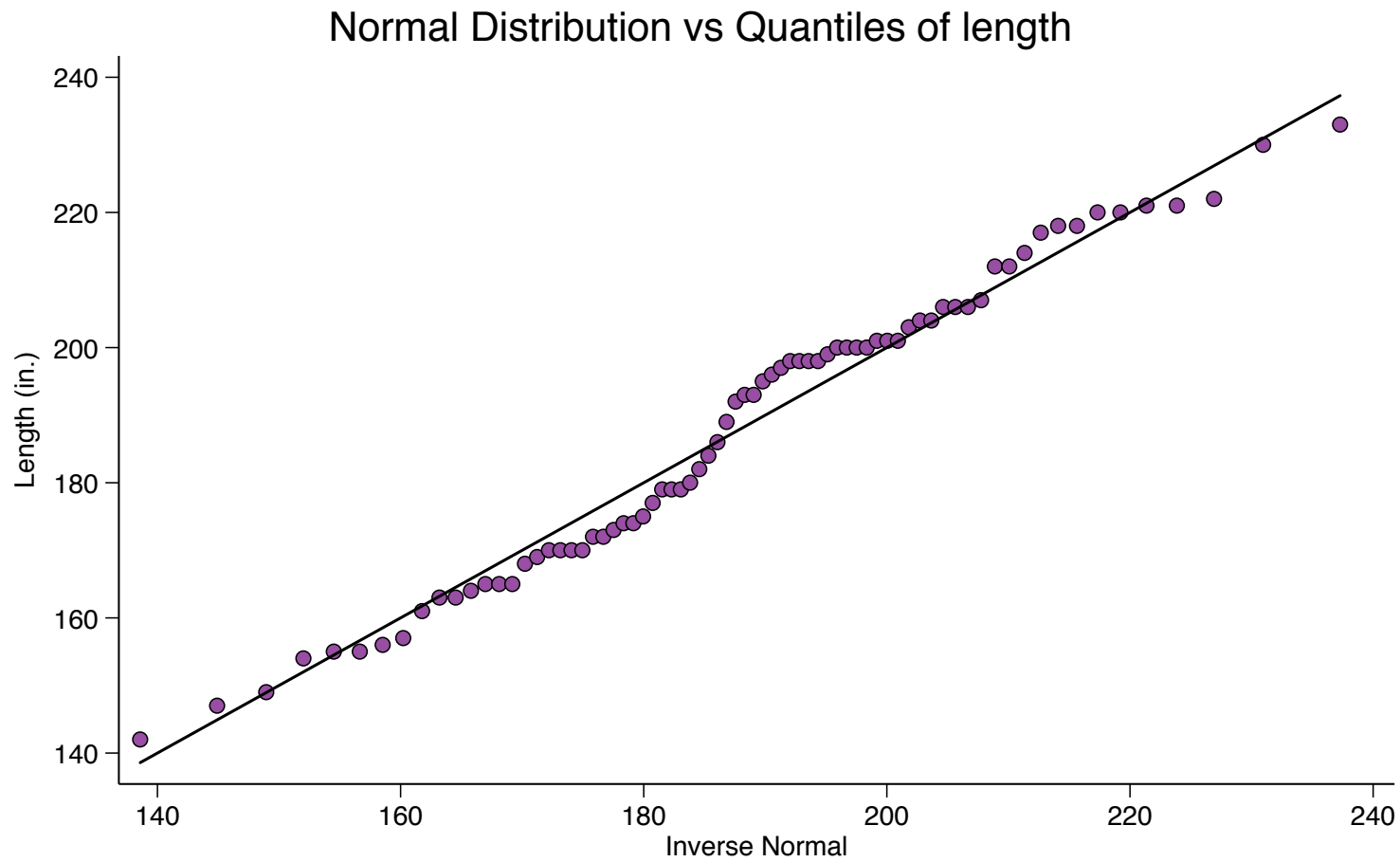
Created on: 29 Oct 2015 at: 15:30:02

Figure 1.40: Quantiles of Uniform Distribution vs Ordered values of Length (in.)



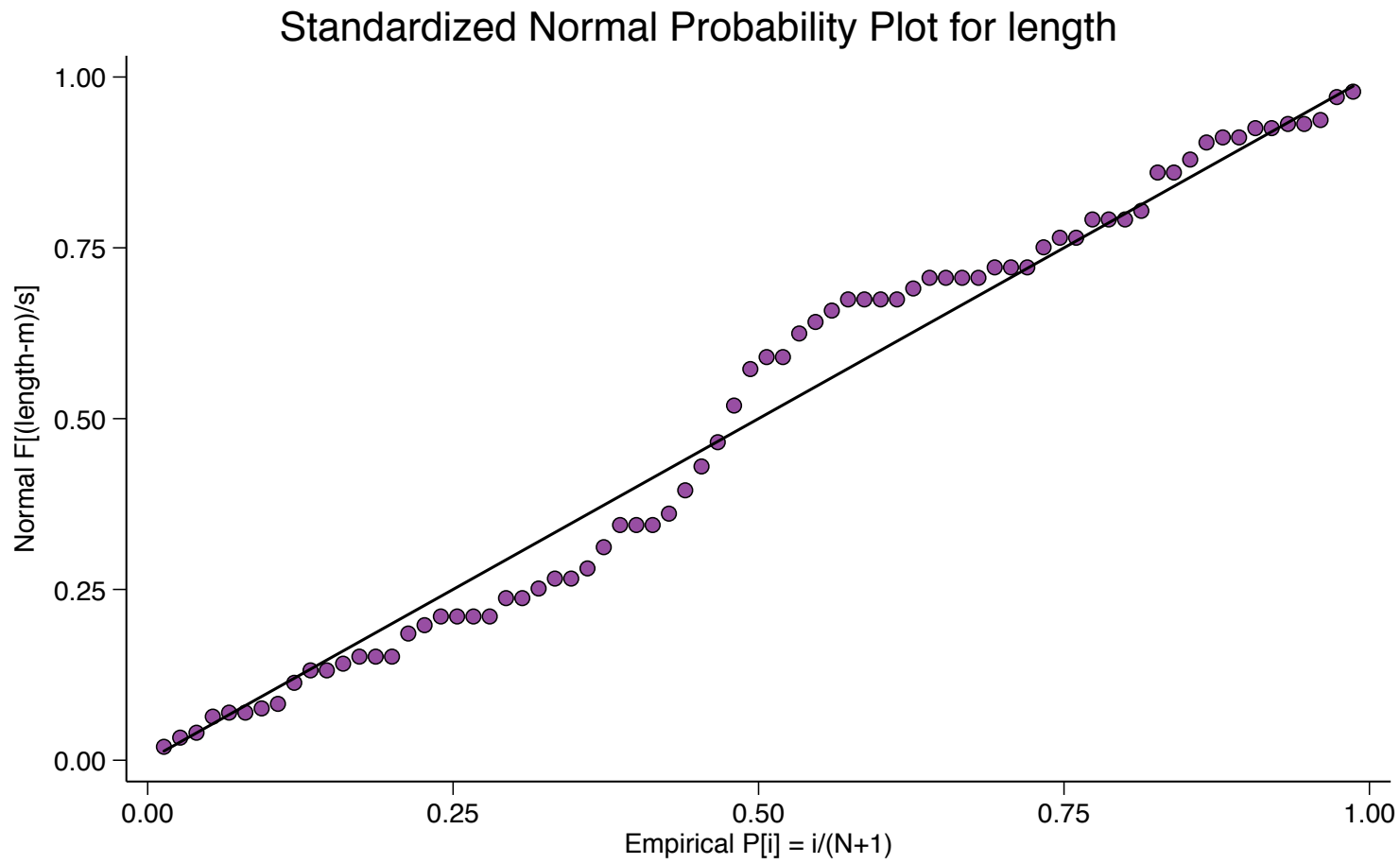
Created on: 29 Oct 2015 at: 15:30:04

Figure 1.41: Normal Distribution vs Quantiles of Length (in.)



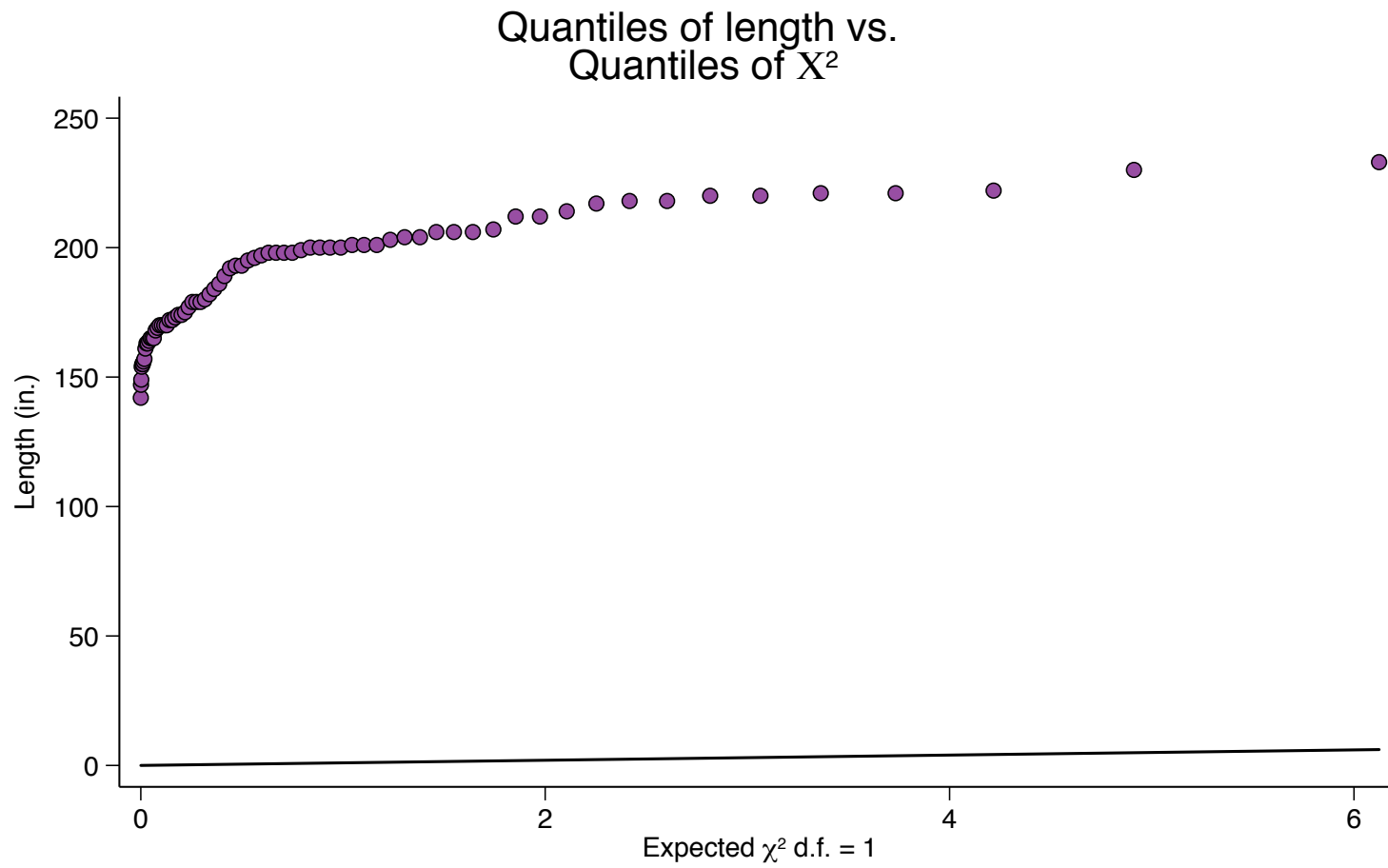
Created on: 29 Oct 2015 at: 15:30:06

Figure 1.42: Standardized Normal Probability Plot for Length (in.)



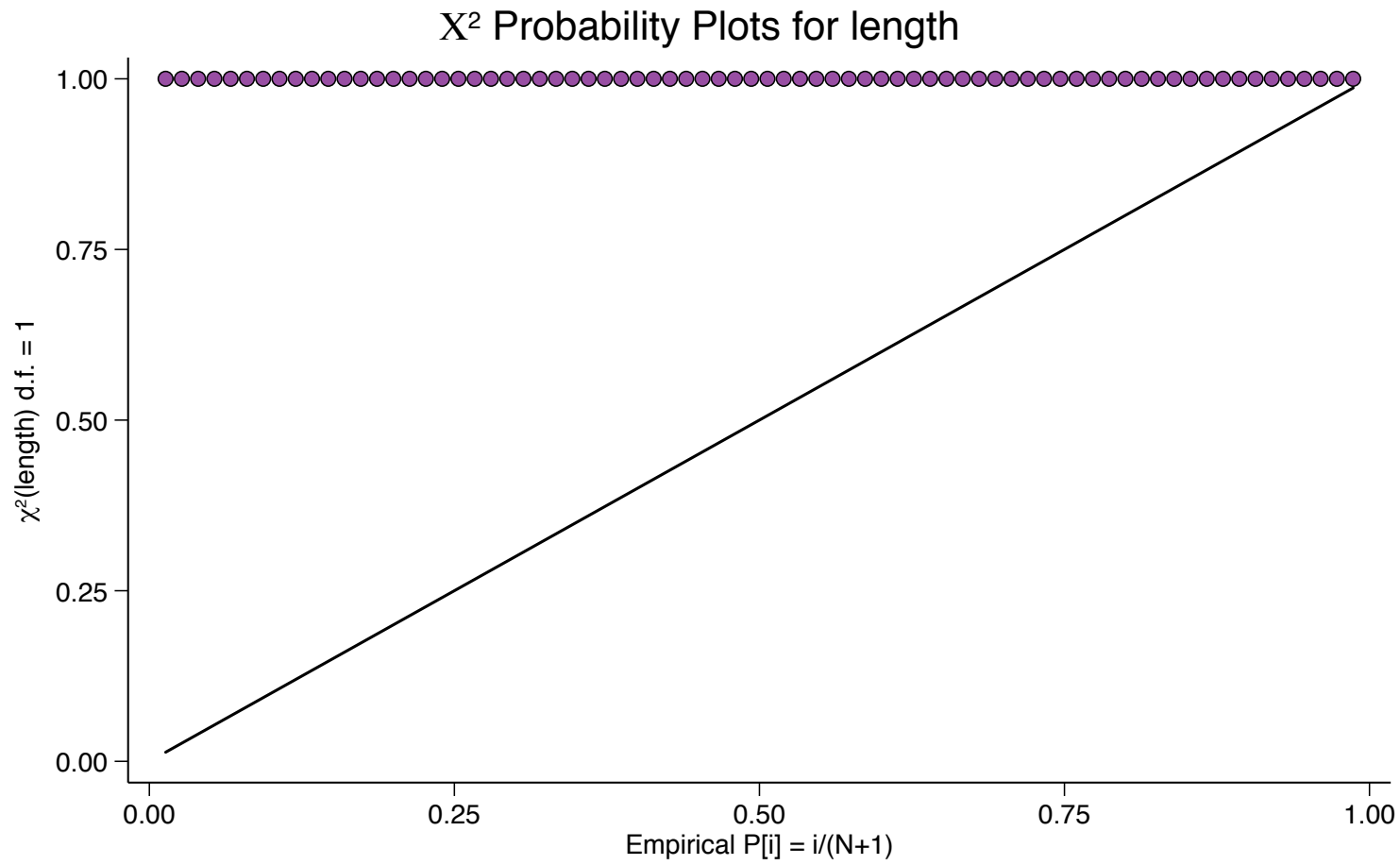
Created on: 29 Oct 2015 at: 15:30:08

Figure 1.43: Chi-Squared Quantiles v. Length (in.)



Created on: 29 Oct 2015 at: 15:30:10

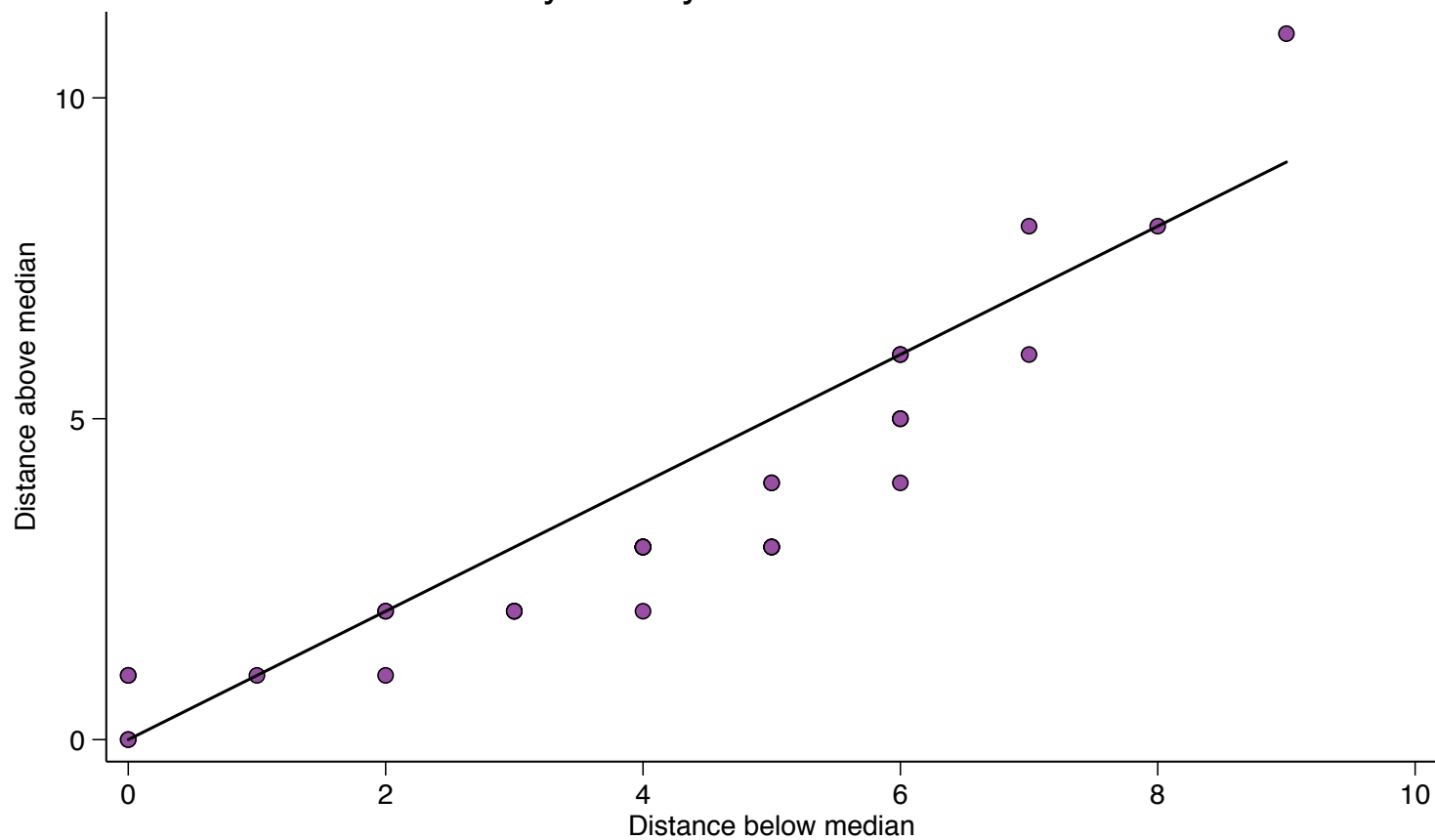
Figure 1.44: Chi-Squared Probability Length (in.)



Created on: 29 Oct 2015 at: 15:30:12

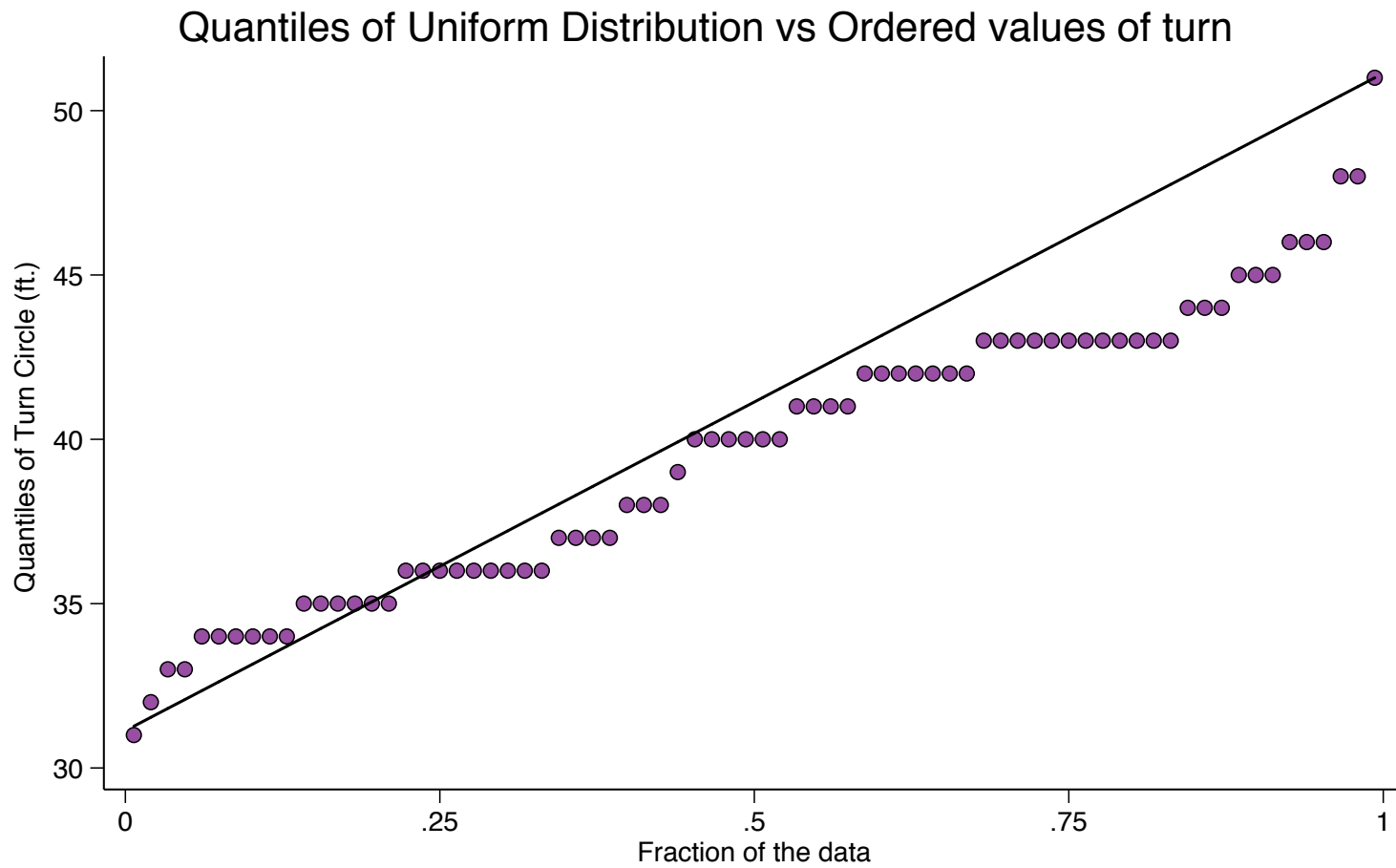
Figure 1.45: Symmetry Plot for Turn Circle (ft.)

Symmetry Plot for turn



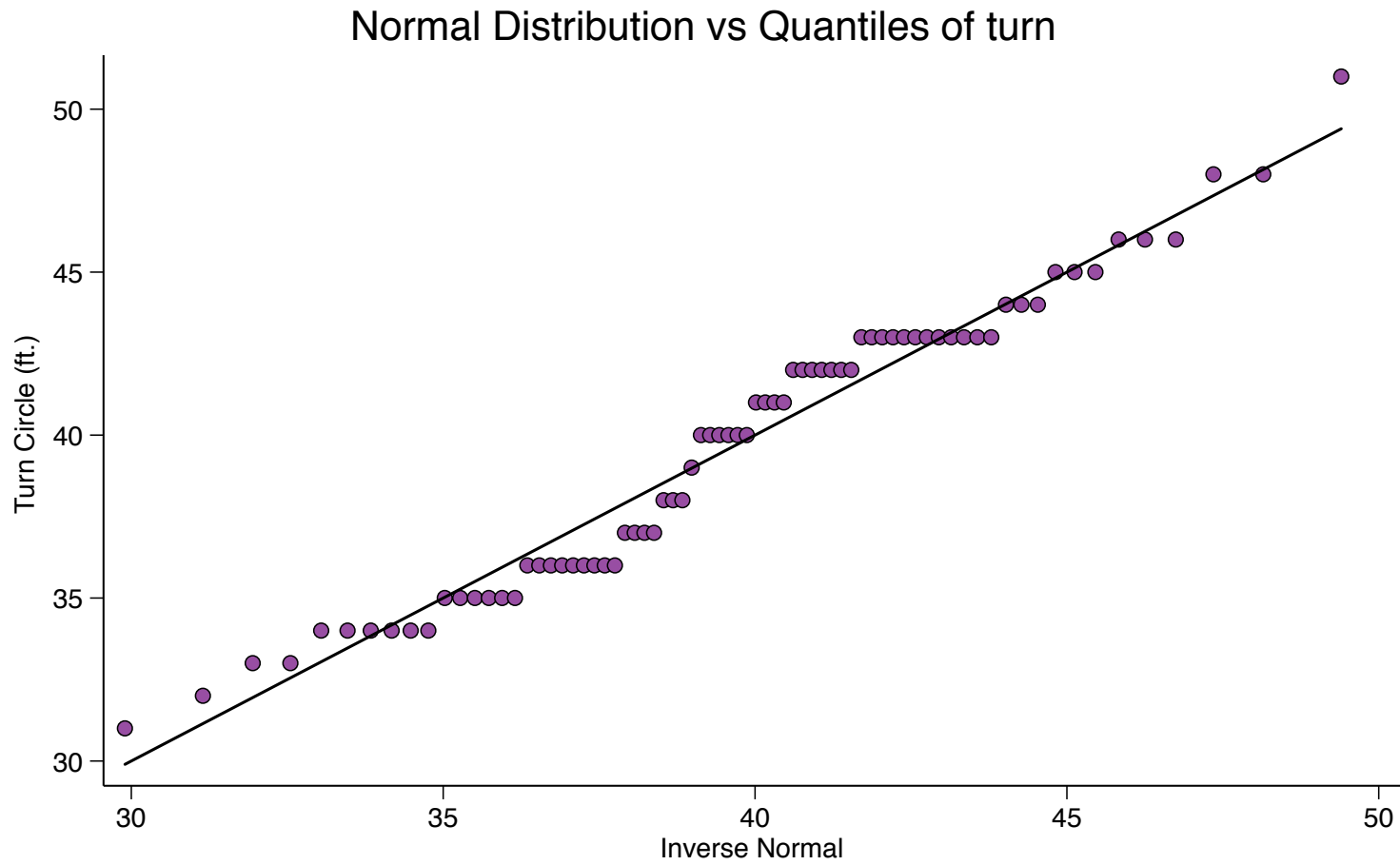
Created on: 29 Oct 2015 at: 15:30:14

Figure 1.46: Quantiles of Uniform Distribution vs Ordered values of Turn Circle (ft.)



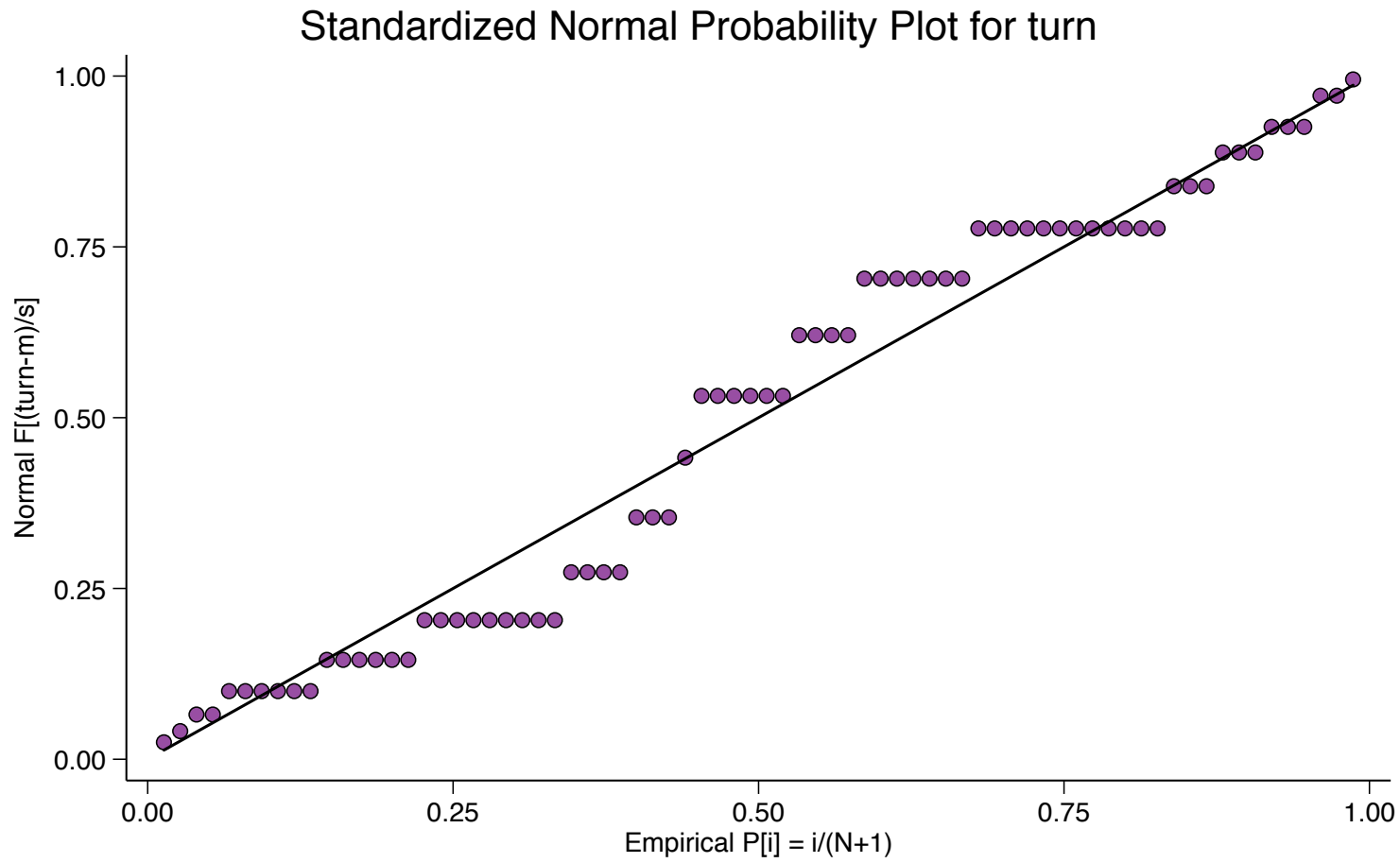
Created on: 29 Oct 2015 at: 15:30:16

Figure 1.47: Normal Distribution vs Quantiles of Turn Circle (ft.)



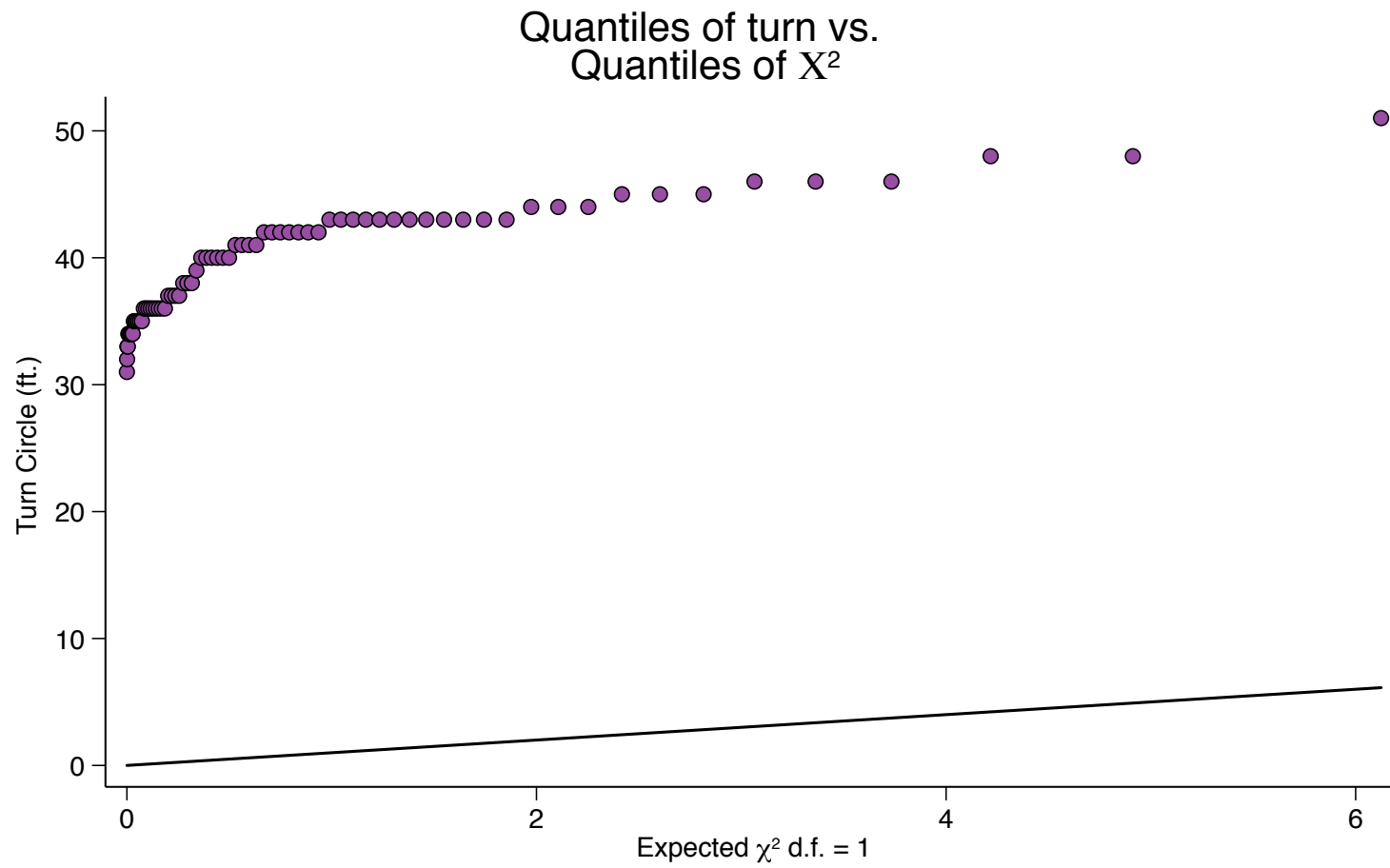
Created on: 29 Oct 2015 at: 15:30:19

Figure 1.48: Standardized Normal Probability Plot for Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:30:21

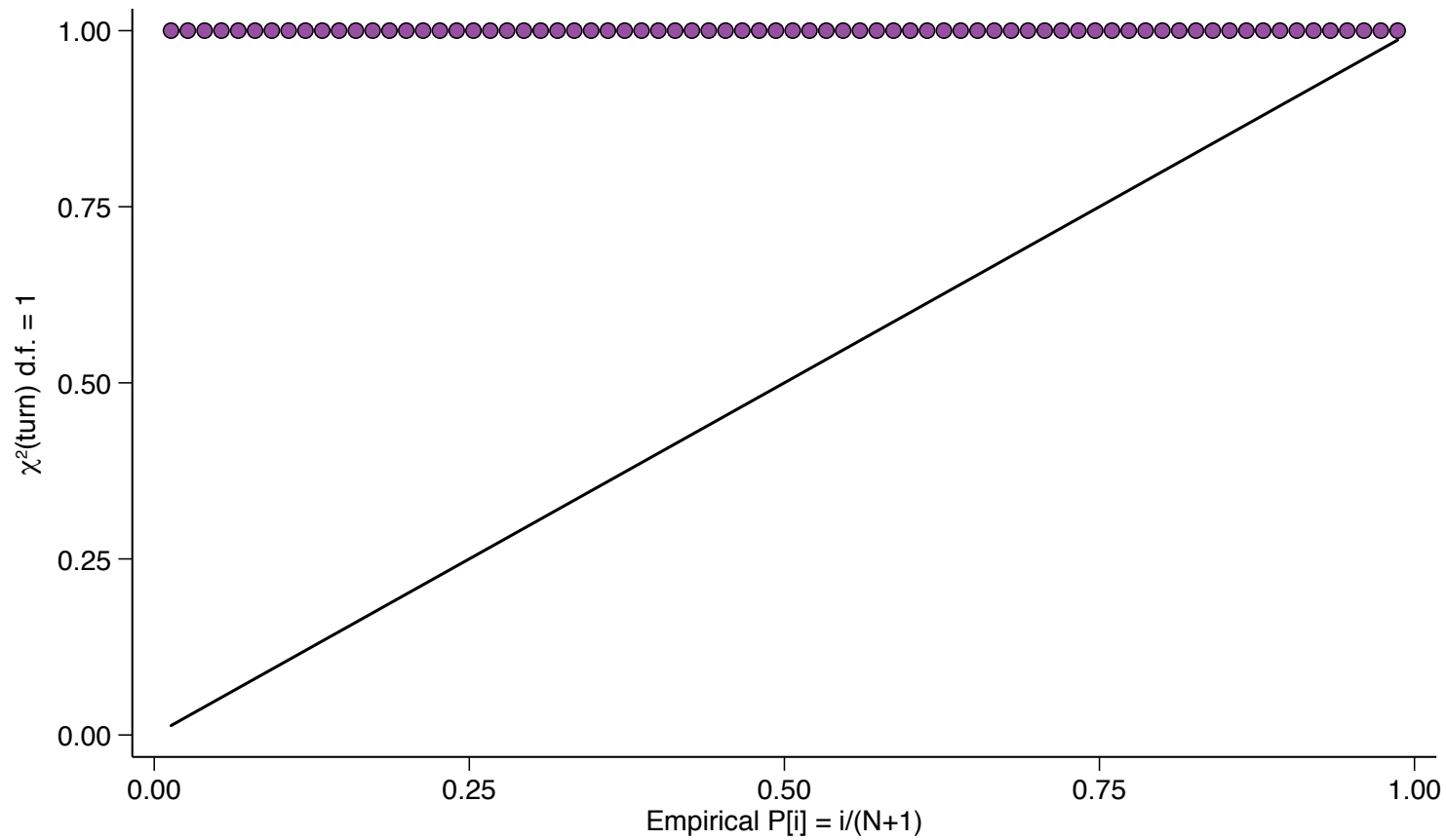
Figure 1.49: Chi-Squared Quantiles v. Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:30:23

Figure 1.50: Chi-Squared Probability Turn Circle (ft.)

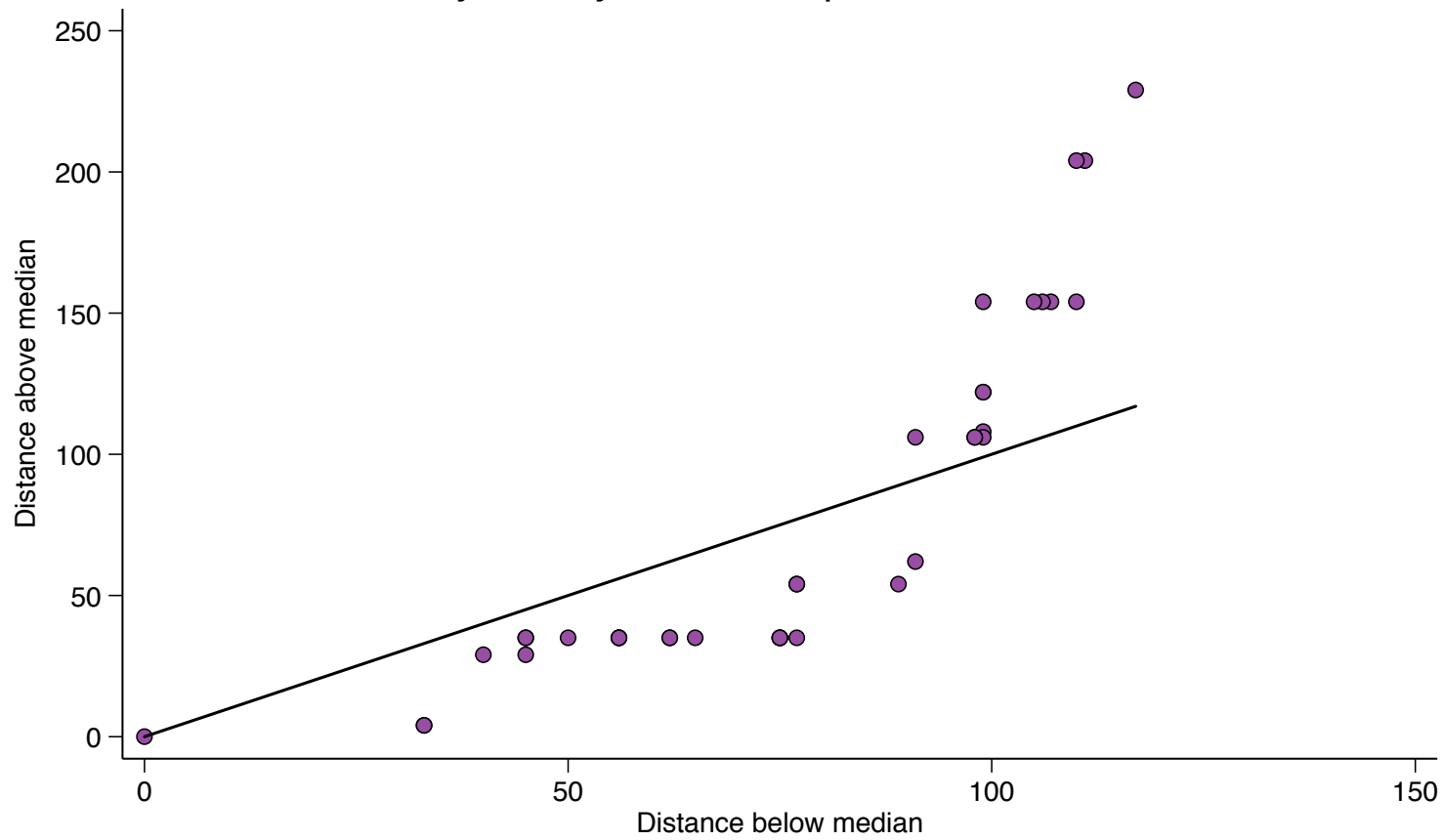
χ^2 Probability Plots for turn



Created on: 29 Oct 2015 at: 15:30:25

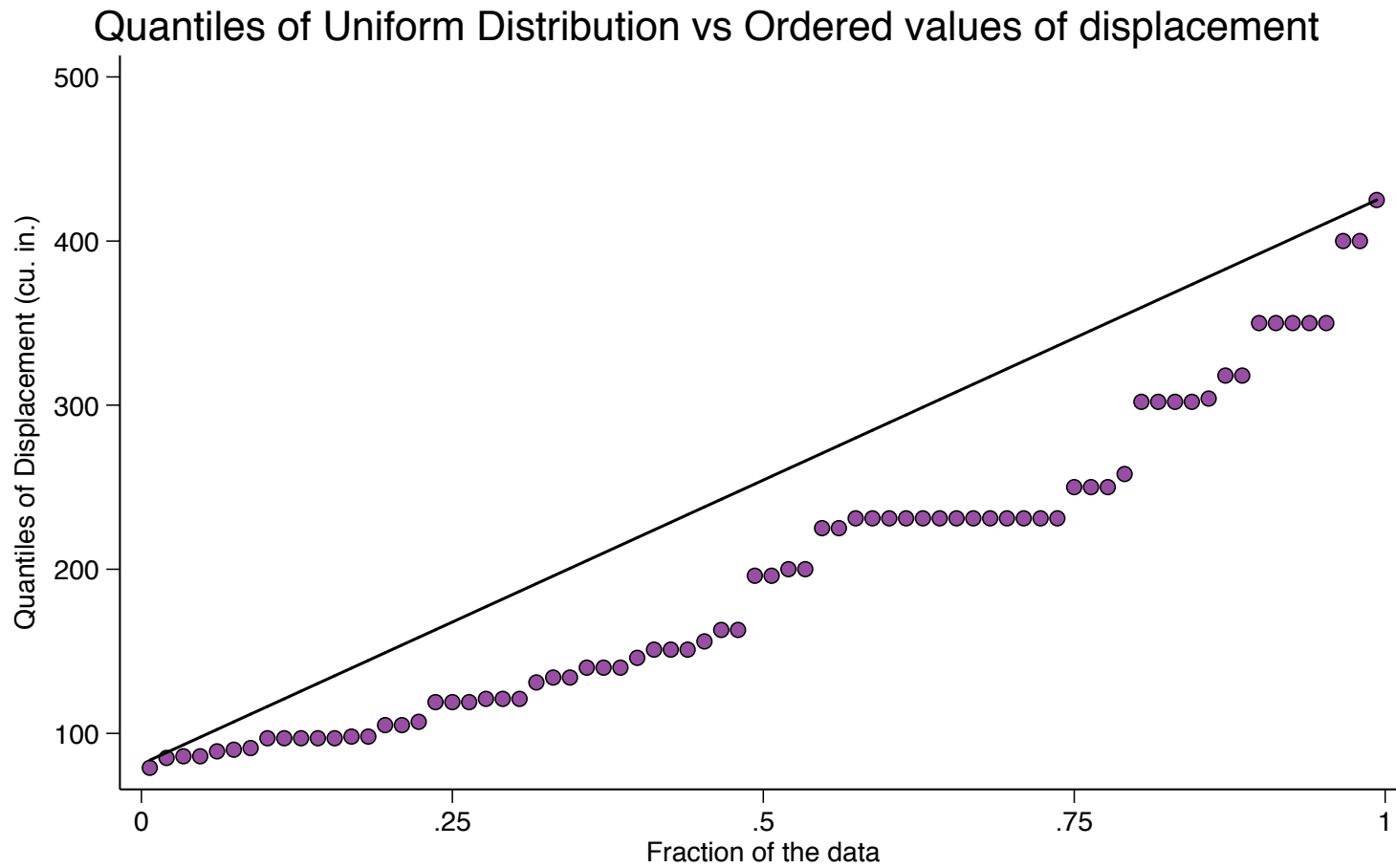
Figure 1.51: Symmetry Plot for Displacement (cu. in.)

Symmetry Plot for displacement



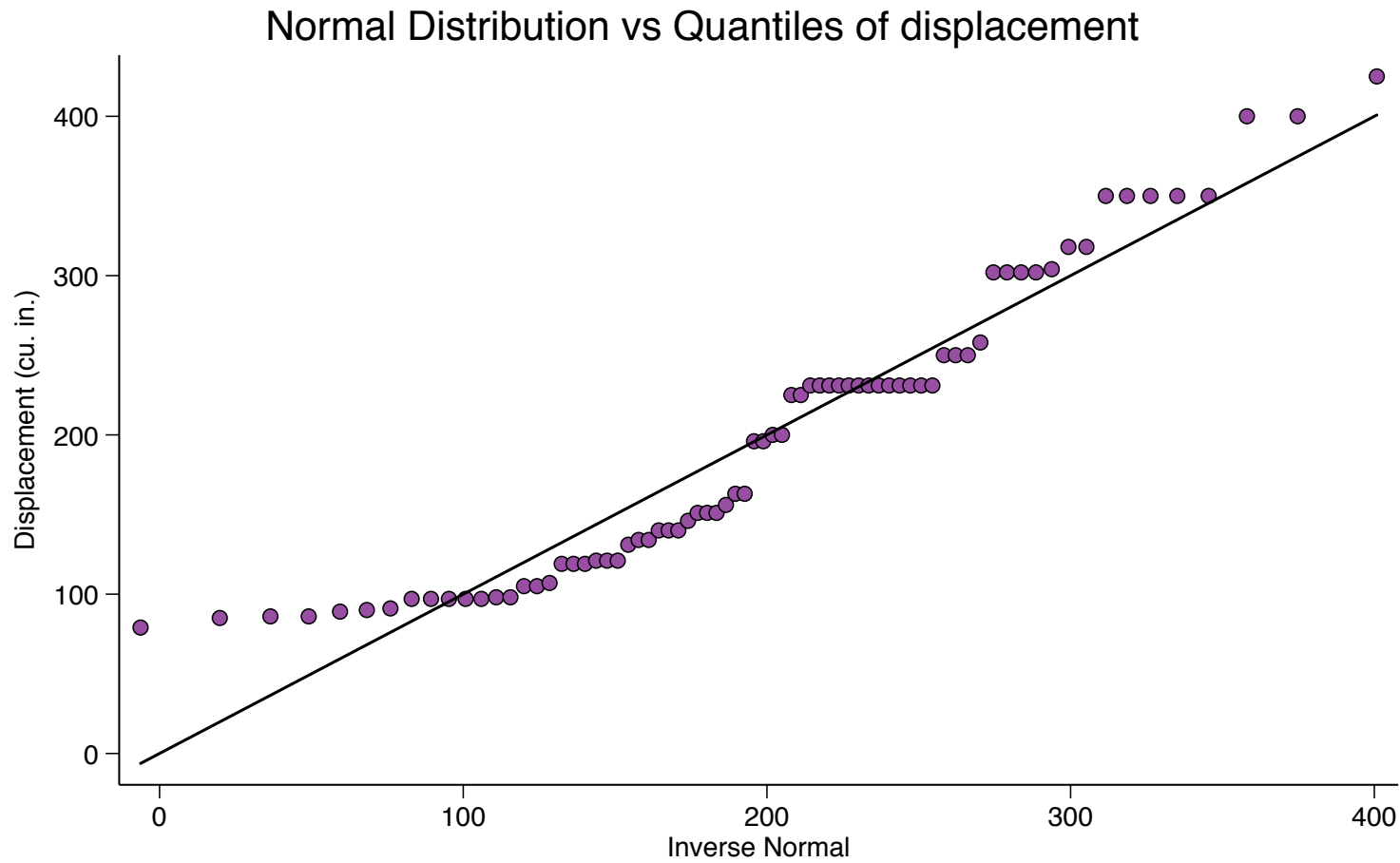
Created on: 29 Oct 2015 at: 15:30:27

Figure 1.52: Quantiles of Uniform Distribution vs Ordered values of Displacement (cu. in.)



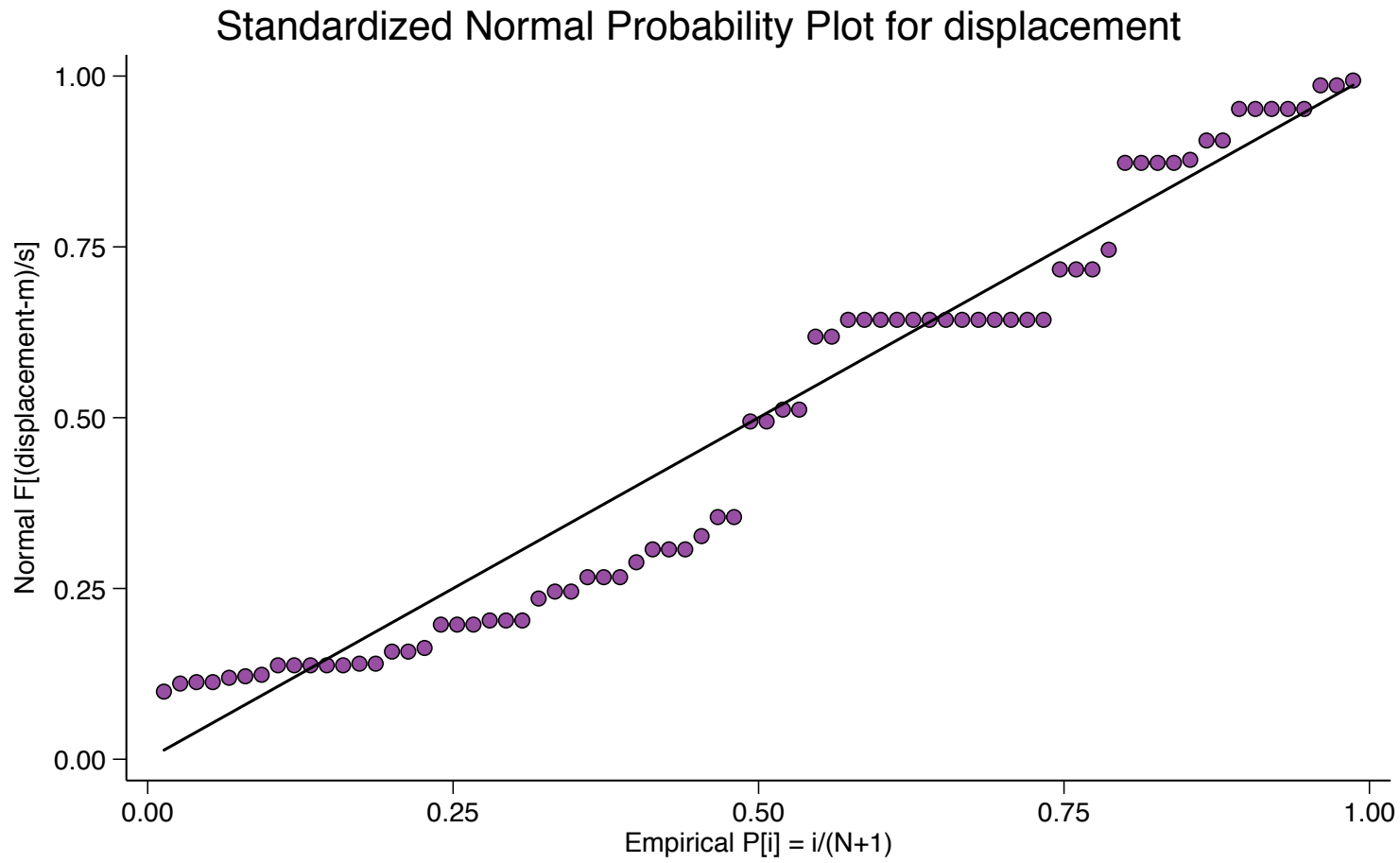
Created on: 29 Oct 2015 at: 15:30:29

Figure 1.53: Normal Distribution vs Quantiles of Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:30:31

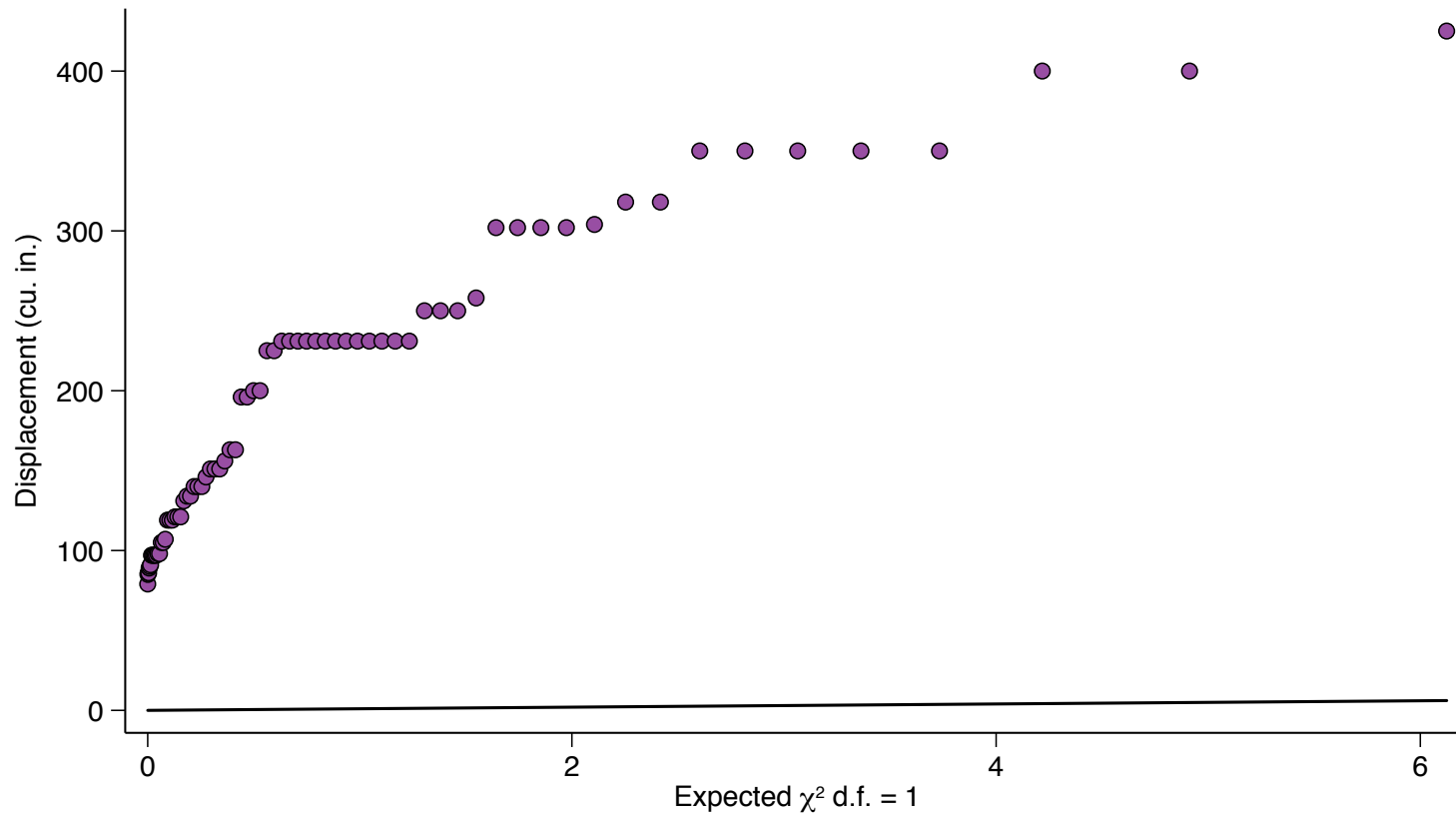
Figure 1.54: Standardized Normal Probability Plot for Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:30:33

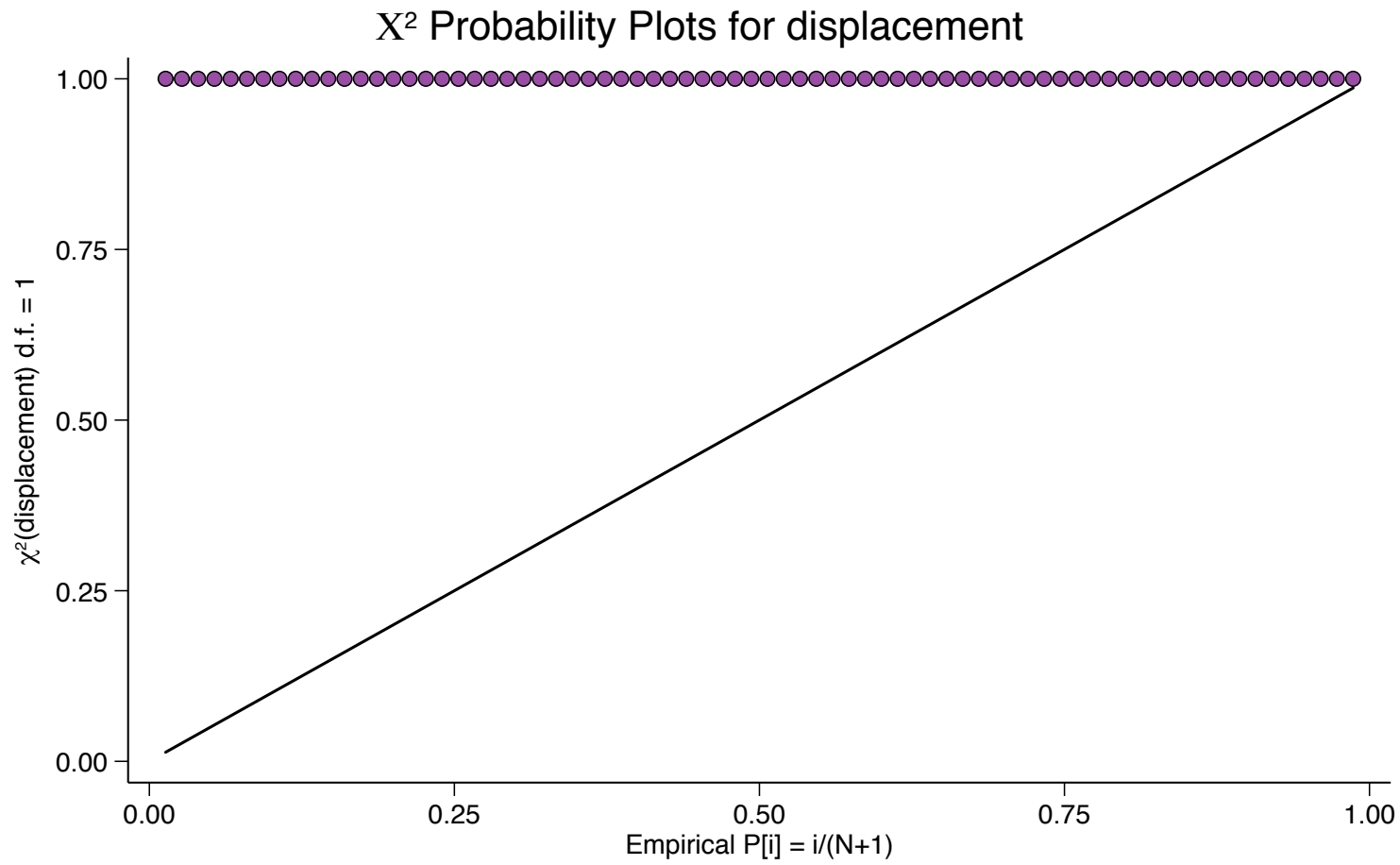
Figure 1.55: Chi-Squared Quantiles v. Displacement (cu. in.)

Quantiles of displacement vs.
Quantiles of X^2



Created on: 29 Oct 2015 at: 15:30:36

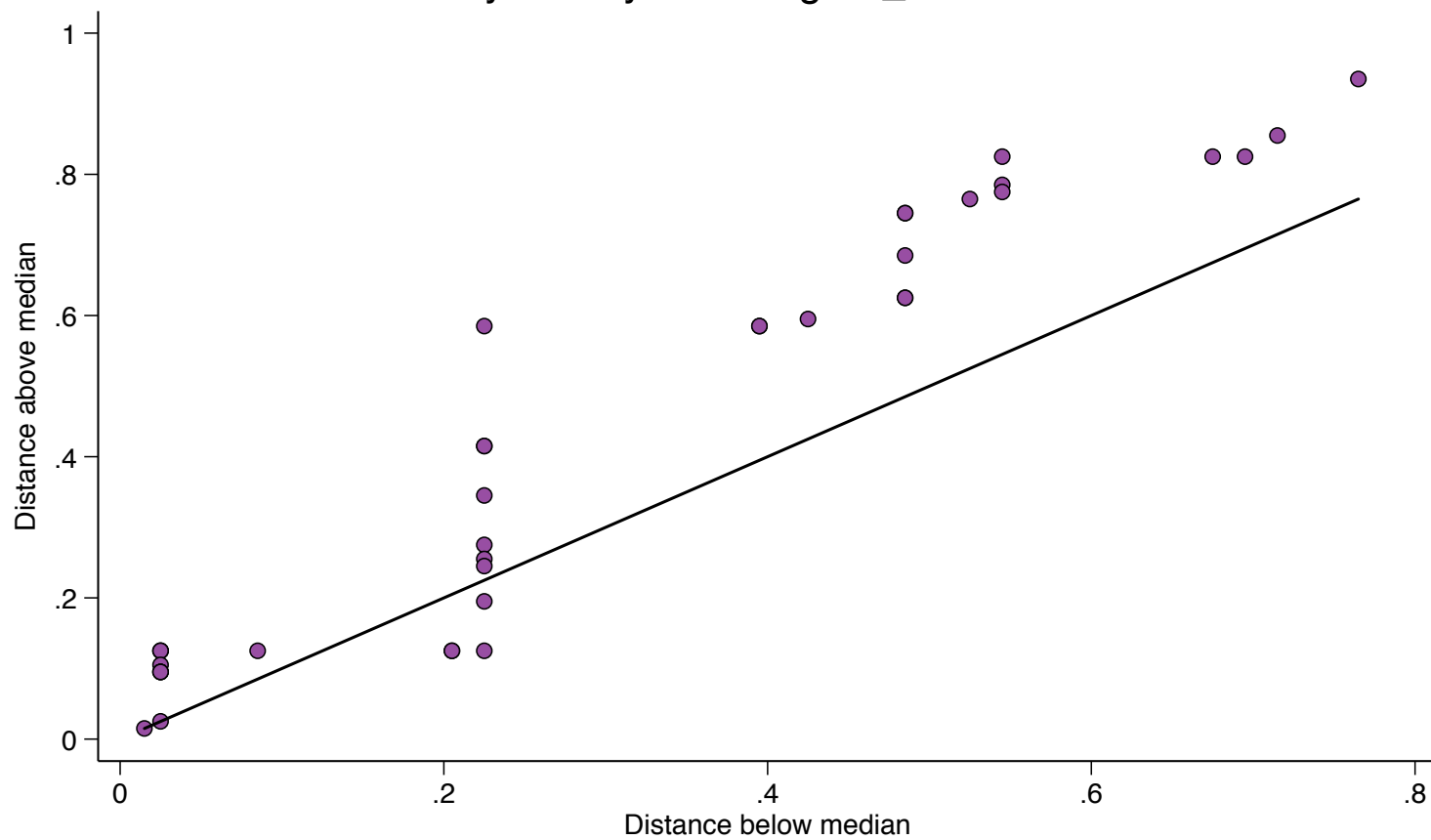
Figure 1.56: Chi-Squared Probability Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:30:38

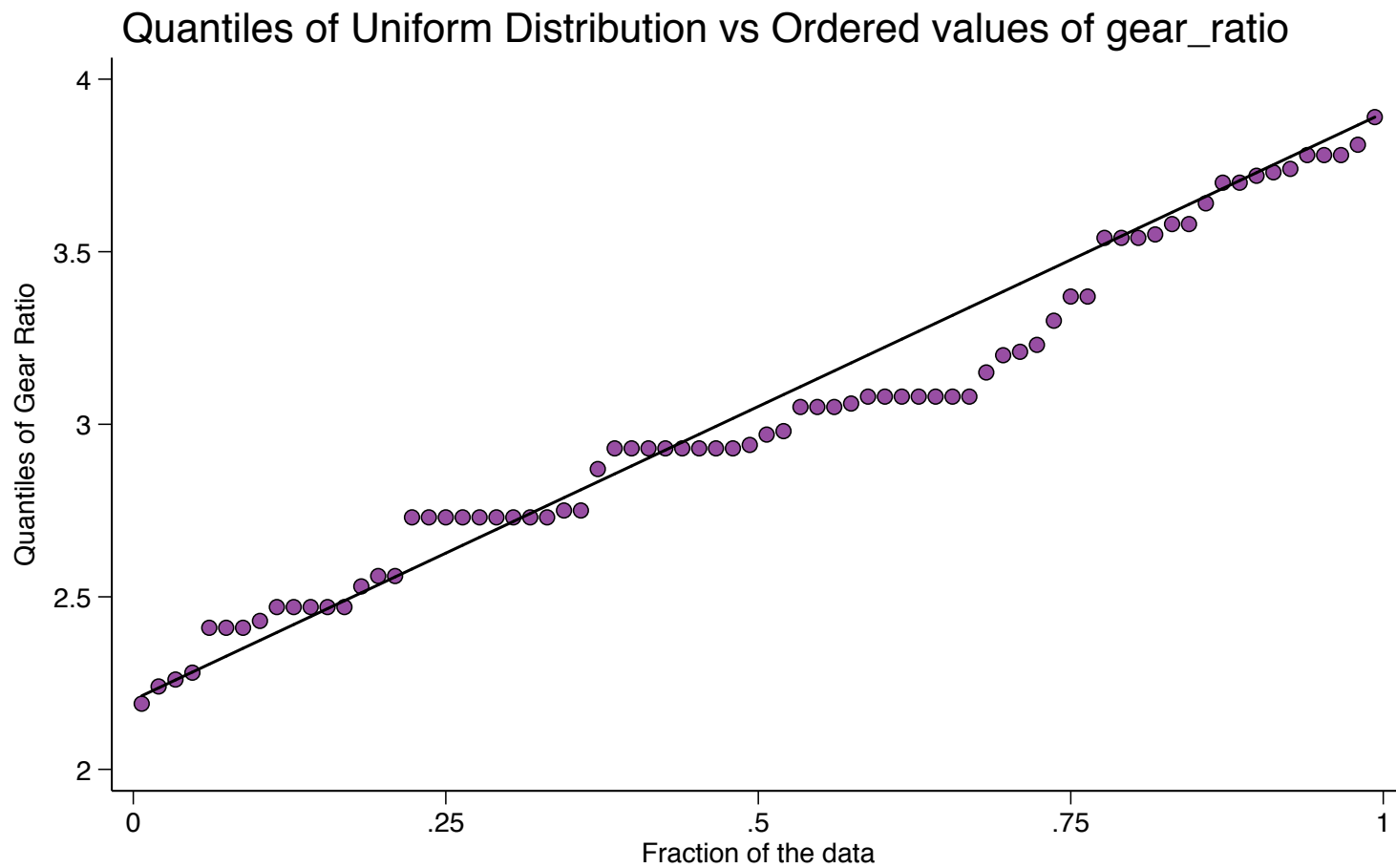
Figure 1.57: Symmetry Plot for Gear Ratio

Symmetry Plot for gear_ratio



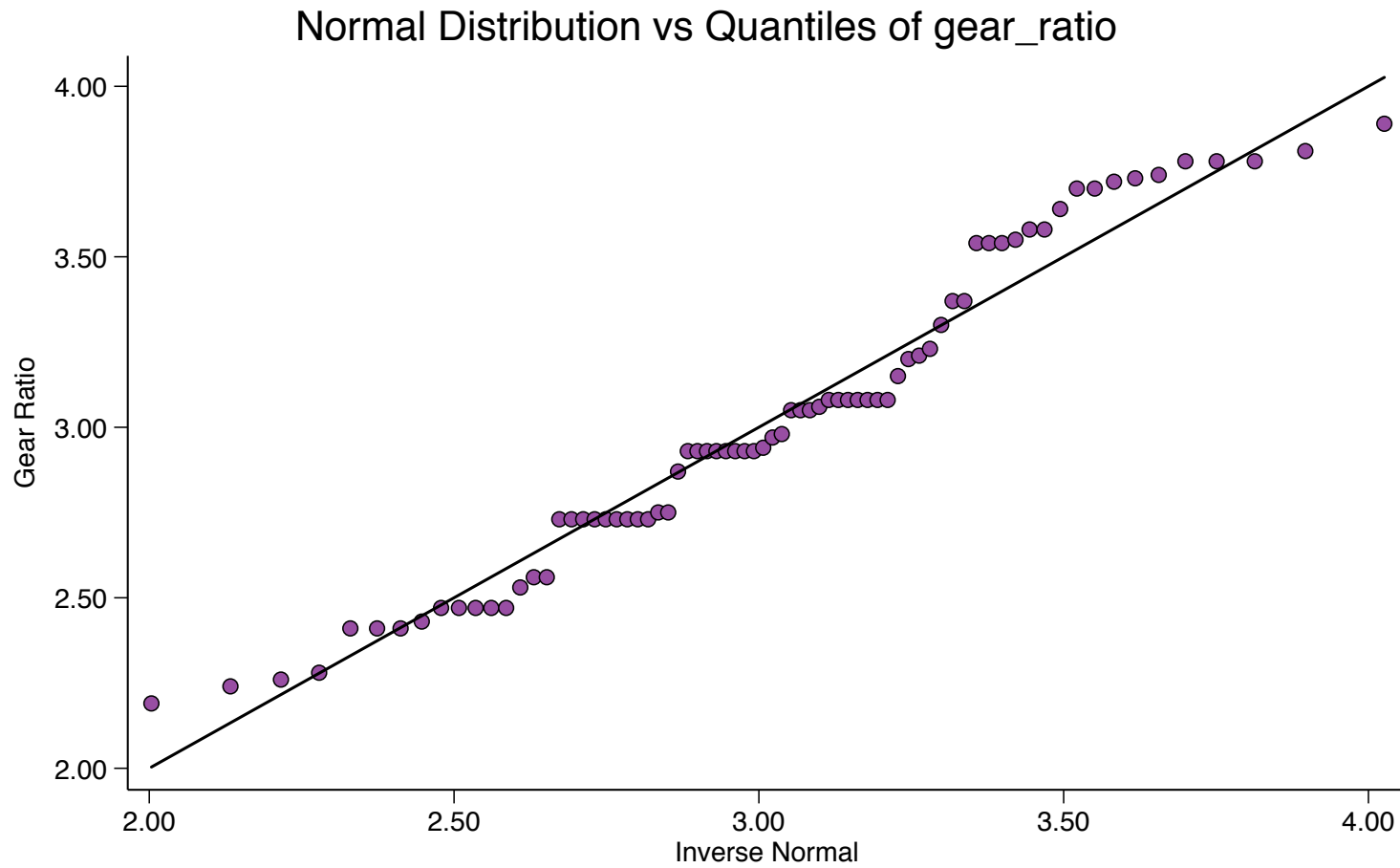
Created on: 29 Oct 2015 at: 15:30:40

Figure 1.58: Quantiles of Uniform Distribution vs Ordered values of Gear Ratio



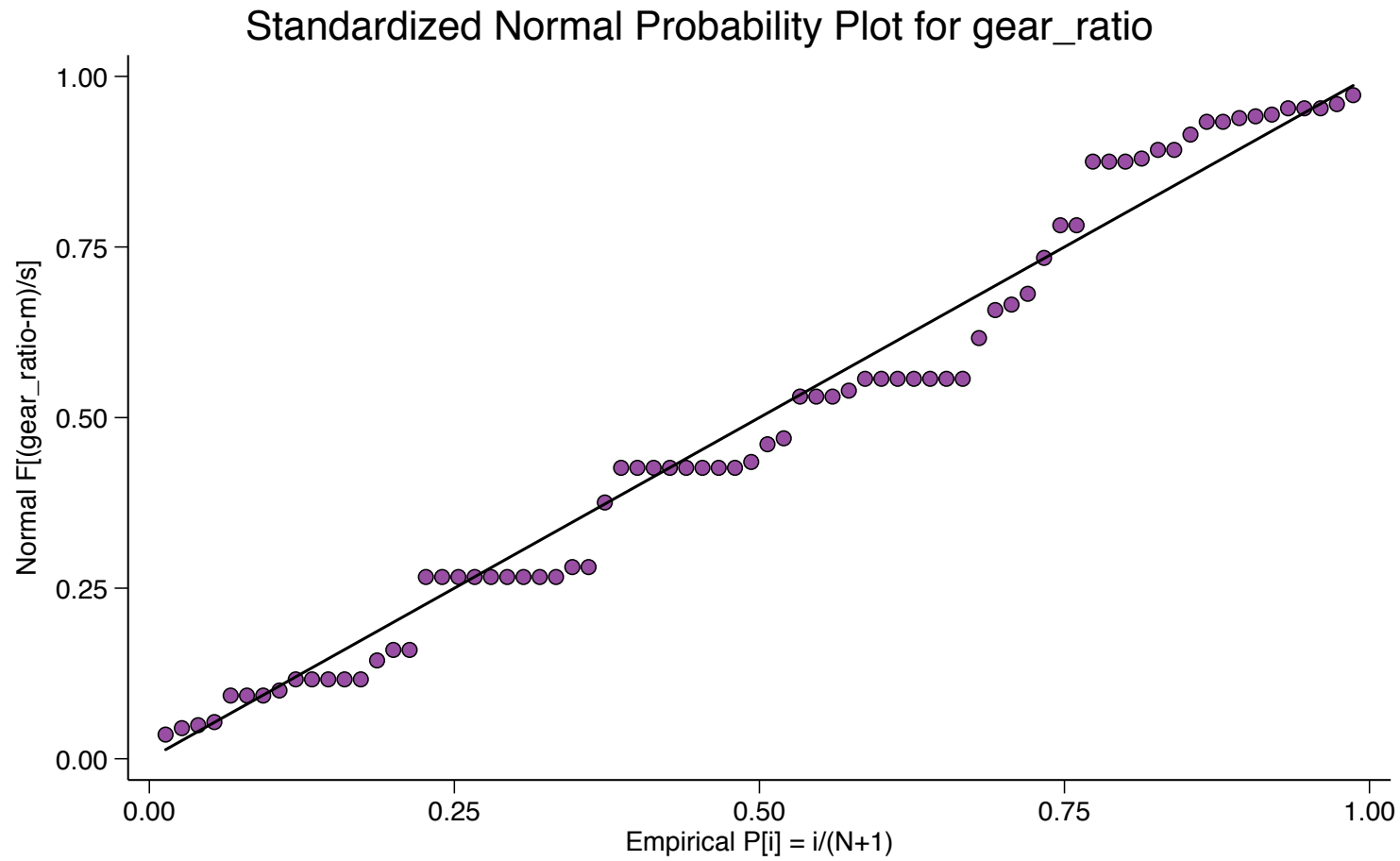
Created on: 29 Oct 2015 at: 15:30:42

Figure 1.59: Normal Distribution vs Quantiles of Gear Ratio



Created on: 29 Oct 2015 at: 15:30:44

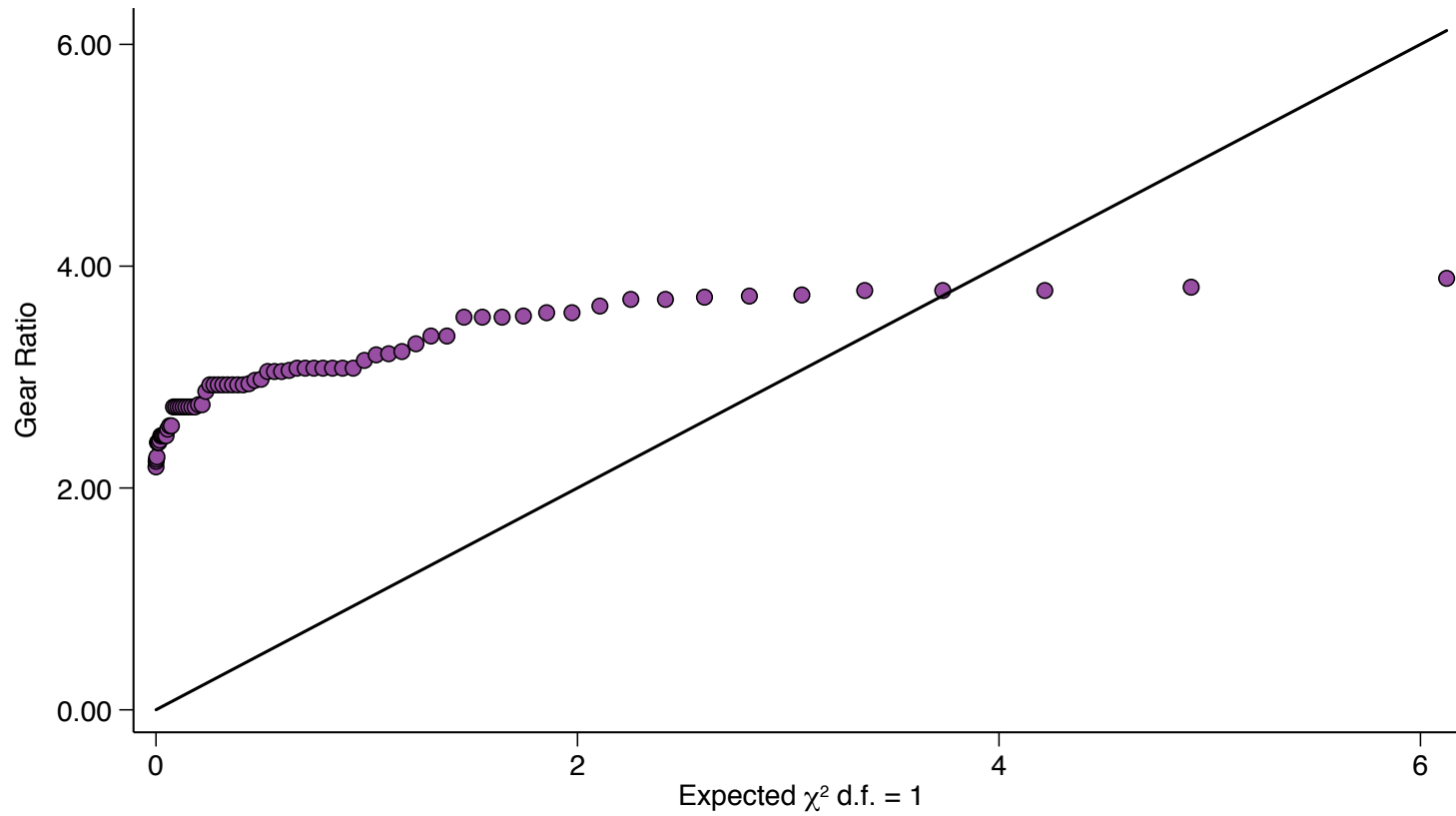
Figure 1.60: Standardized Normal Probability Plot for Gear Ratio



Created on: 29 Oct 2015 at: 15:30:46

Figure 1.61: Chi-Squared Quantiles v. Gear Ratio

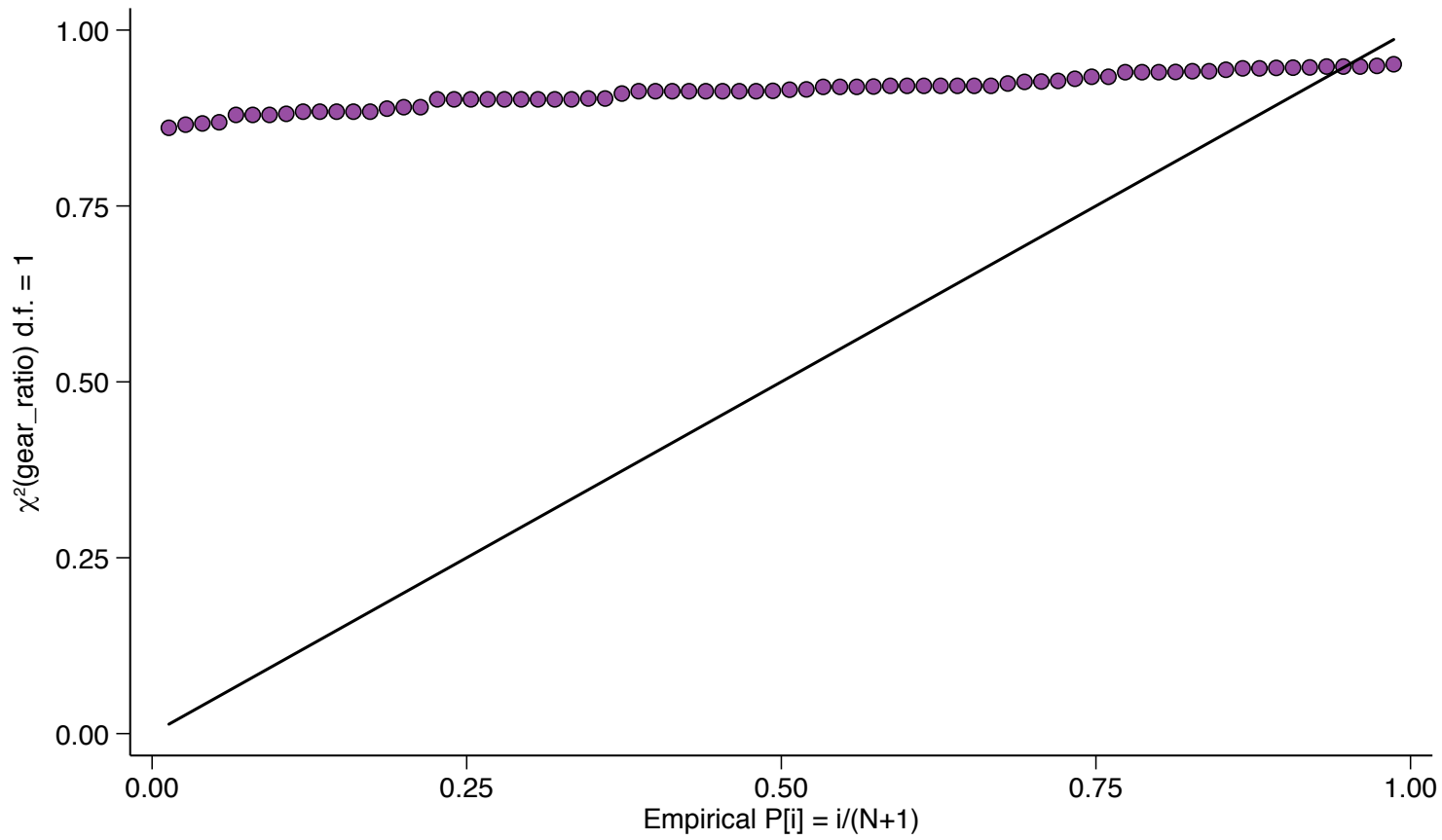
Quantiles of gear_ratio vs.
Quantiles of X^2



Created on: 29 Oct 2015 at: 15:30:48

Figure 1.62: Chi-Squared Probability Gear Ratio

χ^2 Probability Plots for gear_ratio

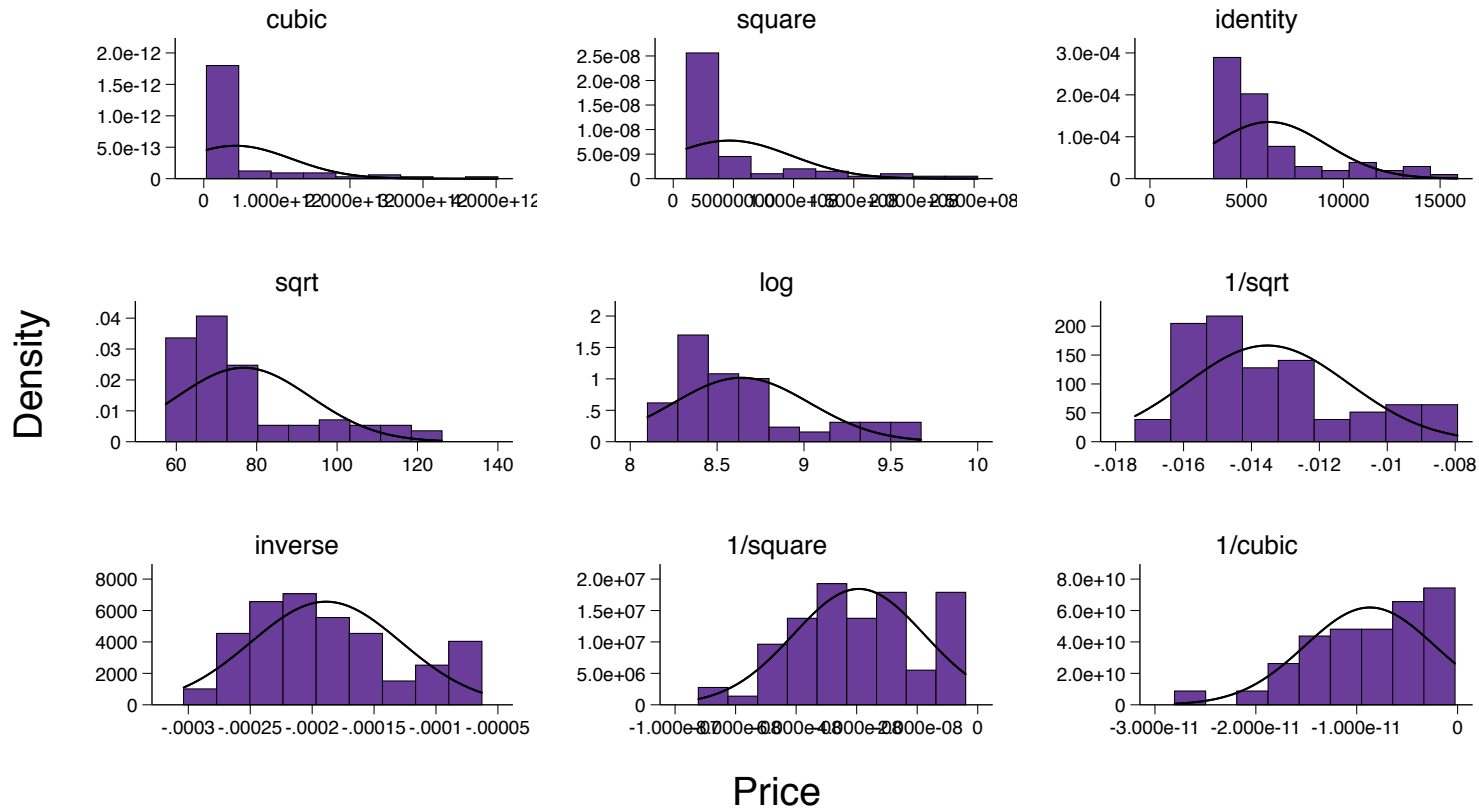


Created on: 29 Oct 2015 at: 15:30:51

Ladder of Powers Transformation Graphs.

Figure 1.63: Price Ladder of Powers Histograms

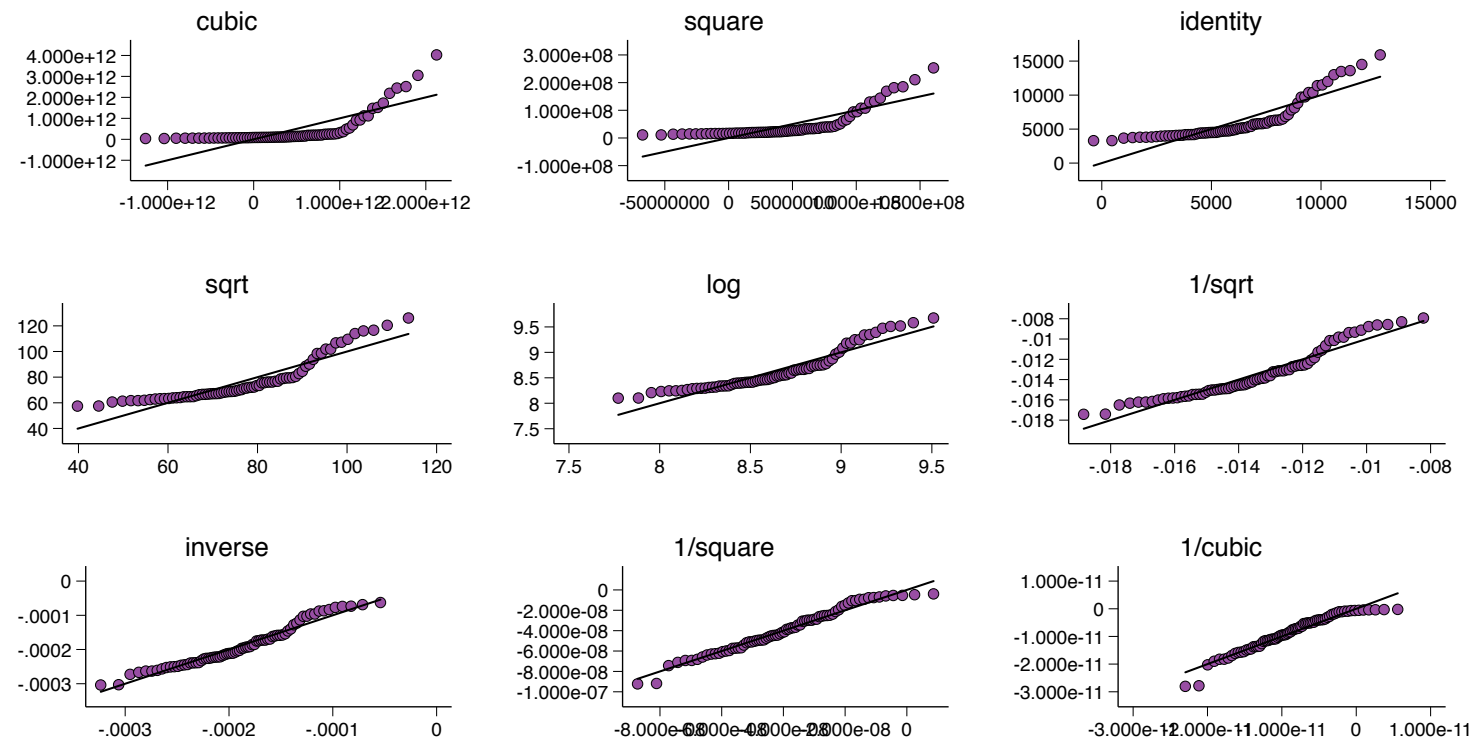
Ladder of Powers Histograms for Price



Histograms by transformation

Figure 1.64: Price Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Price

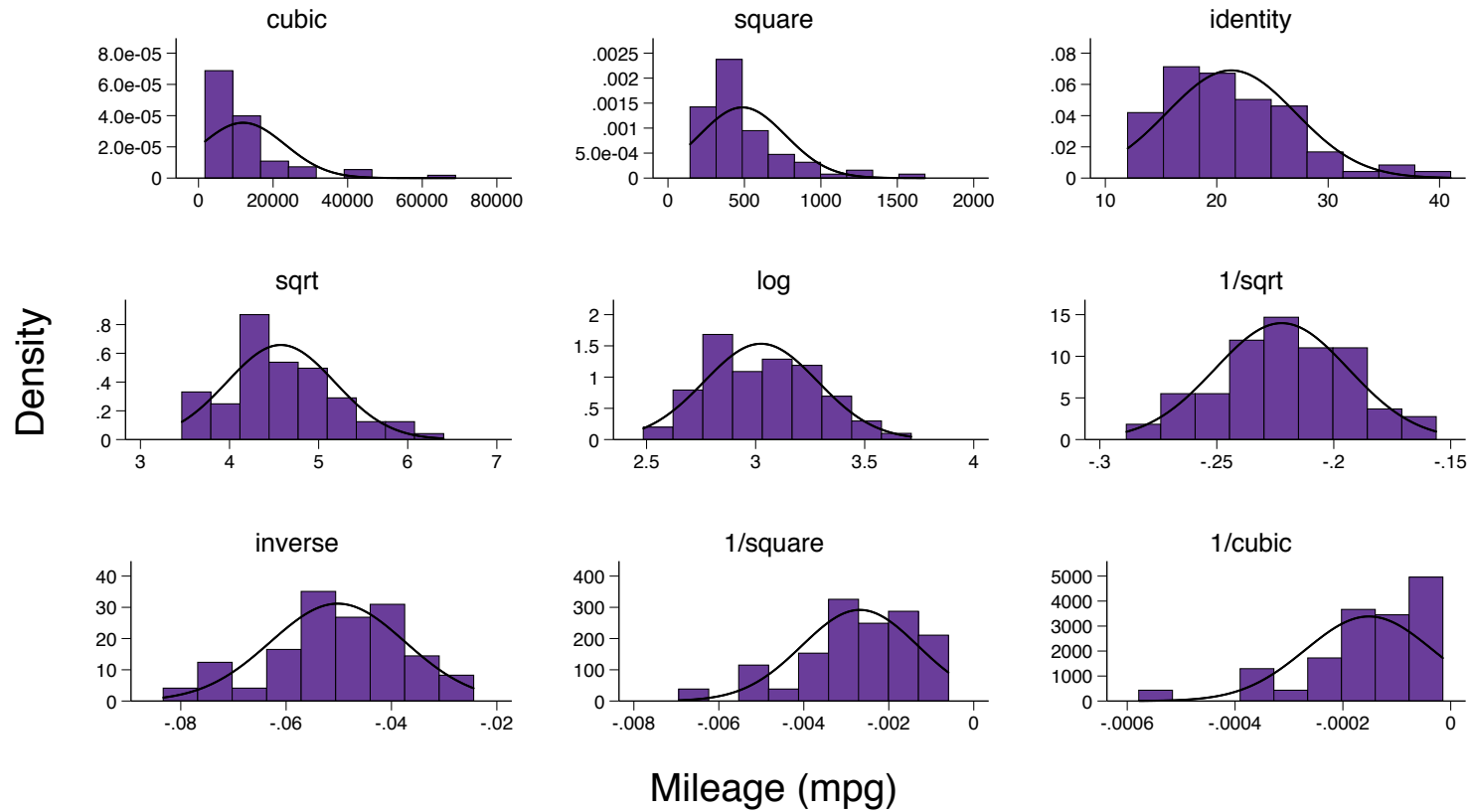


Price

Quantile-Normal plots by transformation

Figure 1.65: Mileage (mpg) Ladder of Powers Histograms

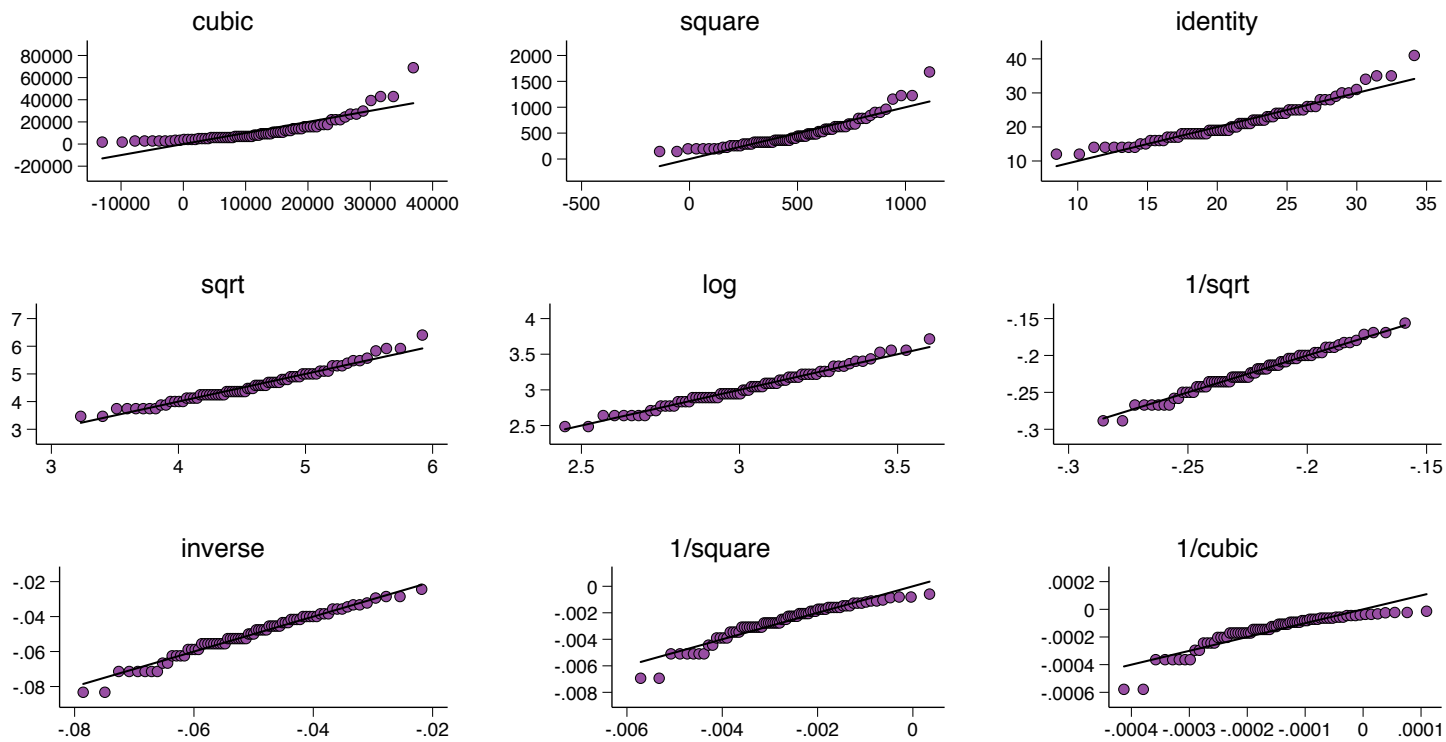
Ladder of Powers Histograms for Mileage (mpg)



Histograms by transformation

Figure 1.66: Mileage (mpg) Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Mileage (mpg)

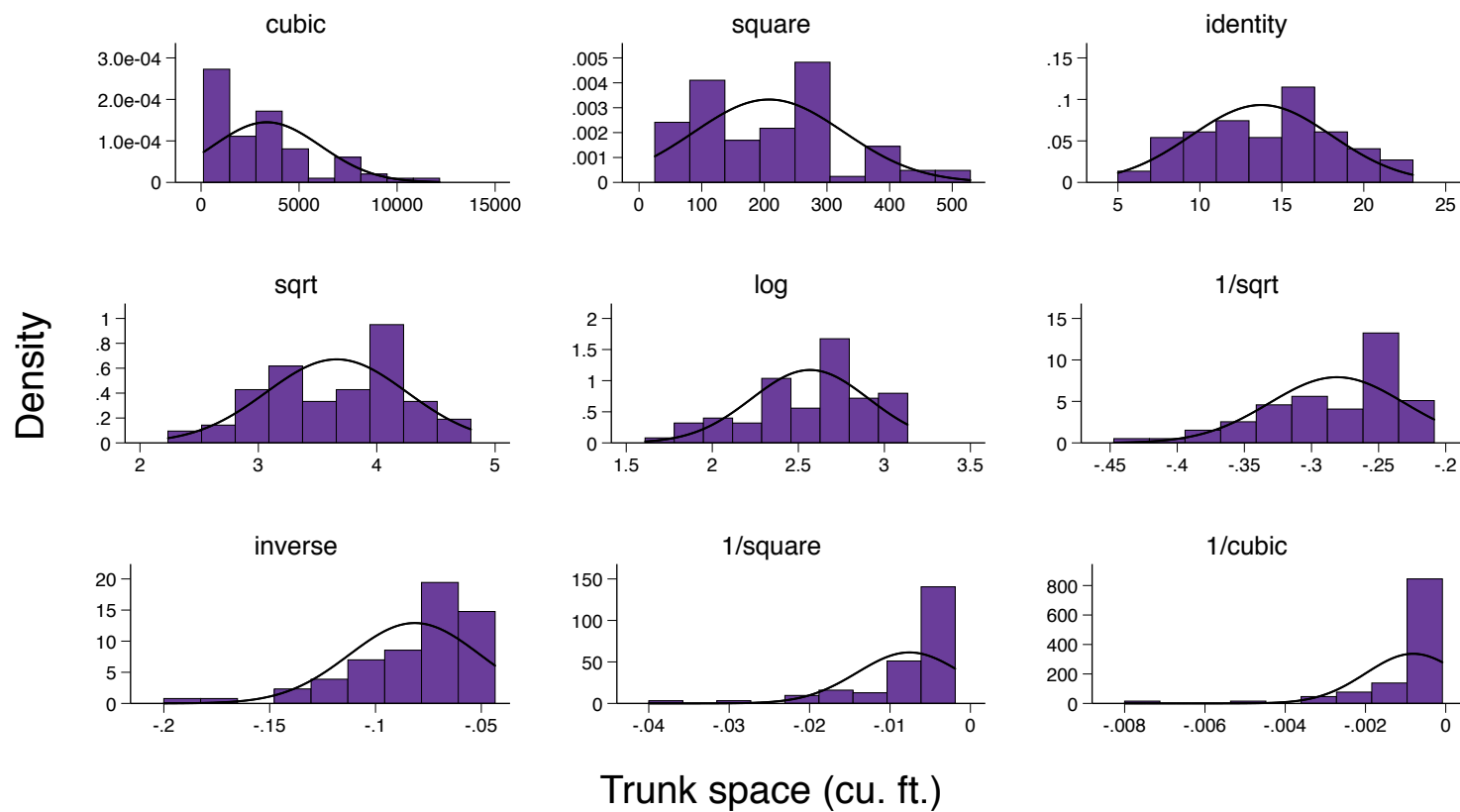


Mileage (mpg)

Quantile-Normal plots by transformation

Figure 1.67: Trunk space (cu. ft.) Ladder of Powers Histograms

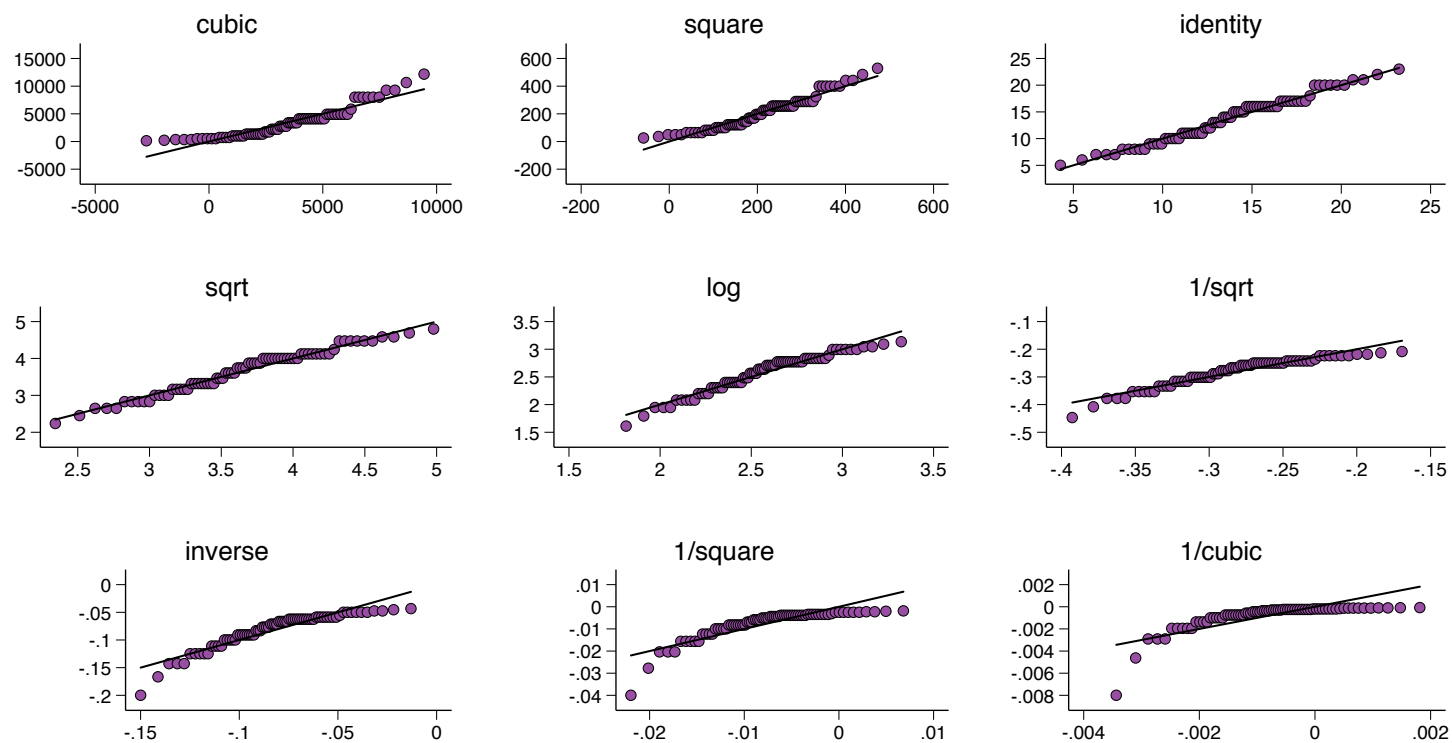
Ladder of Powers Histograms for Trunk space (cu. ft.)



Histograms by transformation

Figure 1.68: Trunk space (cu. ft.) Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Trunk space (cu. ft.)

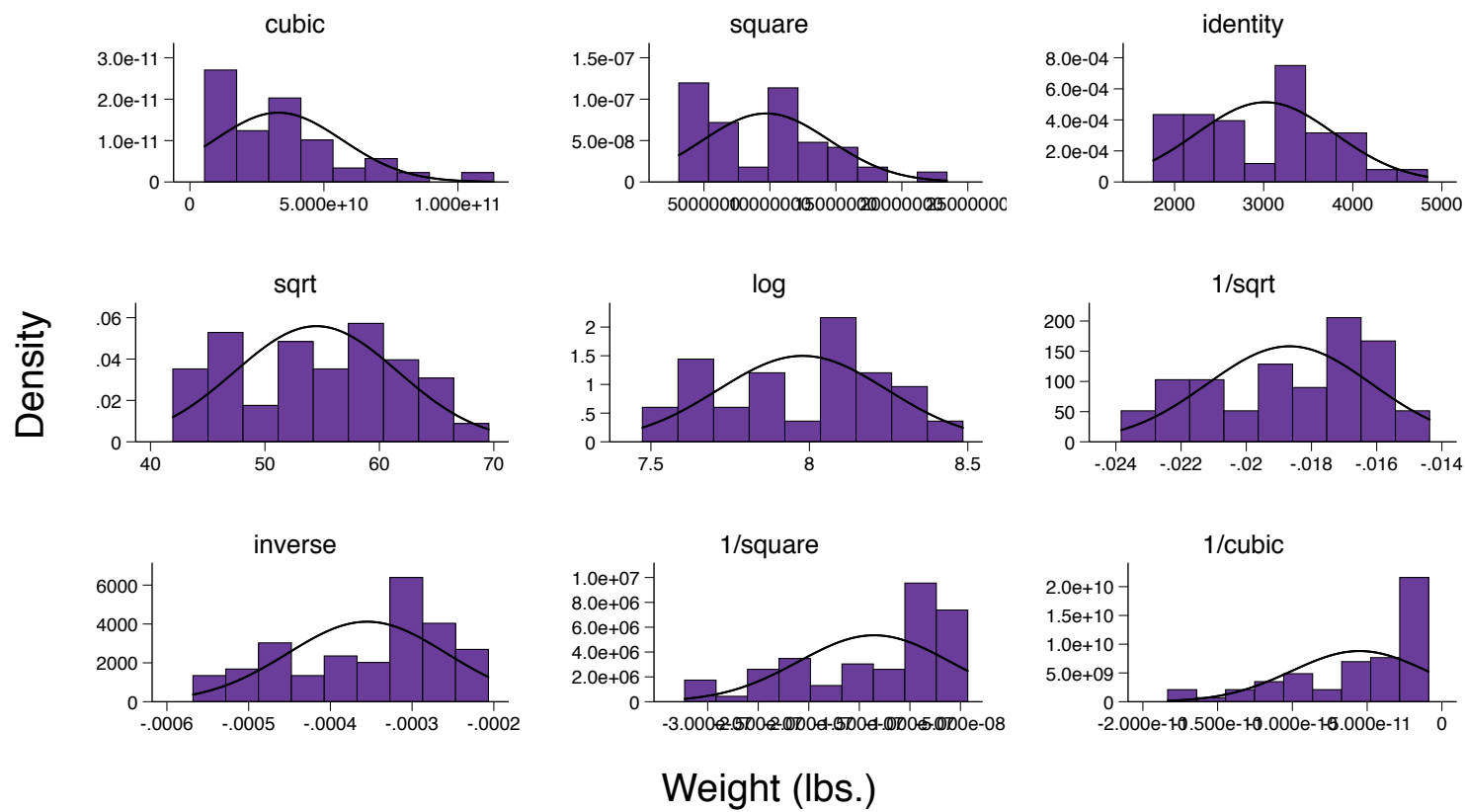


Trunk space (cu. ft.)

Quantile-Normal plots by transformation

Figure 1.69: Weight (lbs.) Ladder of Powers Histograms

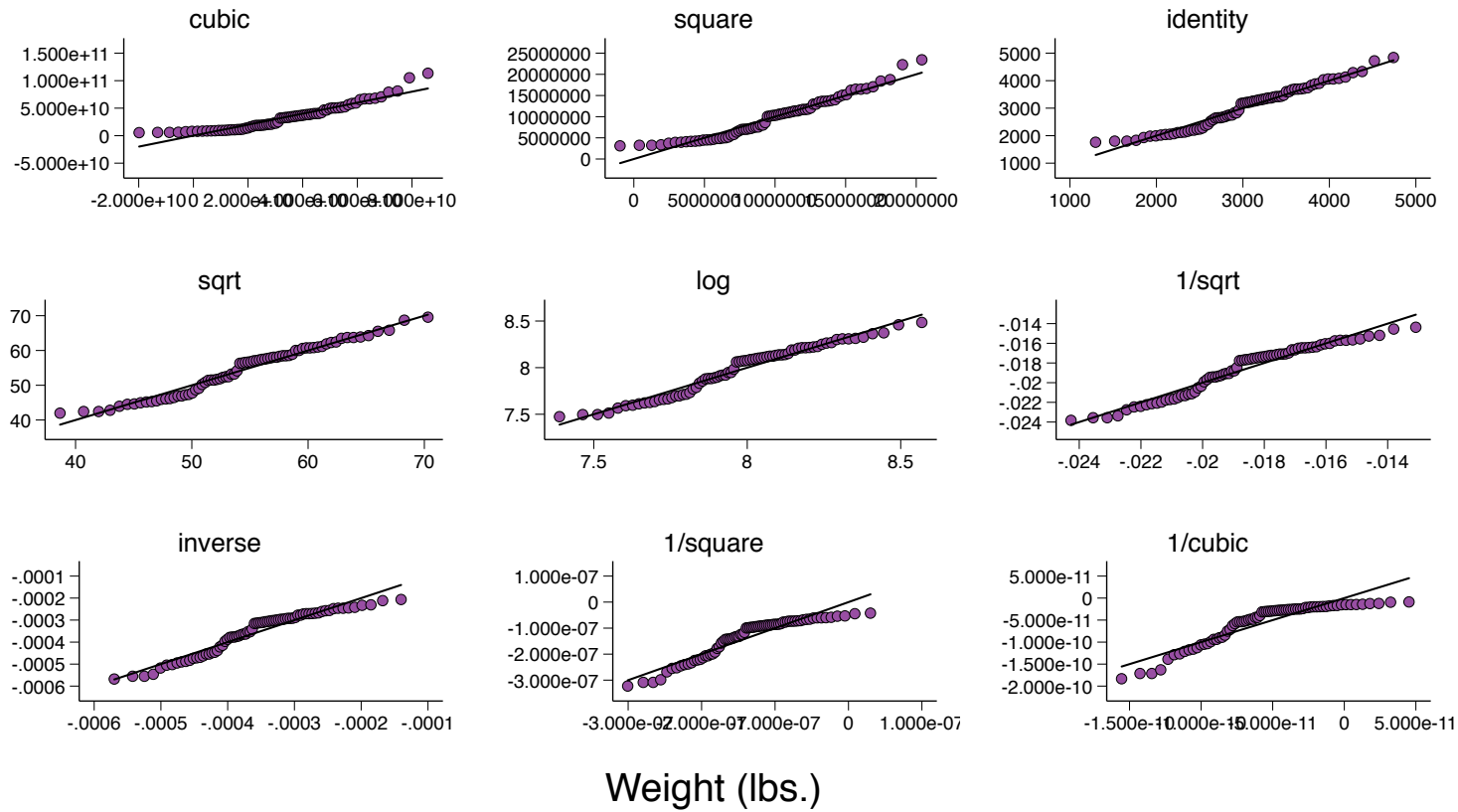
Ladder of Powers Histograms for Weight (lbs.)



Histograms by transformation

Figure 1.70: Weight (lbs.) Ladder of Powers Quantile Normal Plots

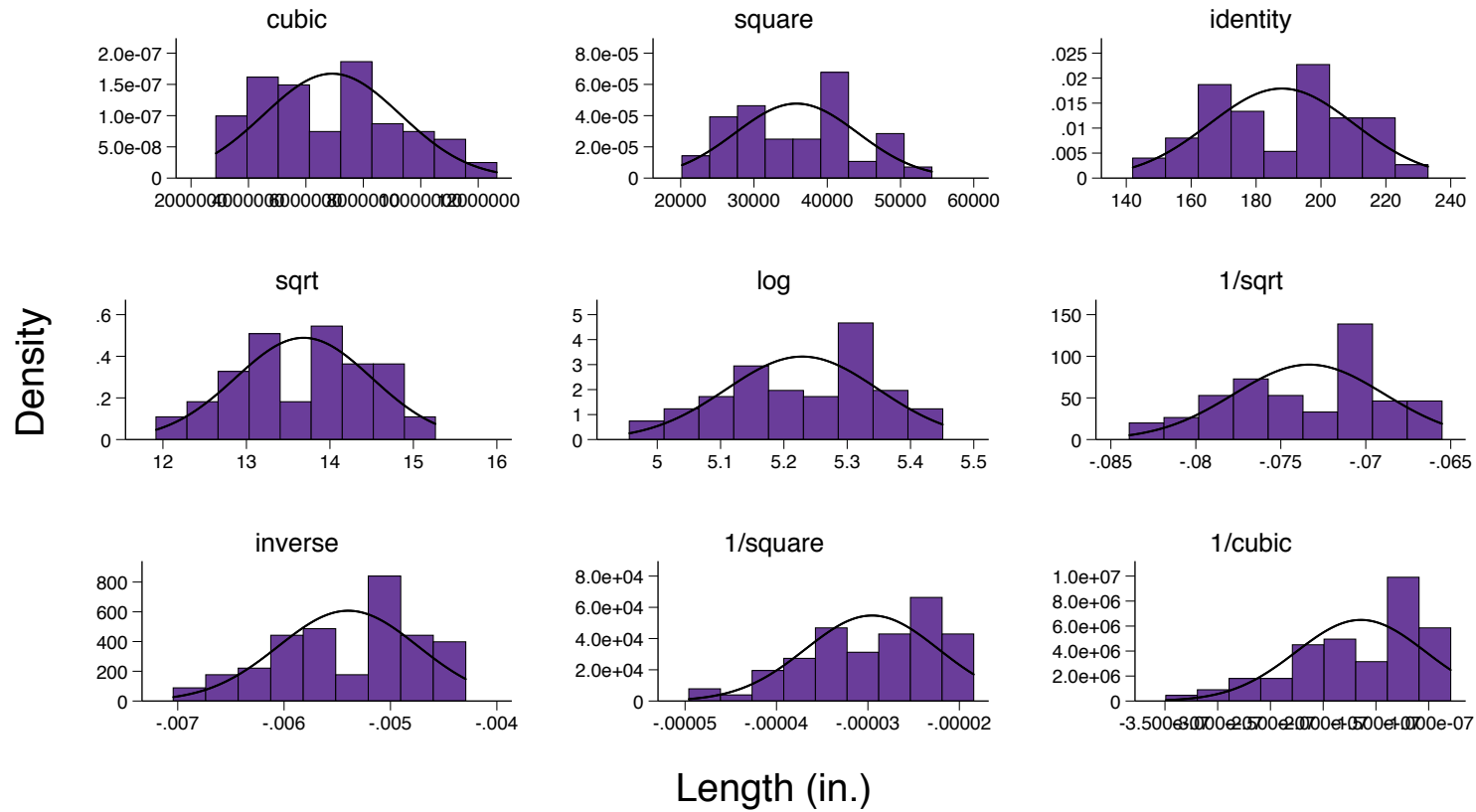
Ladder of Powers Quantile Normal Plots for Weight (lbs.)



Quantile-Normal plots by transformation

Figure 1.71: Length (in.) Ladder of Powers Histograms

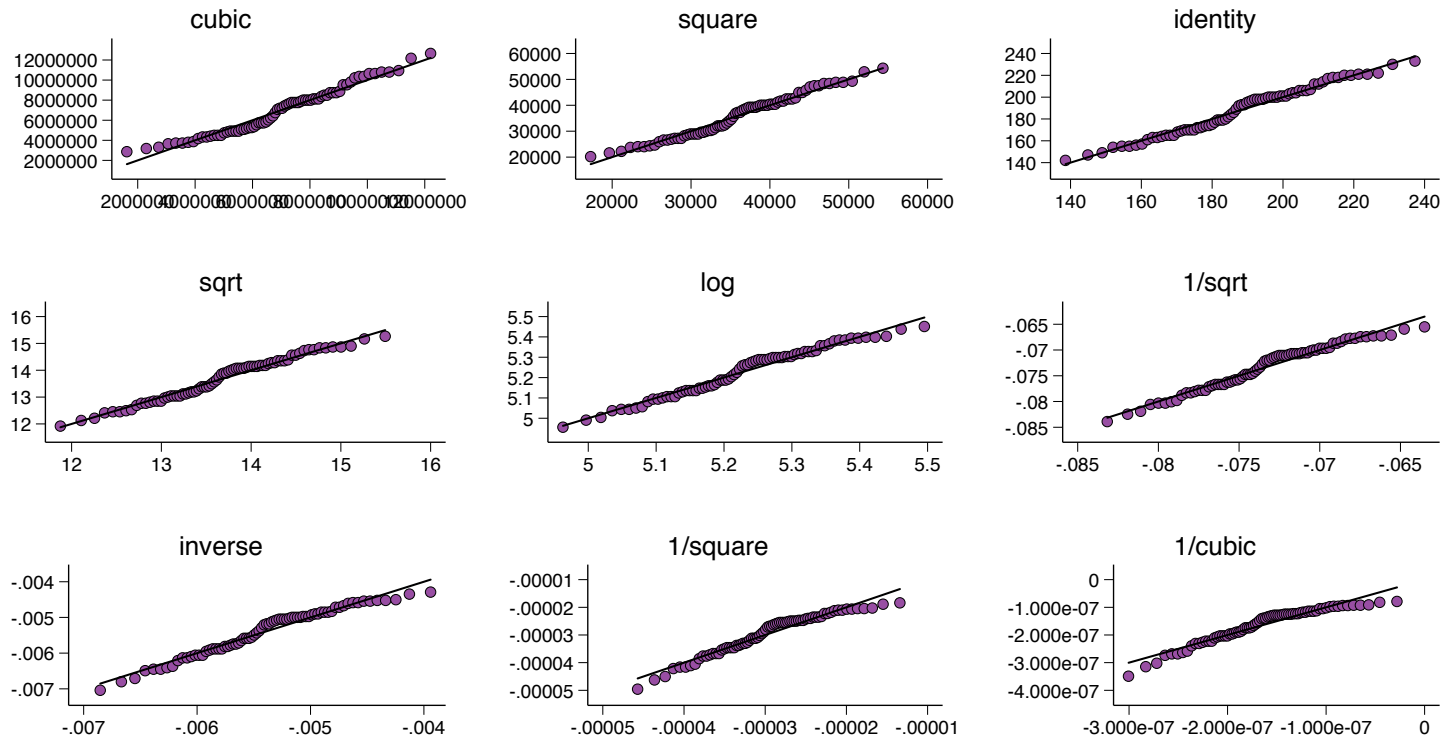
Ladder of Powers Histograms for Length (in.)



Histograms by transformation

Figure 1.72: Length (in.) Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Length (in.)

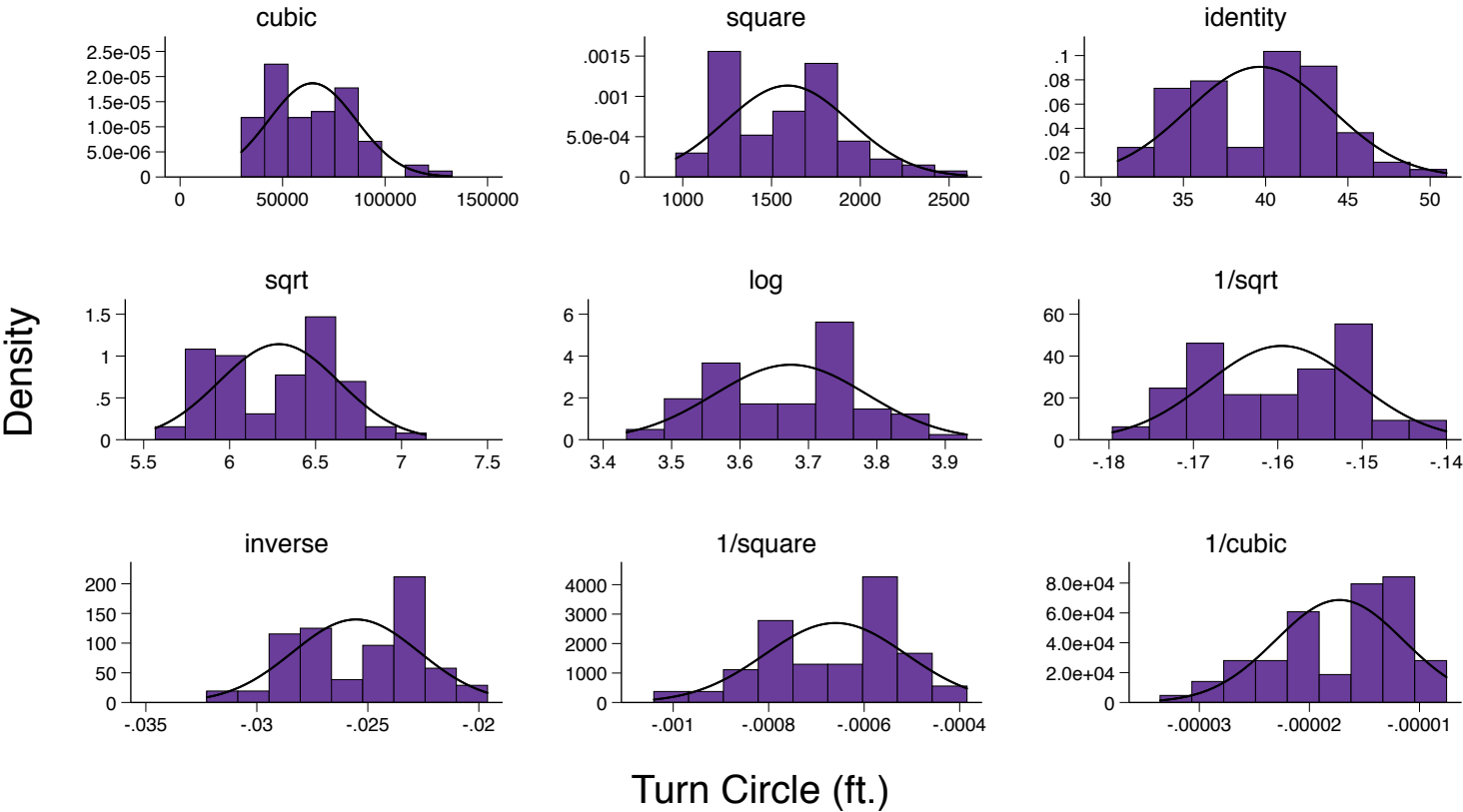


Length (in.)

Quantile-Normal plots by transformation

Figure 1.73: Turn Circle (ft.) Ladder of Powers Histograms

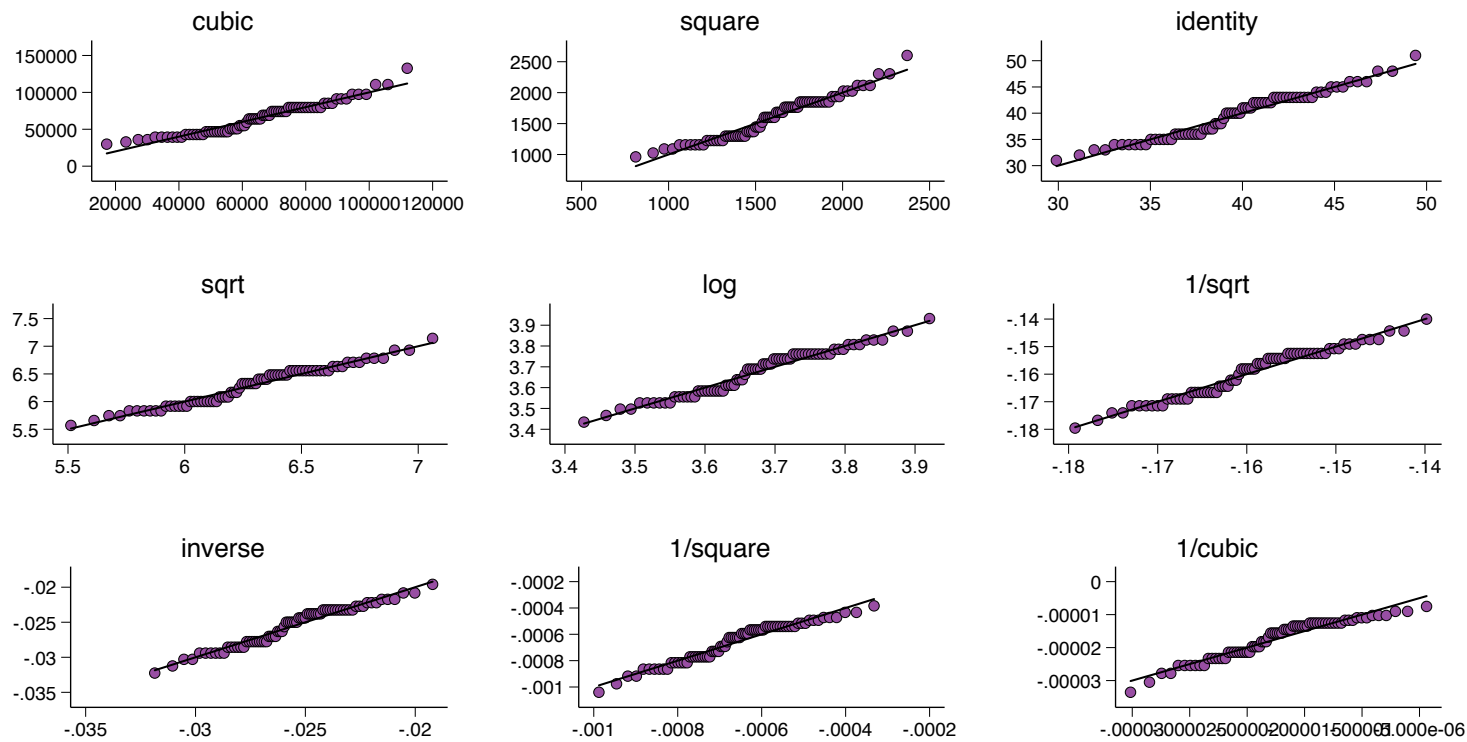
Ladder of Powers Histograms for
Turn Circle (ft.)



Histograms by transformation

Figure 1.74: Turn Circle (ft.) Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Turn Circle (ft.)

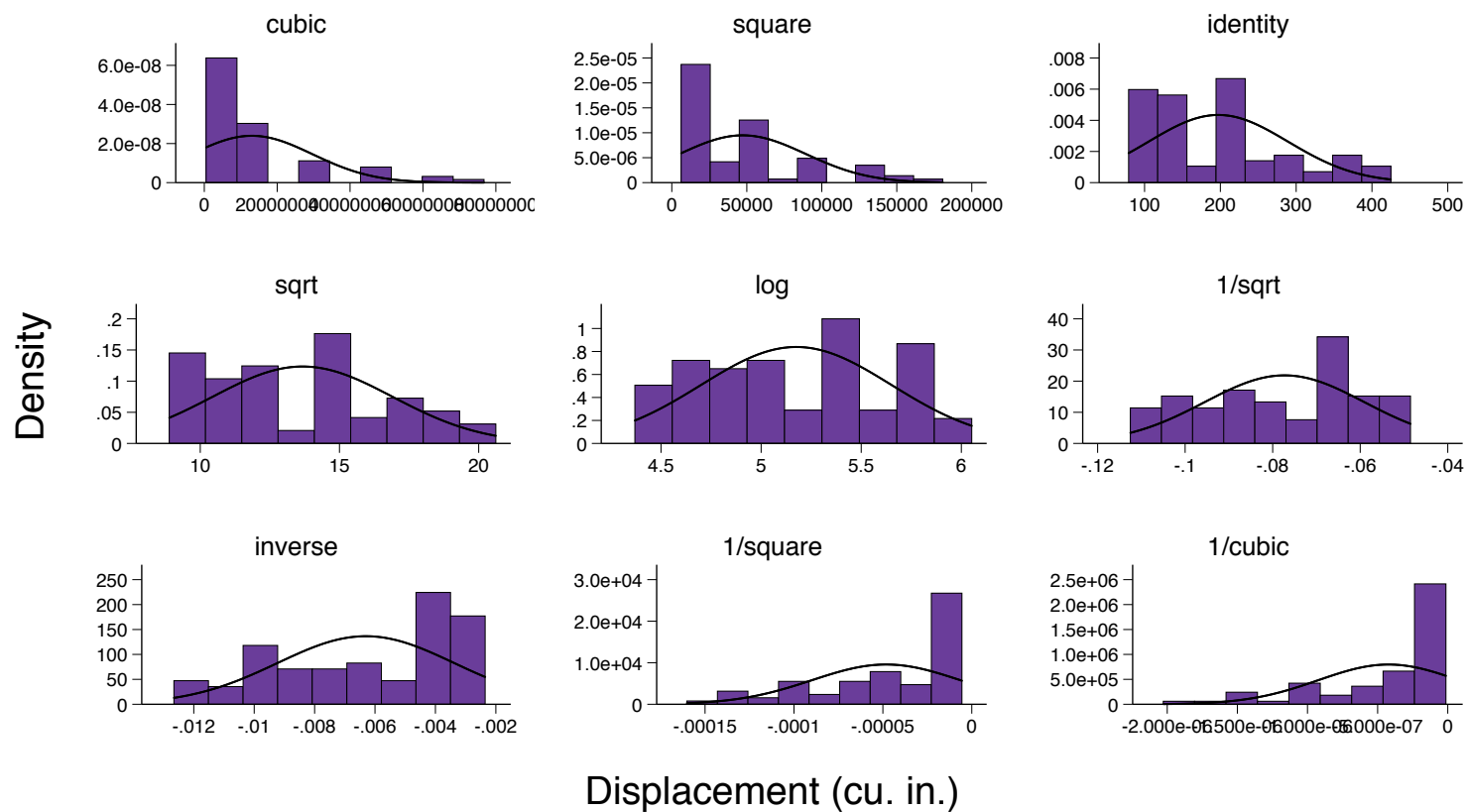


Turn Circle (ft.)

Quantile-Normal plots by transformation

Figure 1.75: Displacement (cu. in.) Ladder of Powers Histograms

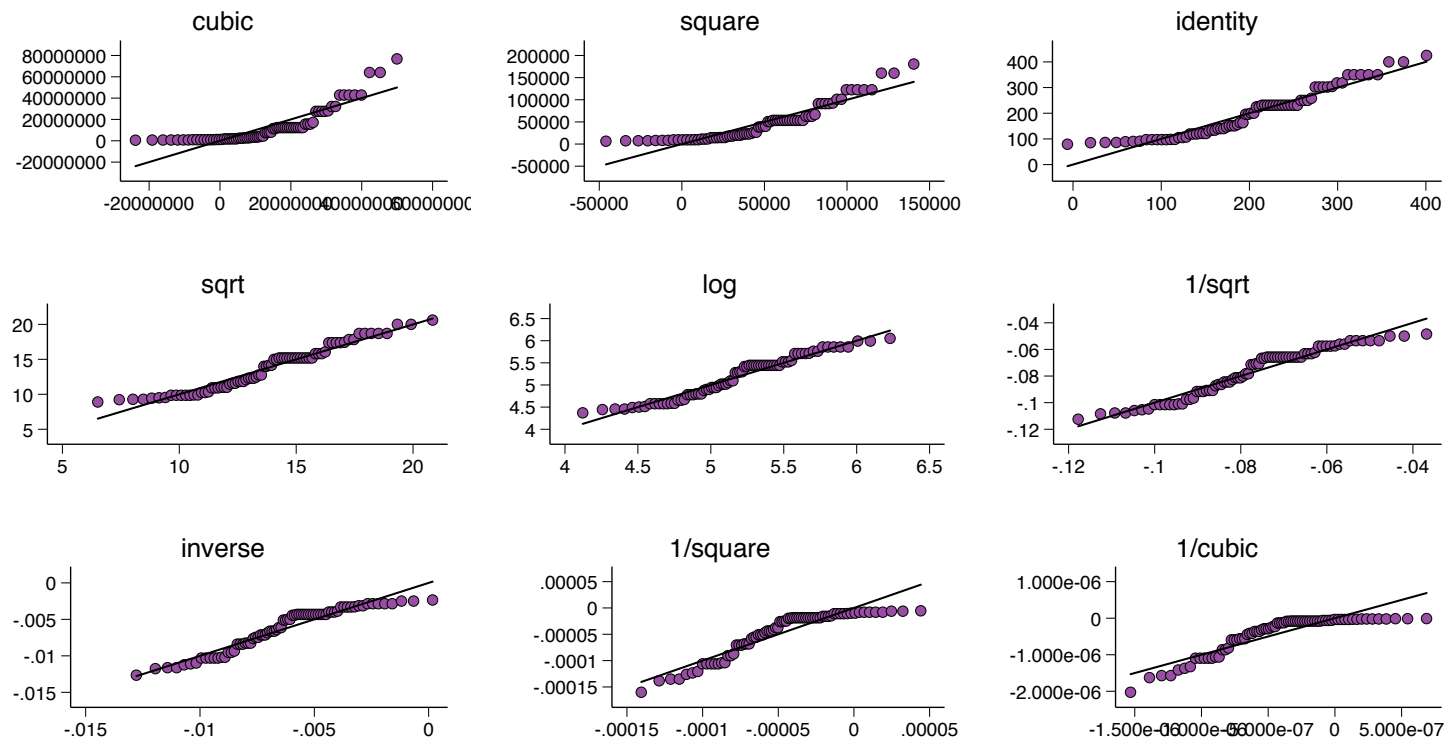
Ladder of Powers Histograms for Displacement (cu. in.)



Histograms by transformation

Figure 1.76: Displacement (cu. in.) Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Displacement (cu. in.)

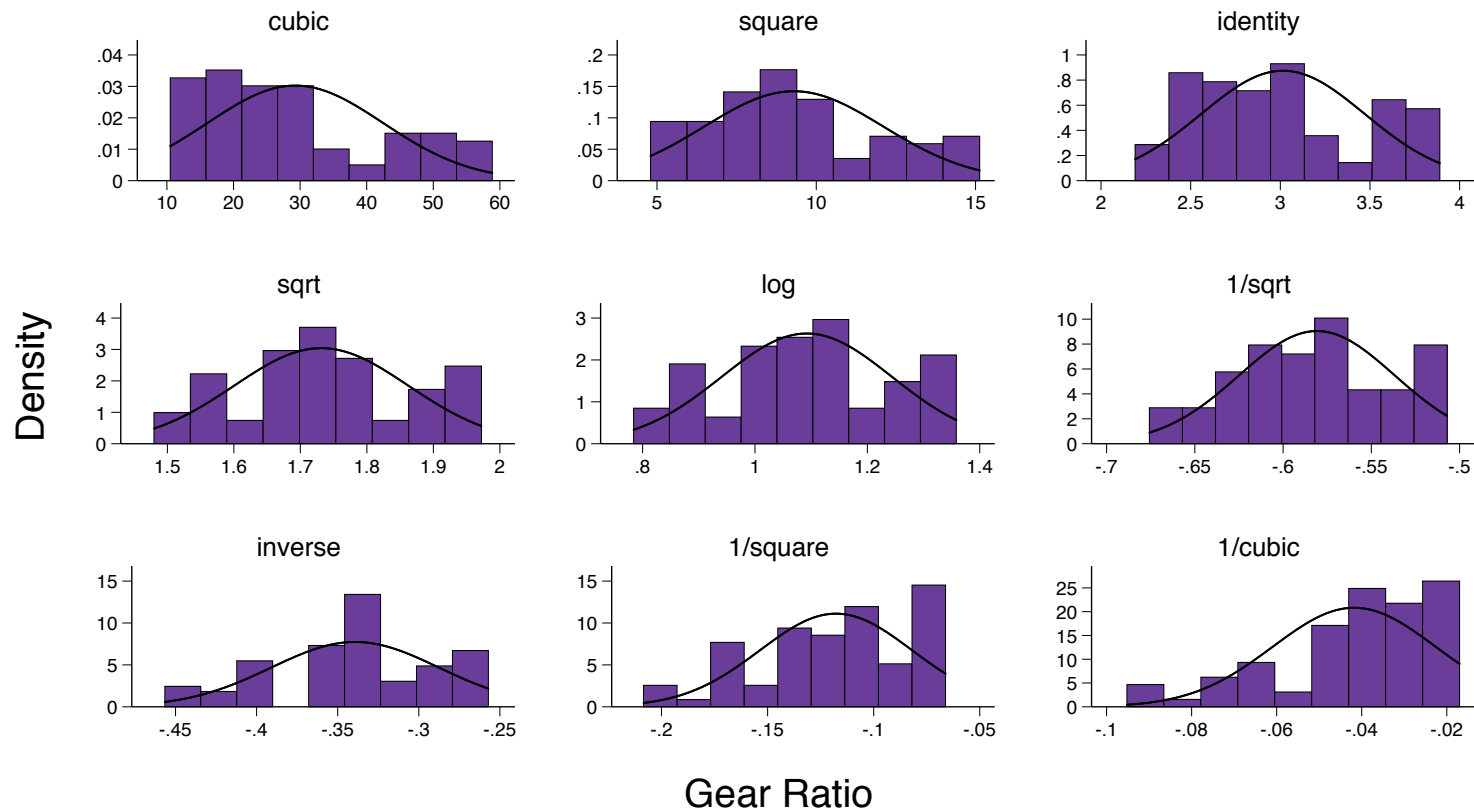


Displacement (cu. in.)

Quantile-Normal plots by transformation

Figure 1.77: Gear Ratio Ladder of Powers Histograms

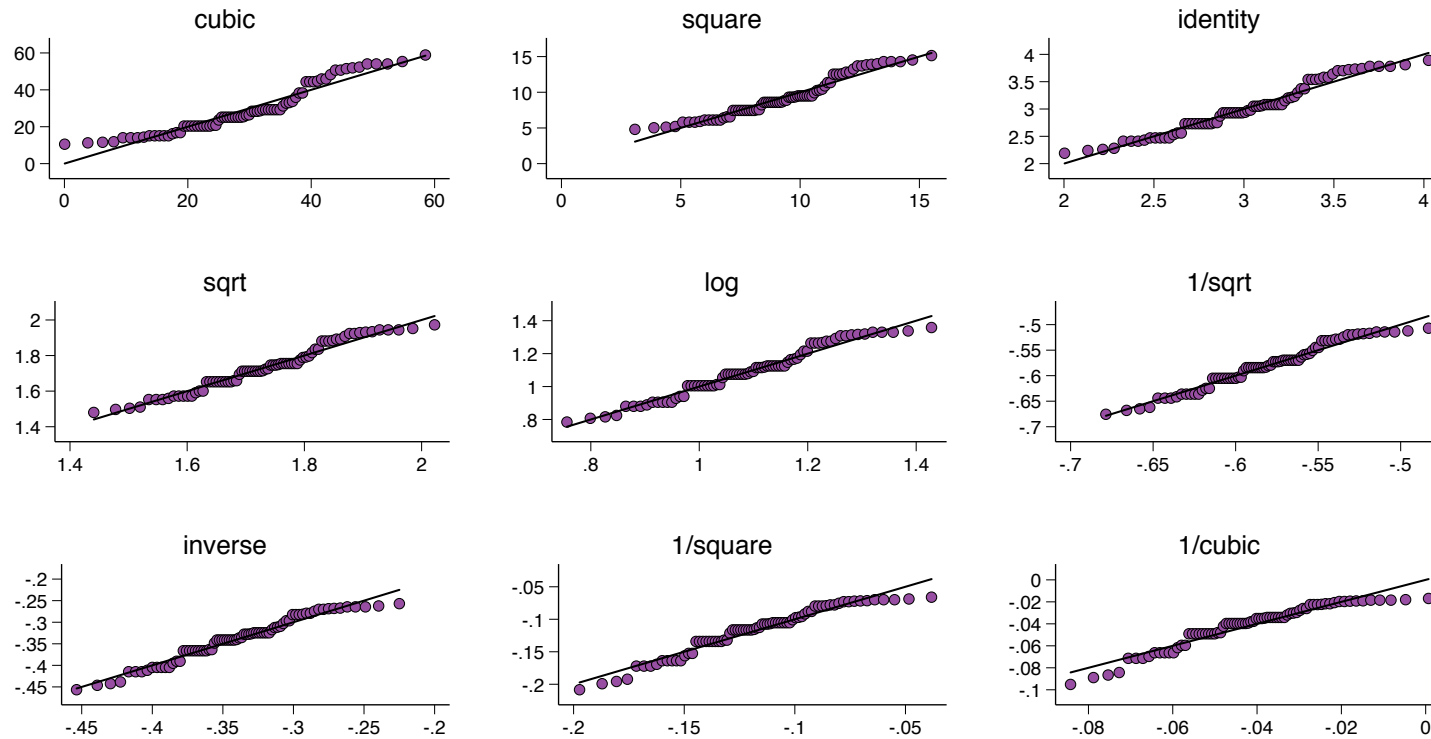
Ladder of Powers Histograms for Gear Ratio



Histograms by transformation

Figure 1.78: Gear Ratio Ladder of Powers Quantile Normal Plots

Ladder of Powers Quantile Normal Plots for Gear Ratio

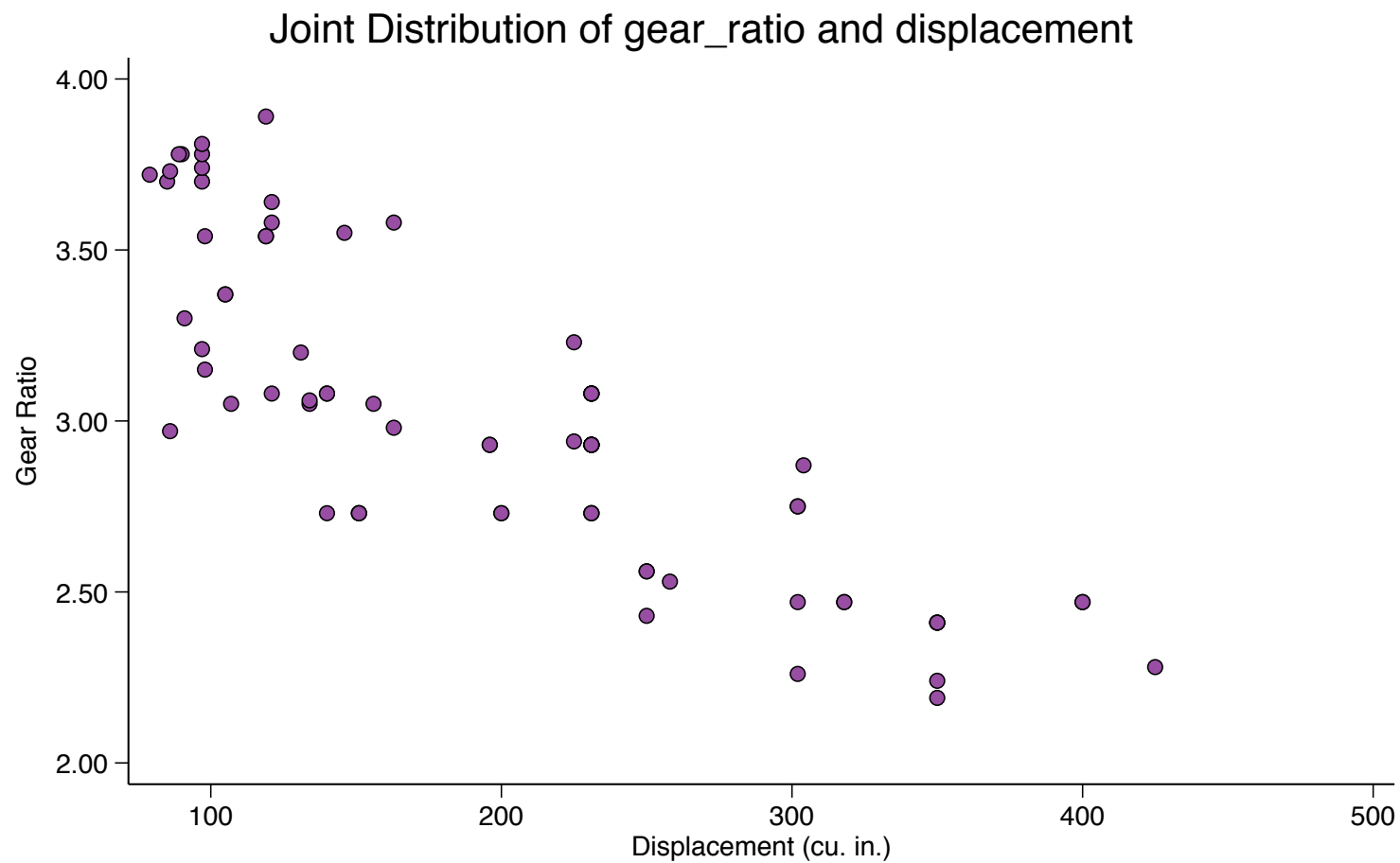


Gear Ratio

Quantile-Normal plots by transformation

Bivariate Distributions

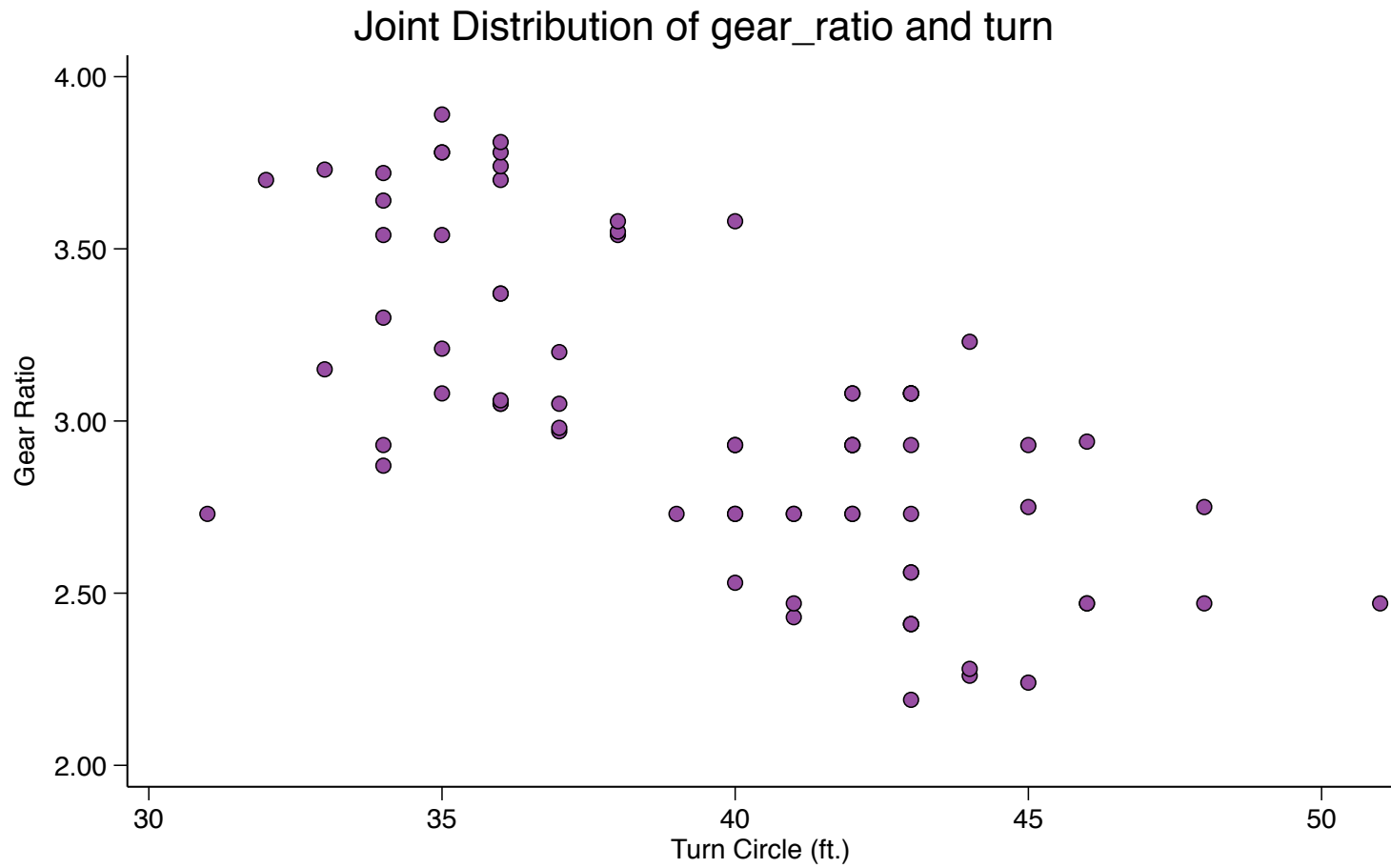
Figure 1.79: Scatterplot of Gear Ratio & Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:35:57

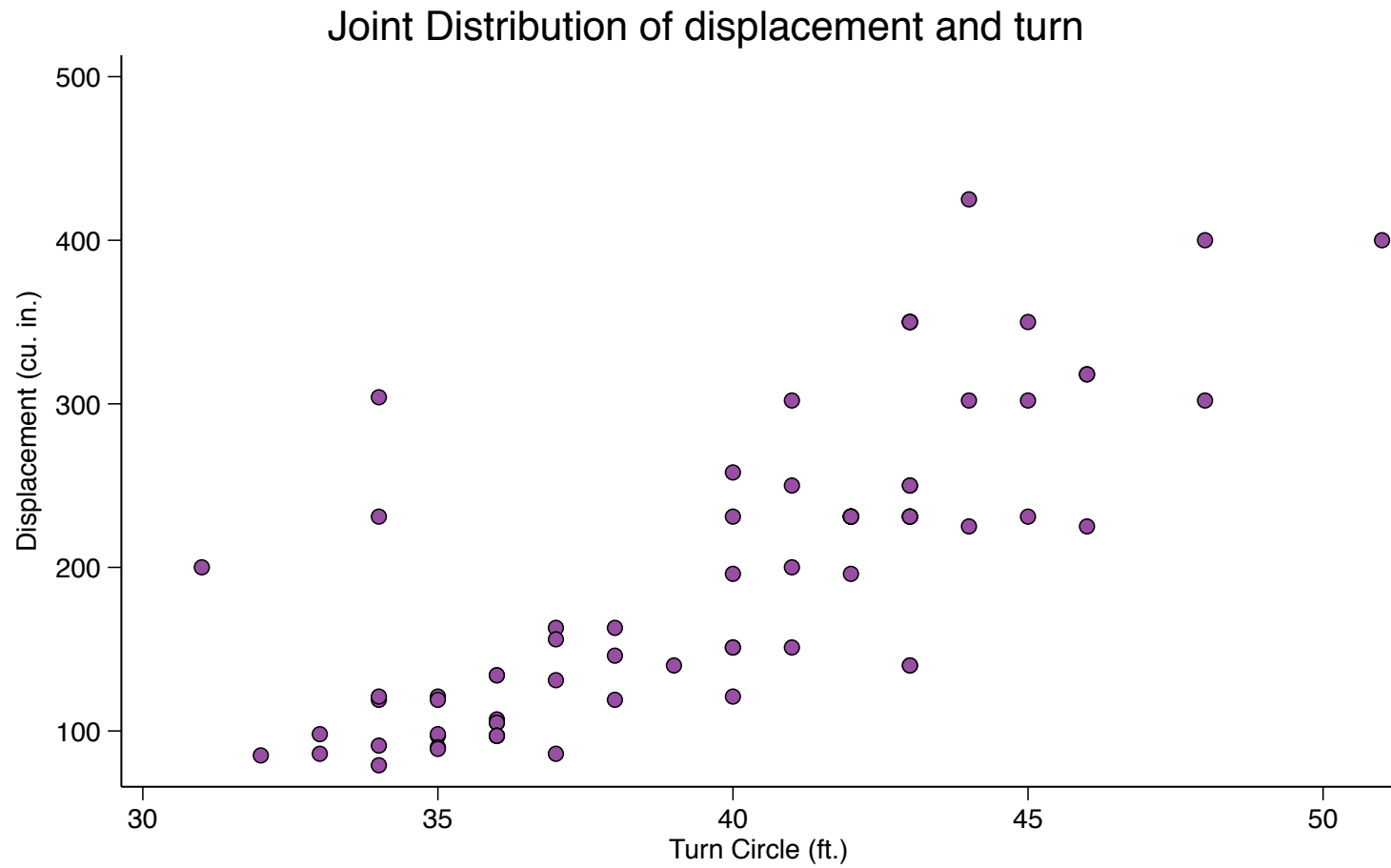
Scatterplots.

Figure 1.80: Scatterplot of Gear Ratio & Turn Circle (ft.)



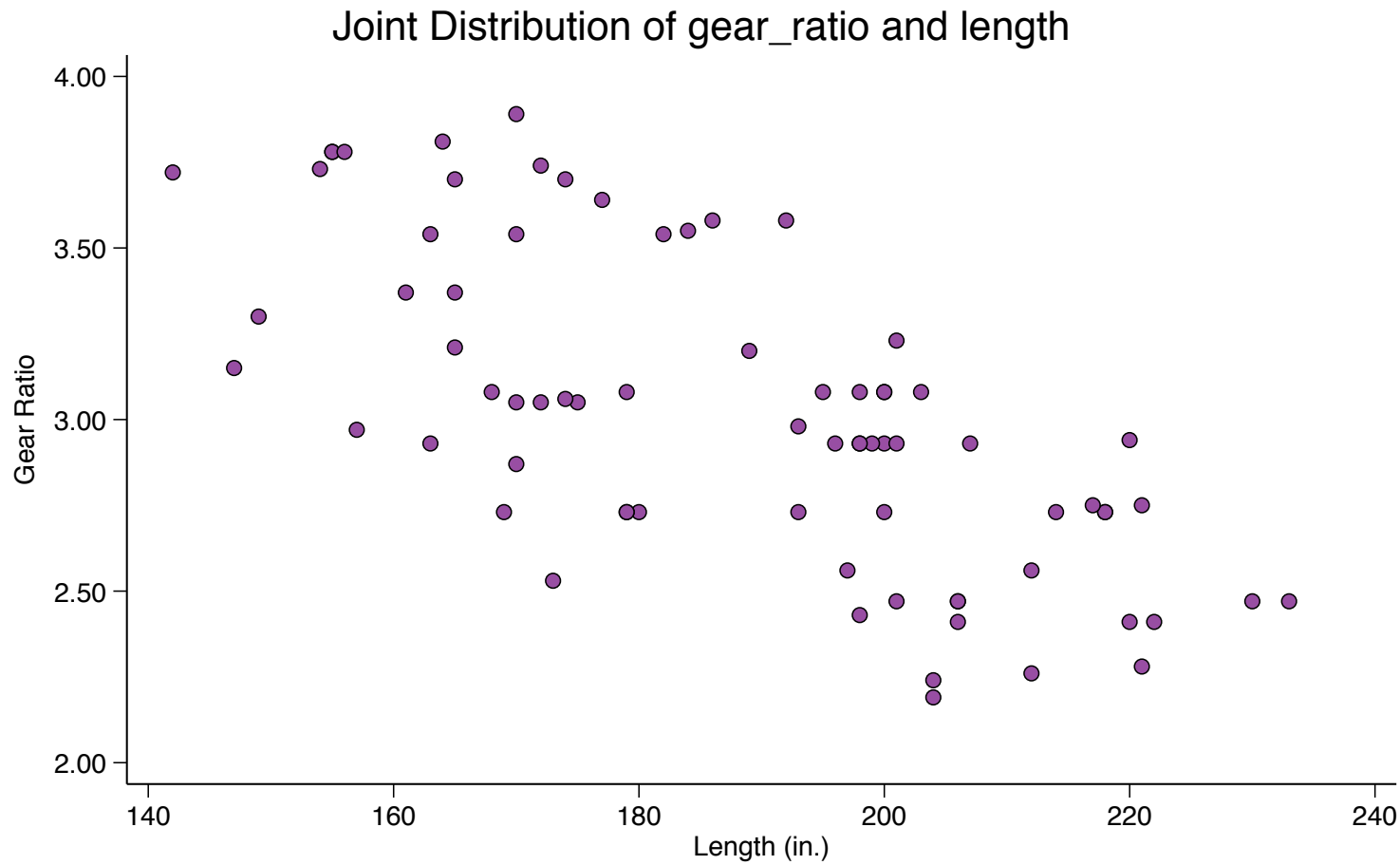
Created on: 29 Oct 2015 at: 15:35:59

Figure 1.81: Scatterplot of Displacement (cu. in.) & Turn Circle (ft.)



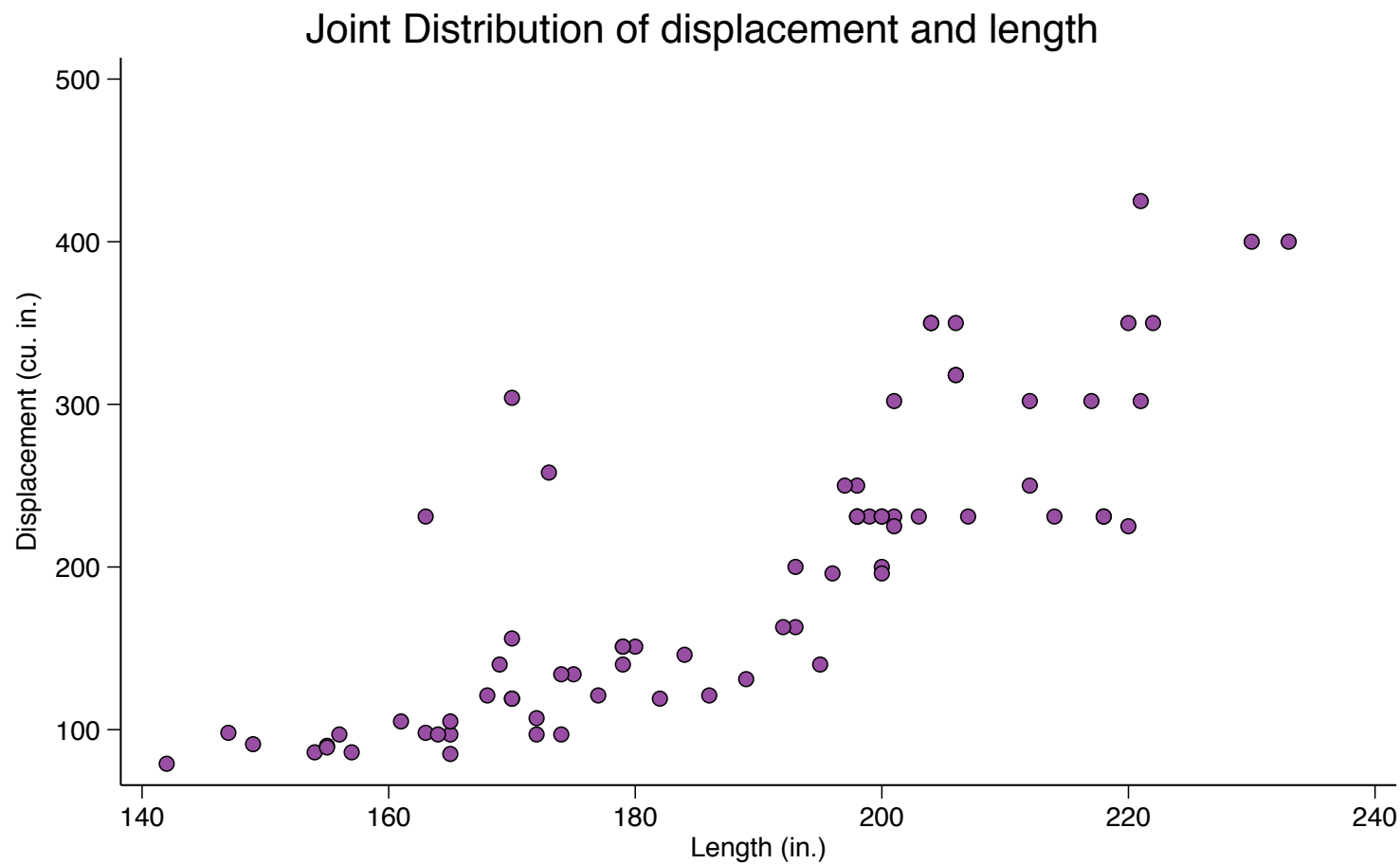
Created on: 29 Oct 2015 at: 15:36:01

Figure 1.82: Scatterplot of Gear Ratio & Length (in.)



Created on: 29 Oct 2015 at: 15:36:03

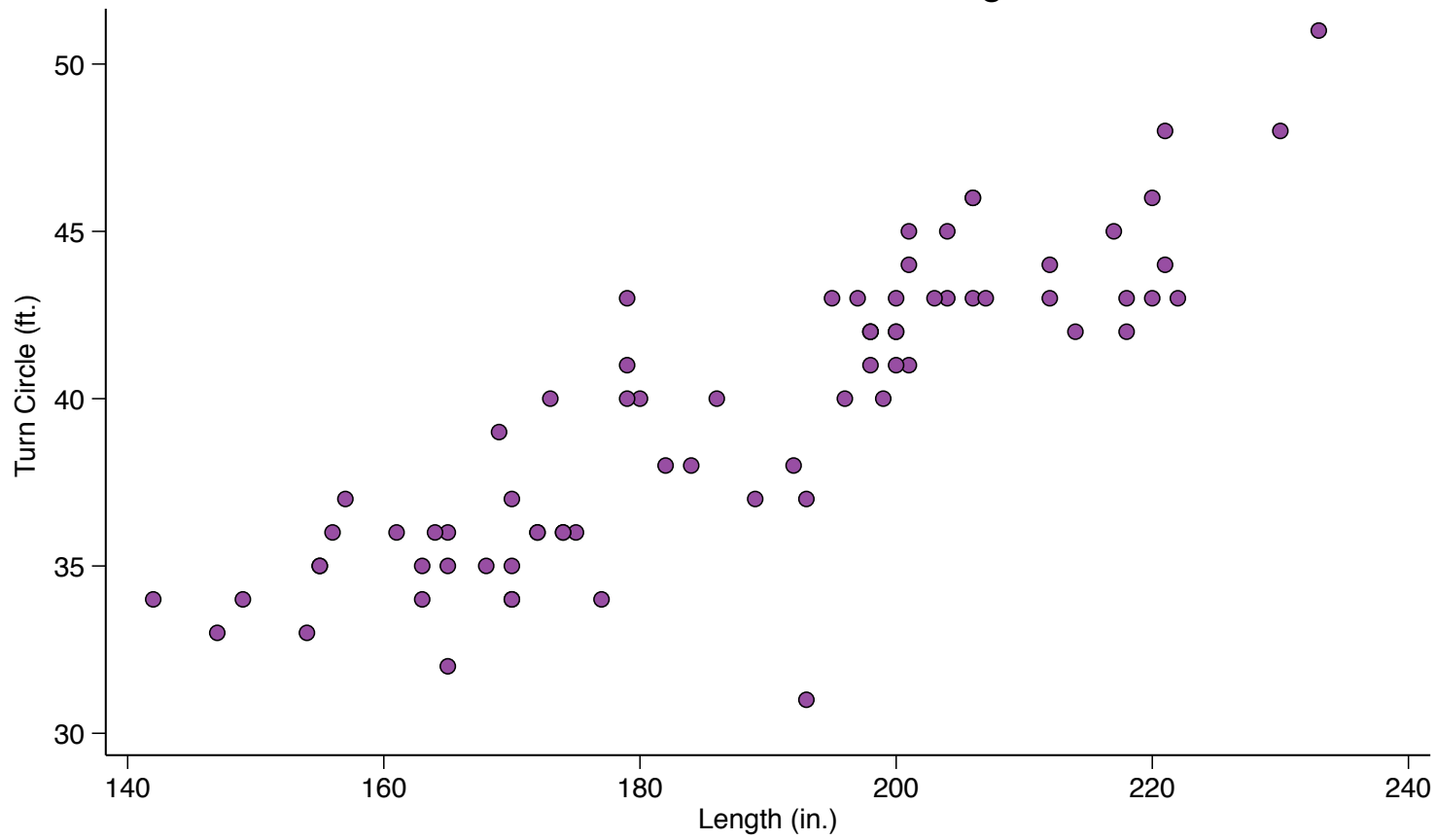
Figure 1.83: Scatterplot of Displacement (cu. in.) & Length (in.)



Created on: 29 Oct 2015 at: 15:36:05

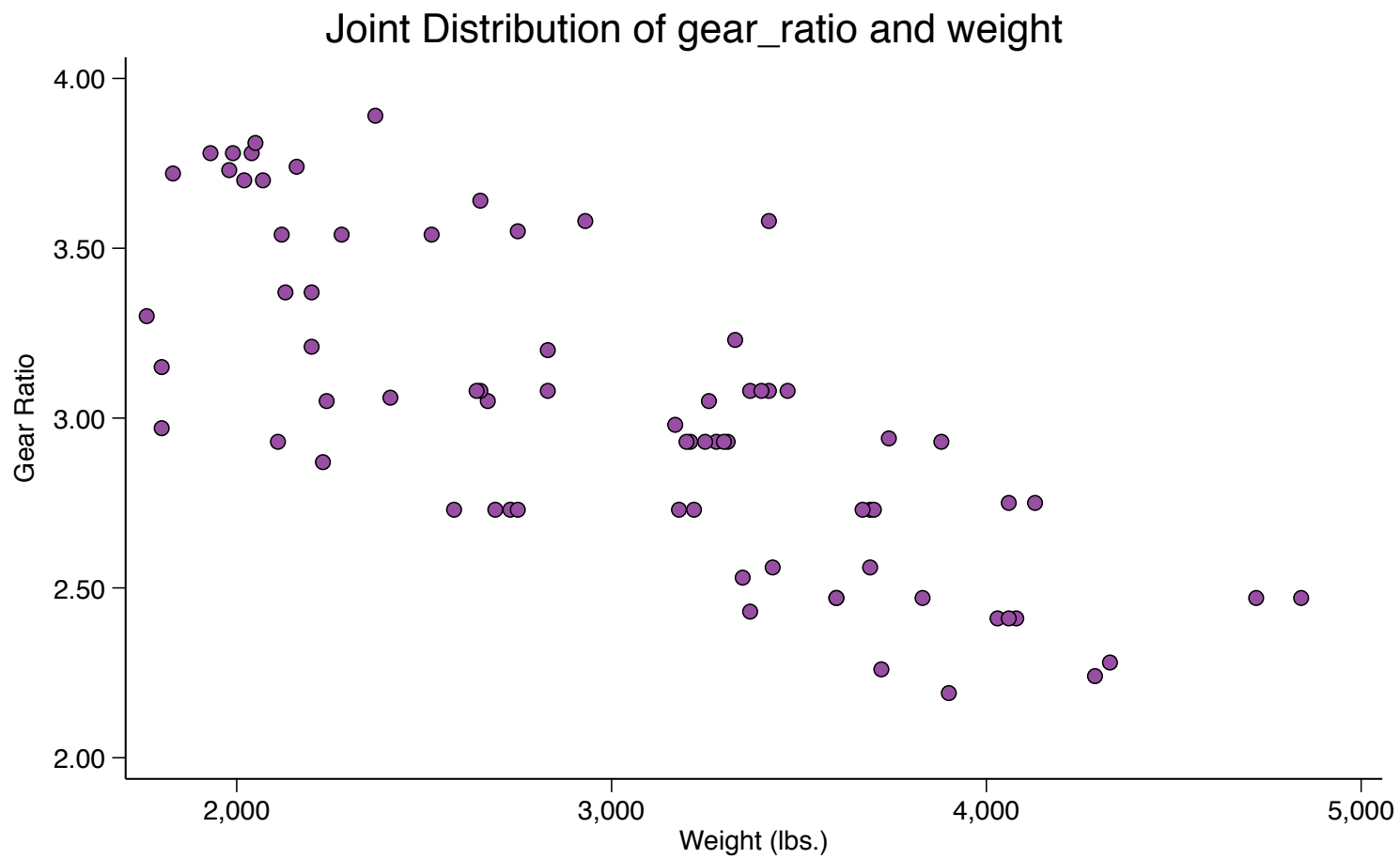
Figure 1.84: Scatterplot of Turn Circle (ft.) & Length (in.)

Joint Distribution of turn and length



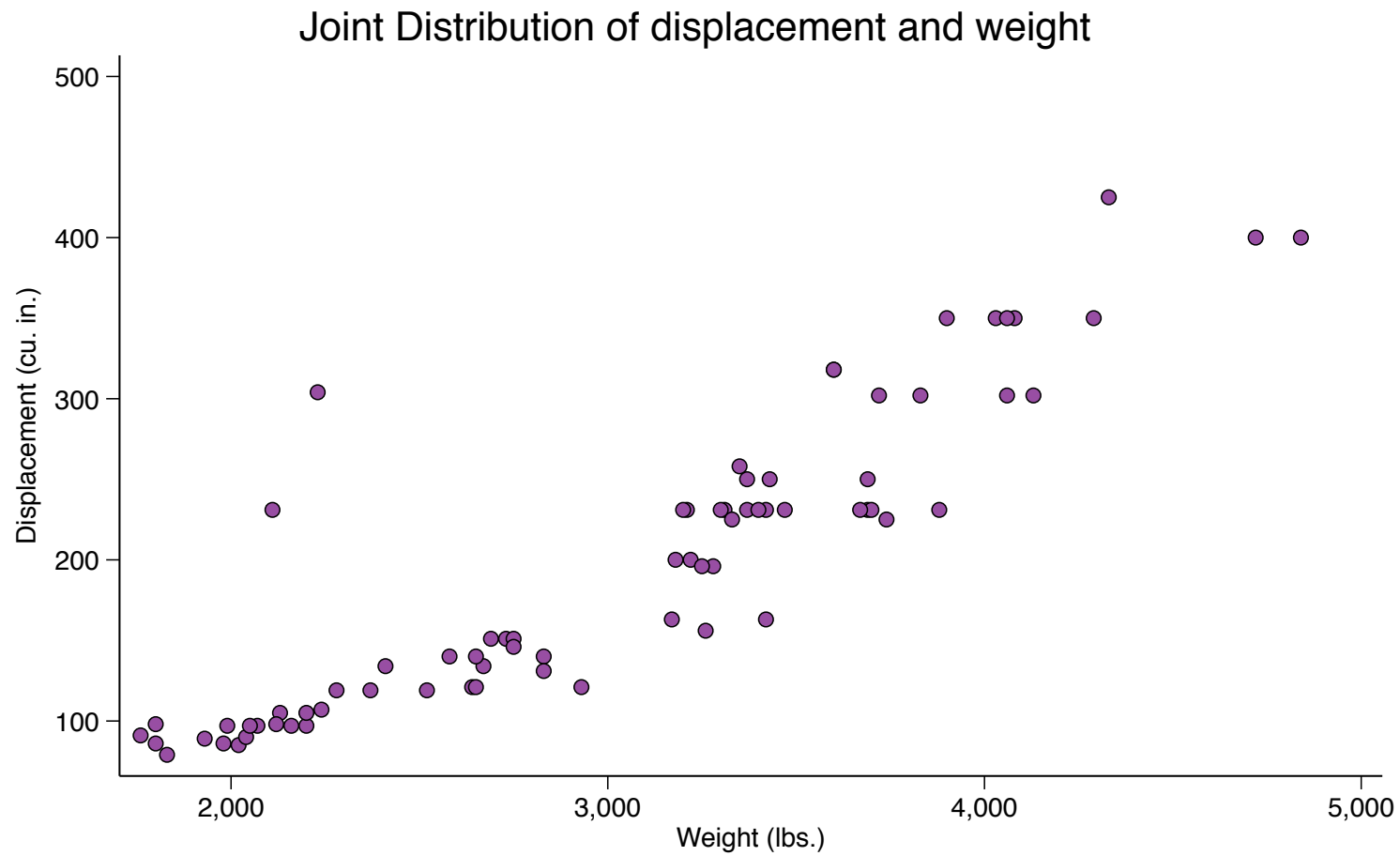
Created on: 29 Oct 2015 at: 15:36:08

Figure 1.85: Scatterplot of Gear Ratio & Weight (lbs.)



Created on: 29 Oct 2015 at: 15:36:10

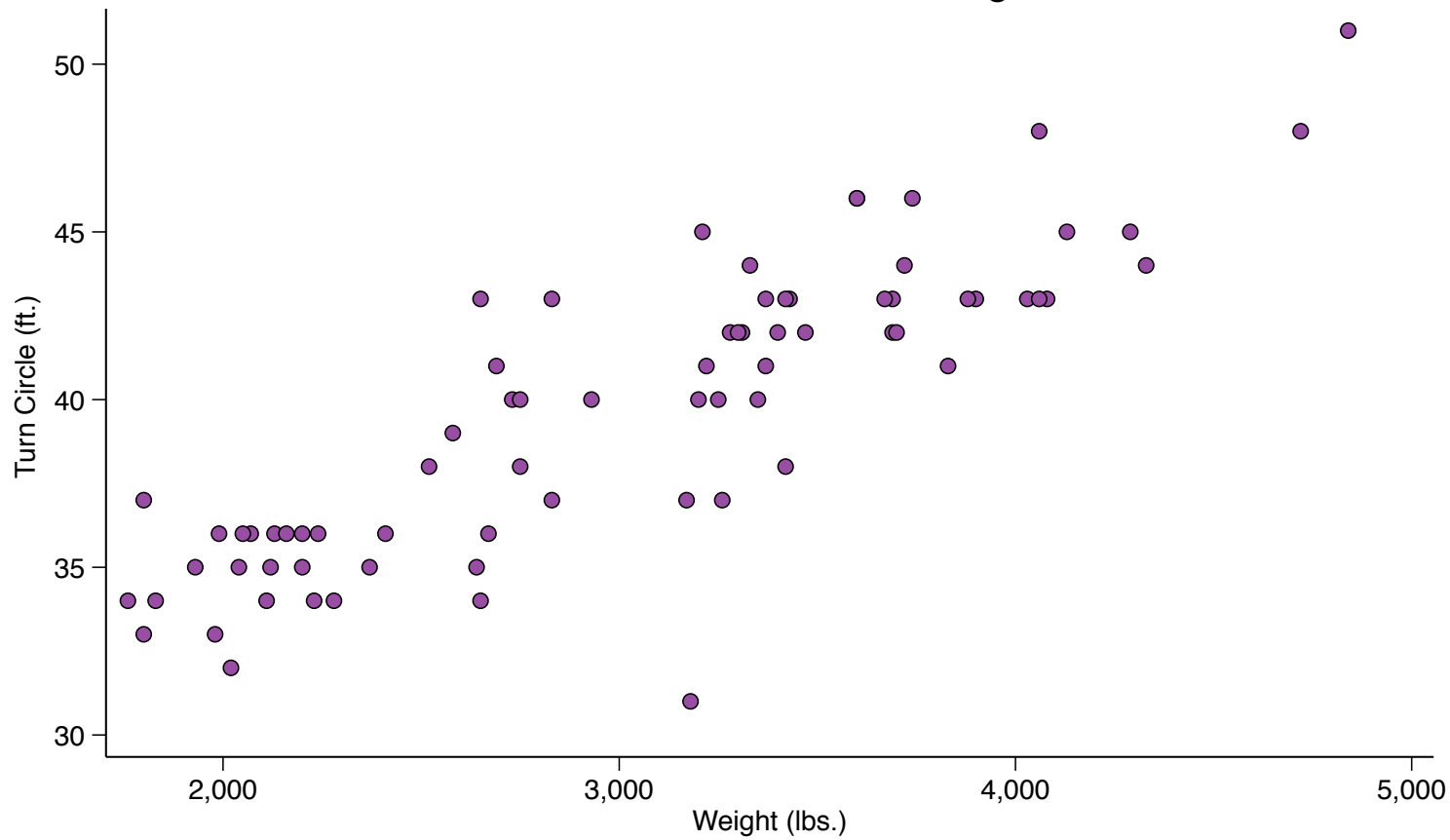
Figure 1.86: Scatterplot of Displacement (cu. in.) & Weight (lbs.)



Created on: 29 Oct 2015 at: 15:36:12

Figure 1.87: Scatterplot of Turn Circle (ft.) & Weight (lbs.)

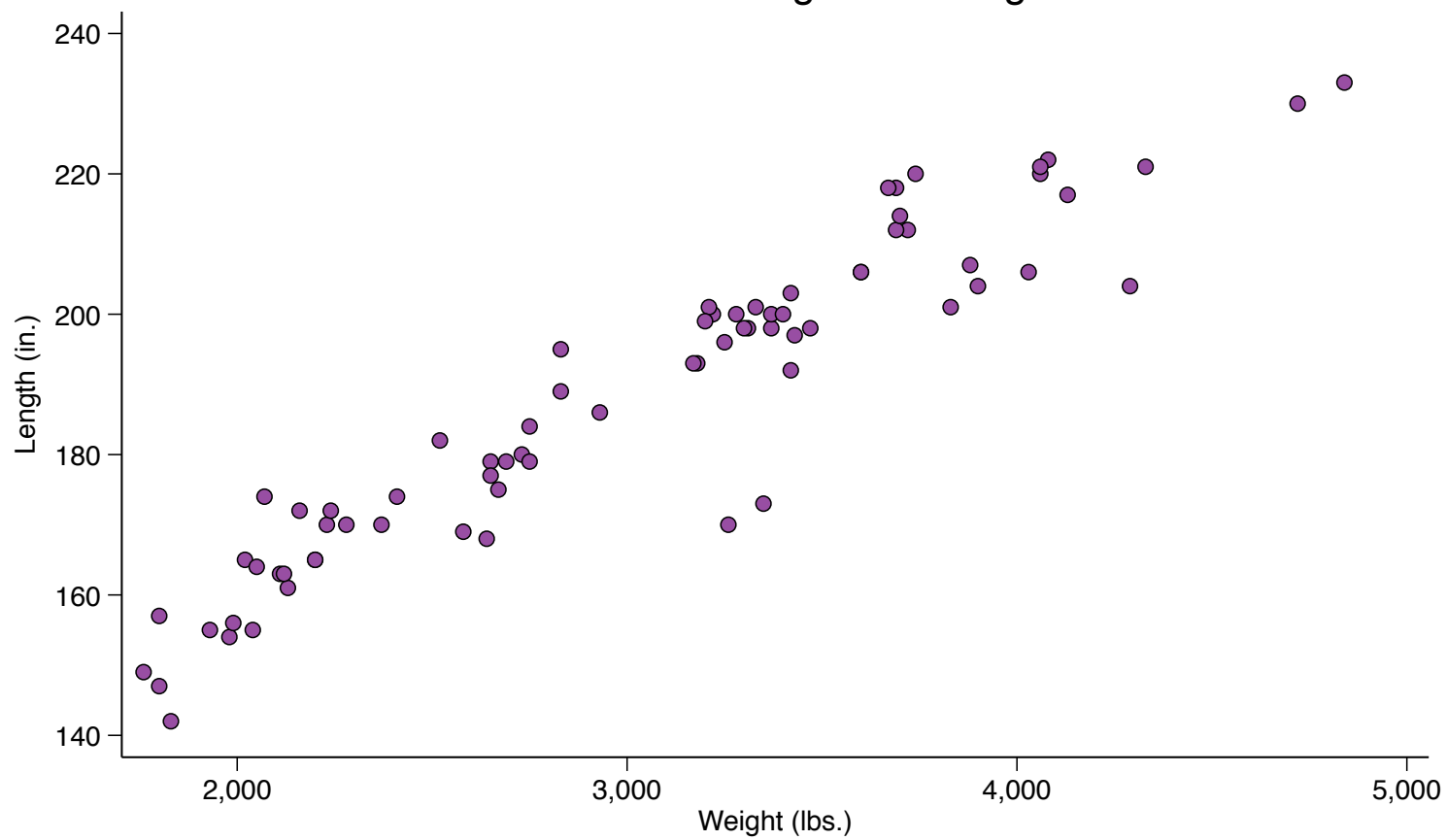
Joint Distribution of turn and weight



Created on: 29 Oct 2015 at: 15:36:14

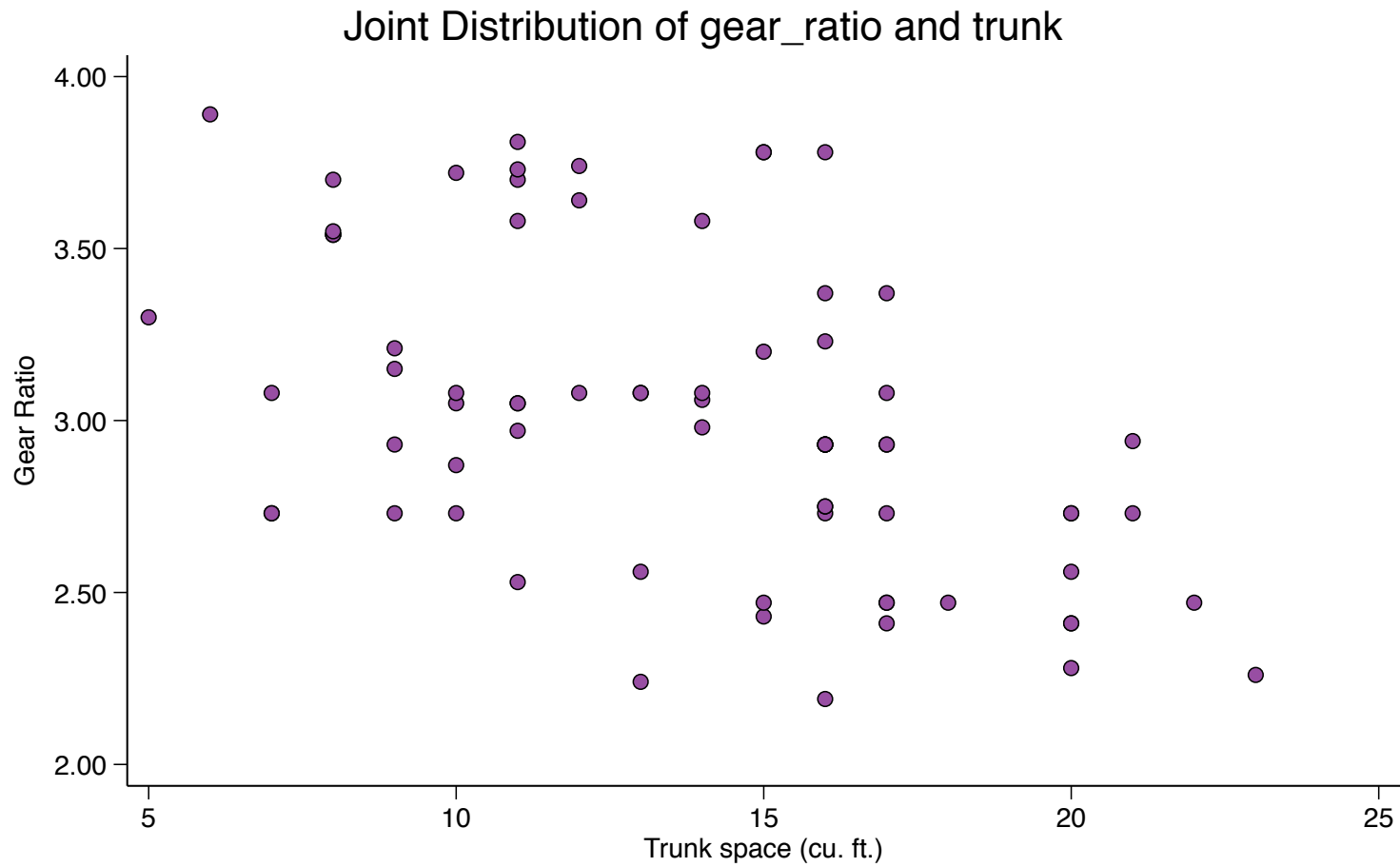
Figure 1.88: Scatterplot of Length (in.) & Weight (lbs.)

Joint Distribution of length and weight



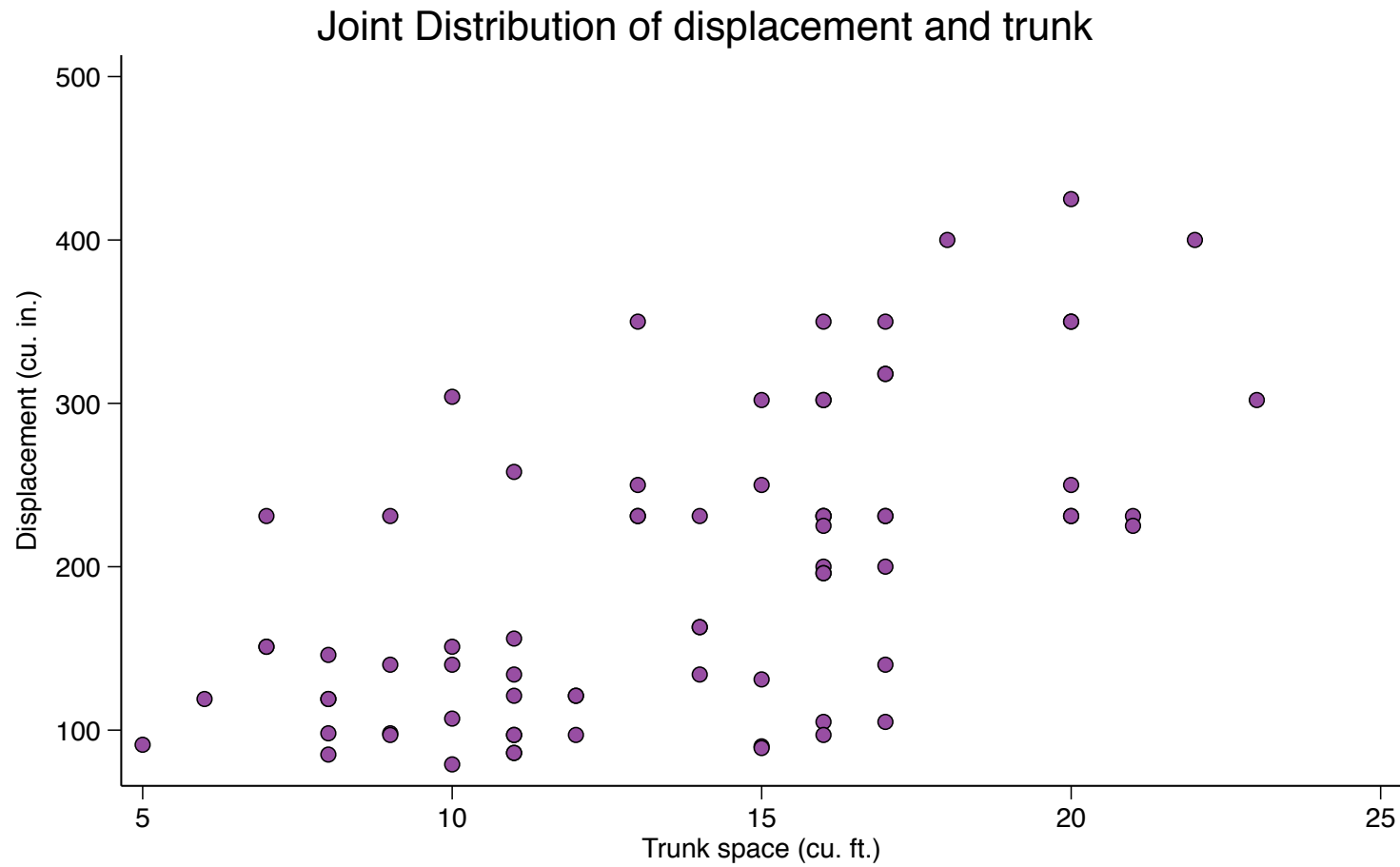
Created on: 29 Oct 2015 at: 15:36:16

Figure 1.89: Scatterplot of Gear Ratio & Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:36:18

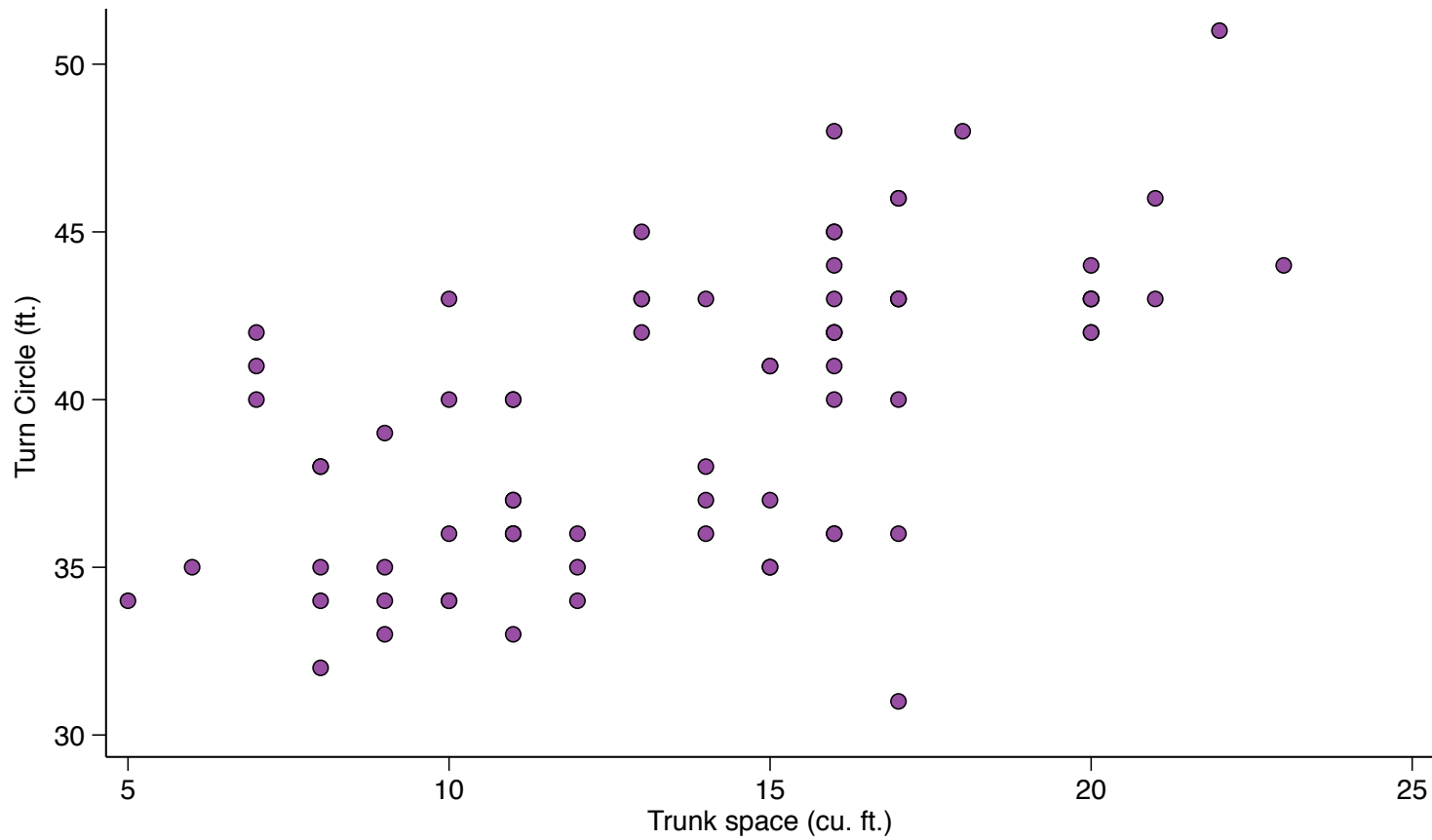
Figure 1.90: Scatterplot of Displacement (cu. in.) & Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:36:20

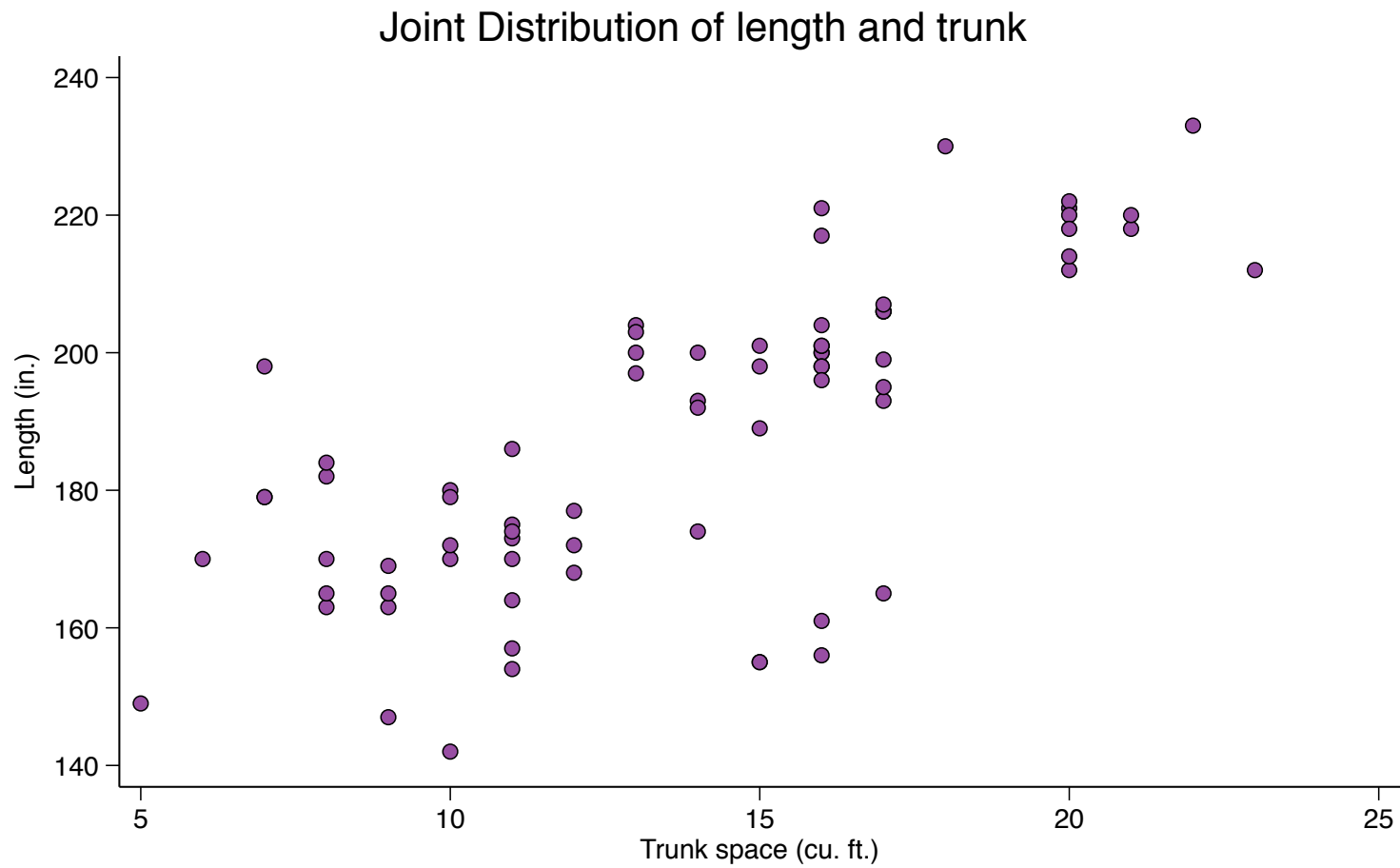
Figure 1.91: Scatterplot of Turn Circle (ft.) & Trunk space (cu. ft.)

Joint Distribution of turn and trunk



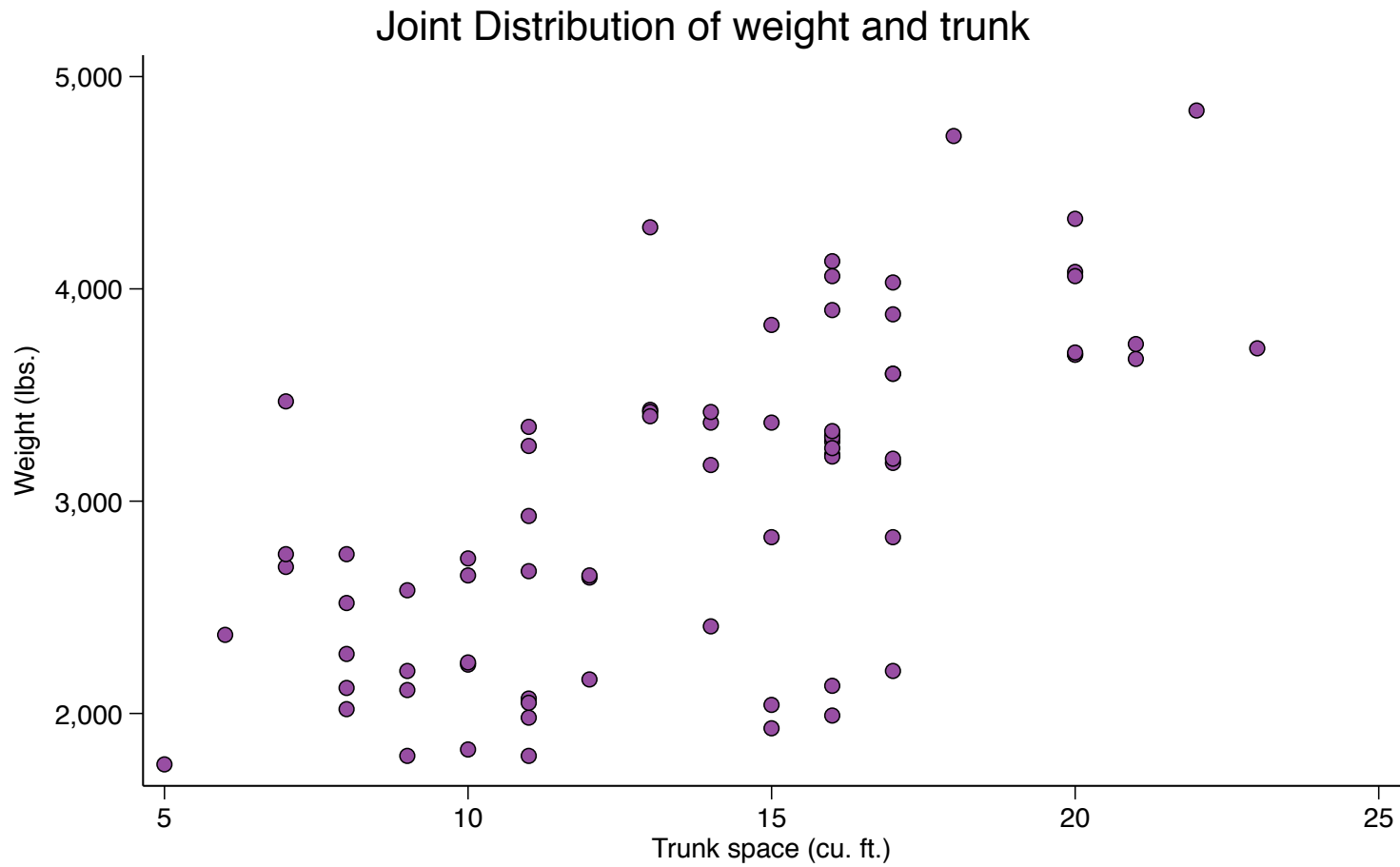
Created on: 29 Oct 2015 at: 15:36:22

Figure 1.92: Scatterplot of Length (in.) & Trunk space (cu. ft.)



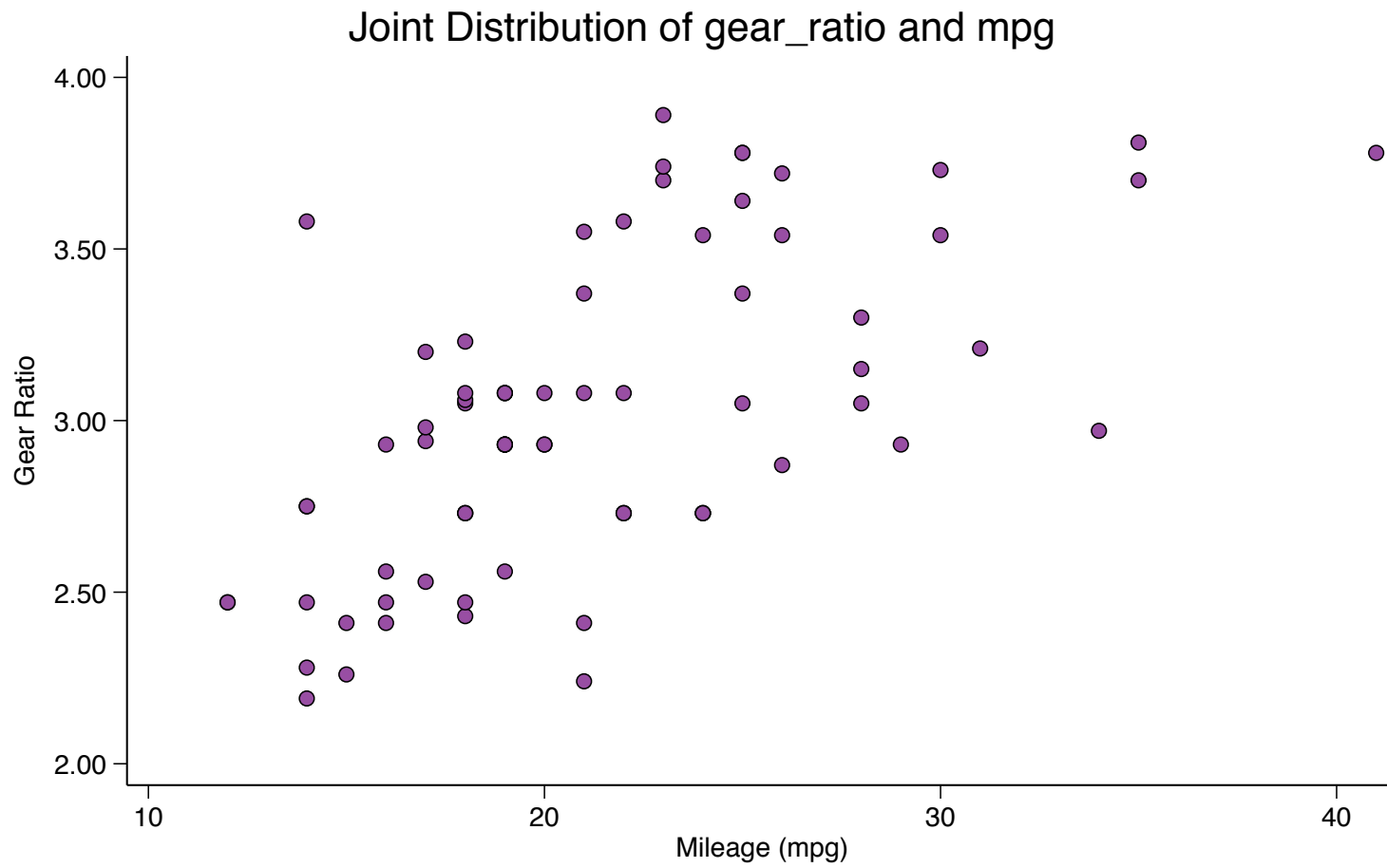
Created on: 29 Oct 2015 at: 15:36:24

Figure 1.93: Scatterplot of Weight (lbs.) & Trunk space (cu. ft.)



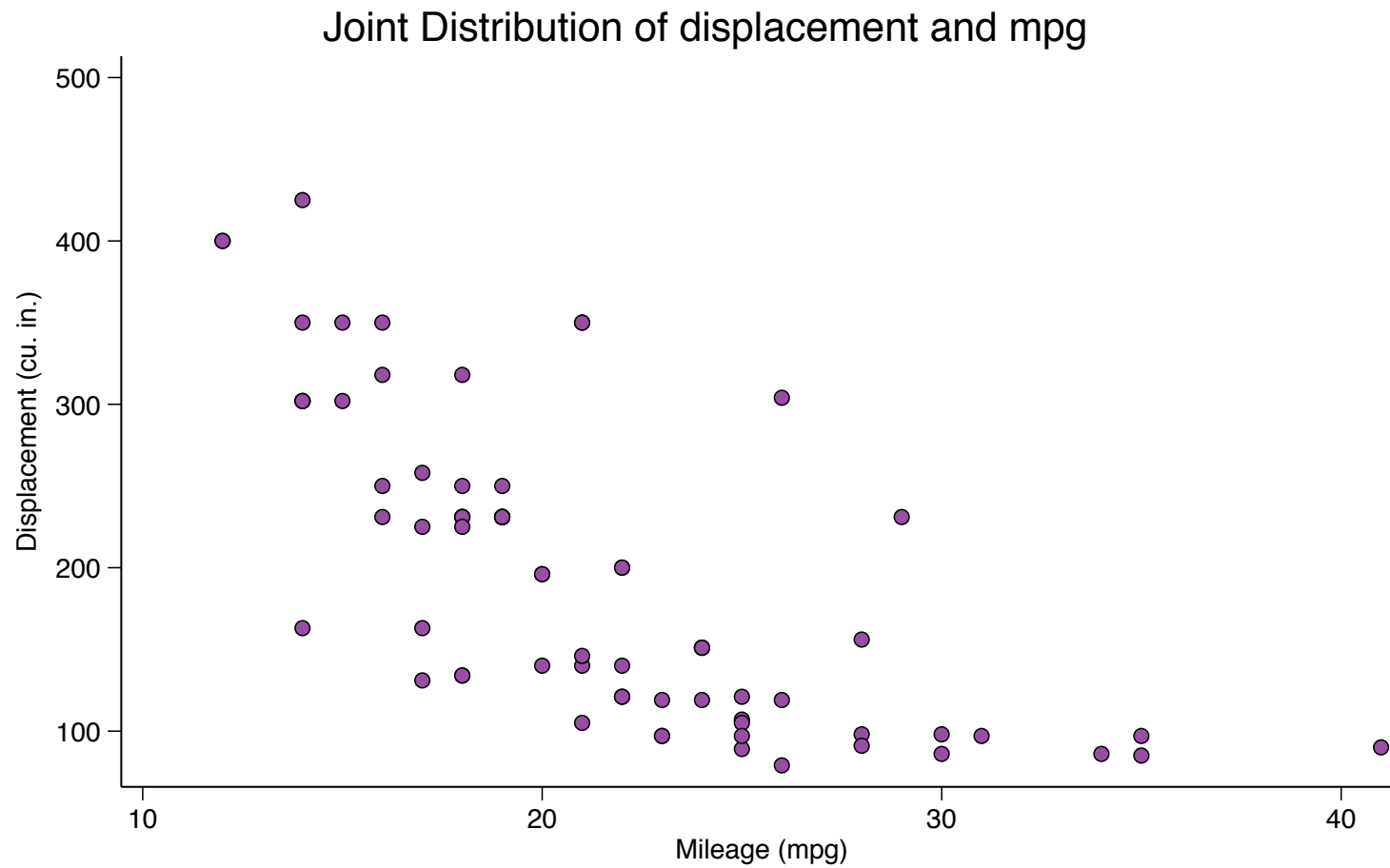
Created on: 29 Oct 2015 at: 15:36:26

Figure 1.94: Scatterplot of Gear Ratio & Mileage (mpg)



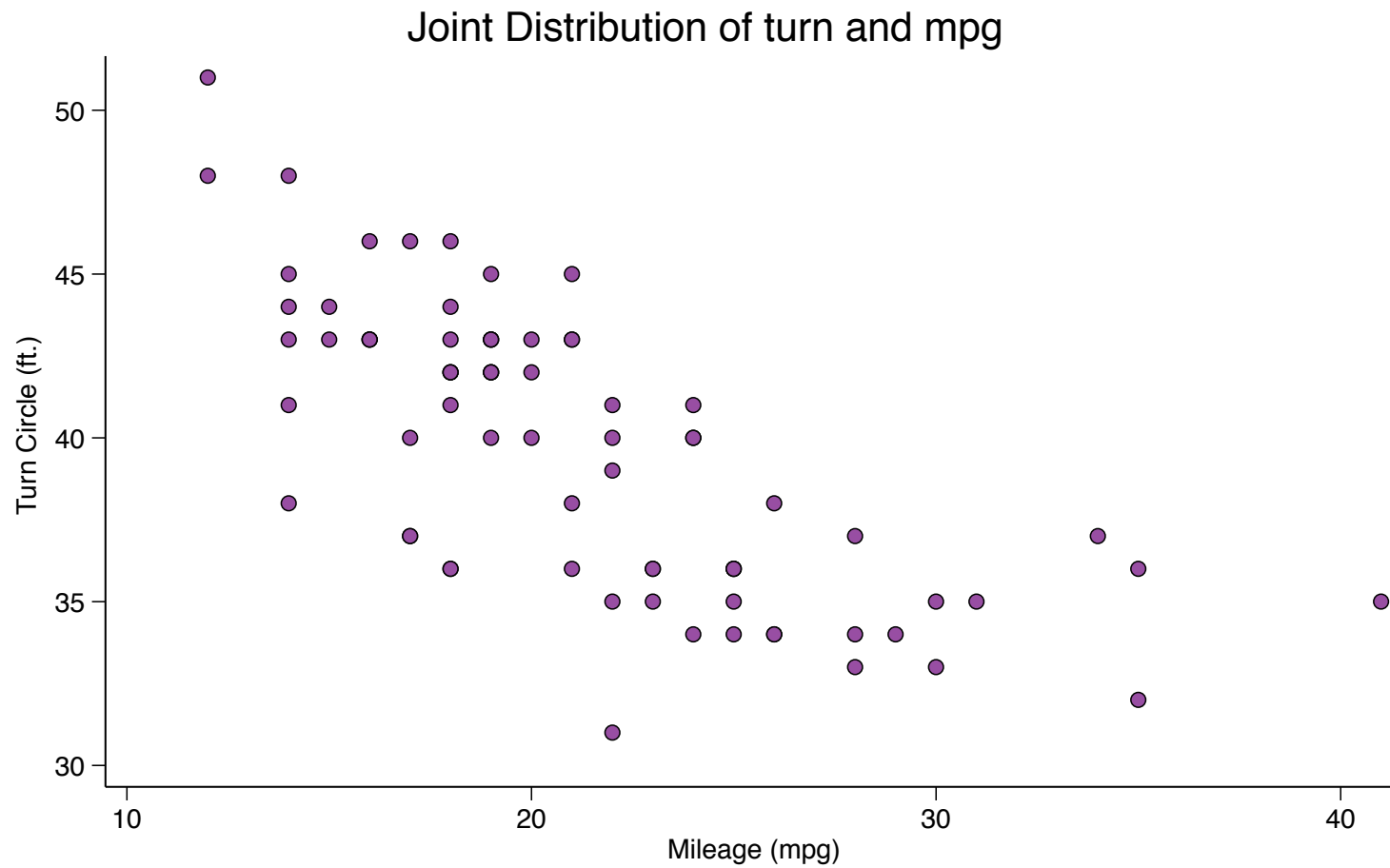
Created on: 29 Oct 2015 at: 15:36:28

Figure 1.95: Scatterplot of Displacement (cu. in.) & Mileage (mpg)



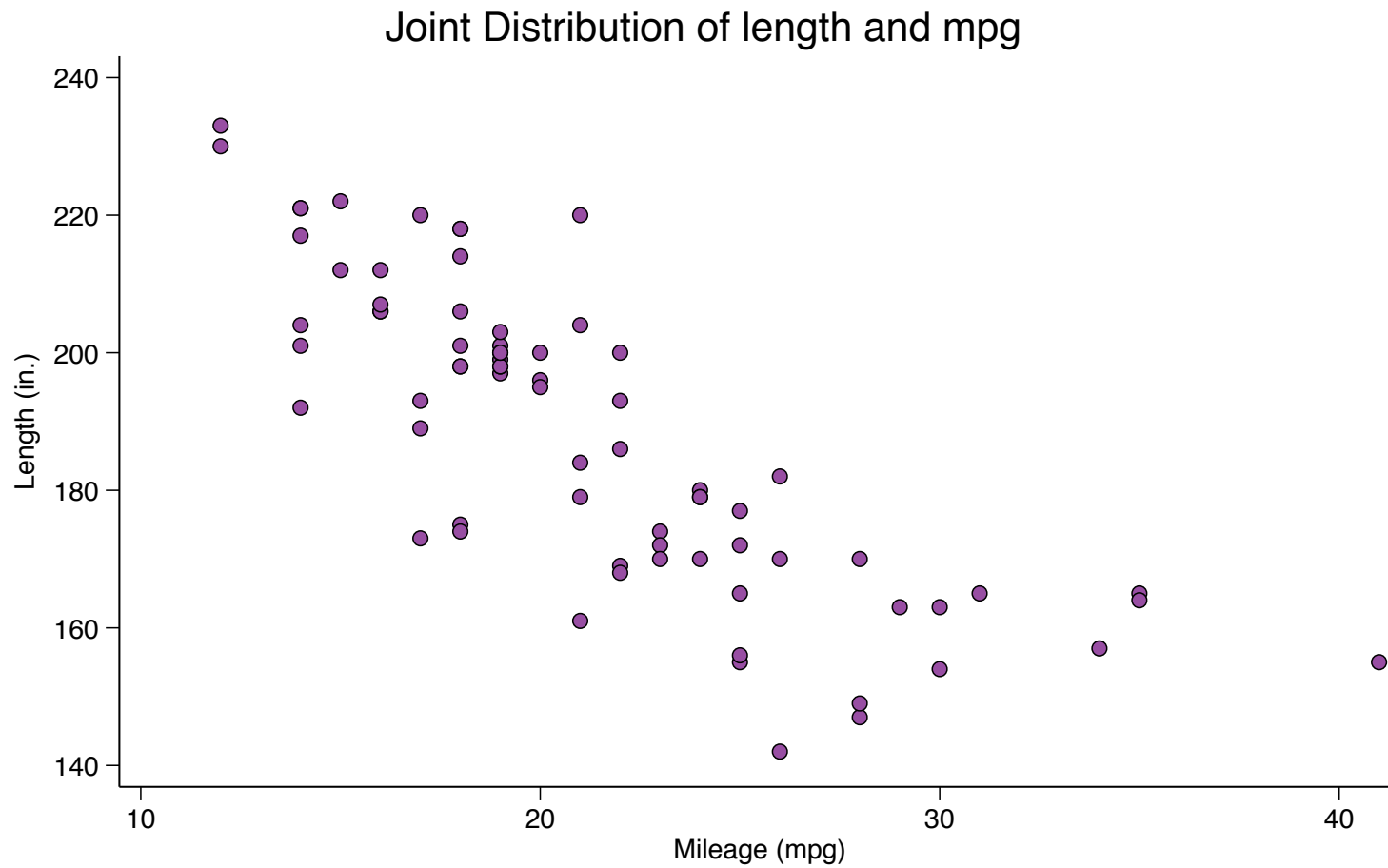
Created on: 29 Oct 2015 at: 15:36:30

Figure 1.96: Scatterplot of Turn Circle (ft.) & Mileage (mpg)



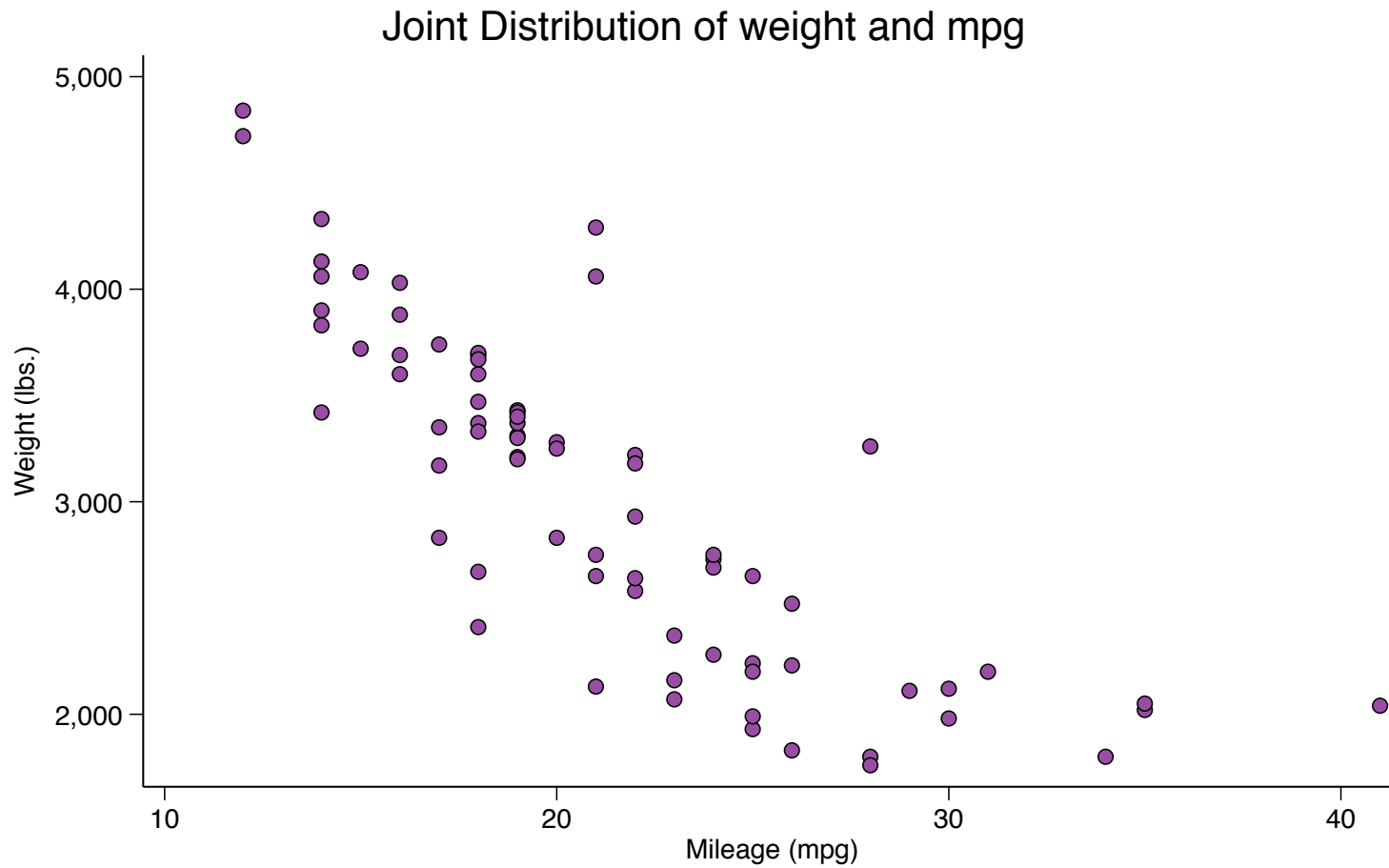
Created on: 29 Oct 2015 at: 15:36:32

Figure 1.97: Scatterplot of Length (in.) & Mileage (mpg)



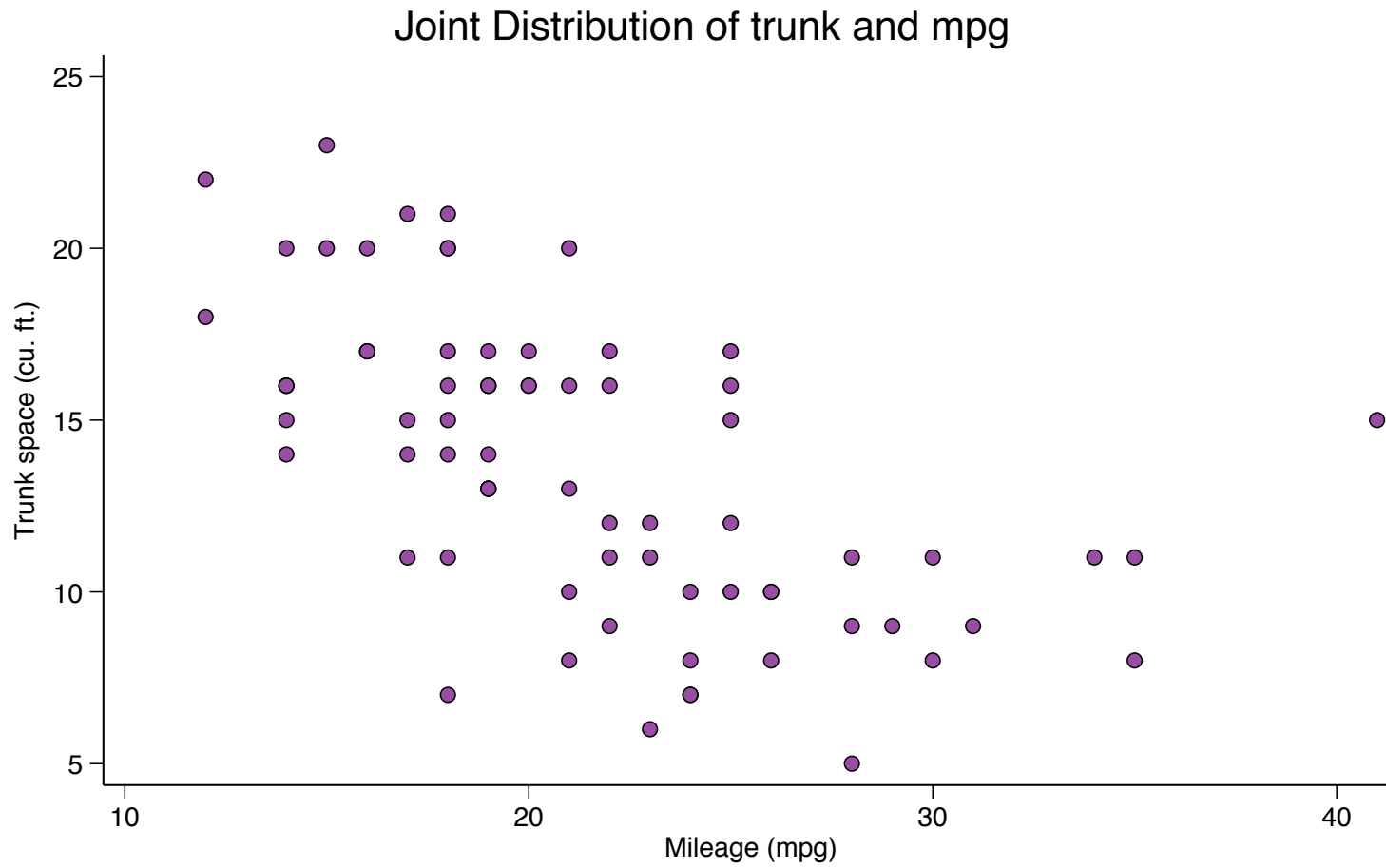
Created on: 29 Oct 2015 at: 15:36:34

Figure 1.98: Scatterplot of Weight (lbs.) & Mileage (mpg)



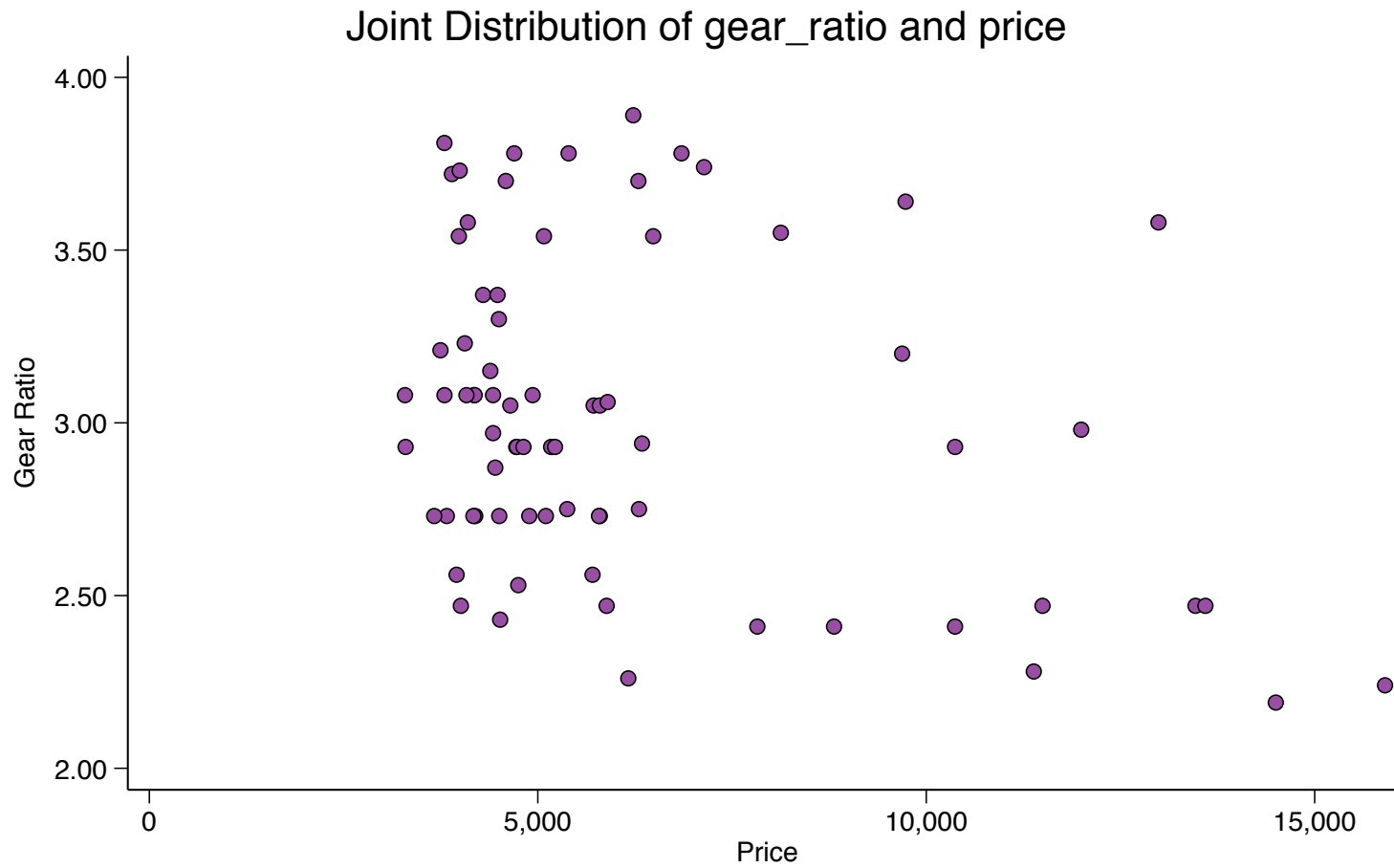
Created on: 29 Oct 2015 at: 15:36:36

Figure 1.99: Scatterplot of Trunk space (cu. ft.) & Mileage (mpg)



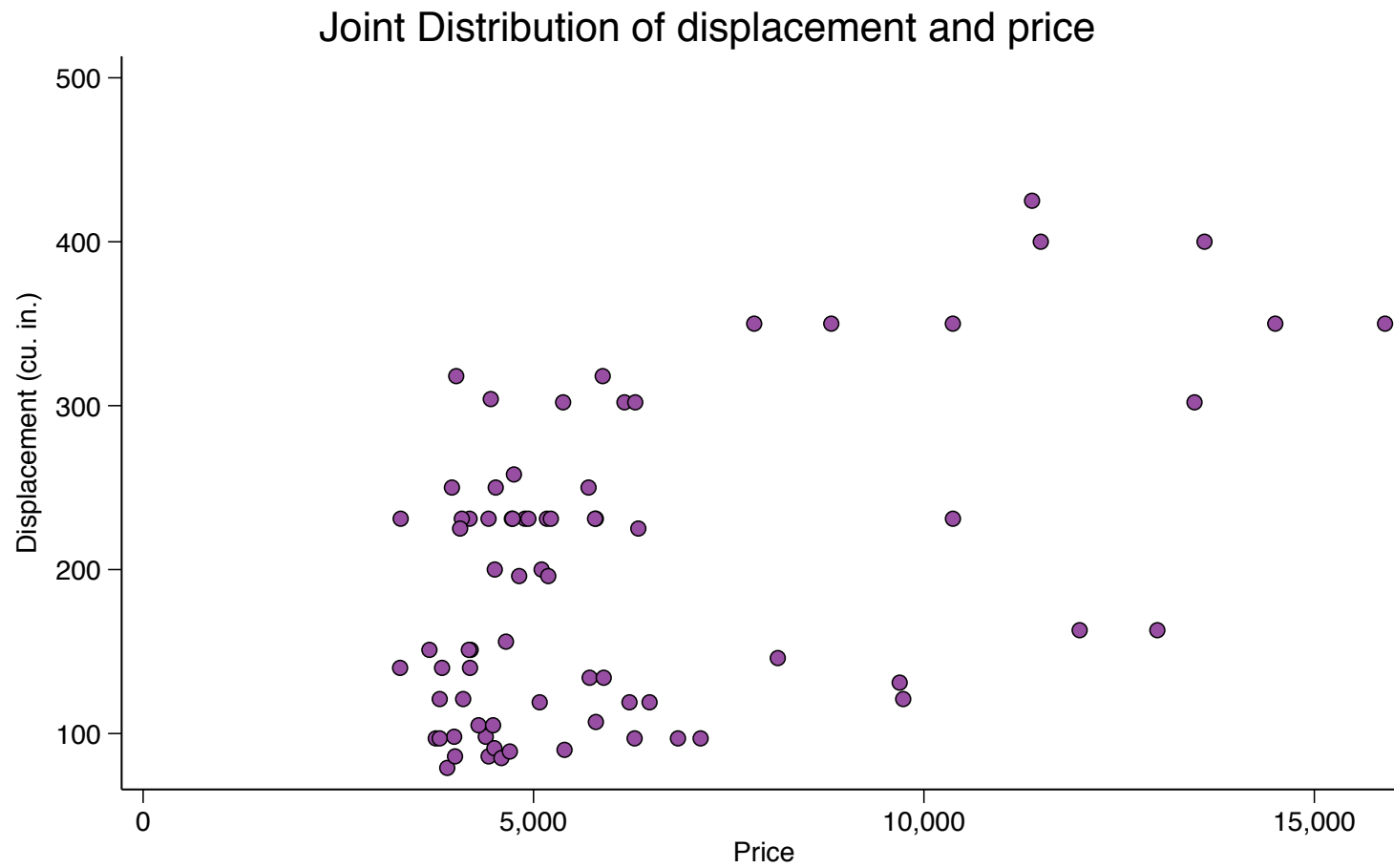
Created on: 29 Oct 2015 at: 15:36:38

Figure 1.100: Scatterplot of Gear Ratio & Price



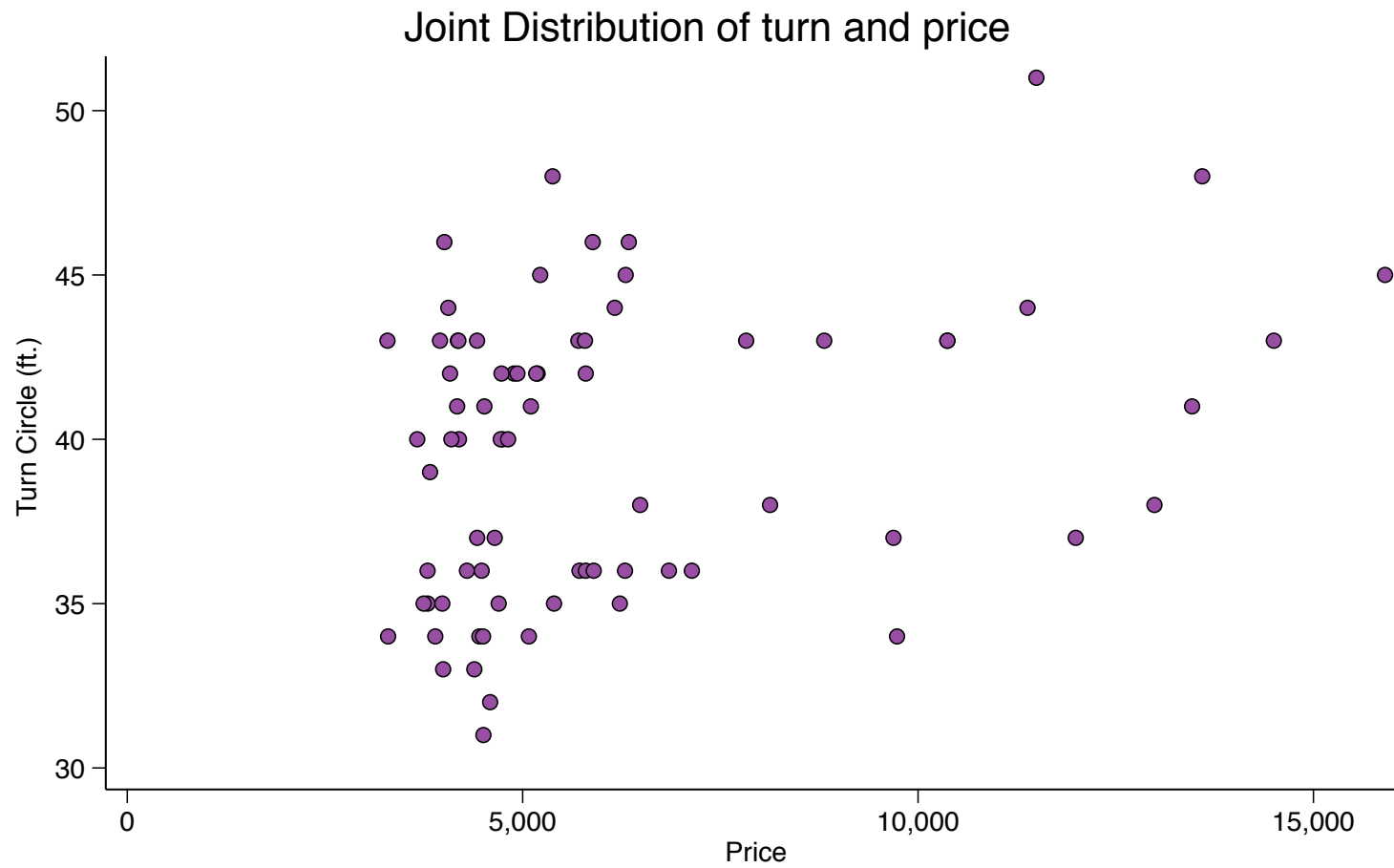
Created on: 29 Oct 2015 at: 15:36:40

Figure 1.101: Scatterplot of Displacement (cu. in.) & Price



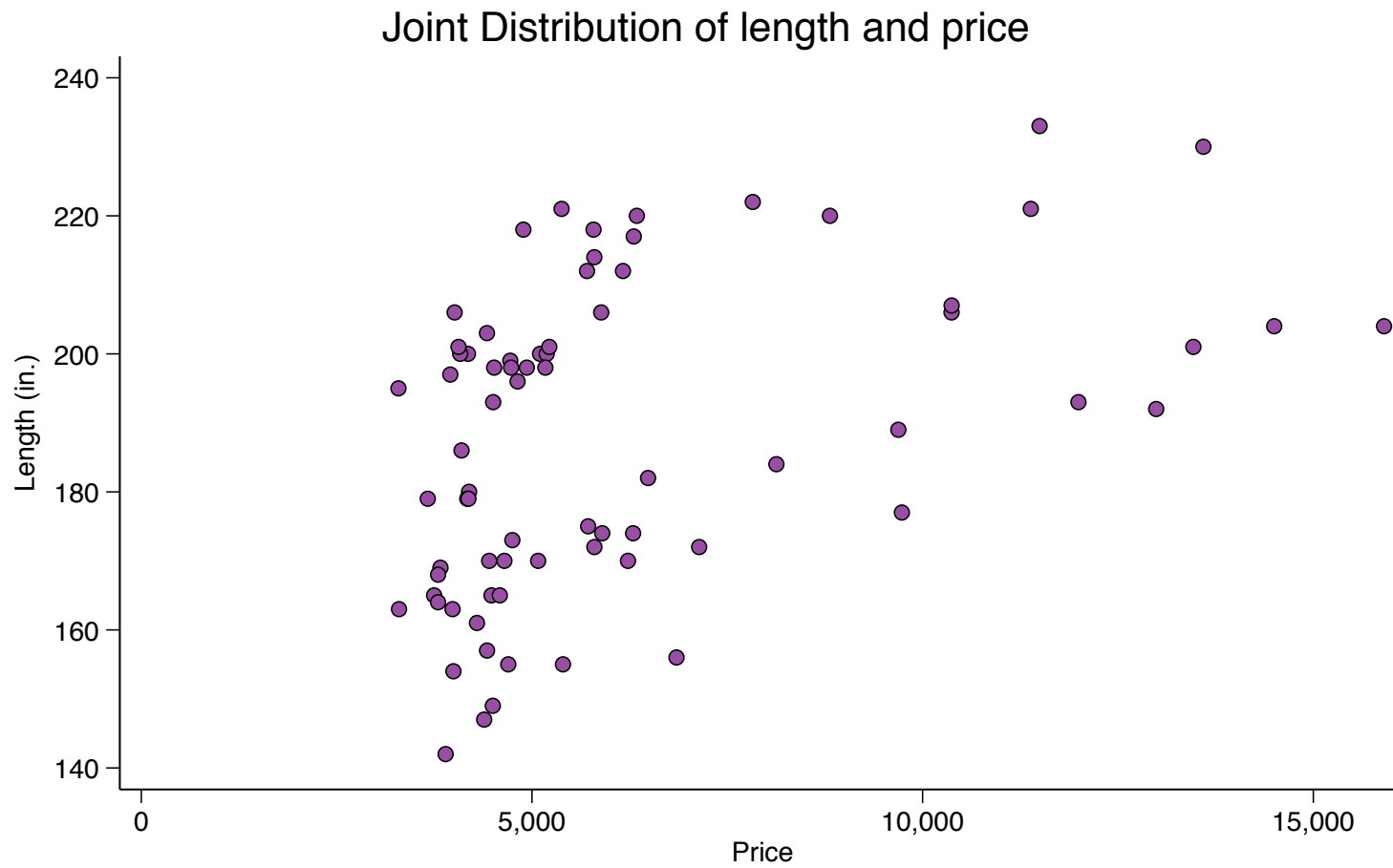
Created on: 29 Oct 2015 at: 15:36:42

Figure 1.102: Scatterplot of Turn Circle (ft.) & Price



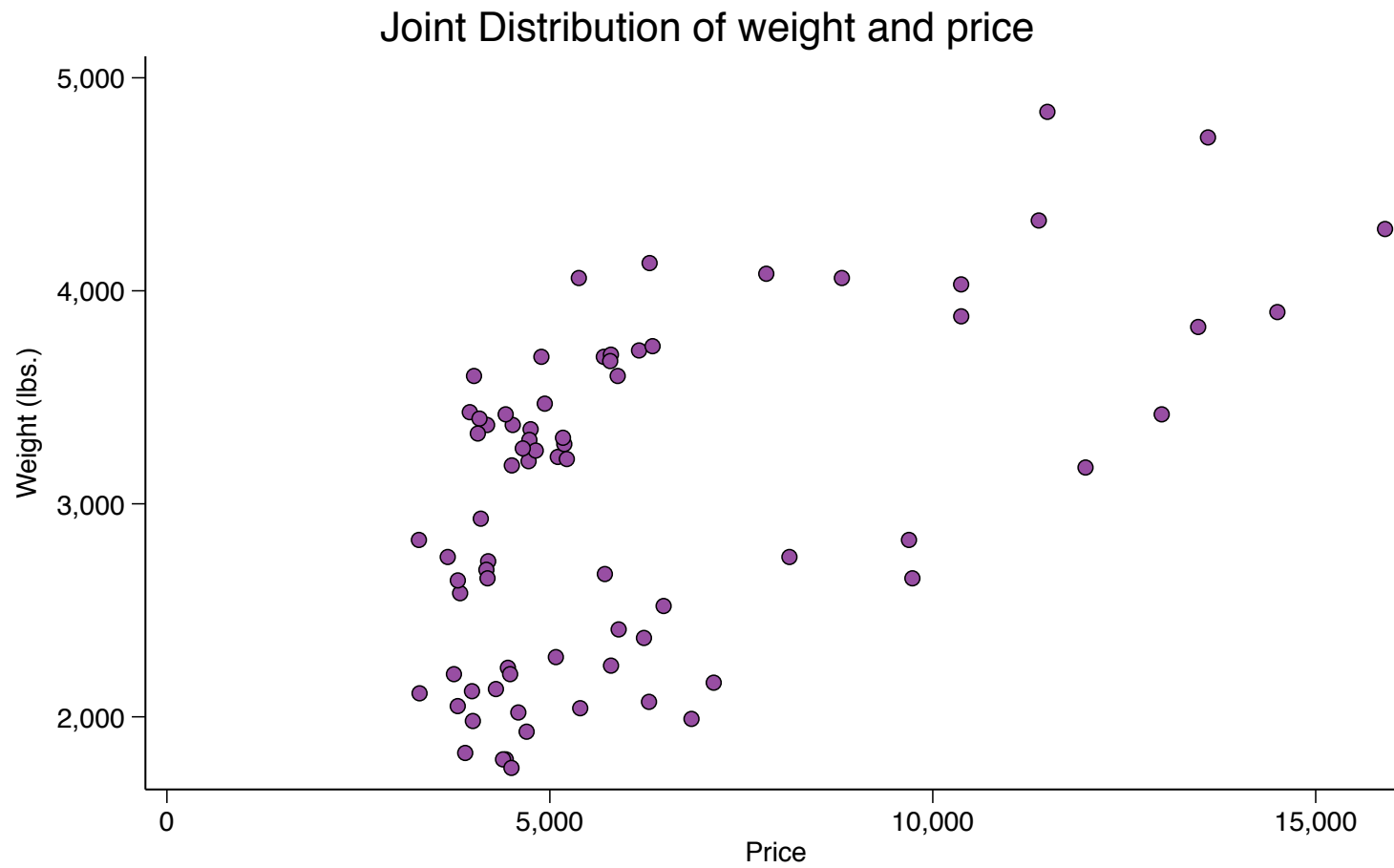
Created on: 29 Oct 2015 at: 15:36:44

Figure 1.103: Scatterplot of Length (in.) & Price



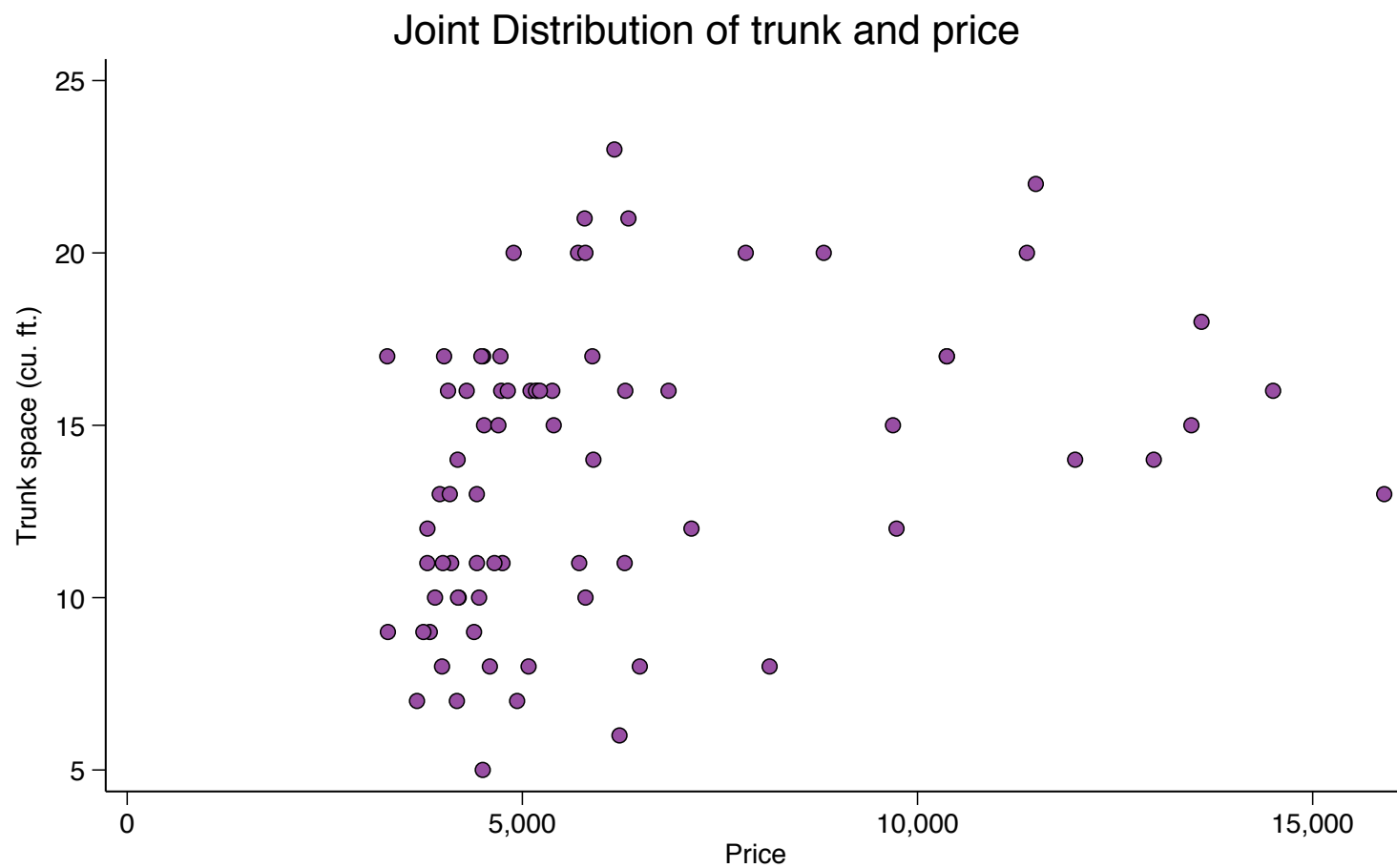
Created on: 29 Oct 2015 at: 15:36:46

Figure 1.104: Scatterplot of Weight (lbs.) & Price



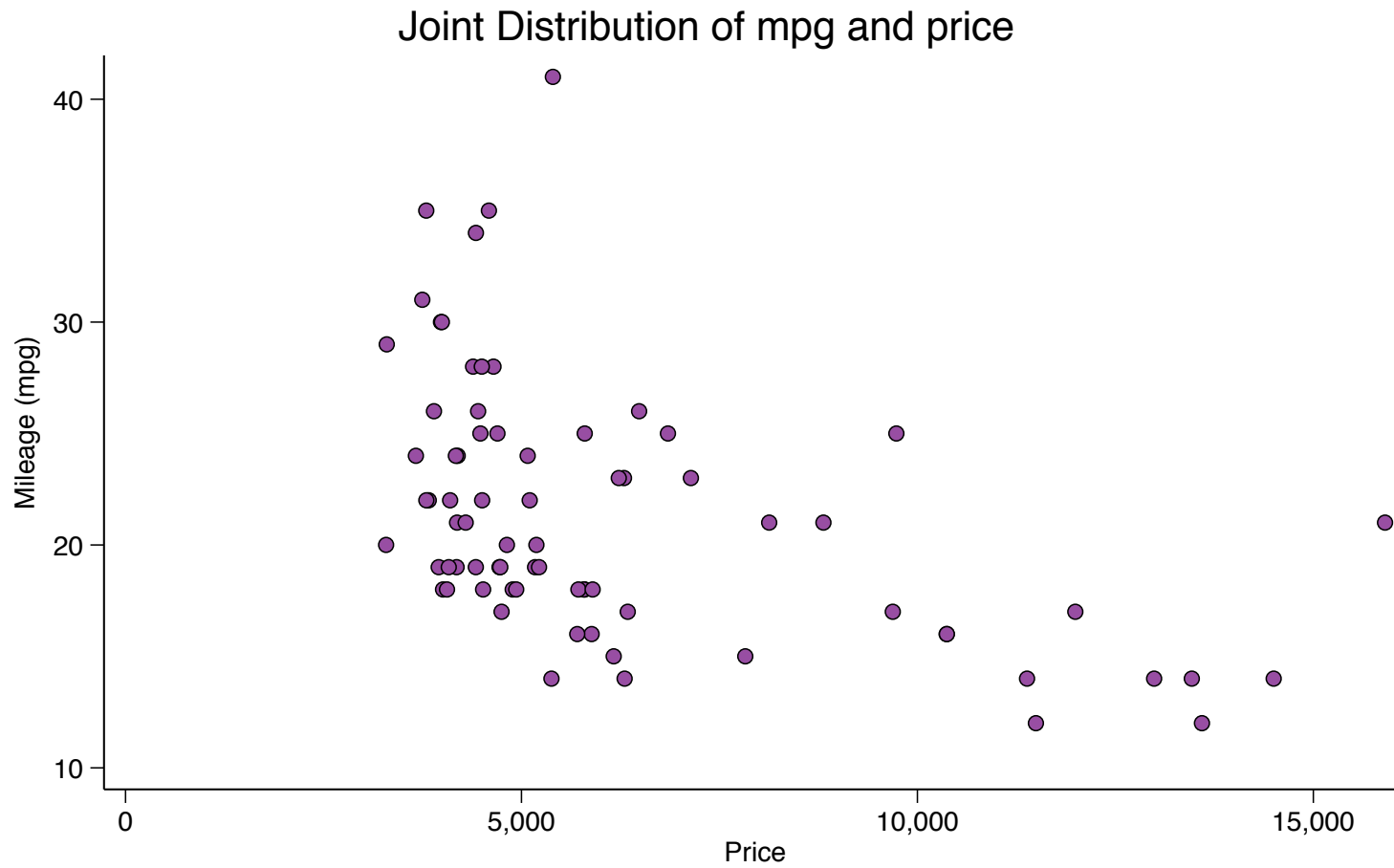
Created on: 29 Oct 2015 at: 15:36:48

Figure 1.105: Scatterplot of Trunk space (cu. ft.) & Price



Created on: 29 Oct 2015 at: 15:36:50

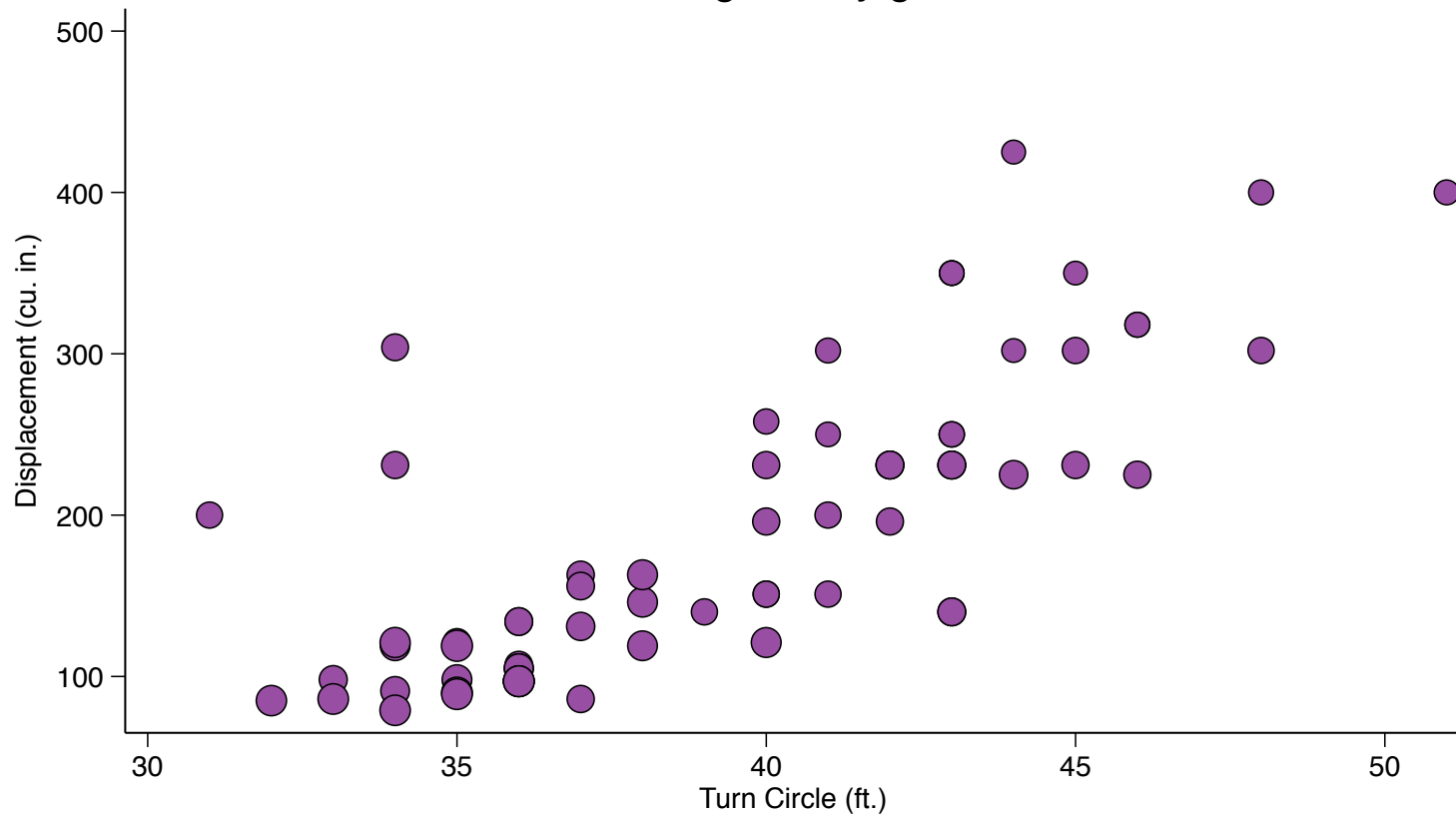
Figure 1.106: Scatterplot of Mileage (mpg) & Price



Created on: 29 Oct 2015 at: 15:36:52

Figure 1.107: Bubble Plot of Displacement (cu. in.), Turn Circle (ft.), and Gear Ratio

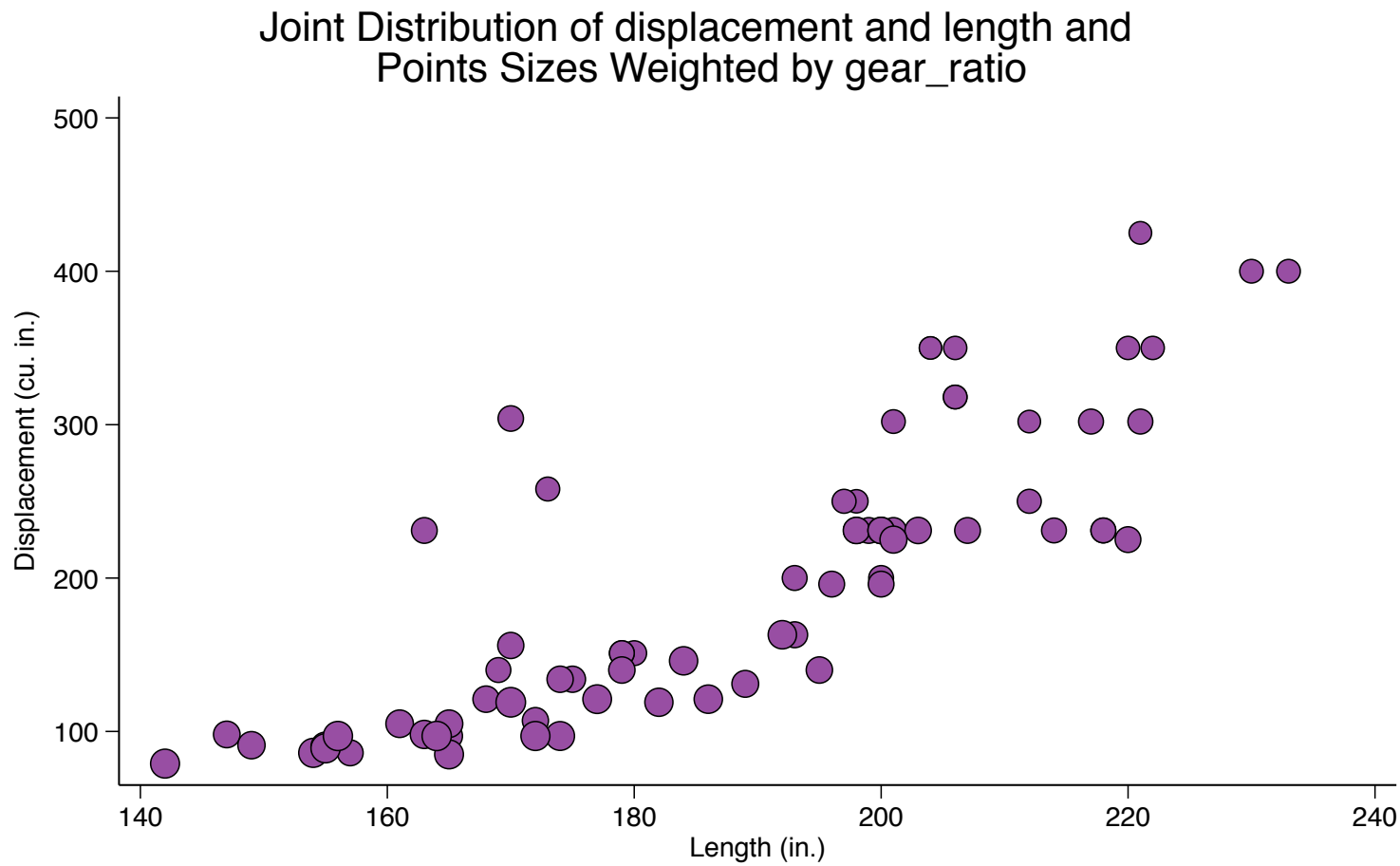
Joint Distribution of displacement and turn and Points Sizes Weighted by gear_ratio



Created on: 29 Oct 2015 at: 15:36:54

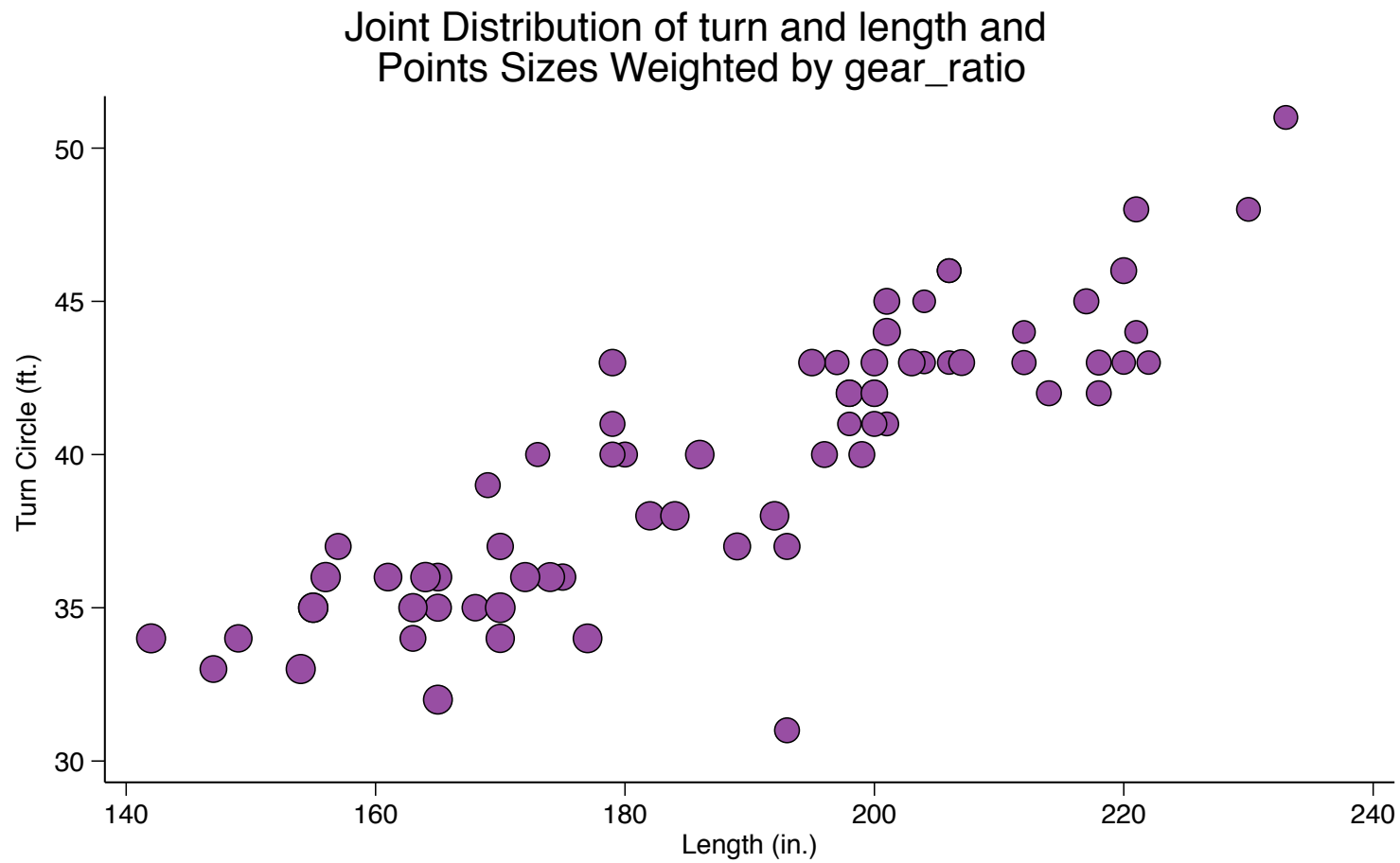
Bubble Plots.

Figure 1.108: Bubble Plot of Displacement (cu. in.), Length (in.), and Gear Ratio



Created on: 29 Oct 2015 at: 15:36:56

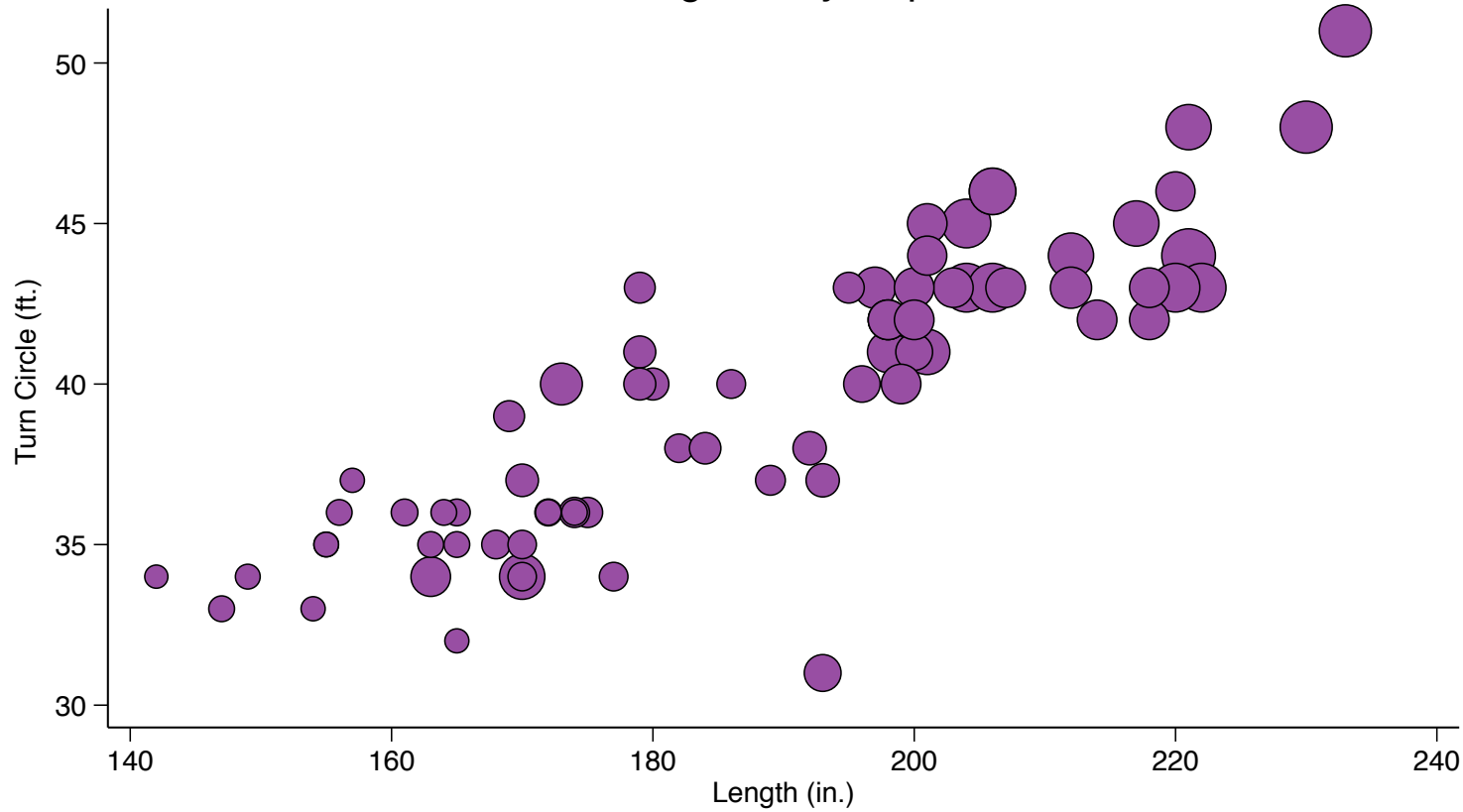
Figure 1.109: Bubble Plot of Turn Circle (ft.), Length (in.), and Gear Ratio



Created on: 29 Oct 2015 at: 15:36:58

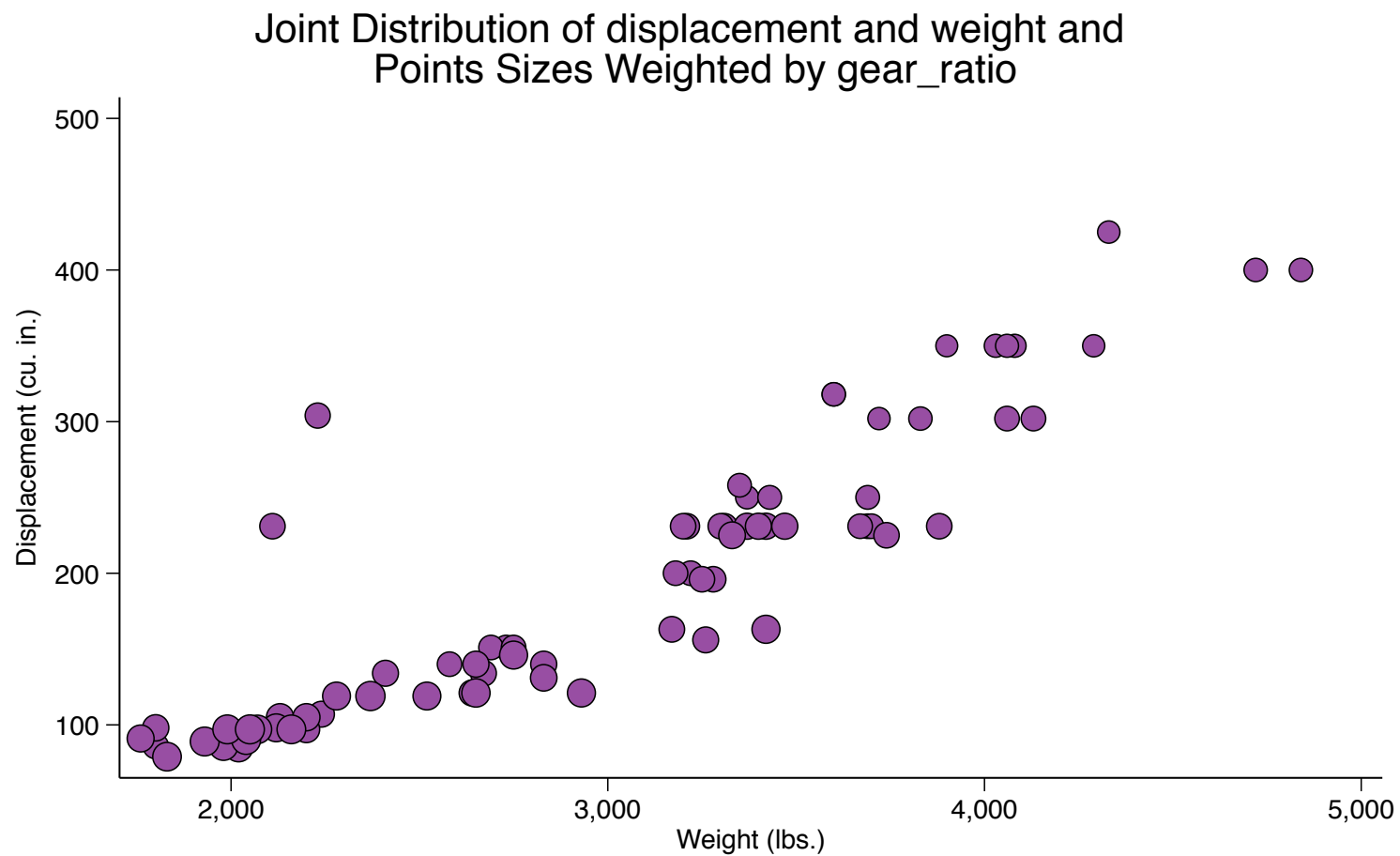
Figure 1.110: Bubble Plot of Turn Circle (ft.), Length (in.), and Displacement (cu. in.)

Joint Distribution of turn and length and
Points Sizes Weighted by displacement



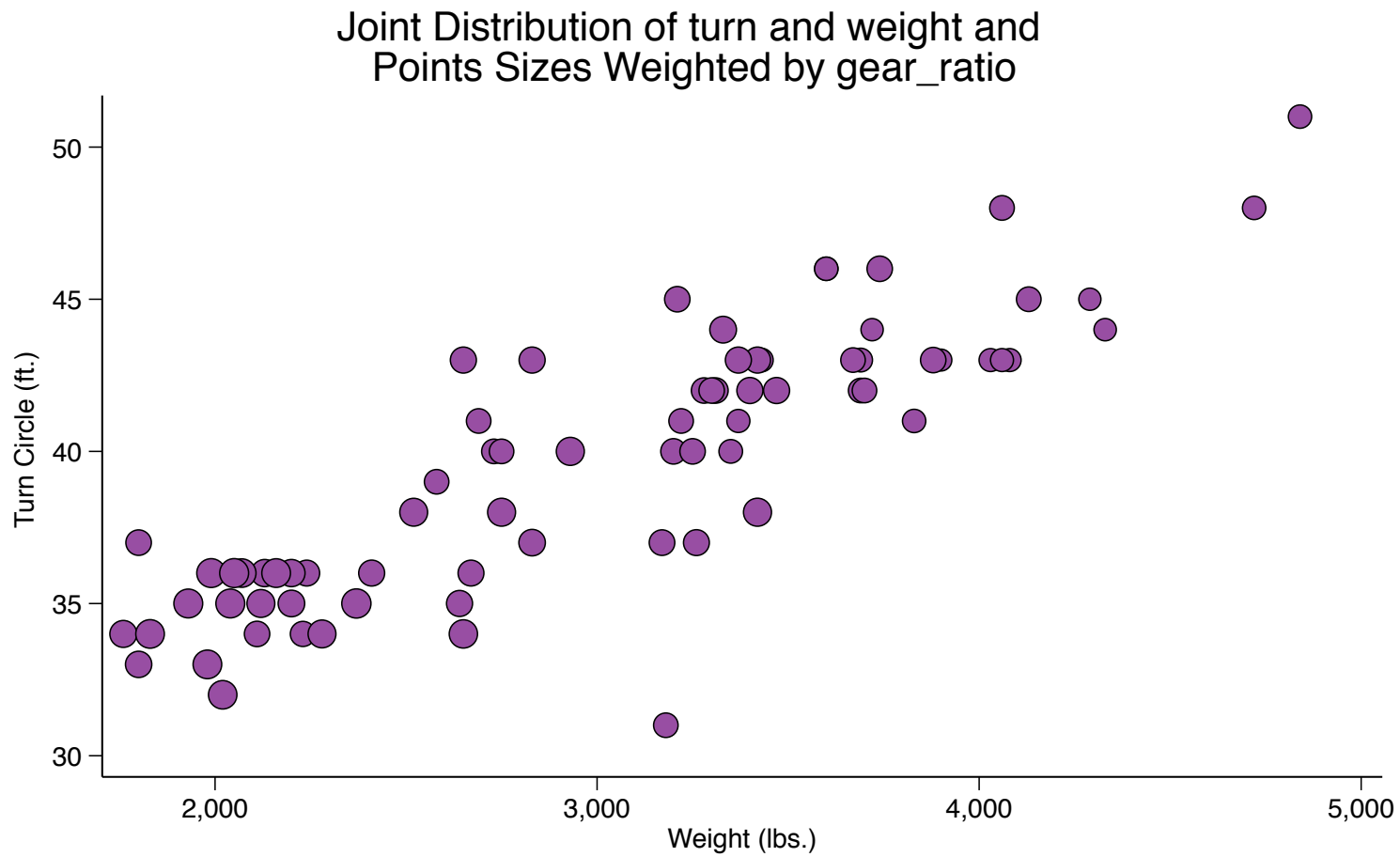
Created on: 29 Oct 2015 at: 15:37:00

Figure 1.111: Bubble Plot of Displacement (cu. in.), Weight (lbs.), and Gear Ratio



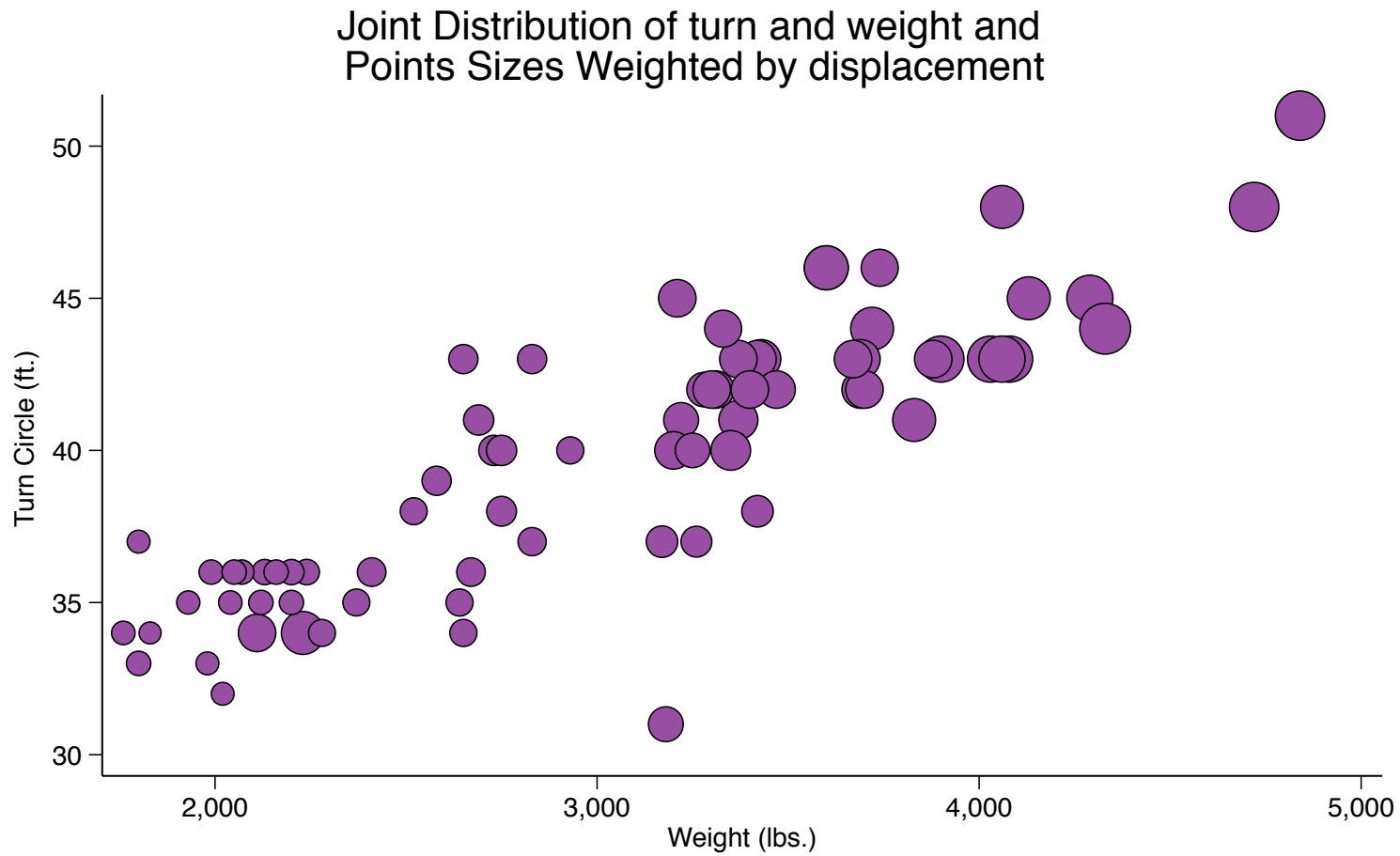
Created on: 29 Oct 2015 at: 15:37:03

Figure 1.112: Bubble Plot of Turn Circle (ft.), Weight (lbs.), and Gear Ratio



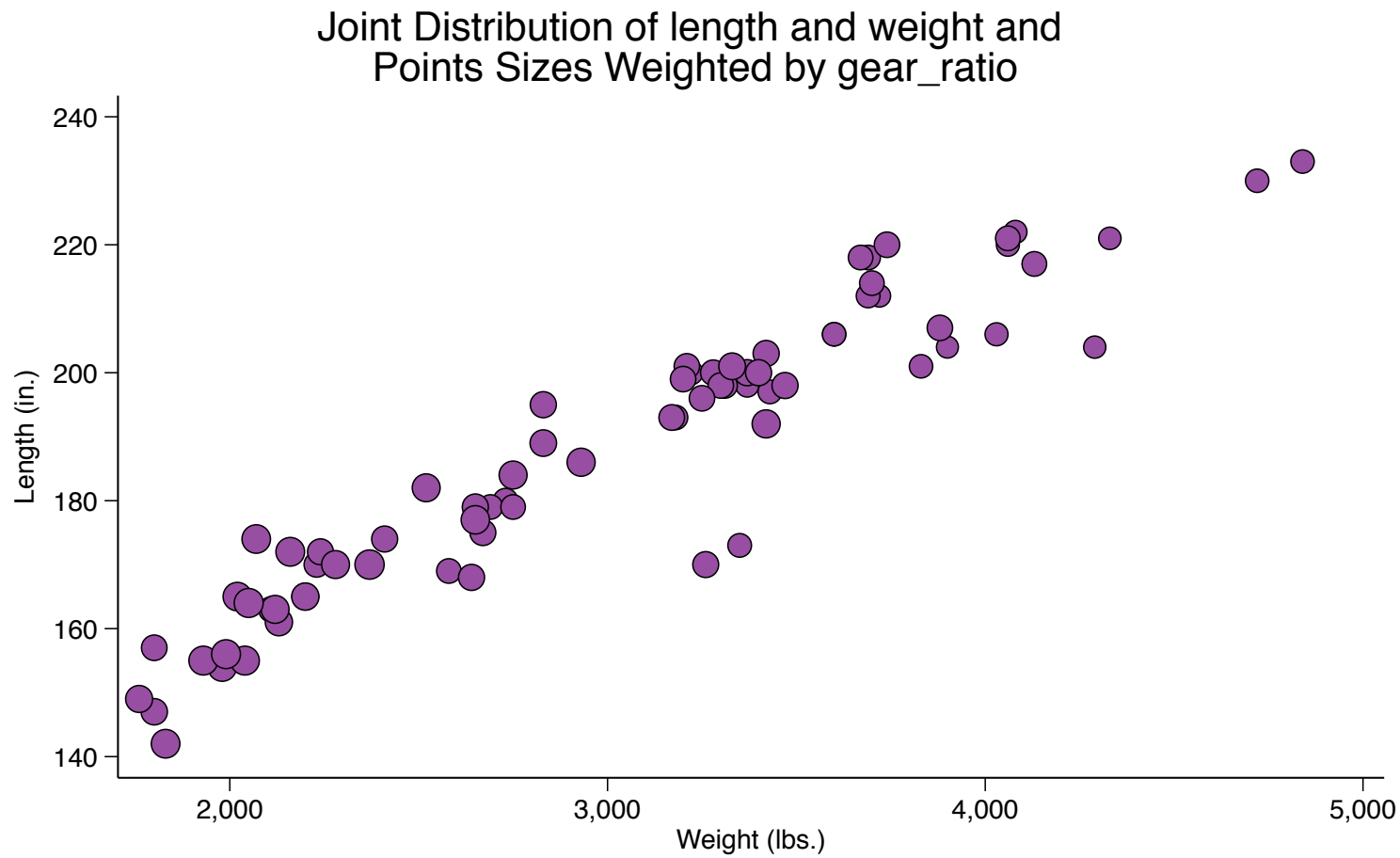
Created on: 29 Oct 2015 at: 15:37:05

Figure 1.113: Bubble Plot of Turn Circle (ft.), Weight (lbs.), and Displacement (cu. in.)



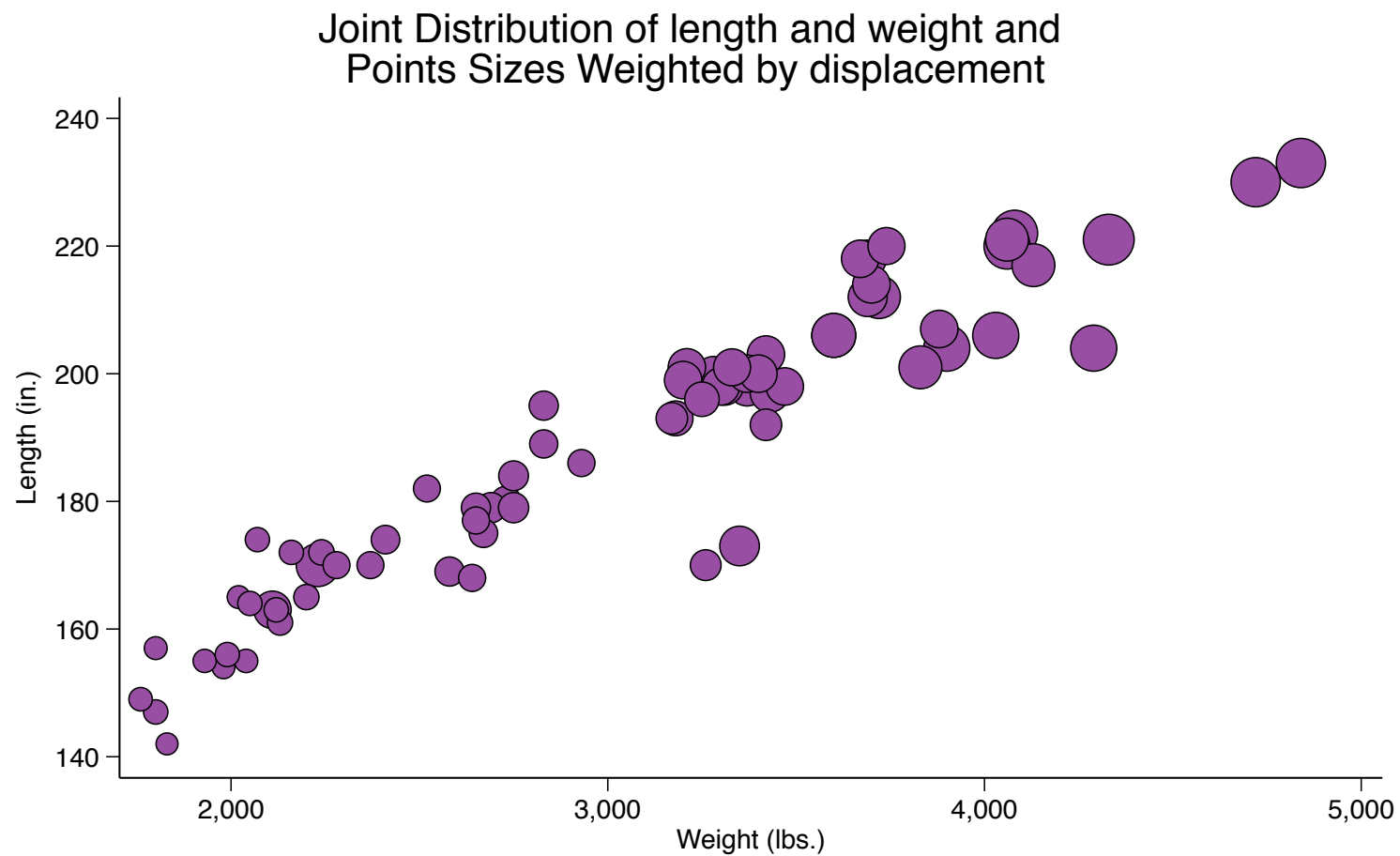
Created on: 29 Oct 2015 at: 15:37:07

Figure 1.114: Bubble Plot of Length (in.), Weight (lbs.), and Gear Ratio



Created on: 29 Oct 2015 at: 15:37:09

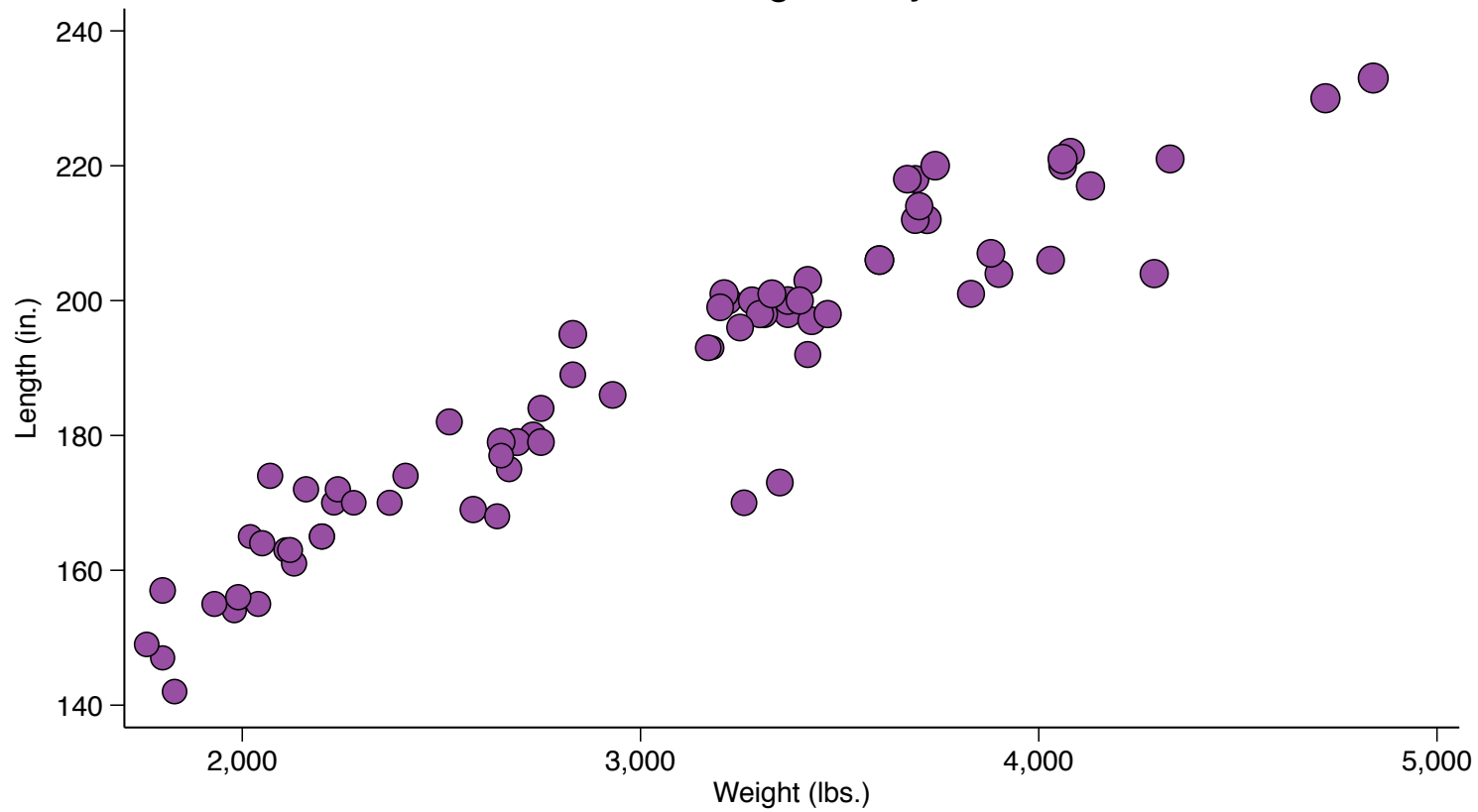
Figure 1.115: Bubble Plot of Length (in.), Weight (lbs.), and Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:37:11

Figure 1.116: Bubble Plot of Length (in.), Weight (lbs.), and Turn Circle (ft.)

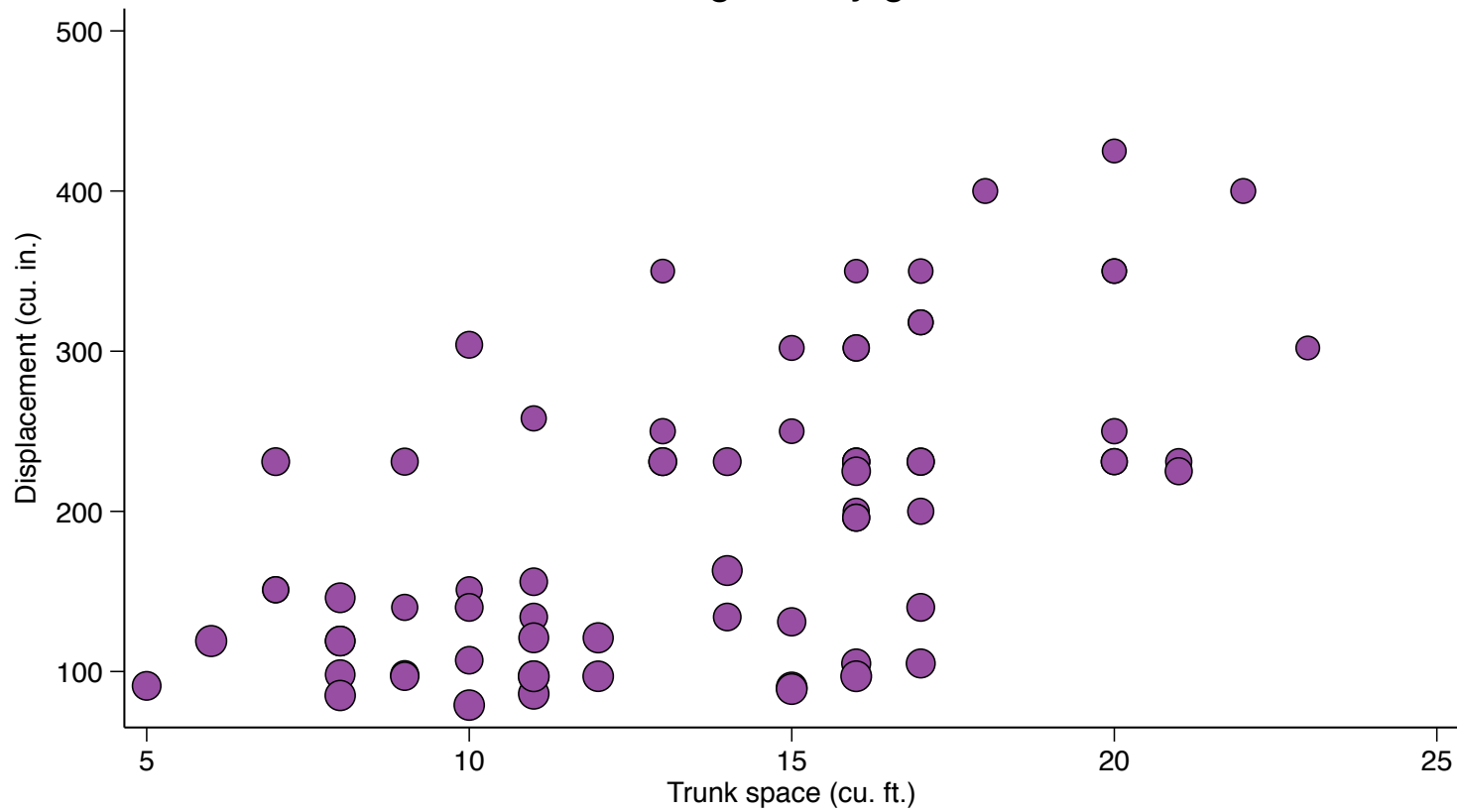
Joint Distribution of length and weight and Points Sizes Weighted by turn



Created on: 29 Oct 2015 at: 15:37:13

Figure 1.117: Bubble Plot of Displacement (cu. in.), Trunk space (cu. ft.), and Gear Ratio

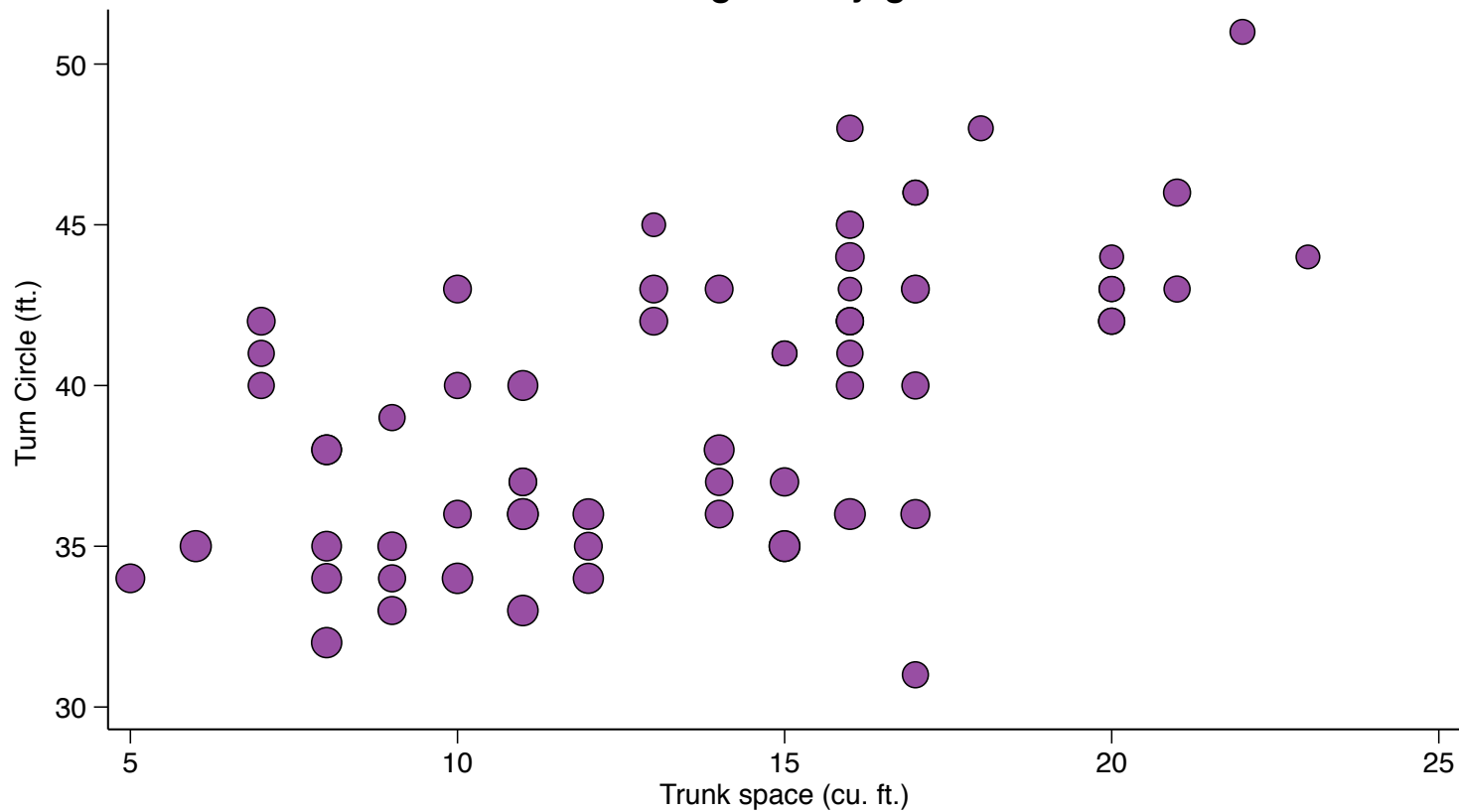
Joint Distribution of displacement and trunk and Points Sizes Weighted by gear_ratio



Created on: 29 Oct 2015 at: 15:37:15

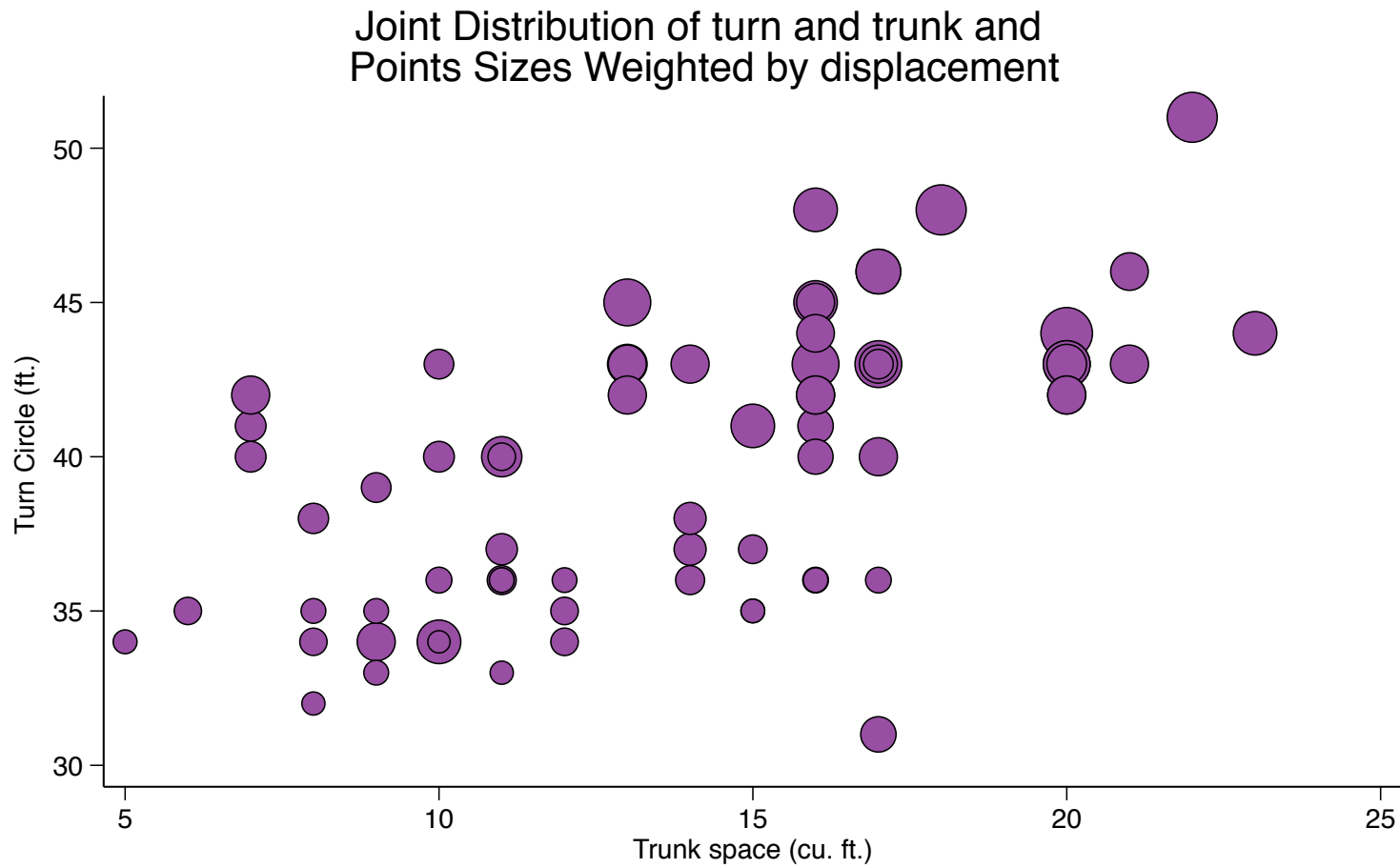
Figure 1.118: Bubble Plot of Turn Circle (ft.), Trunk space (cu. ft.), and Gear Ratio

Joint Distribution of turn and trunk and Points Sizes Weighted by gear_ratio



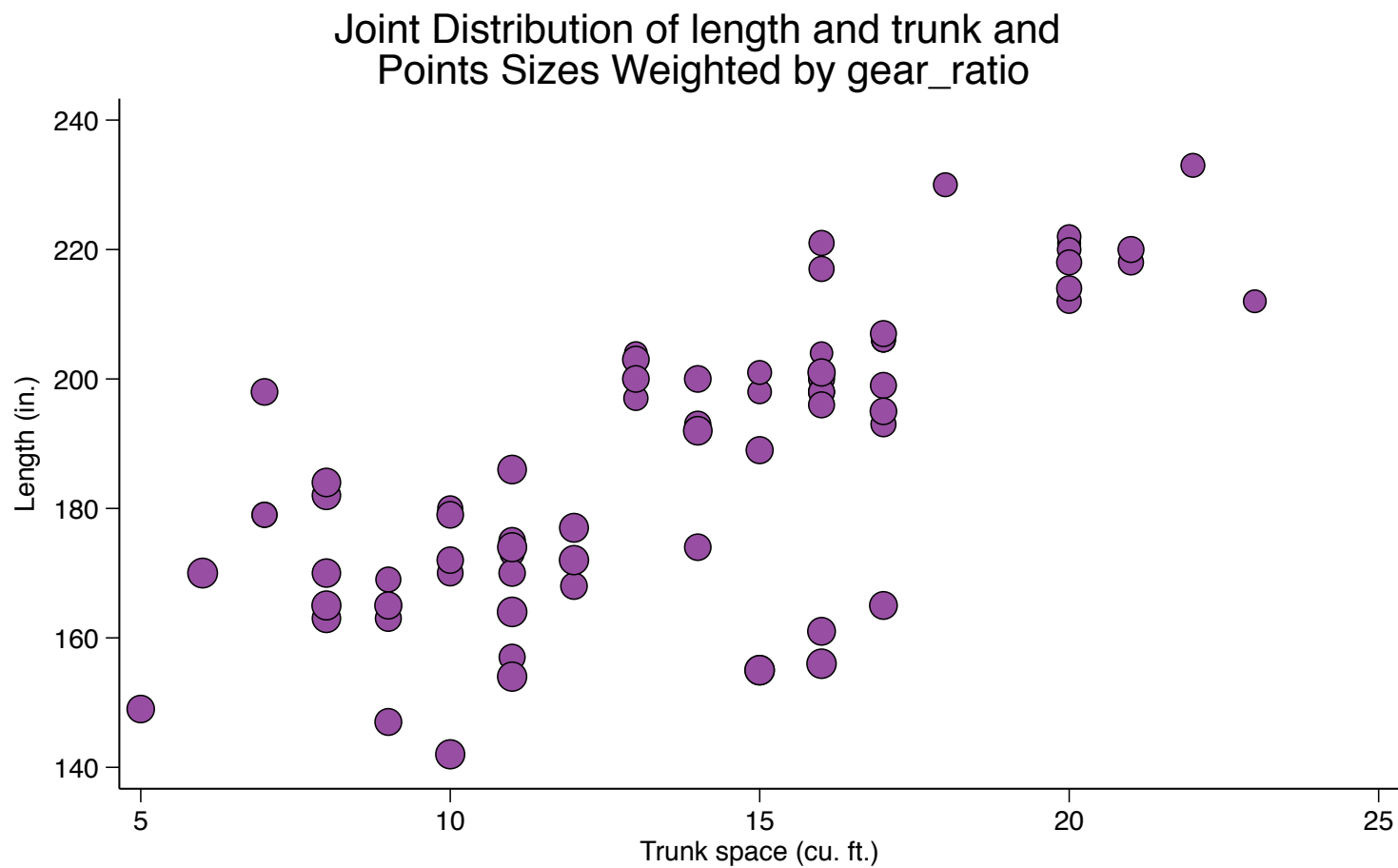
Created on: 29 Oct 2015 at: 15:37:17

Figure 1.119: Bubble Plot of Turn Circle (ft.), Trunk space (cu. ft.), and Displacement (cu. in.)



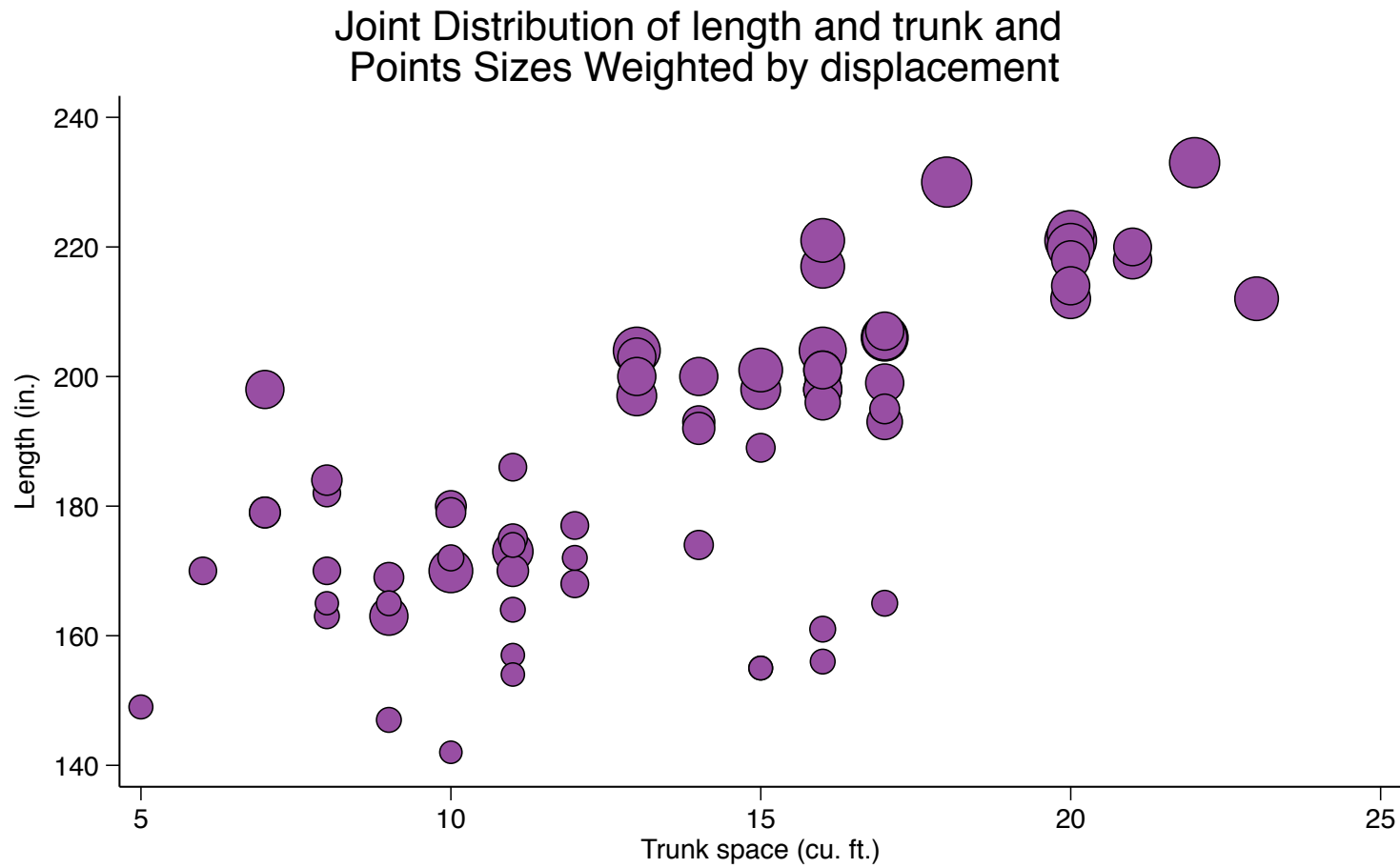
Created on: 29 Oct 2015 at: 15:37:19

Figure 1.120: Bubble Plot of Length (in.), Trunk space (cu. ft.), and Gear Ratio



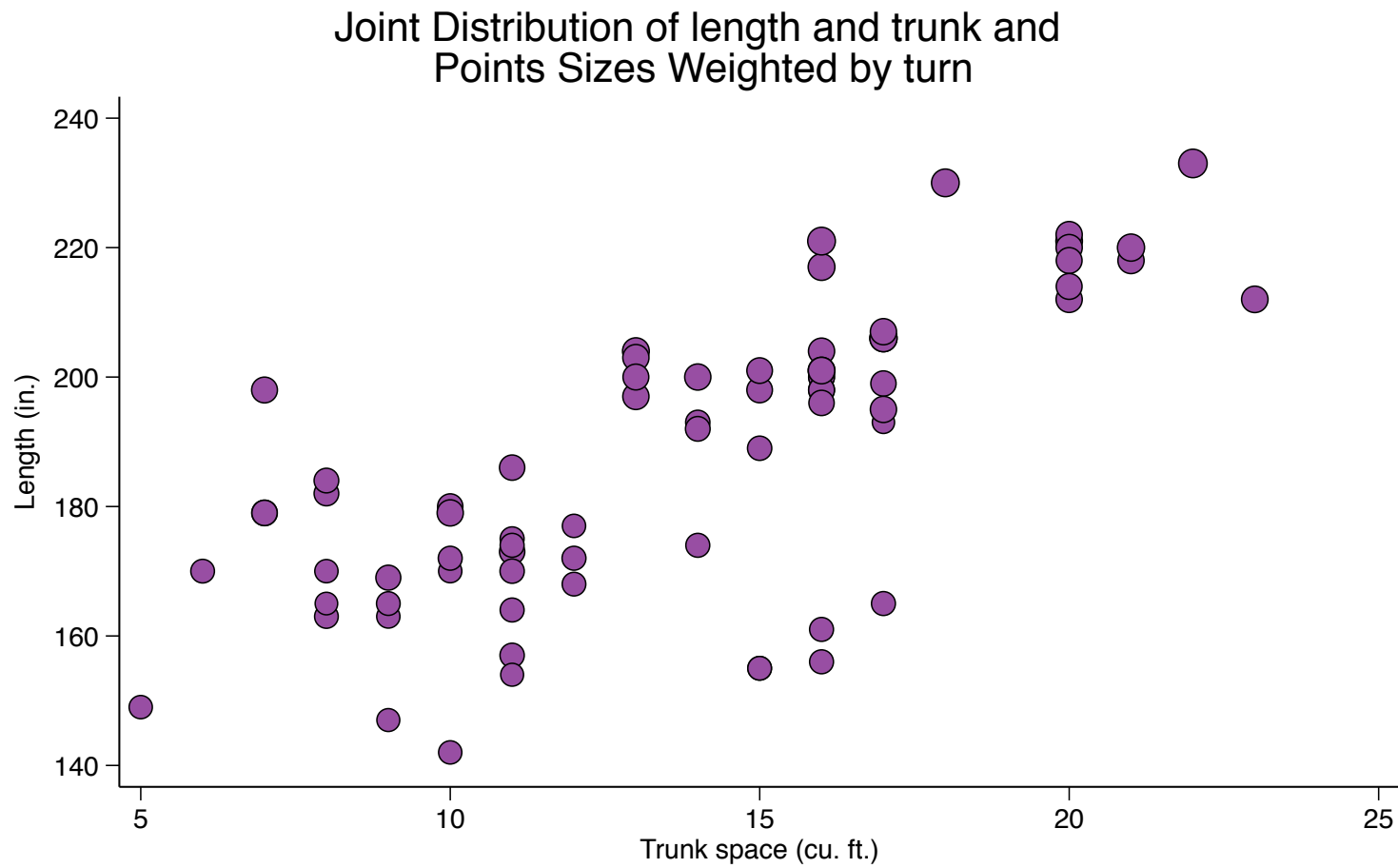
Created on: 29 Oct 2015 at: 15:37:21

Figure 1.121: Bubble Plot of Length (in.), Trunk space (cu. ft.), and Displacement (cu. in.)



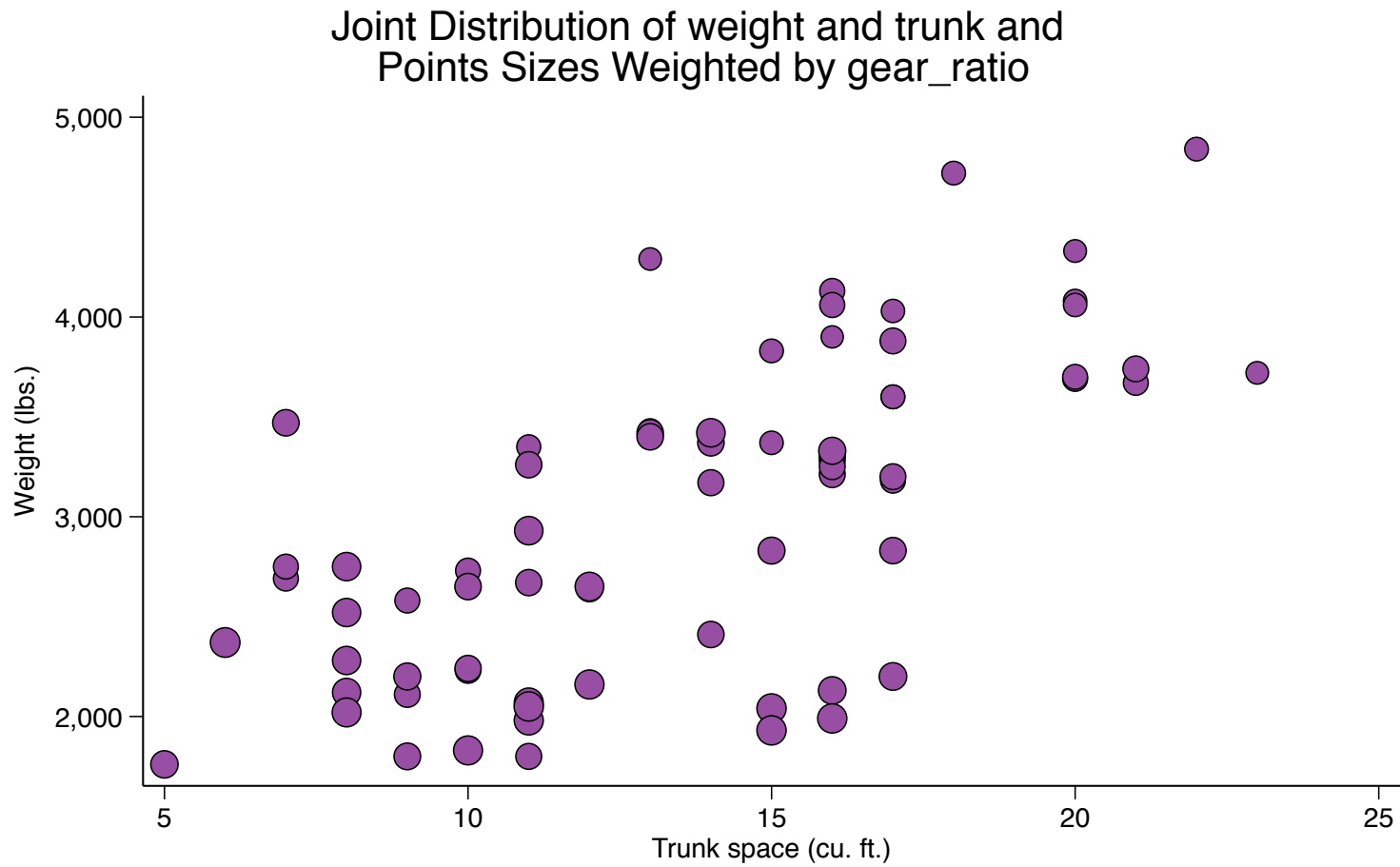
Created on: 29 Oct 2015 at: 15:37:23

Figure 1.122: Bubble Plot of Length (in.), Trunk space (cu. ft.), and Turn Circle (ft.)



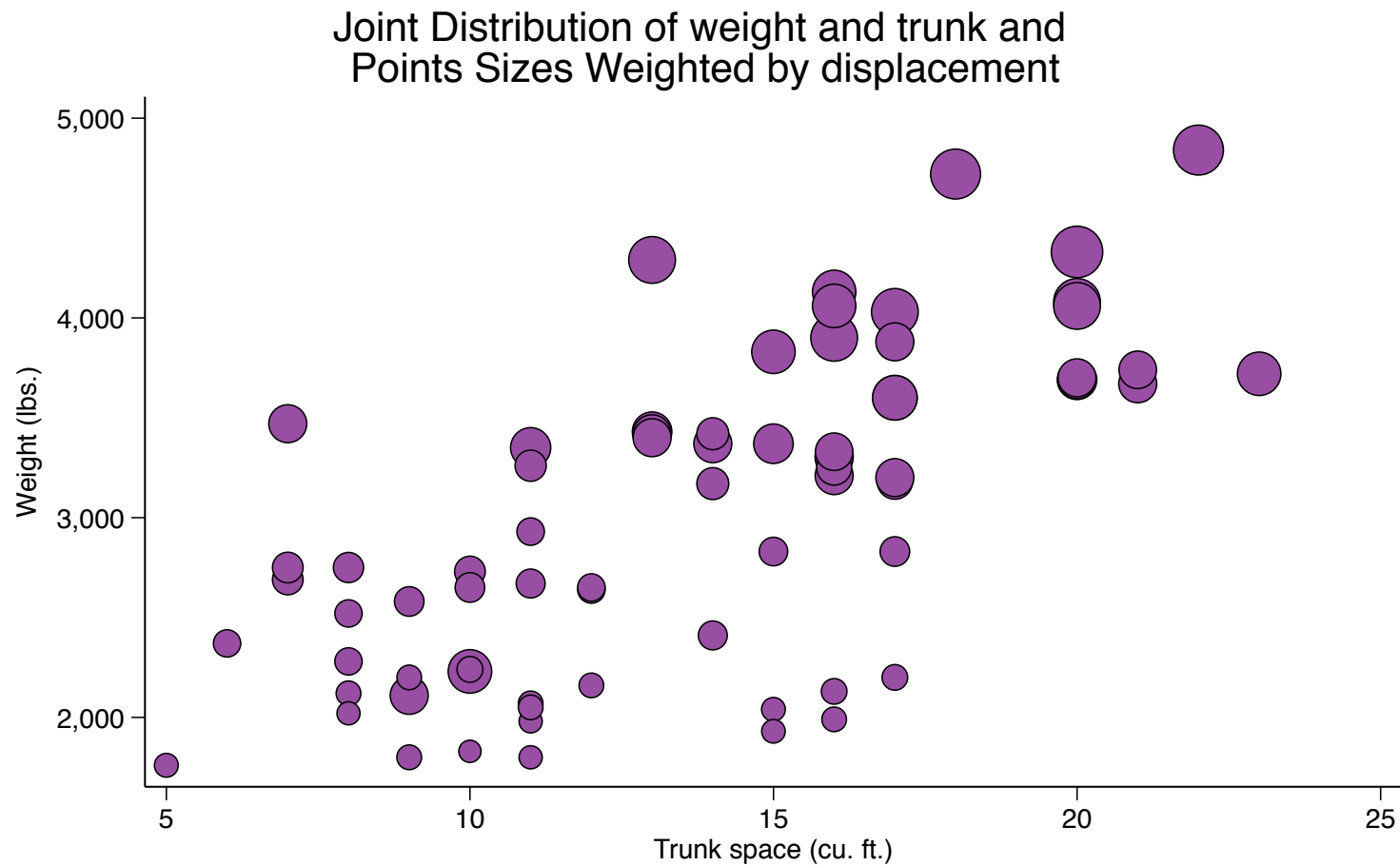
Created on: 29 Oct 2015 at: 15:37:25

Figure 1.123: Bubble Plot of Weight (lbs.), Trunk space (cu. ft.), and Gear Ratio



Created on: 29 Oct 2015 at: 15:37:27

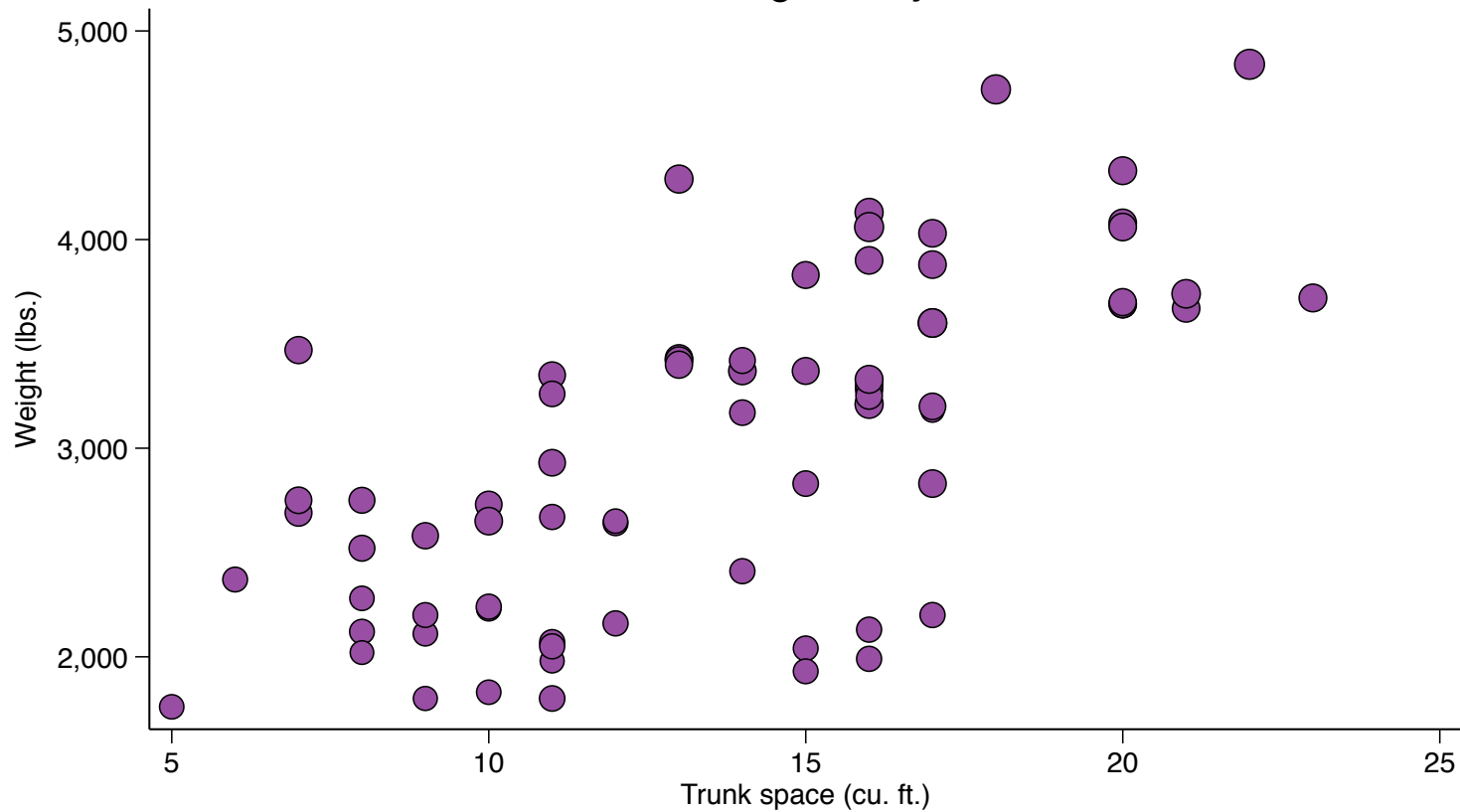
Figure 1.124: Bubble Plot of Weight (lbs.), Trunk space (cu. ft.), and Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:37:29

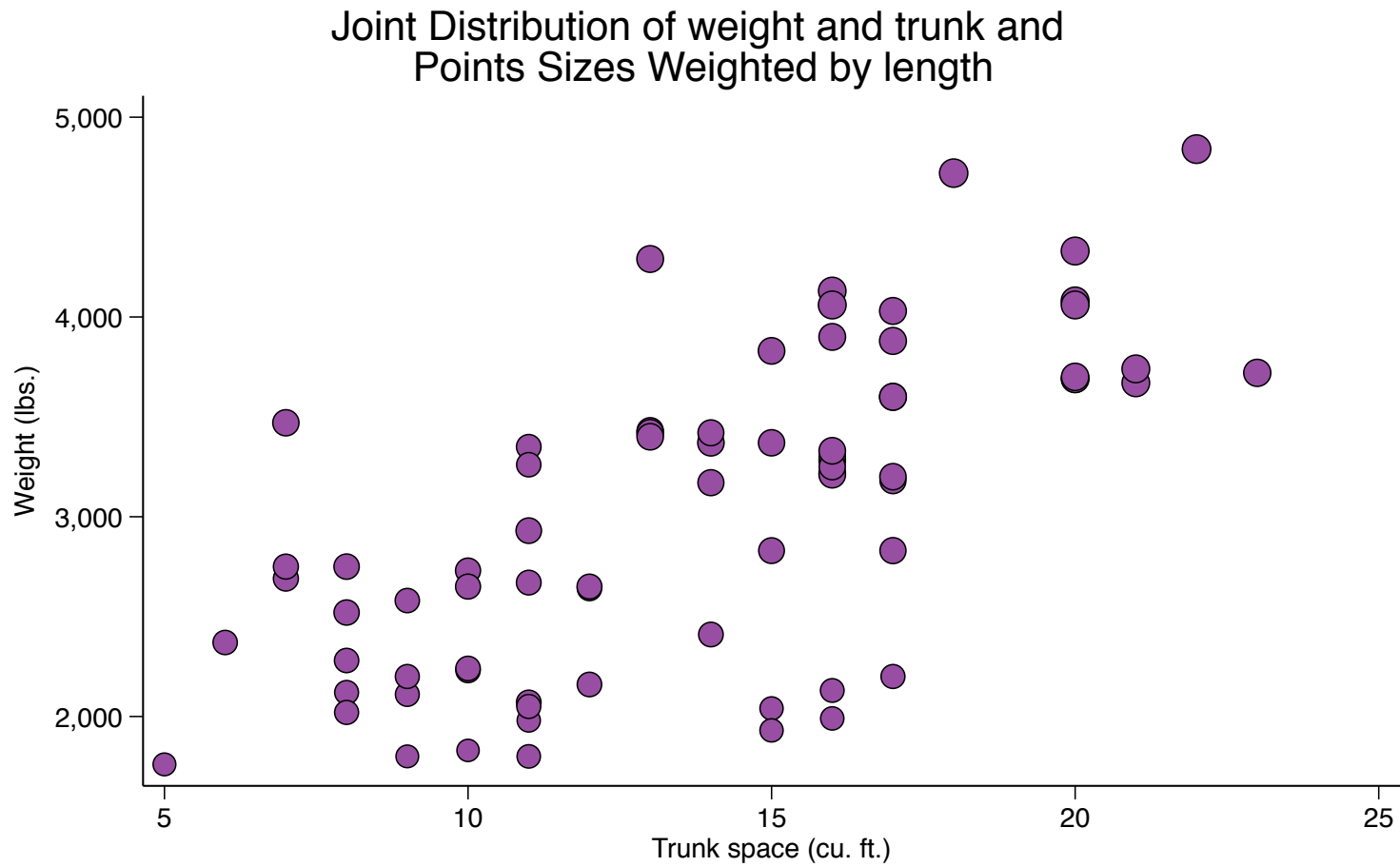
Figure 1.125: Bubble Plot of Weight (lbs.), Trunk space (cu. ft.), and Turn Circle (ft.)

Joint Distribution of weight and trunk and Points Sizes Weighted by turn



Created on: 29 Oct 2015 at: 15:37:31

Figure 1.126: Bubble Plot of Weight (lbs.), Trunk space (cu. ft.), and Length (in.)



Created on: 29 Oct 2015 at: 15:37:33

Joint Distribution of displacement and mpg and Points Sizes Weighted by gear_ratio

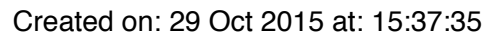
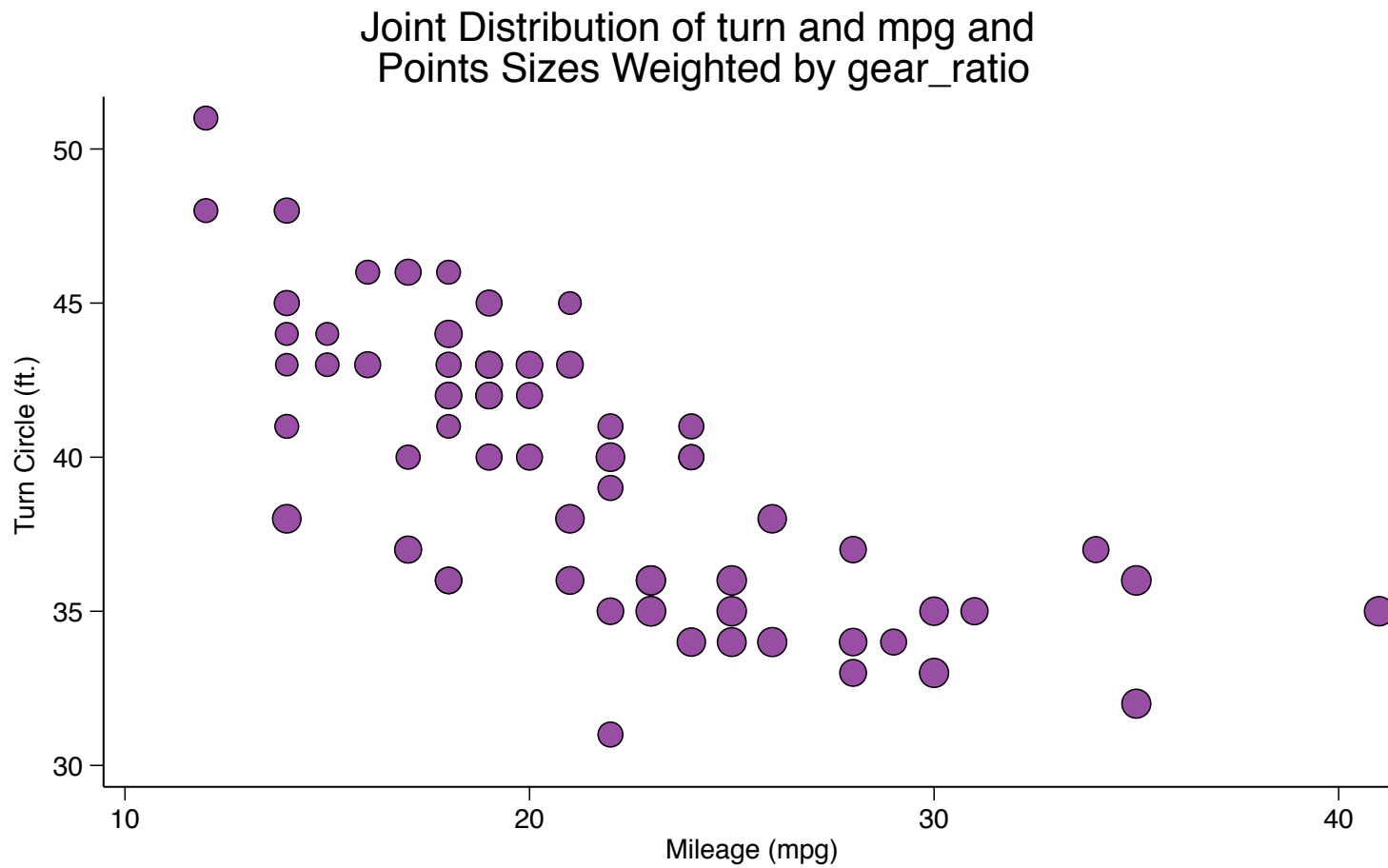
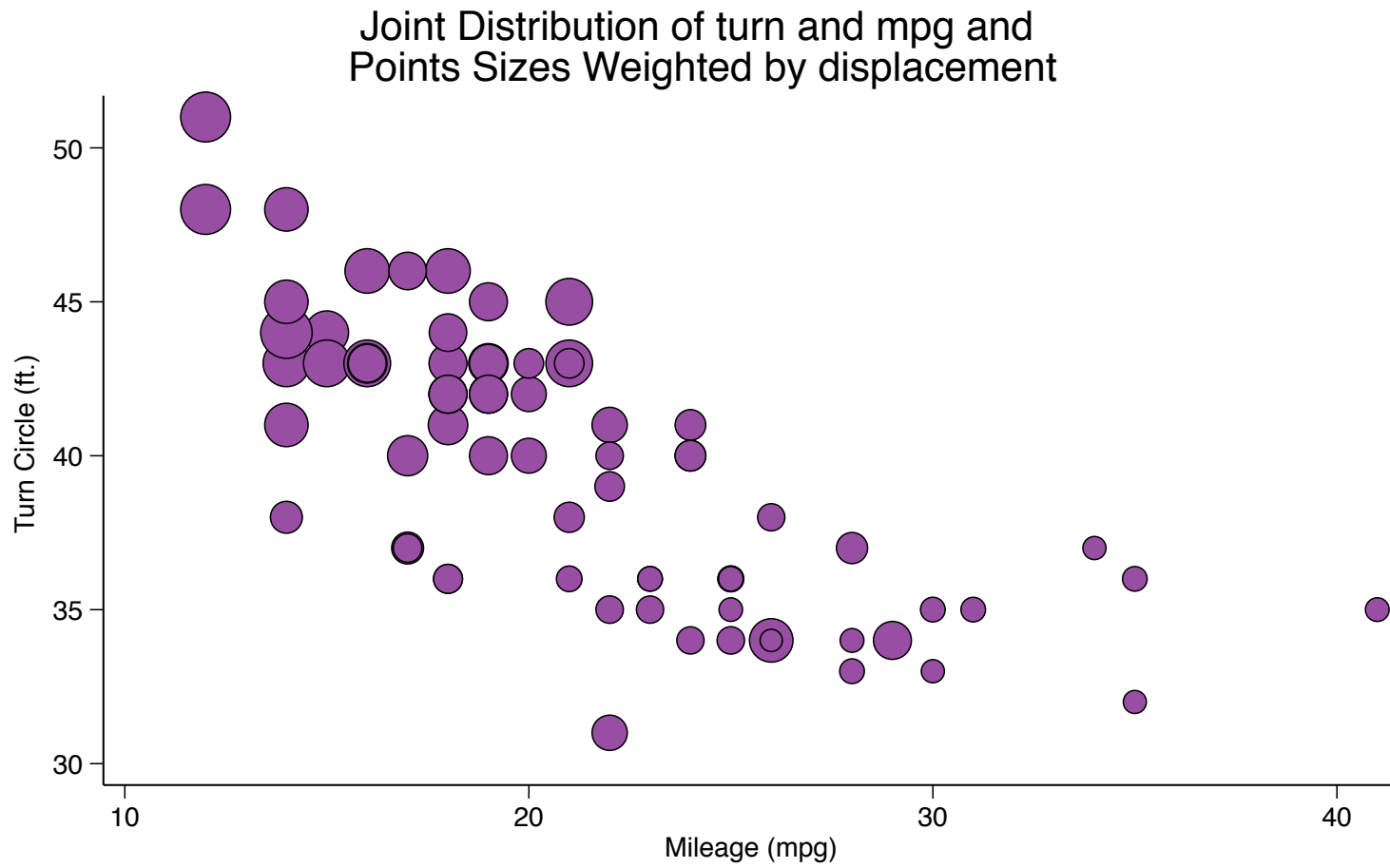


Figure 1.128: Bubble Plot of Turn Circle (ft.), Mileage (mpg), and Gear Ratio



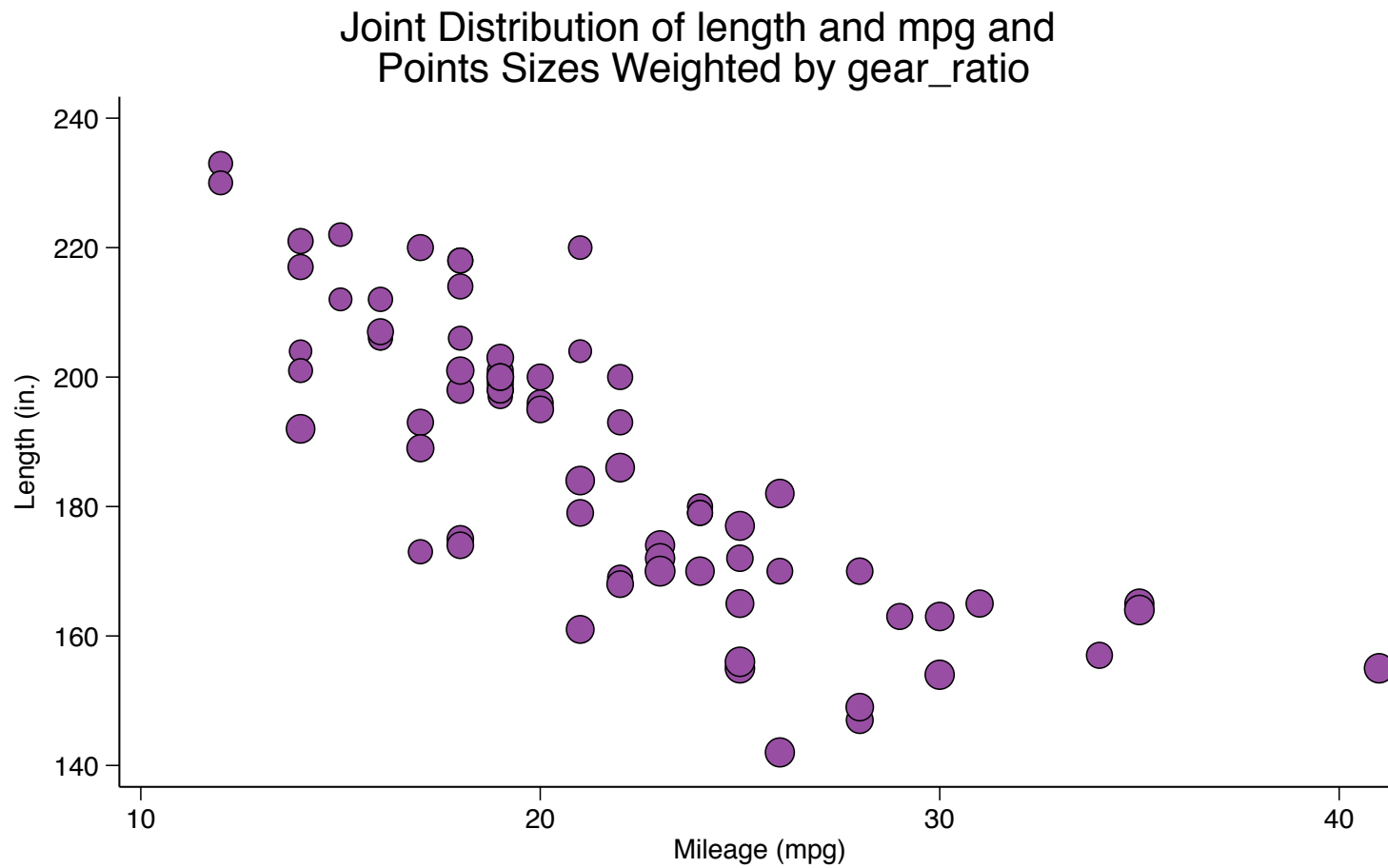
Created on: 29 Oct 2015 at: 15:37:37

Figure 1.129: Bubble Plot of Turn Circle (ft.), Mileage (mpg), and Displacement (cu. in.)



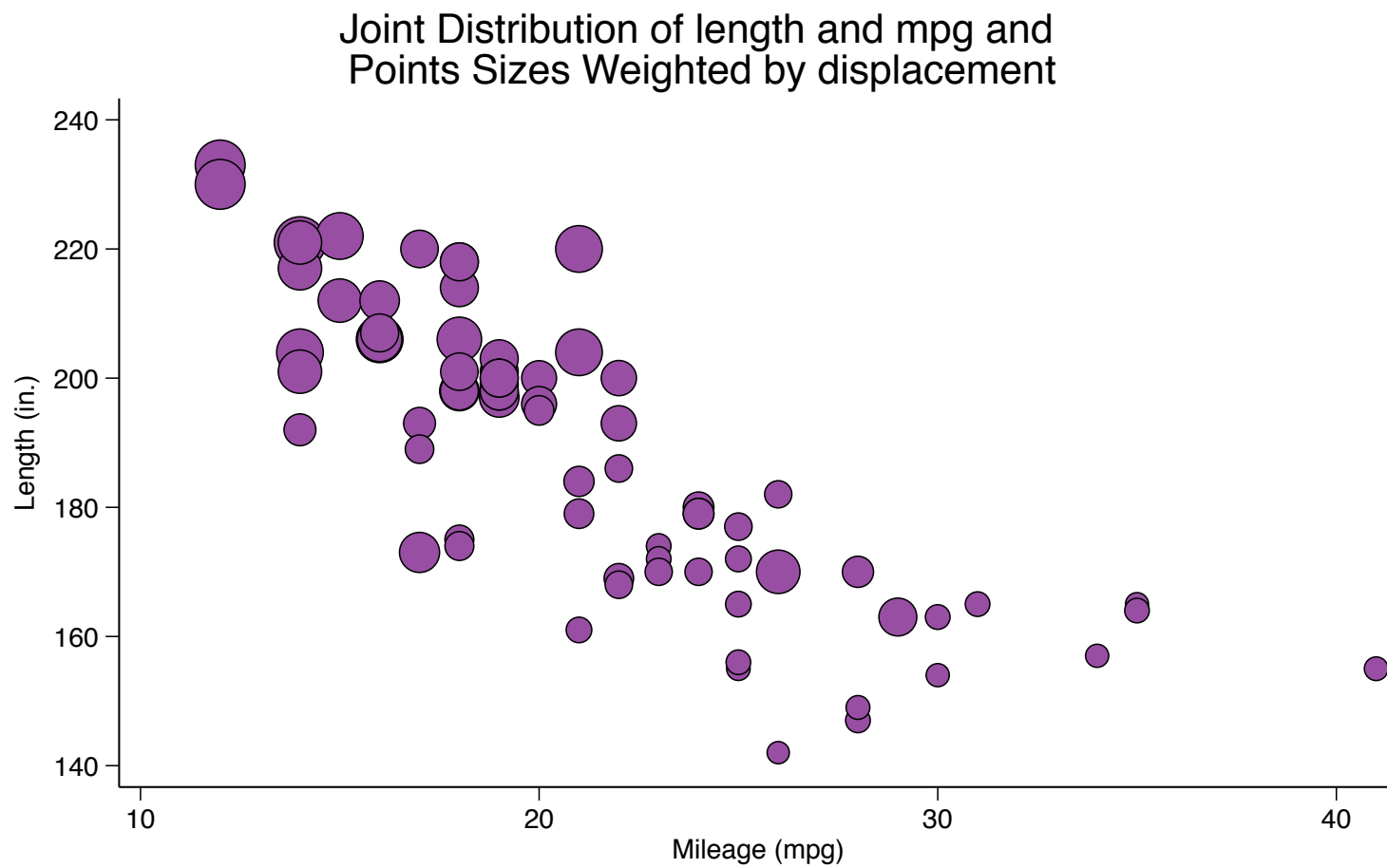
Created on: 29 Oct 2015 at: 15:37:39

Figure 1.130: Bubble Plot of Length (in.), Mileage (mpg), and Gear Ratio



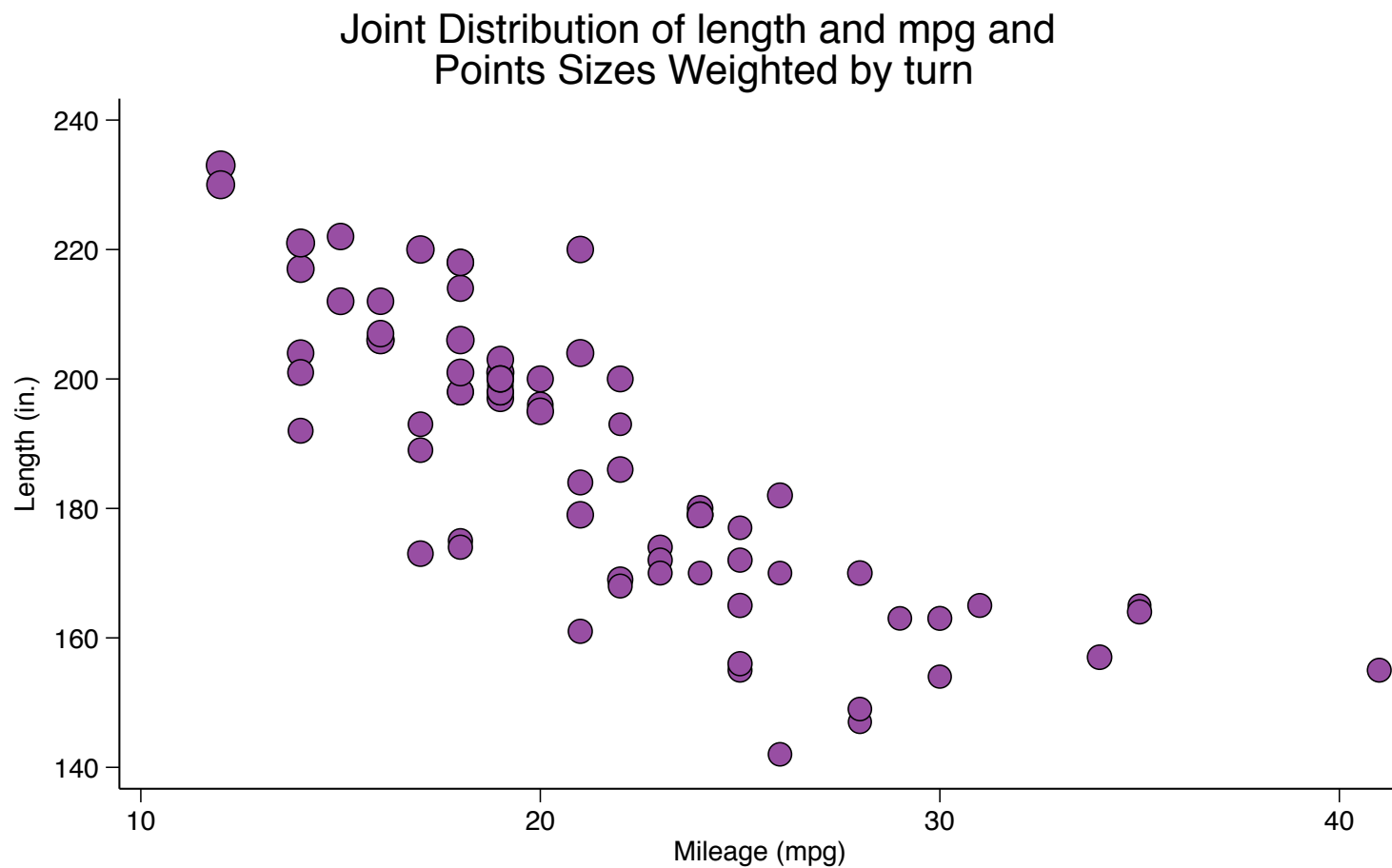
Created on: 29 Oct 2015 at: 15:37:41

Figure 1.131: Bubble Plot of Length (in.), Mileage (mpg), and Displacement (cu. in.)



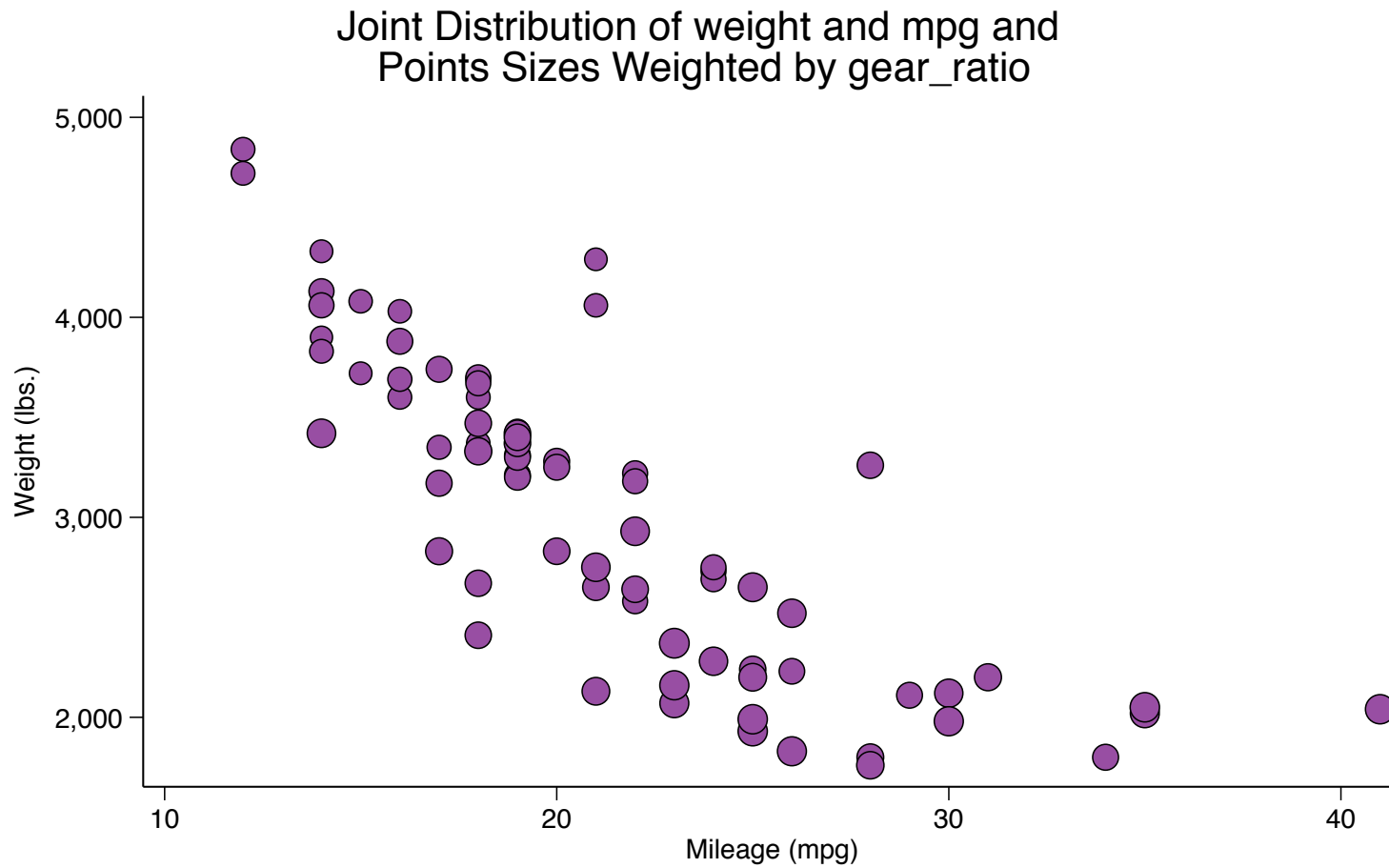
Created on: 29 Oct 2015 at: 15:37:43

Figure 1.132: Bubble Plot of Length (in.), Mileage (mpg), and Turn Circle (ft.)



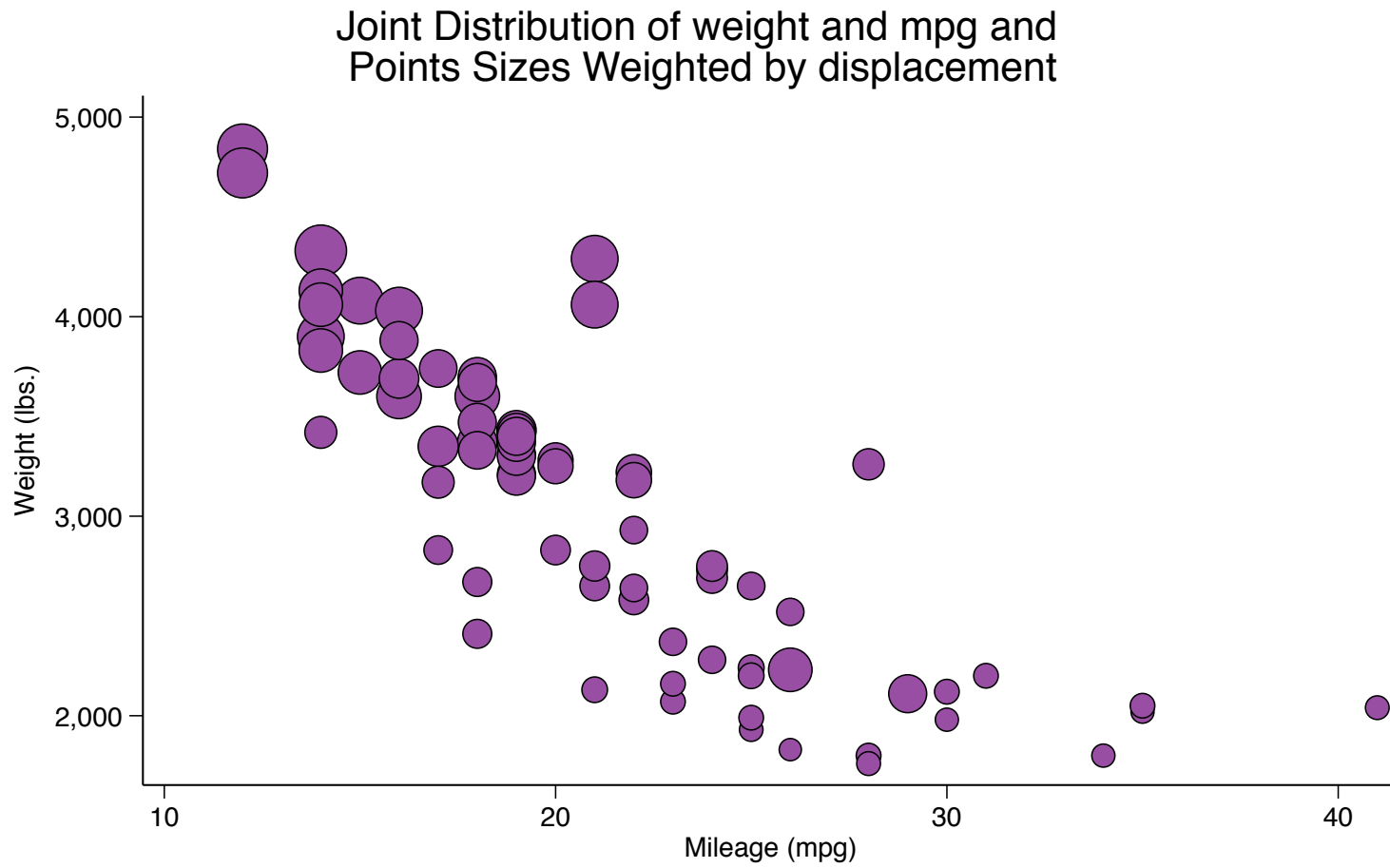
Created on: 29 Oct 2015 at: 15:37:45

Figure 1.133: Bubble Plot of Weight (lbs.), Mileage (mpg), and Gear Ratio



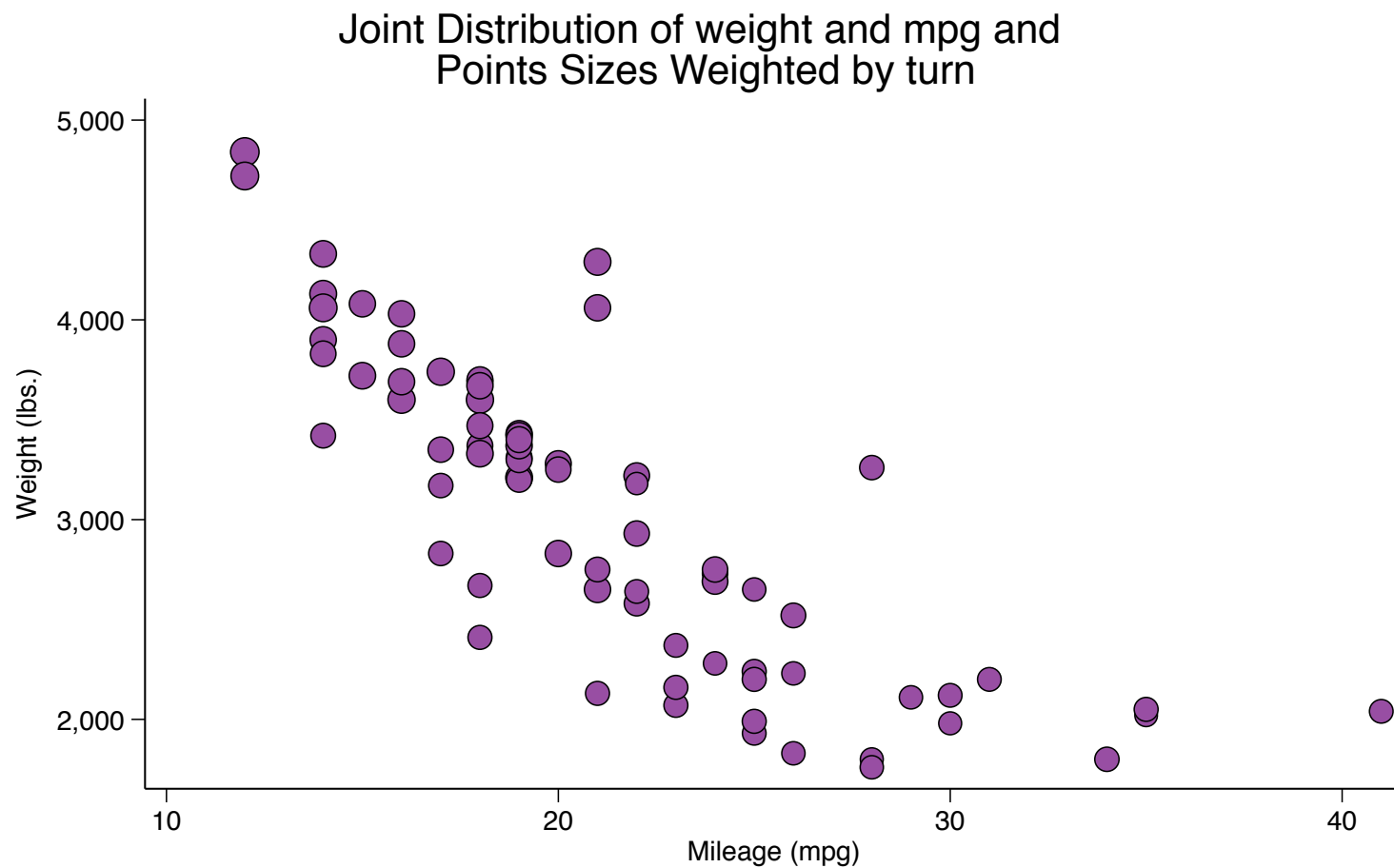
Created on: 29 Oct 2015 at: 15:37:47

Figure 1.134: Bubble Plot of Weight (lbs.), Mileage (mpg), and Displacement (cu. in.)



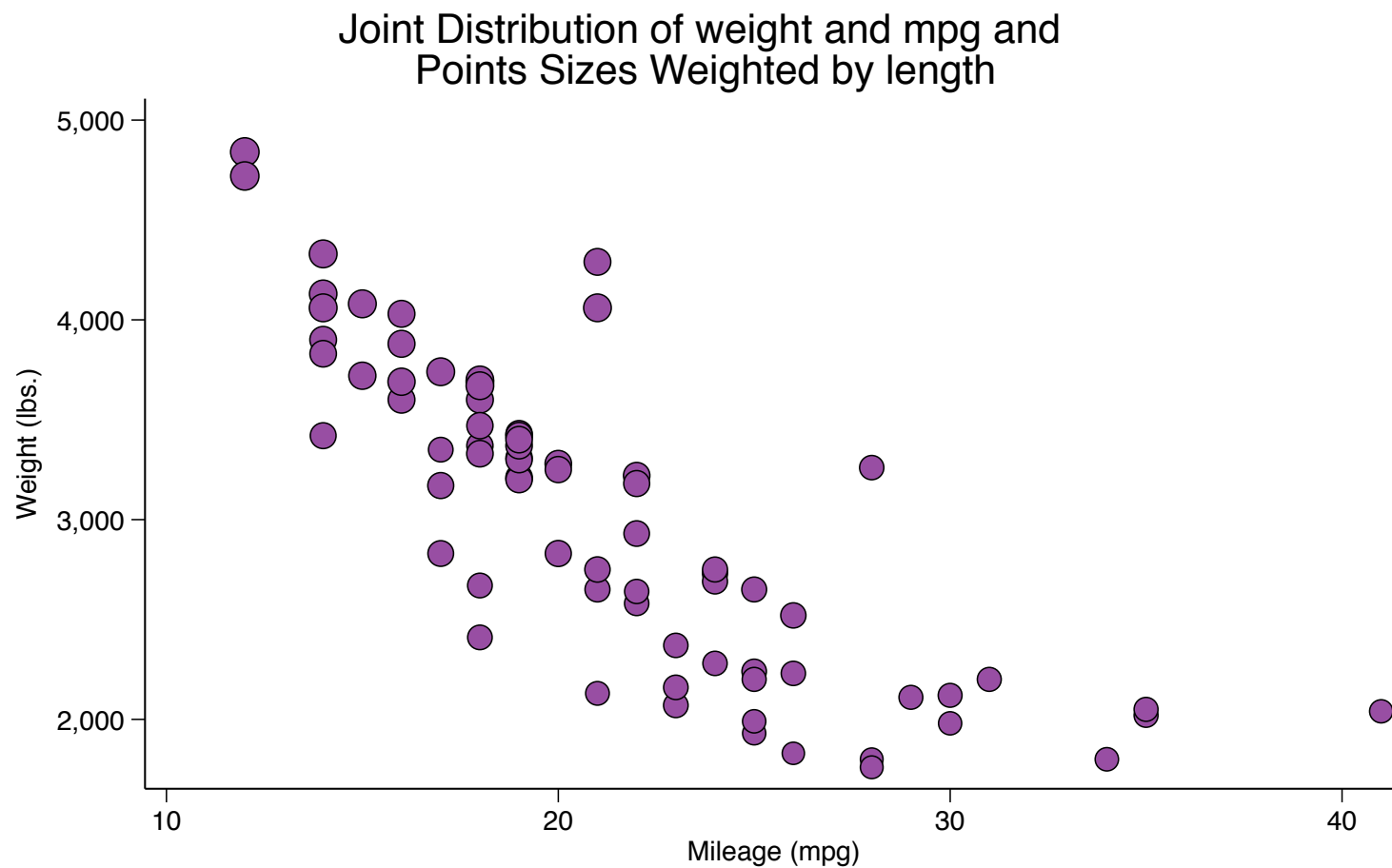
Created on: 29 Oct 2015 at: 15:37:49

Figure 1.135: Bubble Plot of Weight (lbs.), Mileage (mpg), and Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:37:51

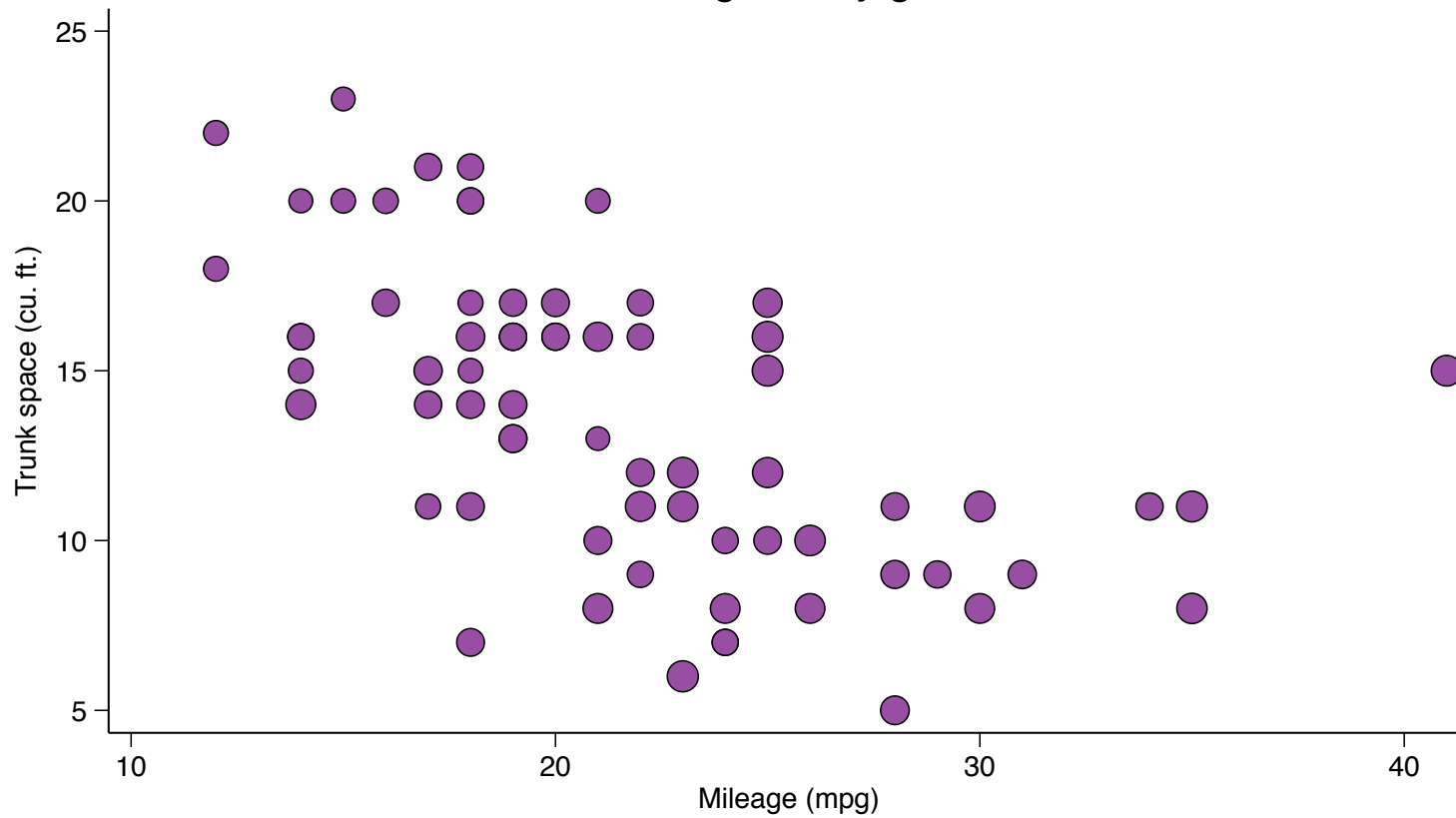
Figure 1.136: Bubble Plot of Weight (lbs.), Mileage (mpg), and Length (in.)



Created on: 29 Oct 2015 at: 15:37:53

Figure 1.137: Bubble Plot of Trunk space (cu. ft.), Mileage (mpg), and Gear Ratio

Joint Distribution of trunk and mpg and Points Sizes Weighted by gear_ratio



Created on: 29 Oct 2015 at: 15:37:55

Figure 1.138: Bubble Plot of Trunk space (cu. ft.), Mileage (mpg), and Displacement (cu. in.)

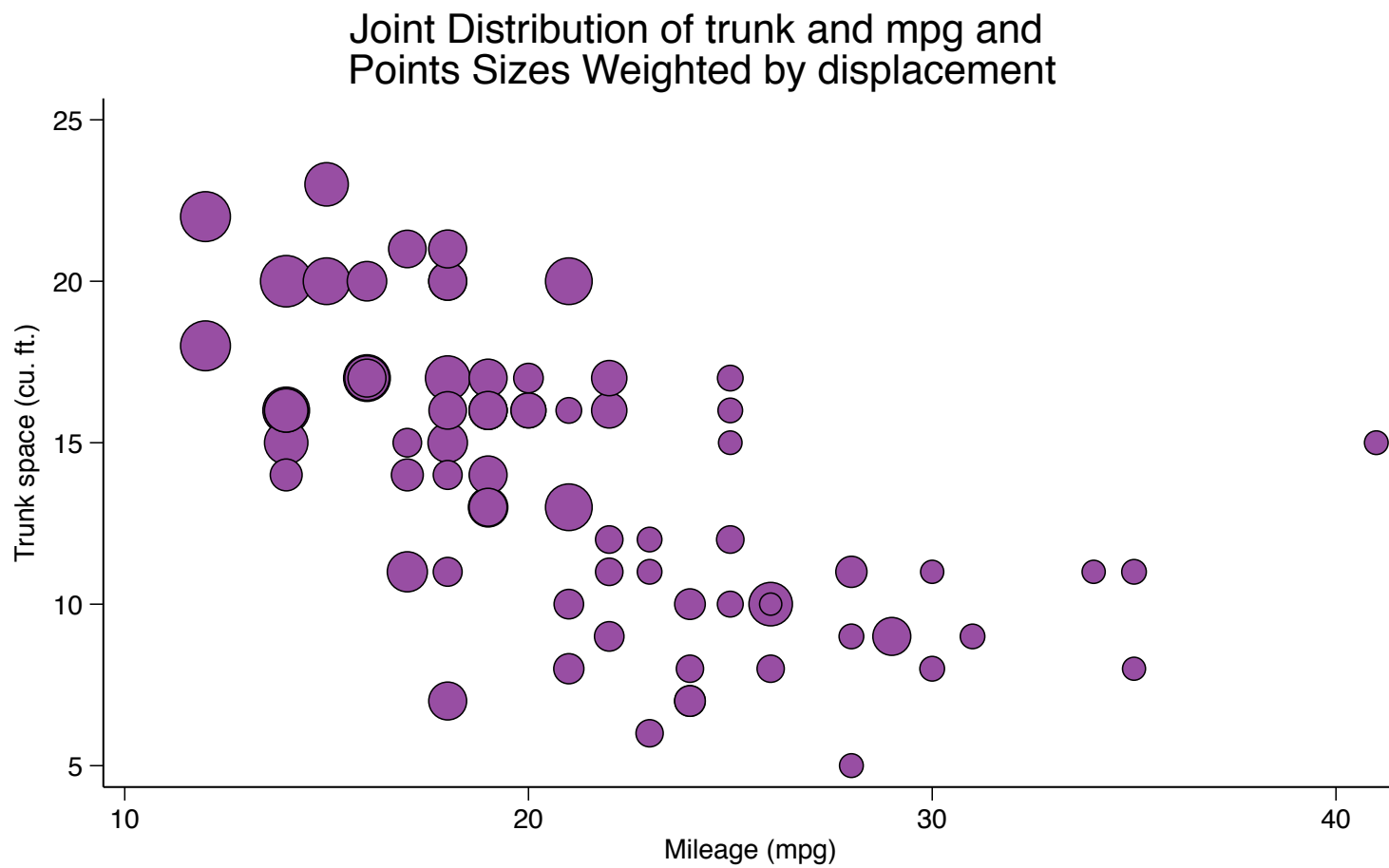
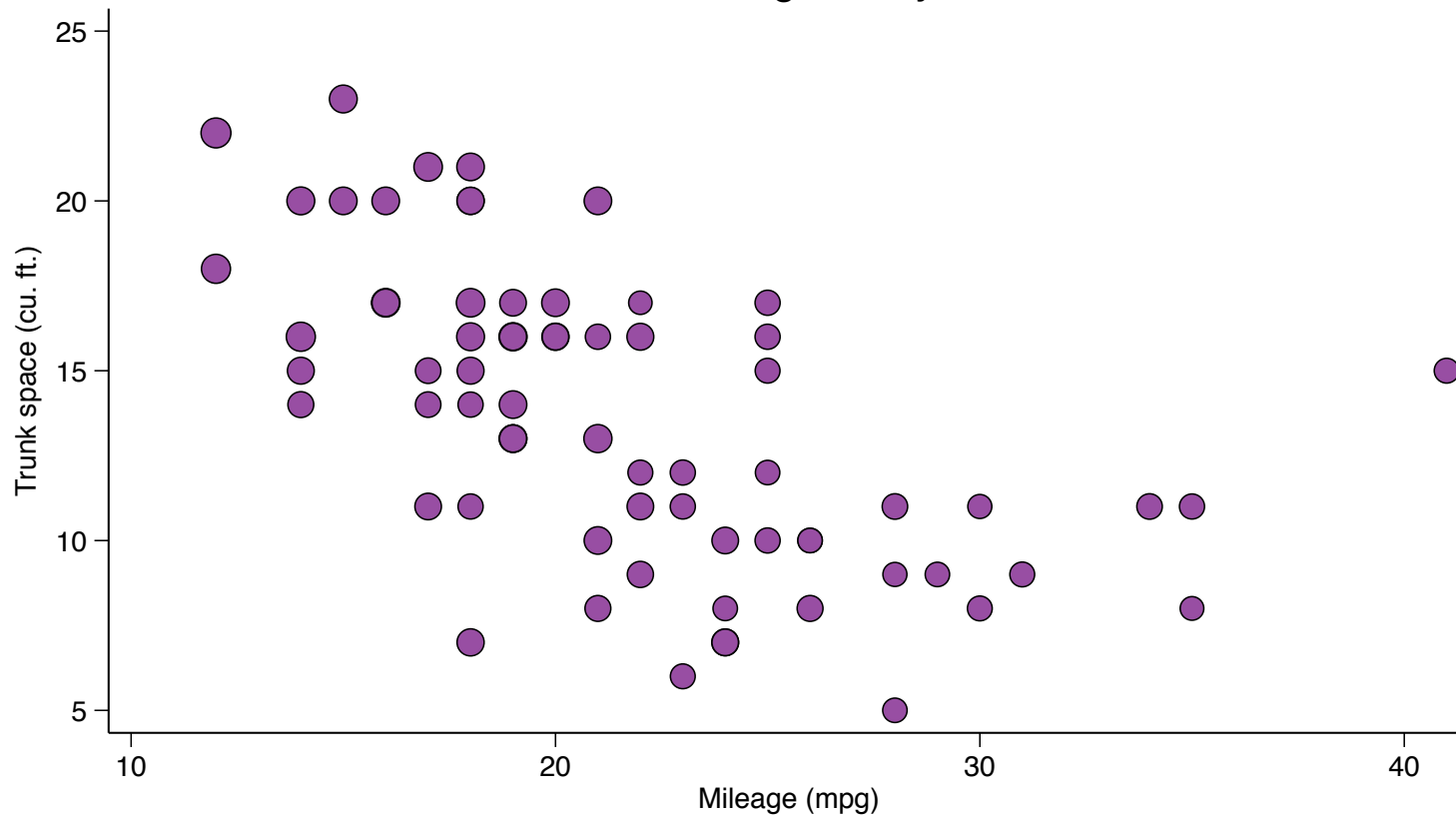


Figure 1.139: Bubble Plot of Trunk space (cu. ft.), Mileage (mpg), and Turn Circle (ft.)

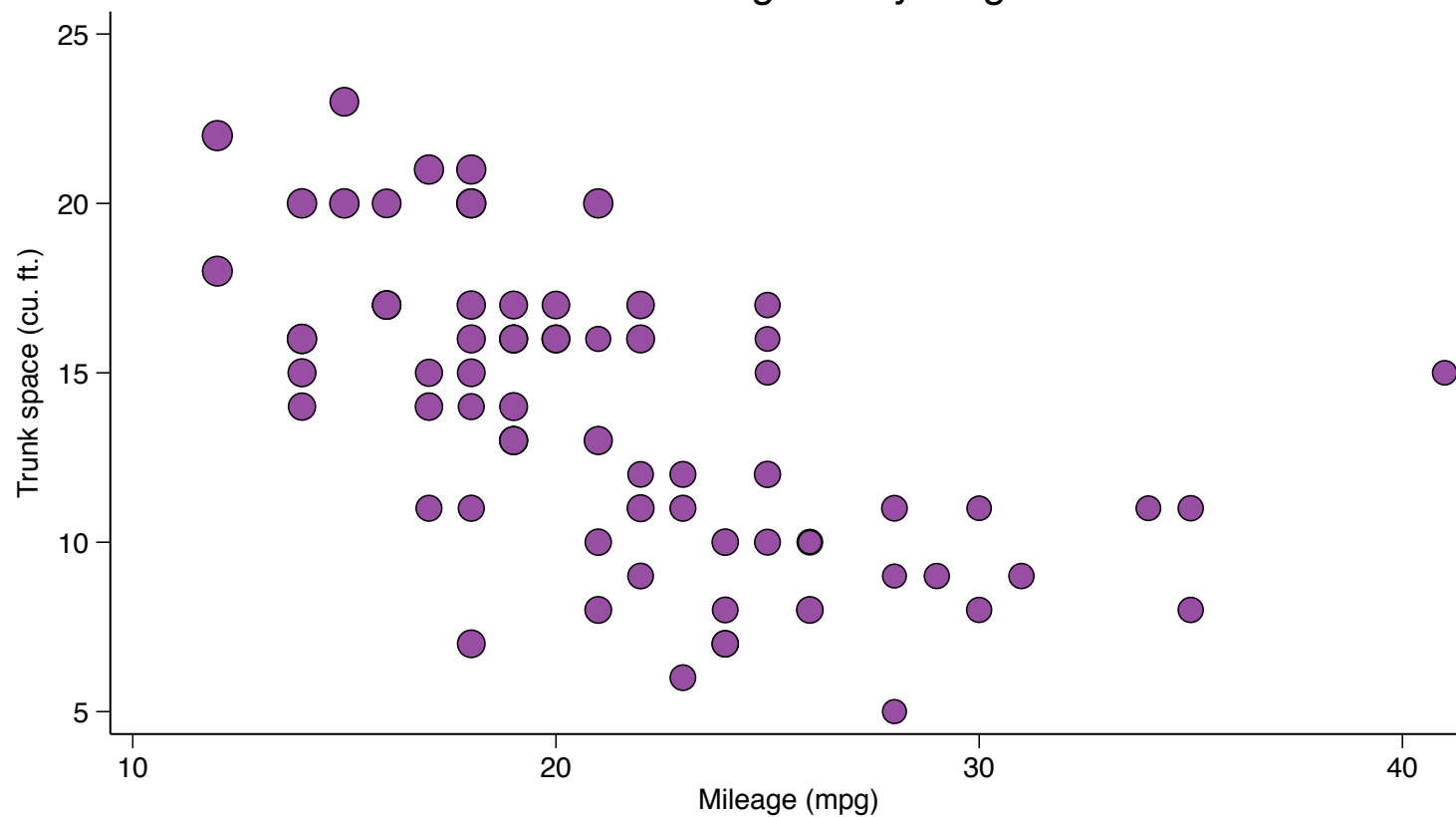
Joint Distribution of trunk and mpg and Points Sizes Weighted by turn



Created on: 29 Oct 2015 at: 15:37:59

Figure 1.140: Bubble Plot of Trunk space (cu. ft.), Mileage (mpg), and Length (in.)

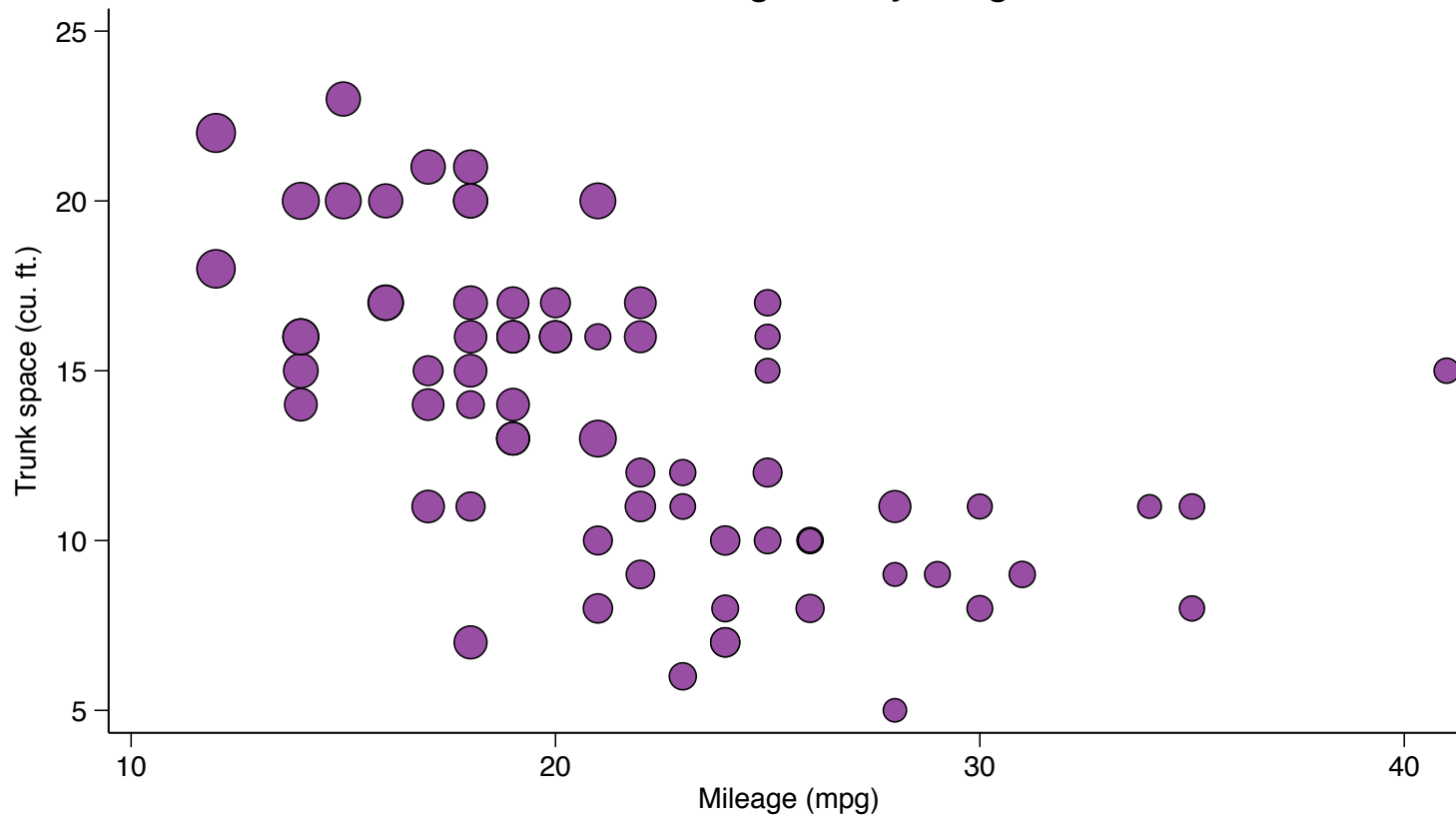
Joint Distribution of trunk and mpg and Points Sizes Weighted by length



Created on: 29 Oct 2015 at: 15:38:01

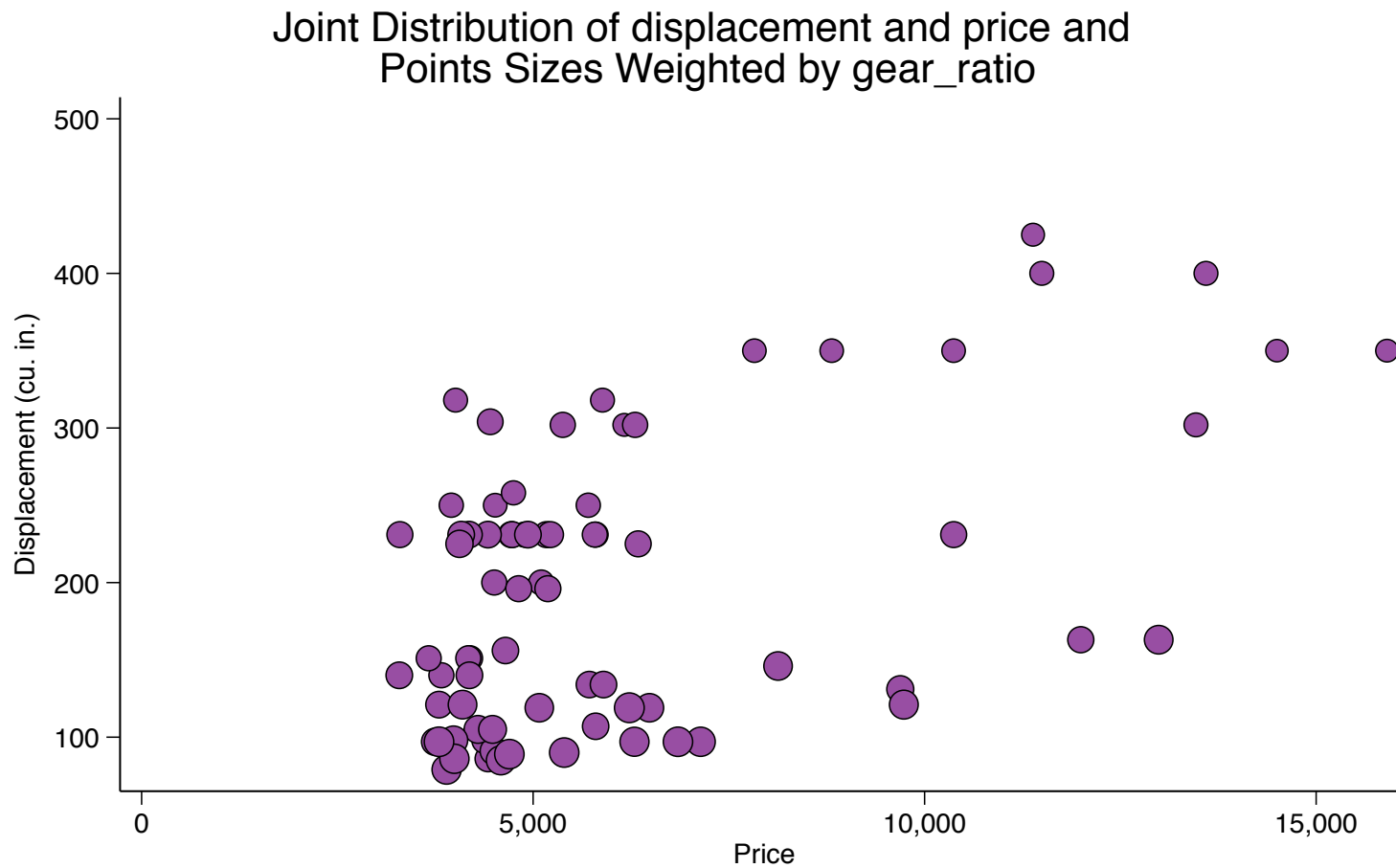
Figure 1.141: Bubble Plot of Trunk space (cu. ft.), Mileage (mpg), and Weight (lbs.)

Joint Distribution of trunk and mpg and Points Sizes Weighted by weight



Created on: 29 Oct 2015 at: 15:38:03

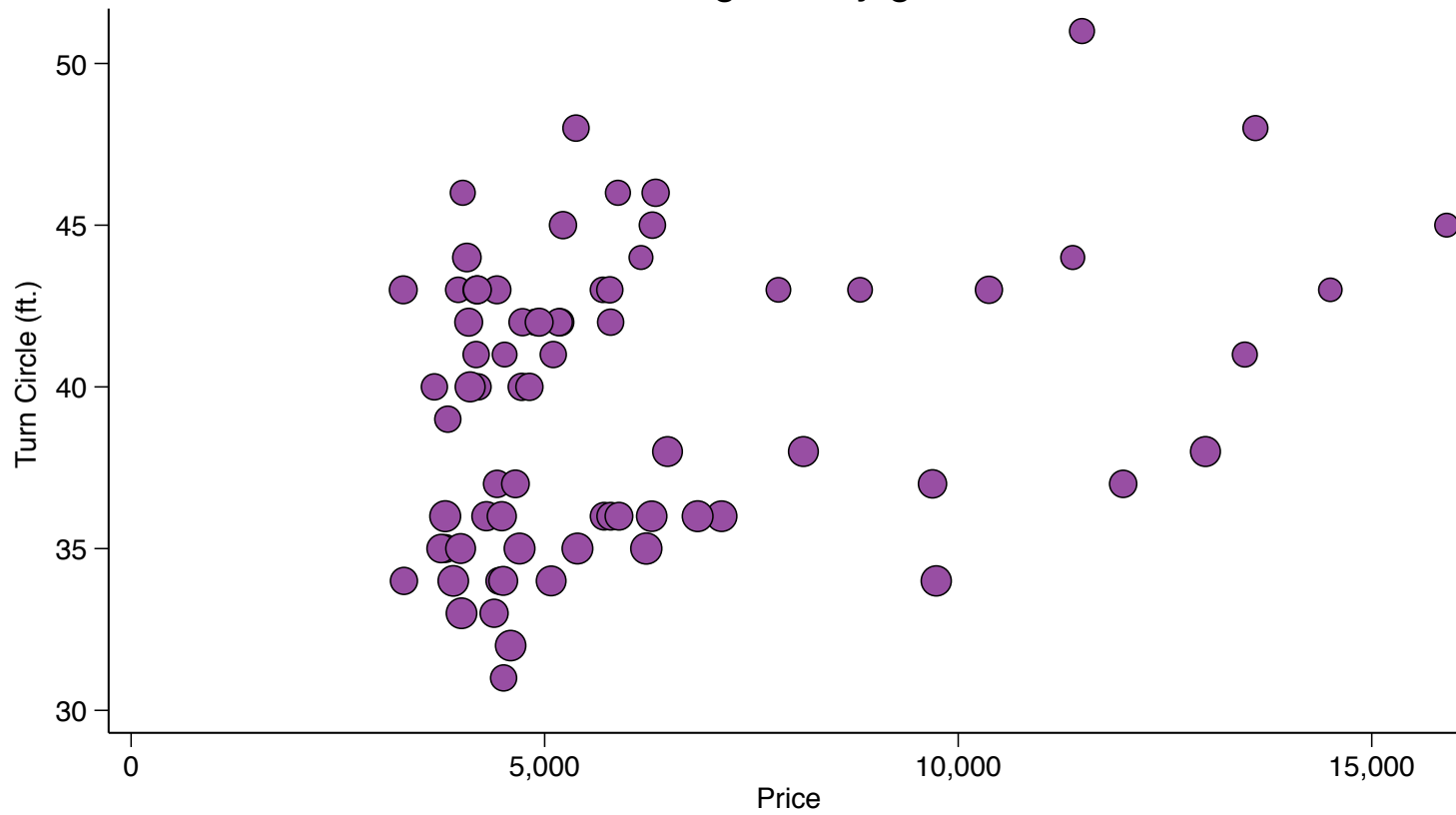
Figure 1.142: Bubble Plot of Displacement (cu. in.), Price, and Gear Ratio



Created on: 29 Oct 2015 at: 15:38:05

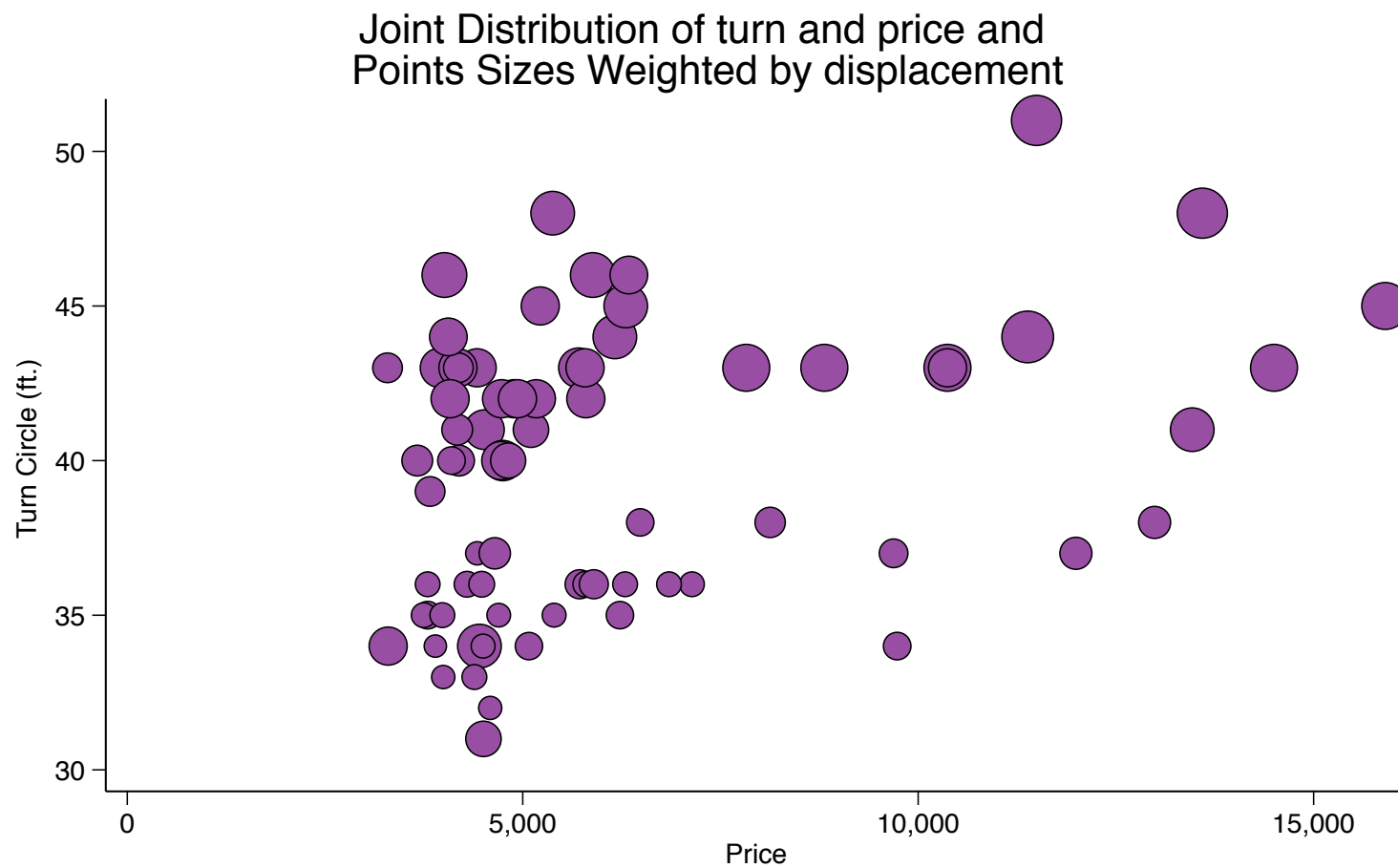
Figure 1.143: Bubble Plot of Turn Circle (ft.), Price, and Gear Ratio

Joint Distribution of turn and price and
Points Sizes Weighted by gear_ratio



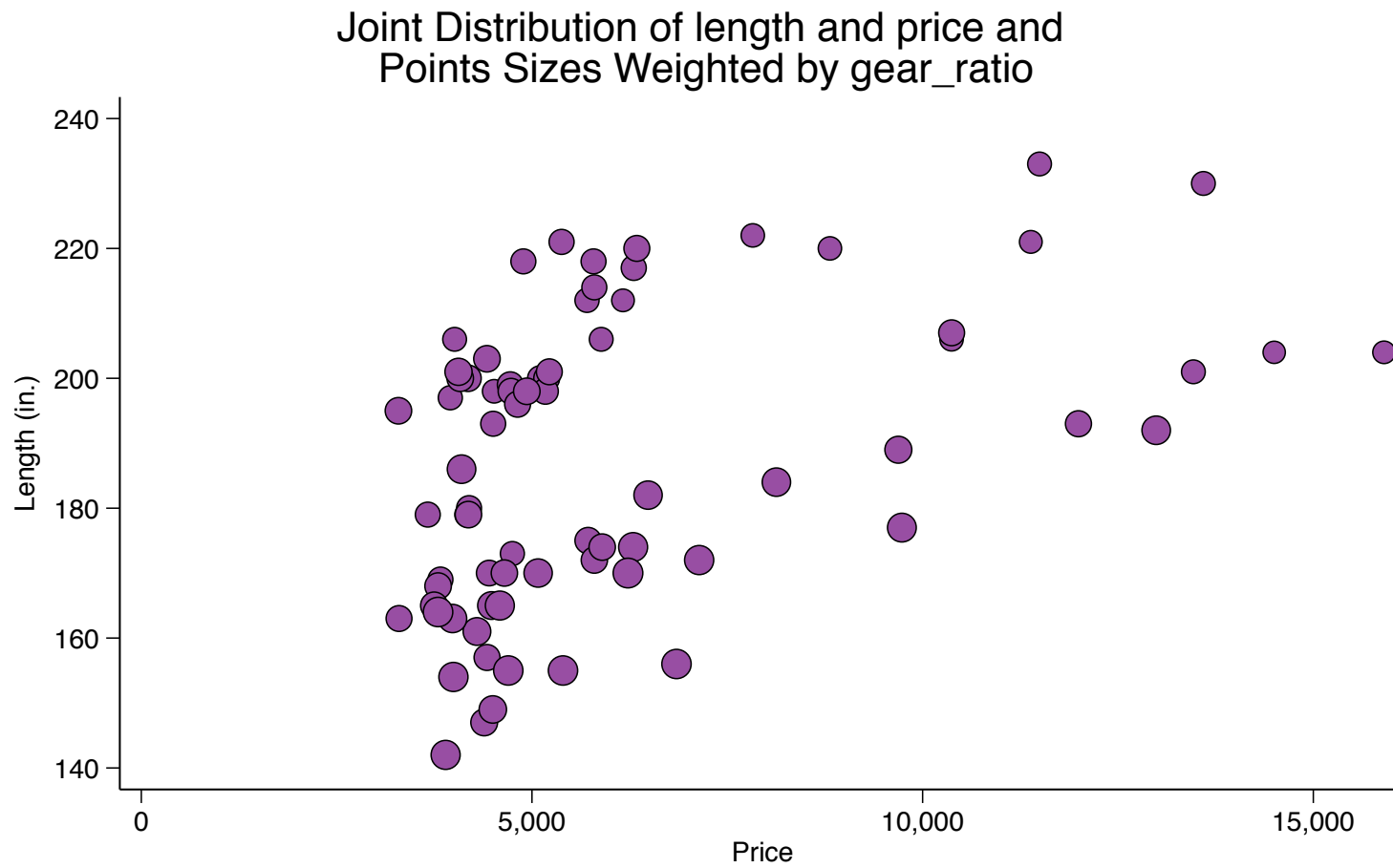
Created on: 29 Oct 2015 at: 15:38:07

Figure 1.144: Bubble Plot of Turn Circle (ft.), Price, and Displacement (cu. in.)



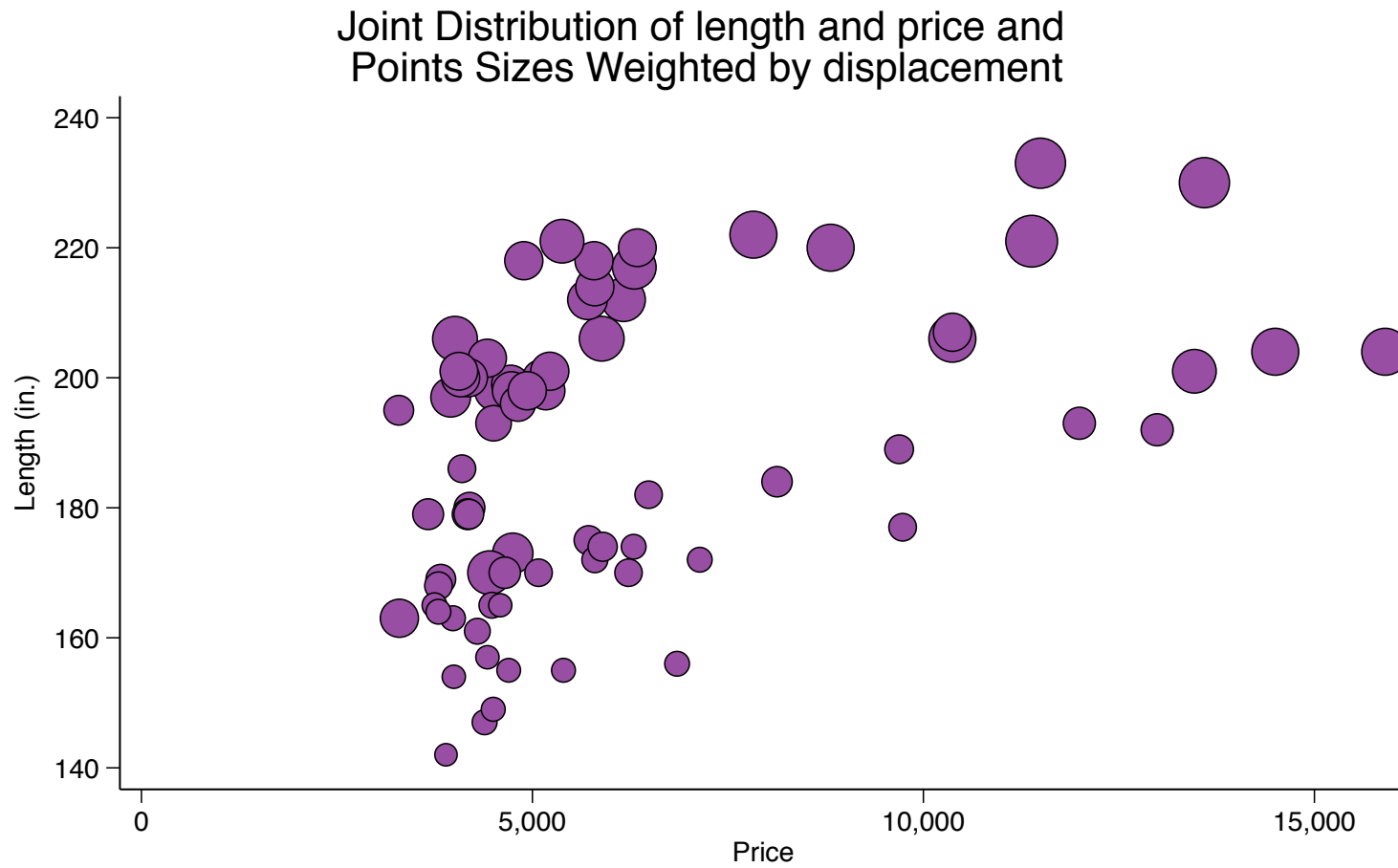
Created on: 29 Oct 2015 at: 15:38:09

Figure 1.145: Bubble Plot of Length (in.), Price, and Gear Ratio



Created on: 29 Oct 2015 at: 15:38:11

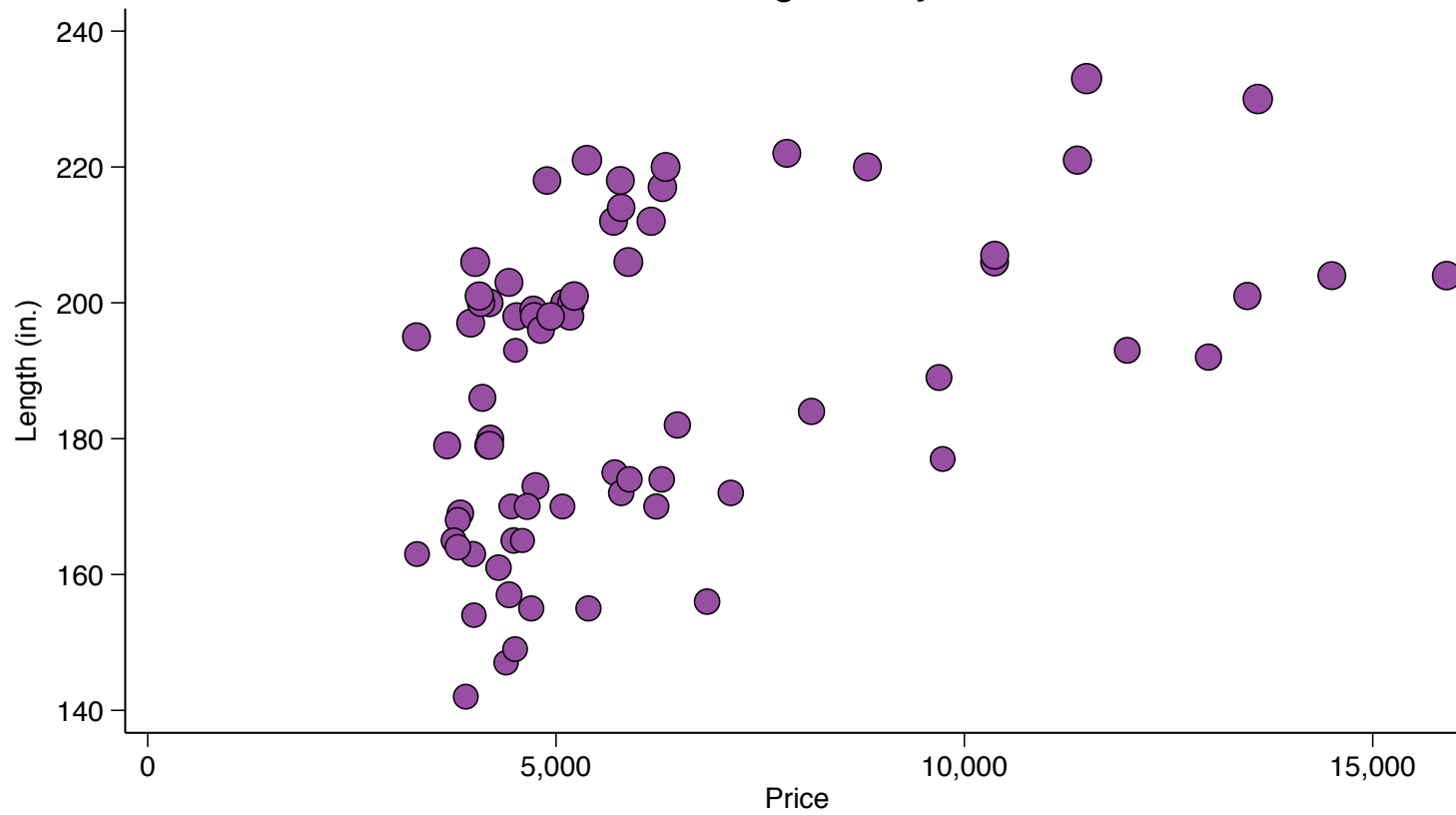
Figure 1.146: Bubble Plot of Length (in.), Price, and Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:38:13

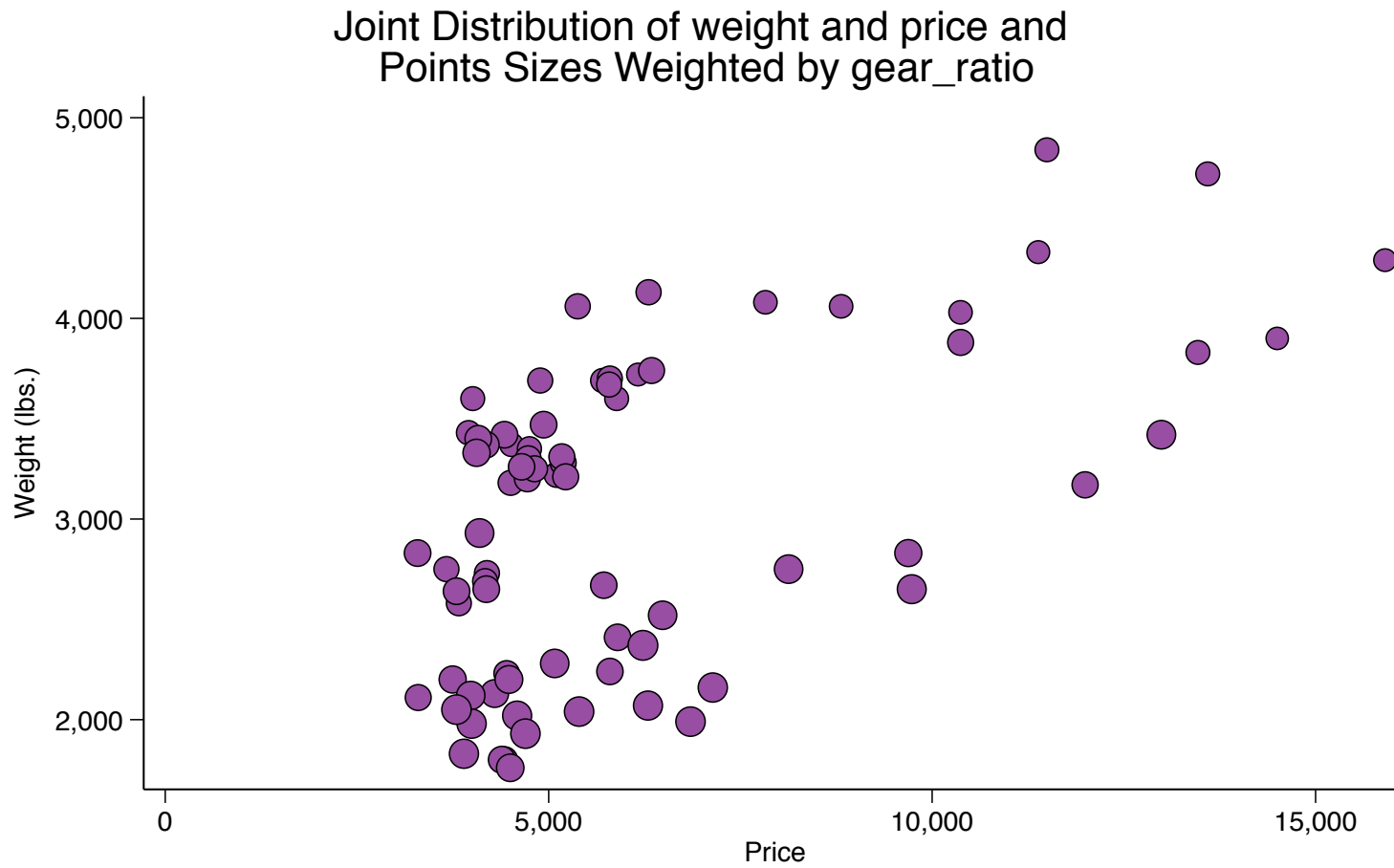
Figure 1.147: Bubble Plot of Length (in.), Price, and Turn Circle (ft.)

Joint Distribution of length and price and Points Sizes Weighted by turn



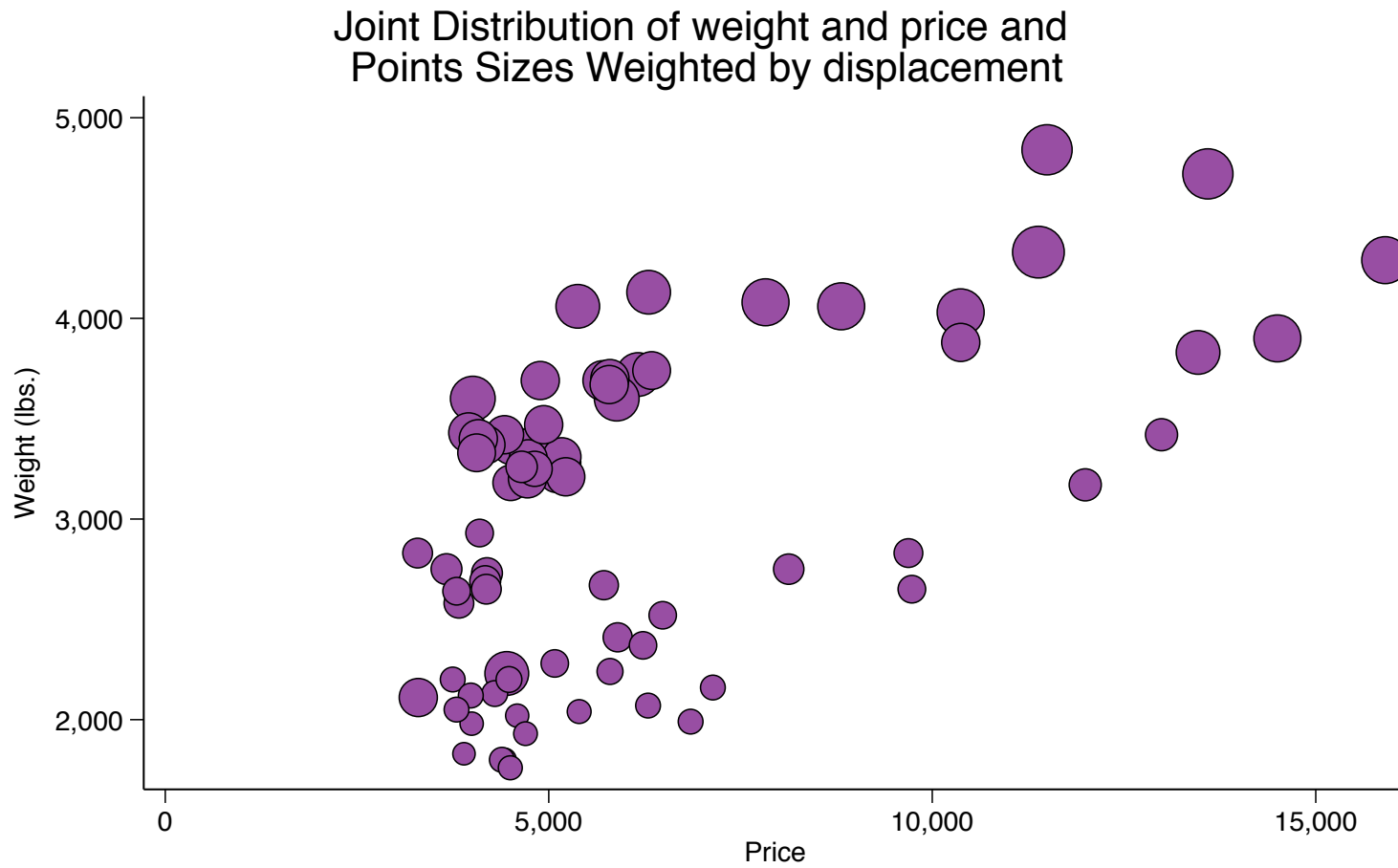
Created on: 29 Oct 2015 at: 15:38:15

Figure 1.148: Bubble Plot of Weight (lbs.), Price, and Gear Ratio



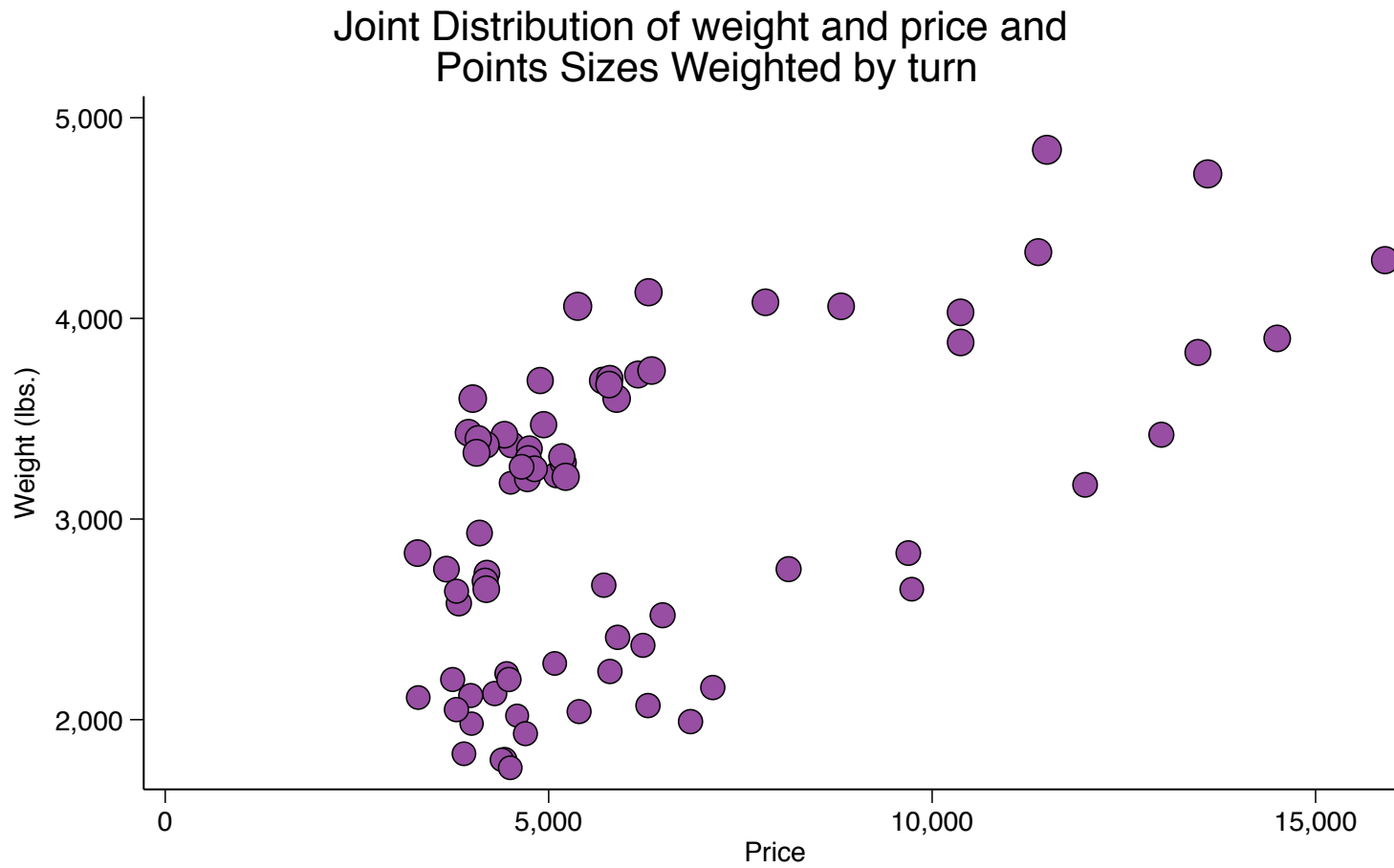
Created on: 29 Oct 2015 at: 15:38:17

Figure 1.149: Bubble Plot of Weight (lbs.), Price, and Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:38:19

Figure 1.150: Bubble Plot of Weight (lbs.), Price, and Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:38:21

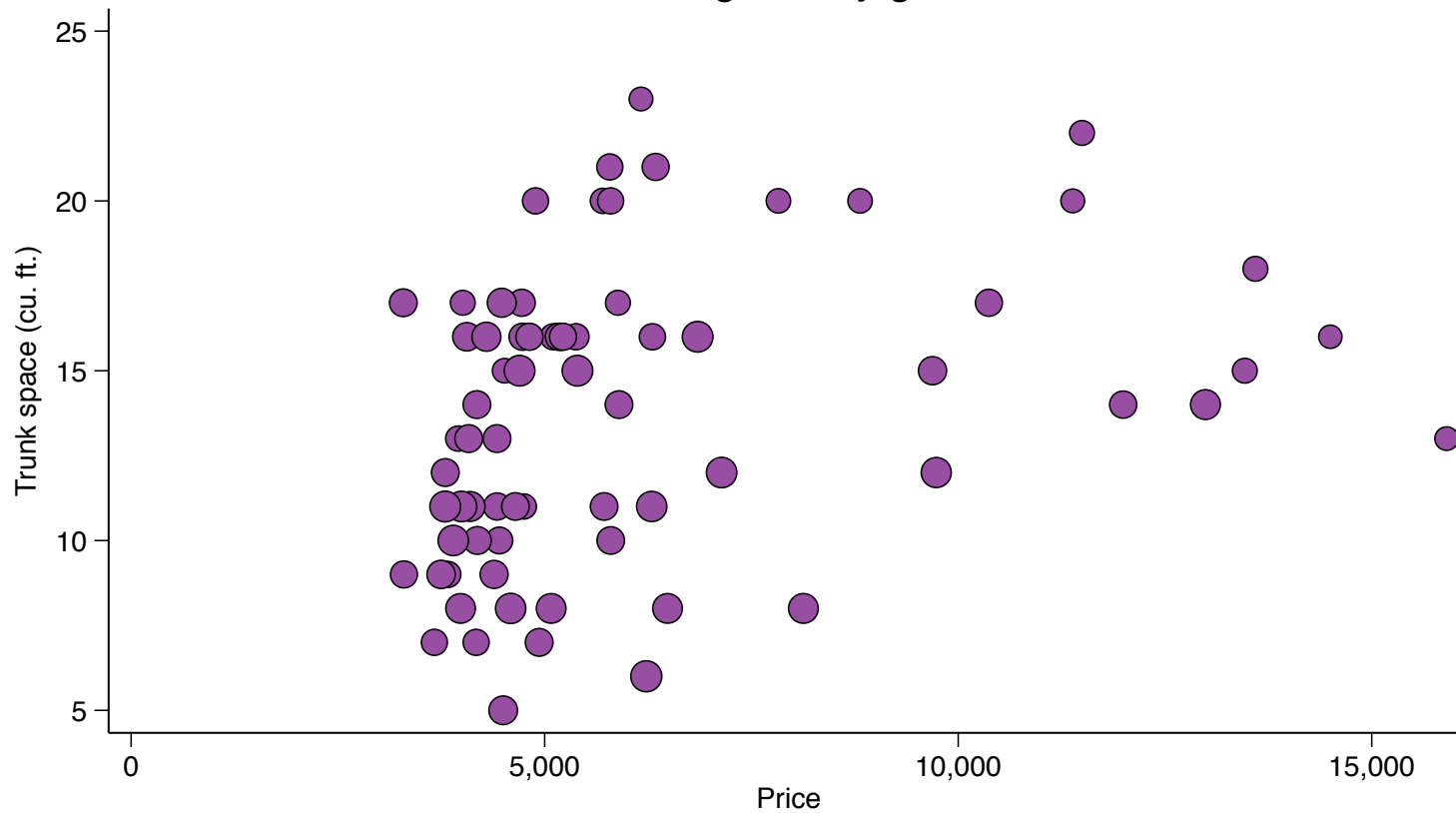
Figure 1.151: Bubble Plot of Weight (lbs.), Price, and Length (in.)



Created on: 29 Oct 2015 at: 15:38:23

Figure 1.152: Bubble Plot of Trunk space (cu. ft.), Price, and Gear Ratio

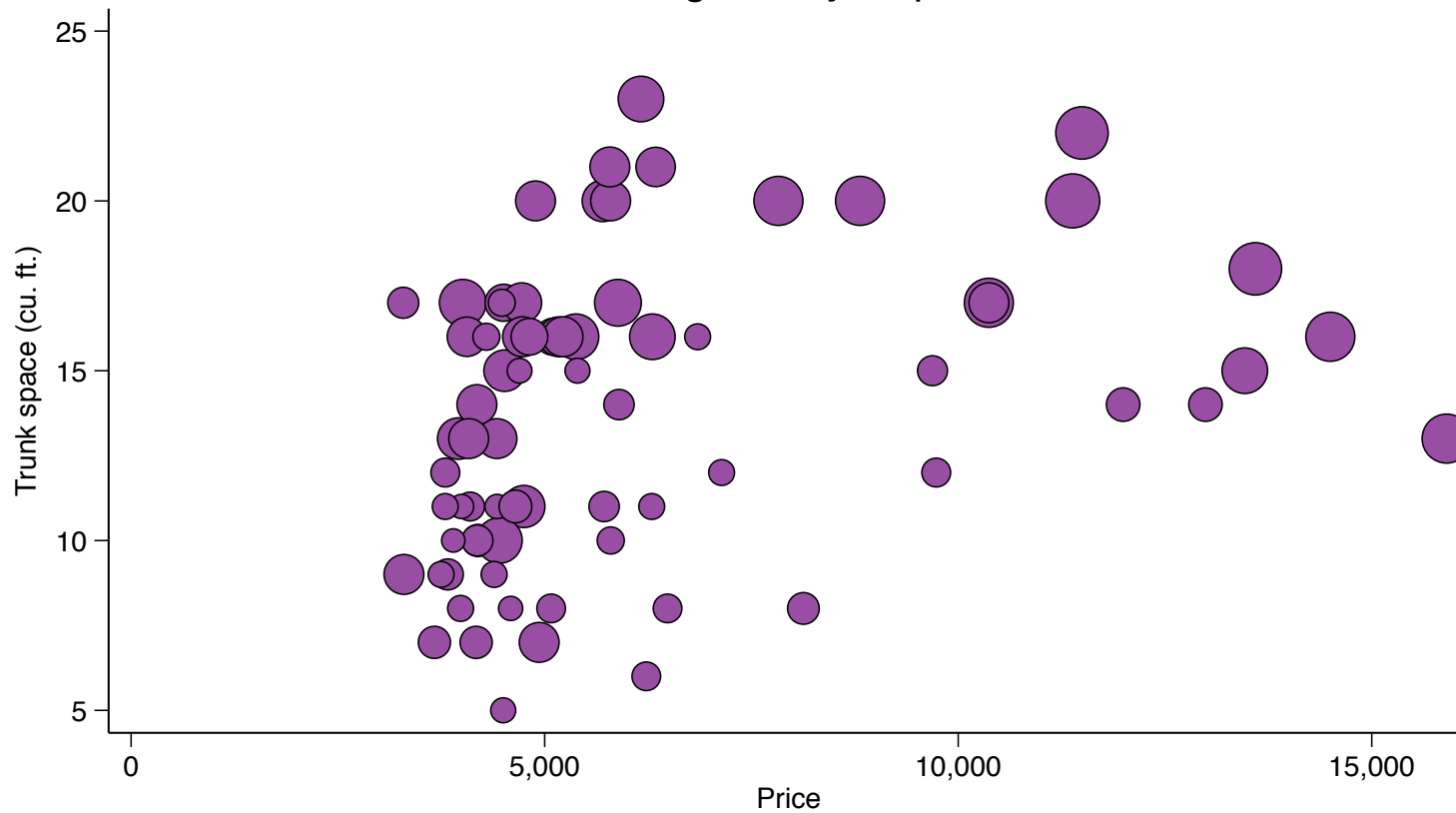
Joint Distribution of trunk and price and
Points Sizes Weighted by gear_ratio



Created on: 29 Oct 2015 at: 15:38:26

Figure 1.153: Bubble Plot of Trunk space (cu. ft.), Price, and Displacement (cu. in.)

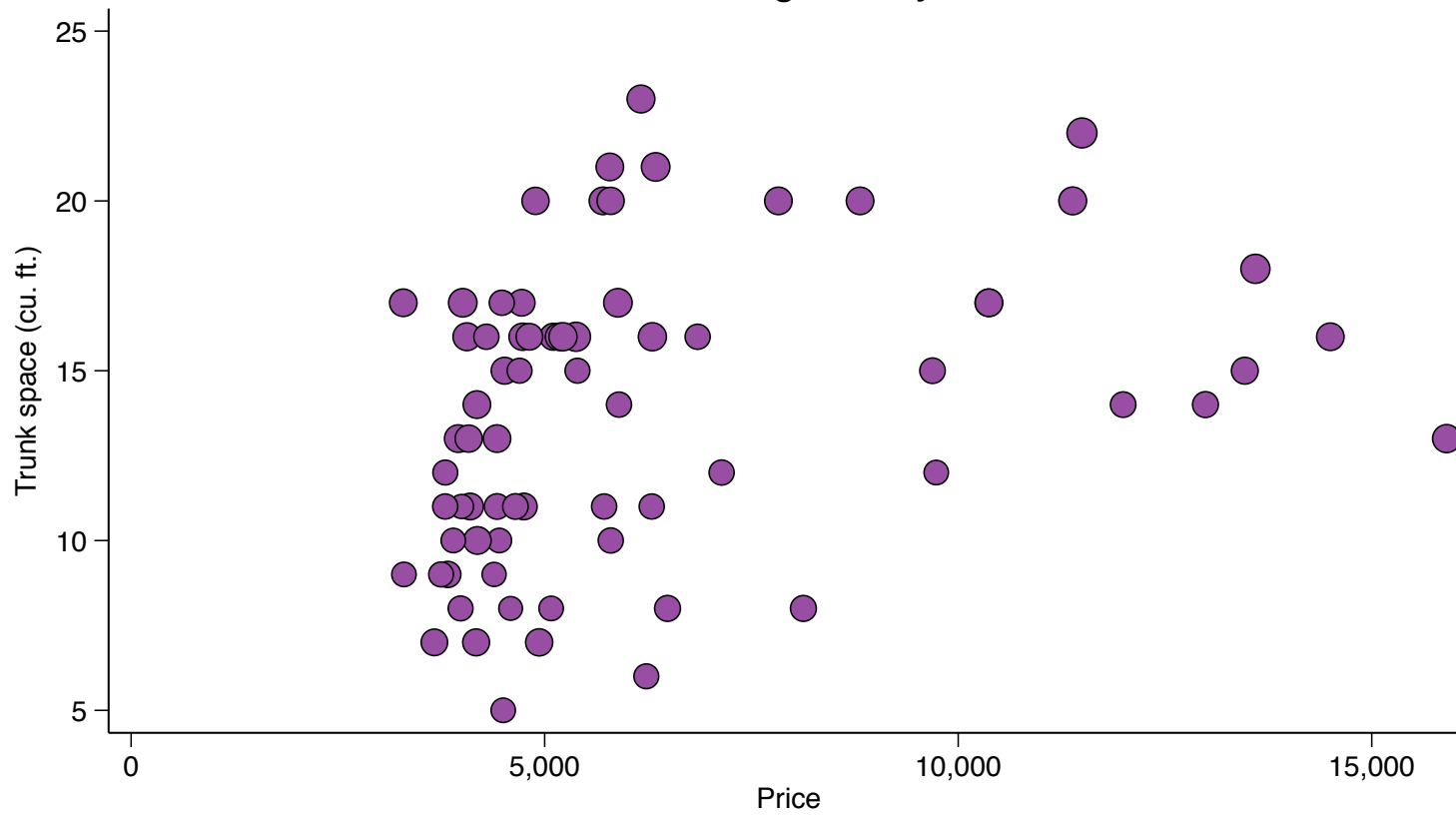
Joint Distribution of trunk and price and
Points Sizes Weighted by displacement



Created on: 29 Oct 2015 at: 15:38:28

Figure 1.154: Bubble Plot of Trunk space (cu. ft.), Price, and Turn Circle (ft.)

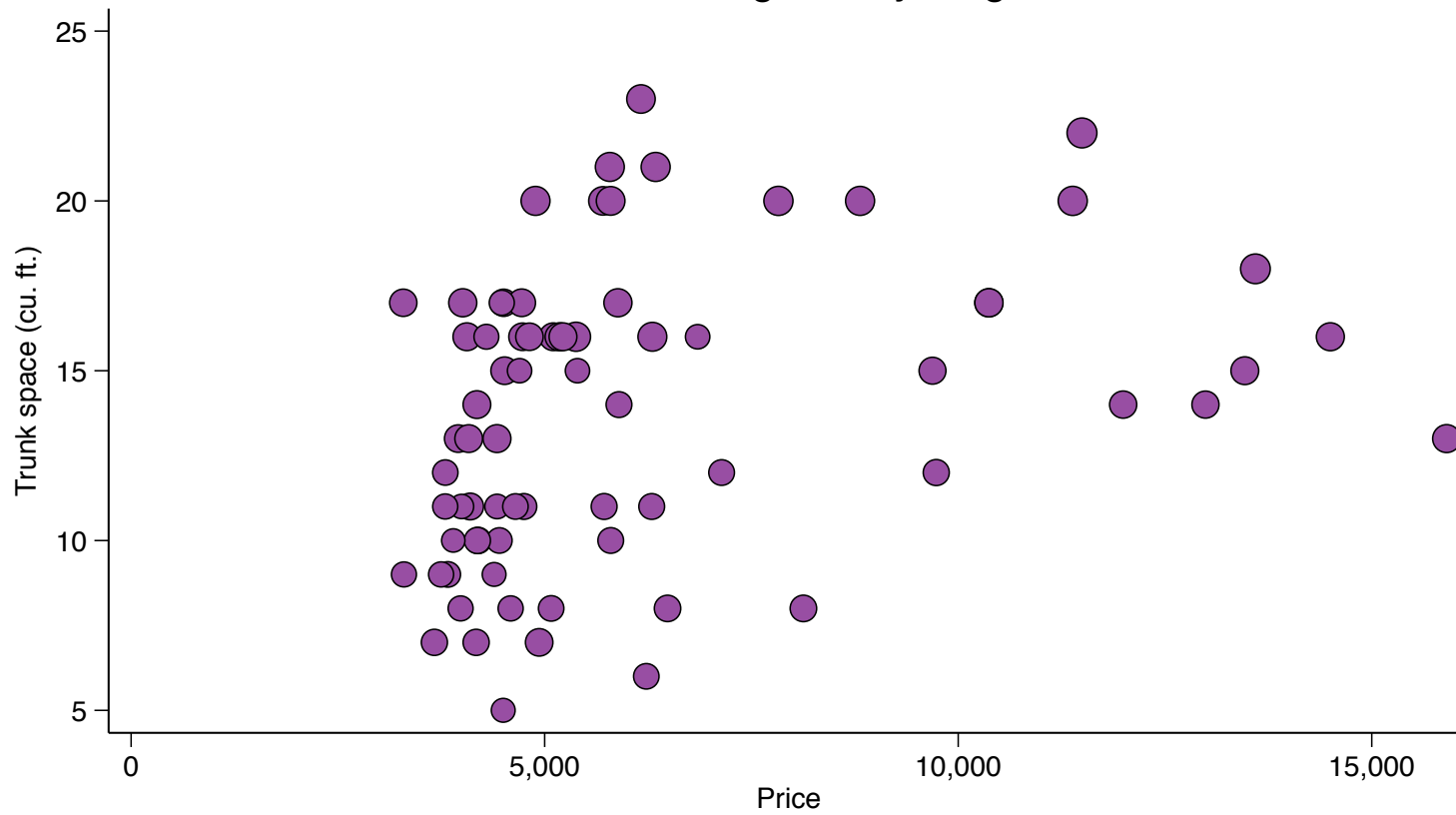
Joint Distribution of trunk and price and Points Sizes Weighted by turn



Created on: 29 Oct 2015 at: 15:38:30

Figure 1.155: Bubble Plot of Trunk space (cu. ft.), Price, and Length (in.)

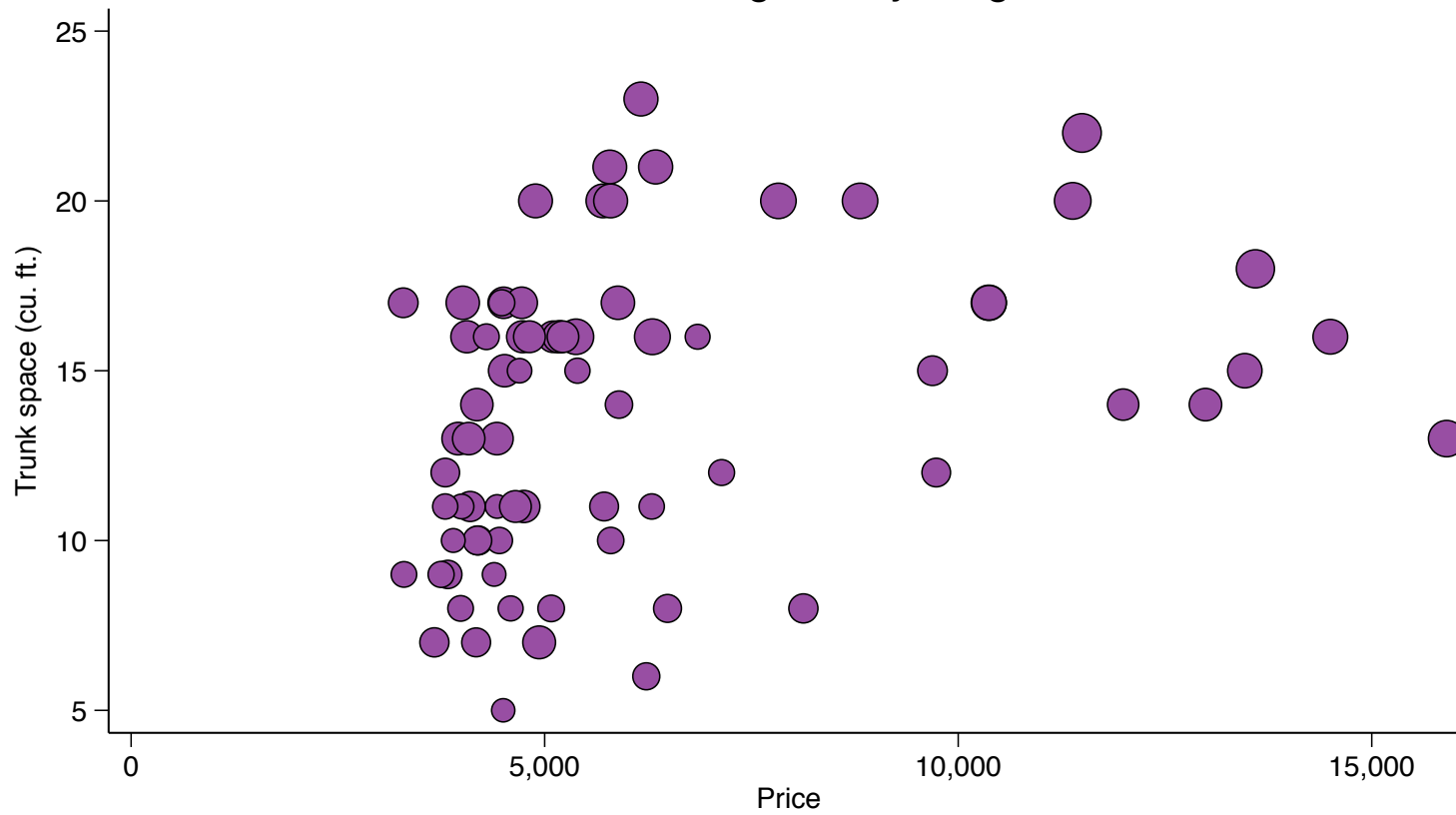
Joint Distribution of trunk and price and Points Sizes Weighted by length



Created on: 29 Oct 2015 at: 15:38:32

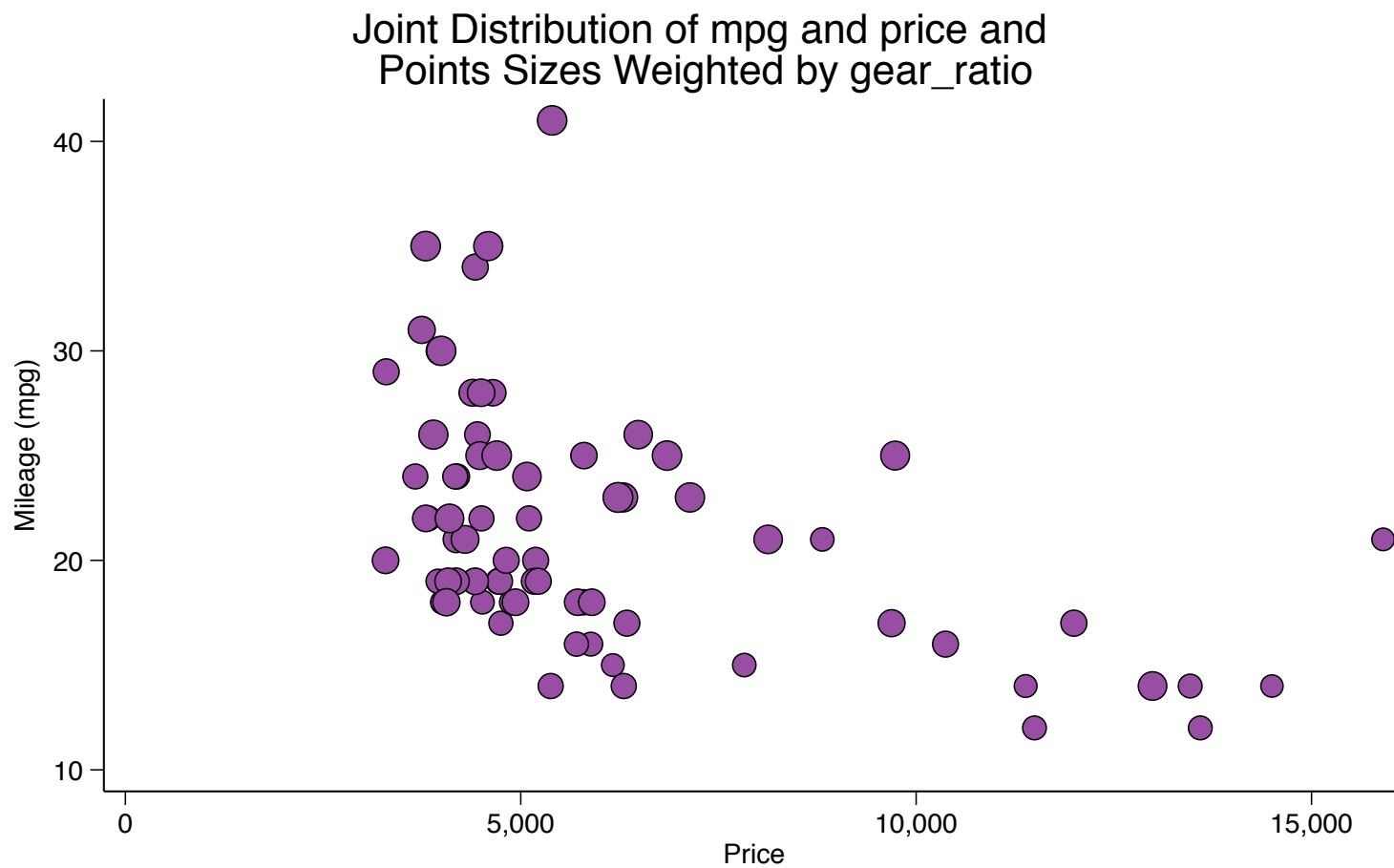
Figure 1.156: Bubble Plot of Trunk space (cu. ft.), Price, and Weight (lbs.)

Joint Distribution of trunk and price and Points Sizes Weighted by weight



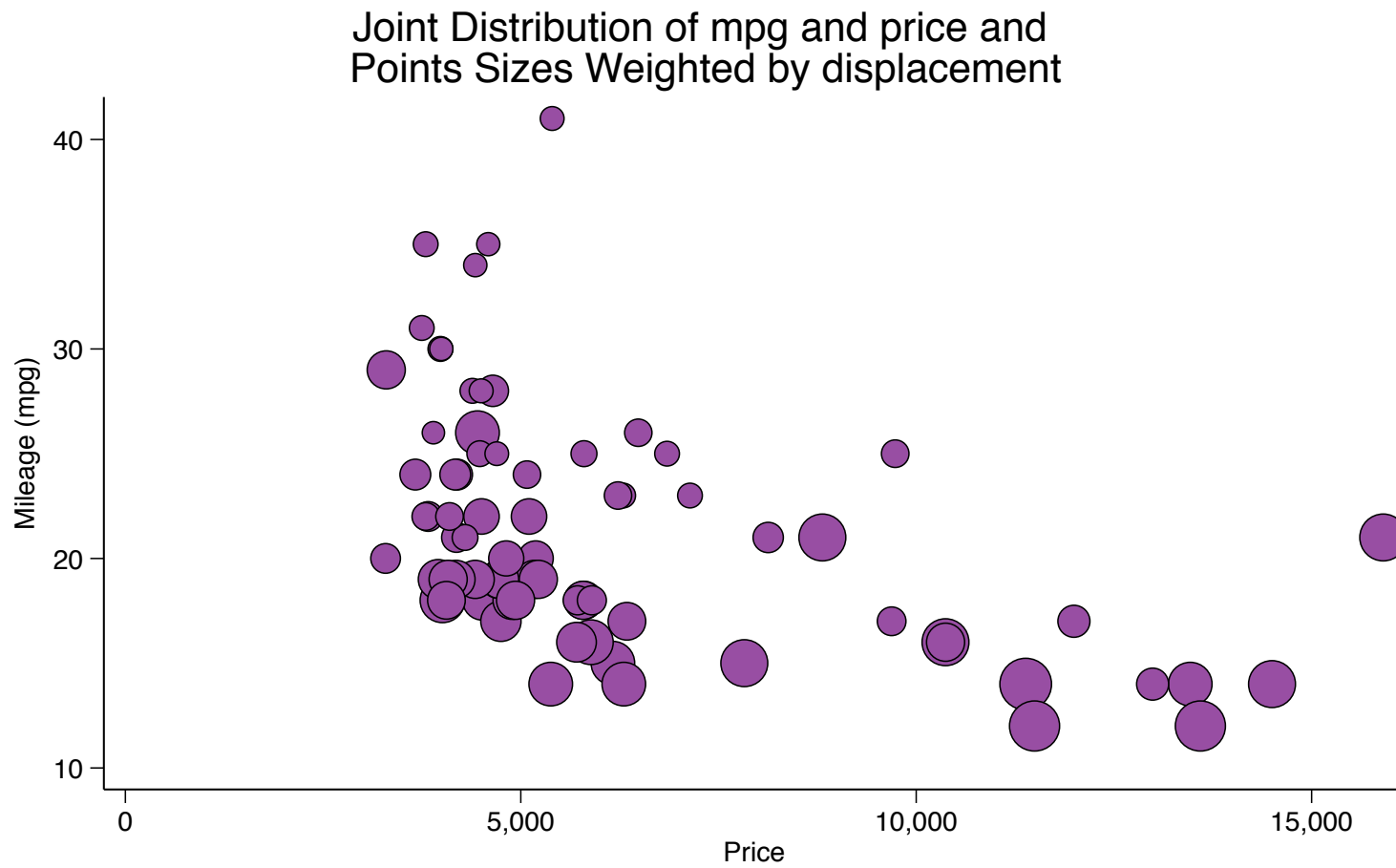
Created on: 29 Oct 2015 at: 15:38:34

Figure 1.157: Bubble Plot of Mileage (mpg), Price, and Gear Ratio



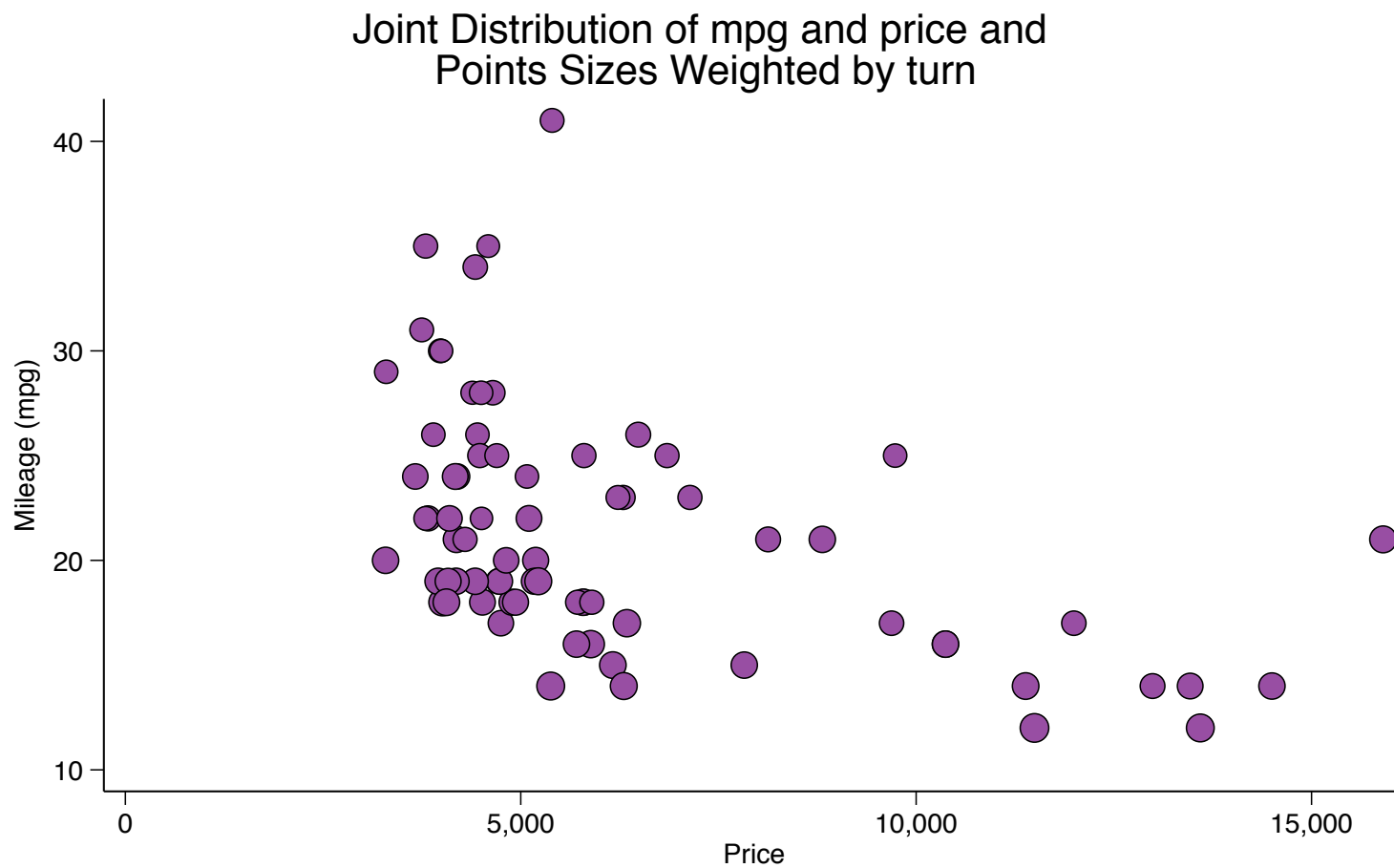
Created on: 29 Oct 2015 at: 15:38:36

Figure 1.158: Bubble Plot of Mileage (mpg), Price, and Displacement (cu. in.)



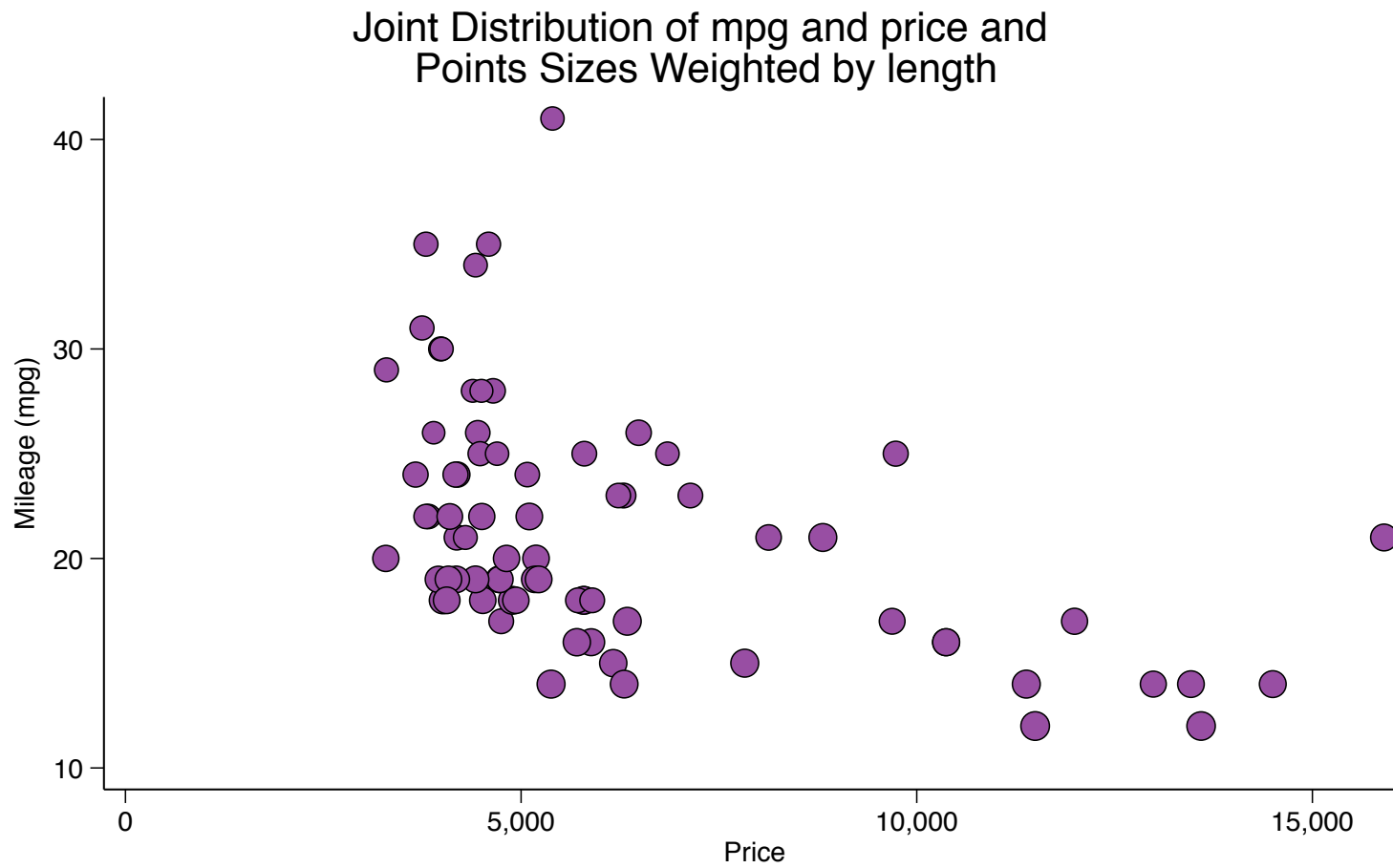
Created on: 29 Oct 2015 at: 15:38:38

Figure 1.159: Bubble Plot of Mileage (mpg), Price, and Turn Circle (ft.)



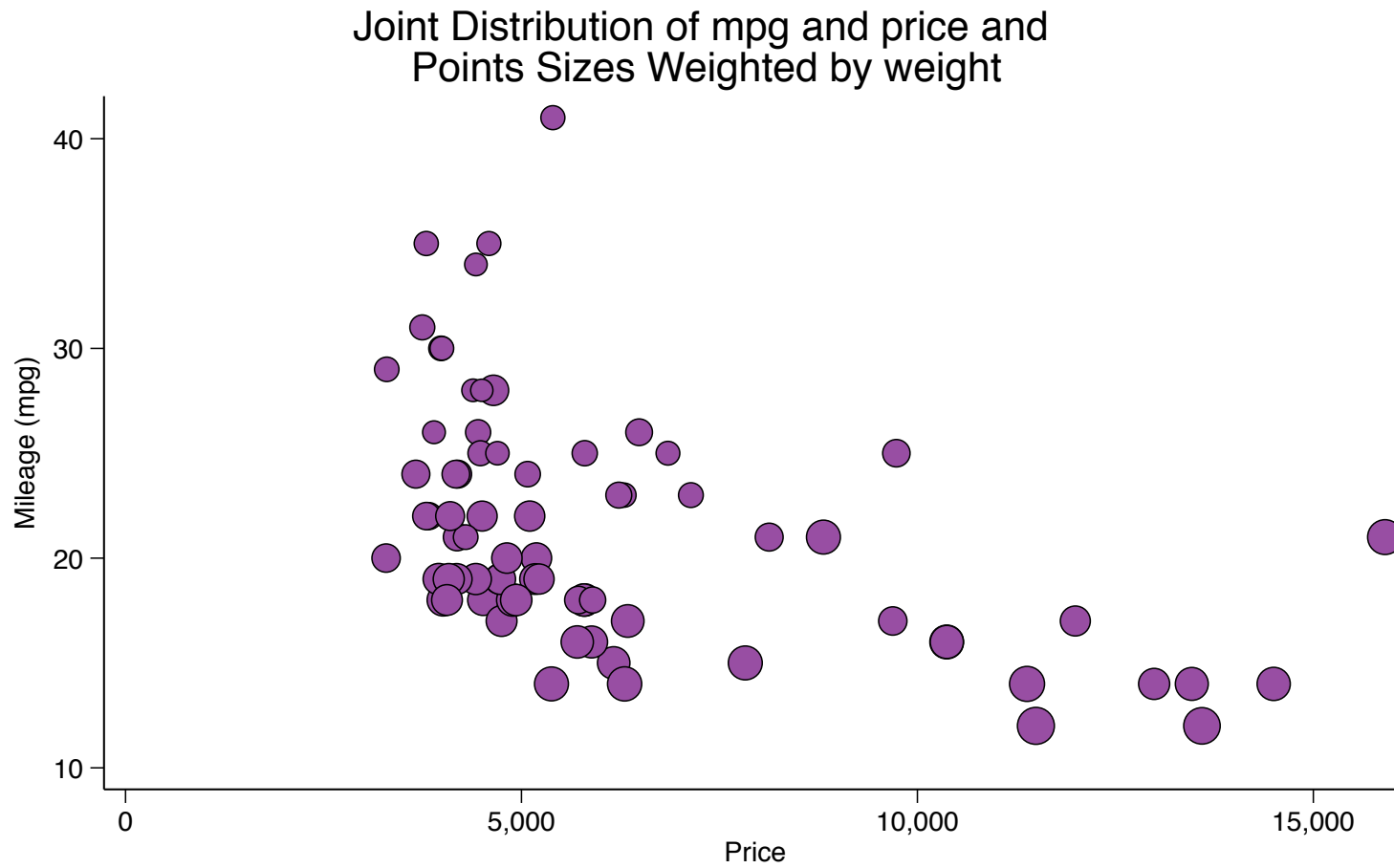
Created on: 29 Oct 2015 at: 15:38:40

Figure 1.160: Bubble Plot of Mileage (mpg), Price, and Length (in.)



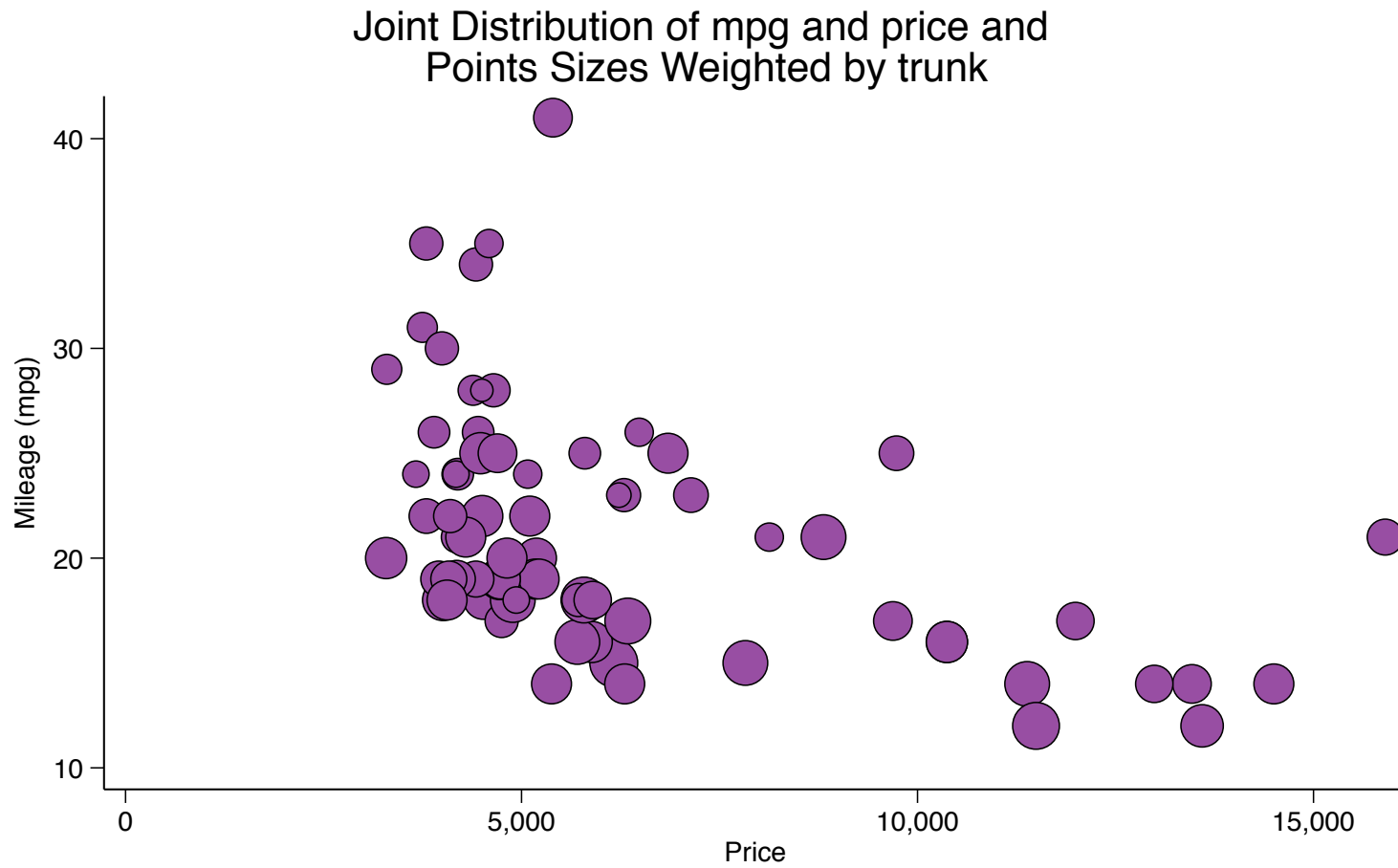
Created on: 29 Oct 2015 at: 15:38:42

Figure 1.161: Bubble Plot of Mileage (mpg), Price, and Weight (lbs.)



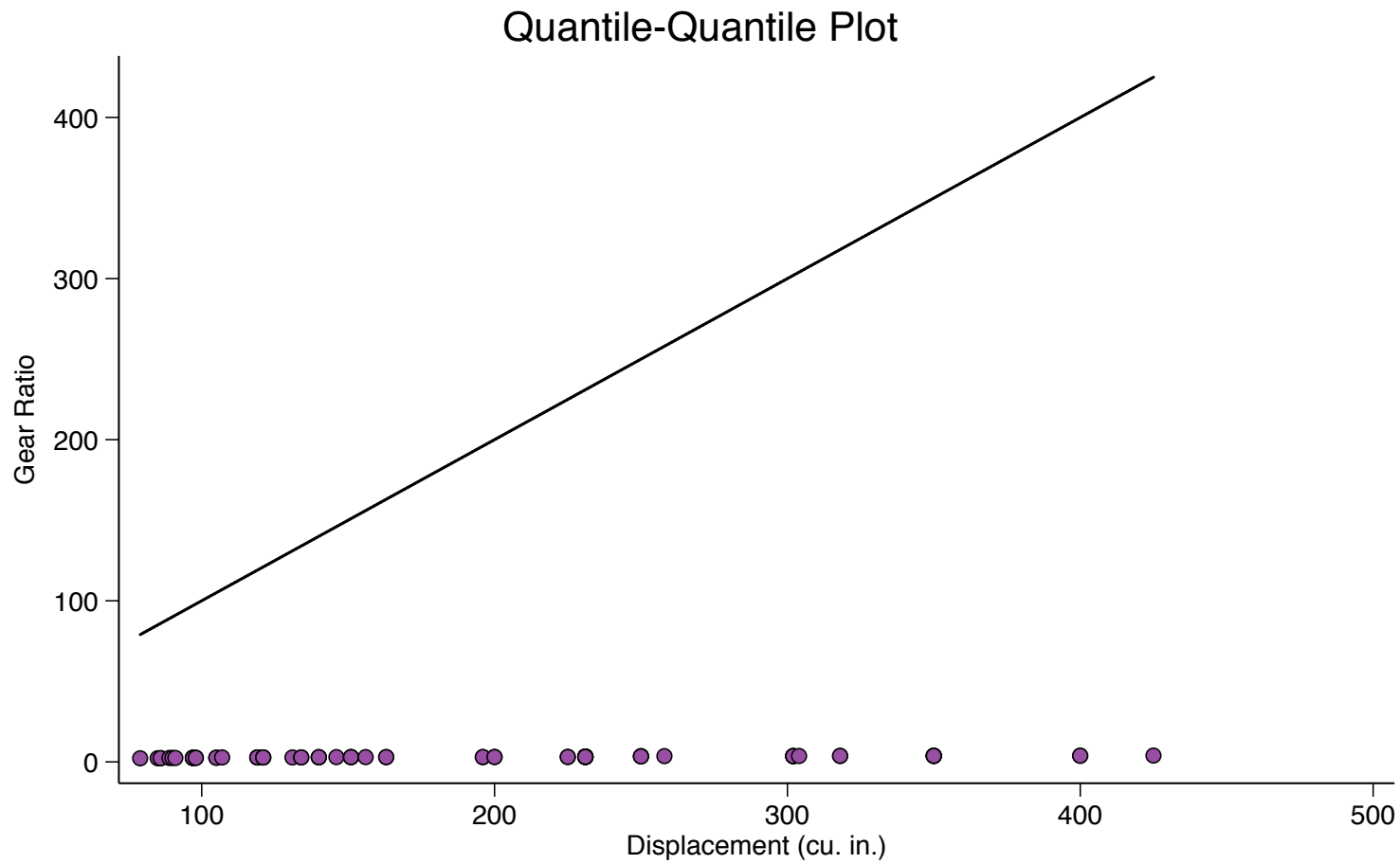
Created on: 29 Oct 2015 at: 15:38:43

Figure 1.162: Bubble Plot of Mileage (mpg), Price, and Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:38:45

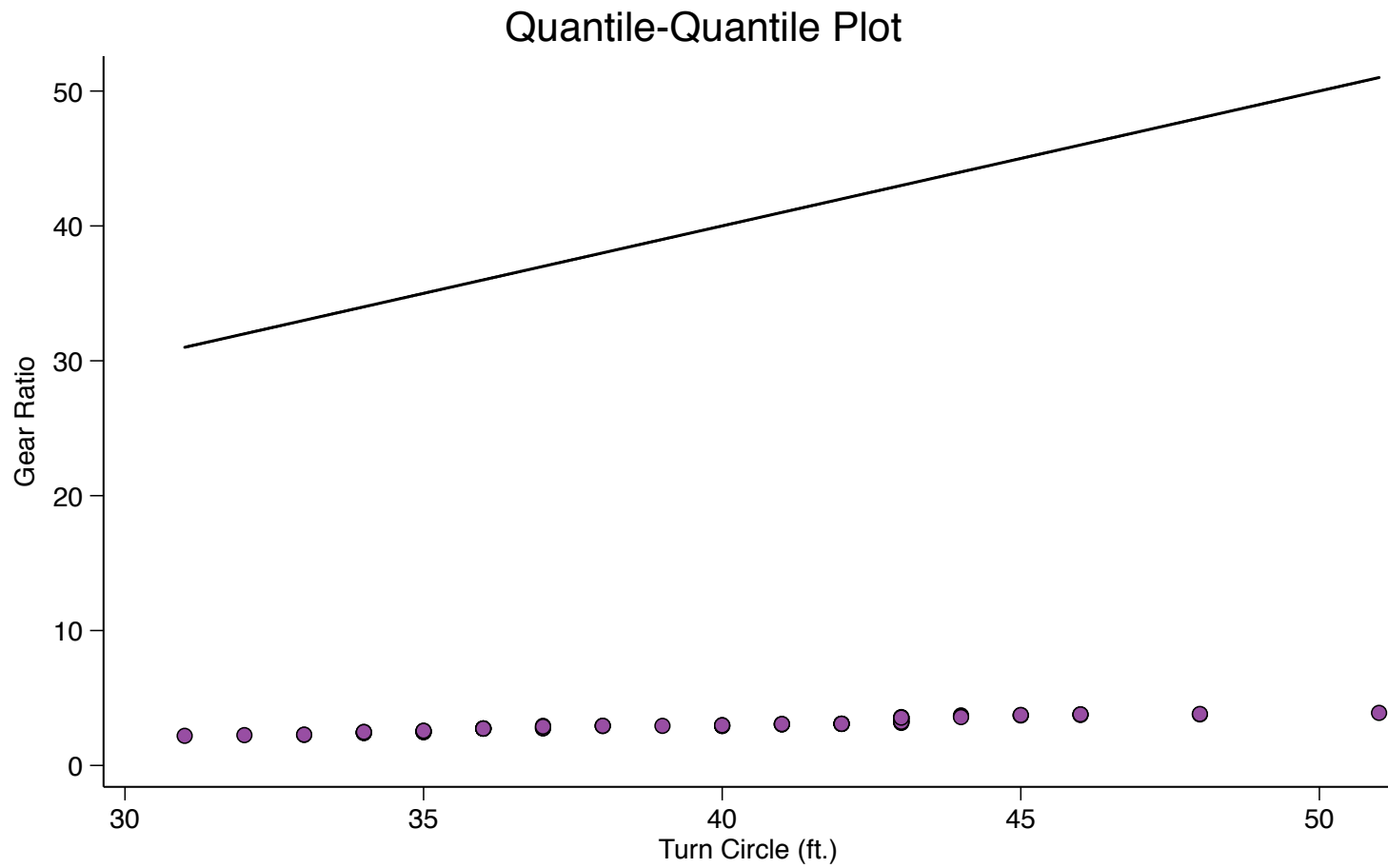
Figure 1.163: Quantiles of Gear Ratio vs Quantiles of Displacement (cu. in.)



Created on: 29 Oct 2015 at: 15:38:46

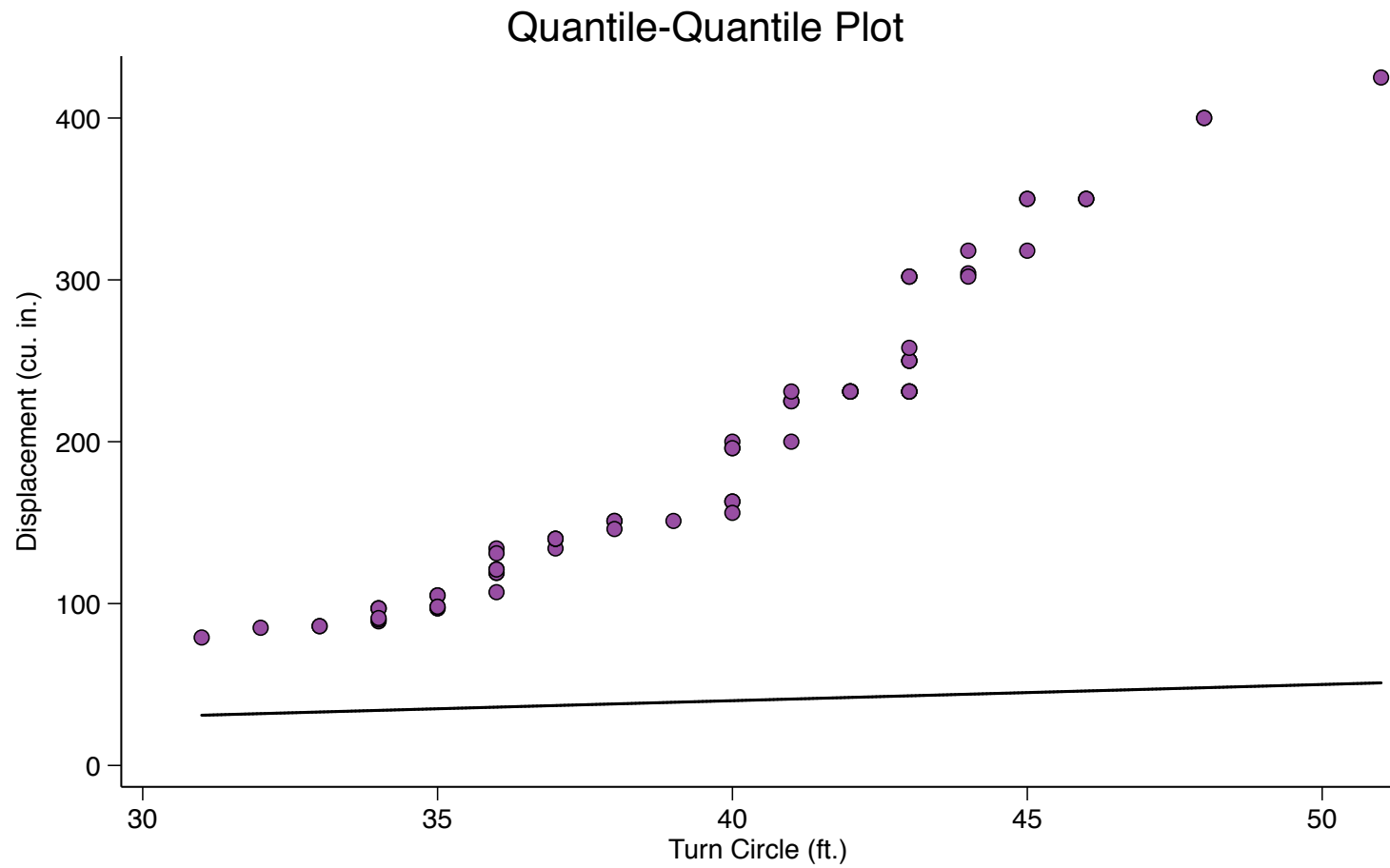
Quantile Quantile Plots.

Figure 1.164: Quantiles of Gear Ratio vs Quantiles of Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:38:48

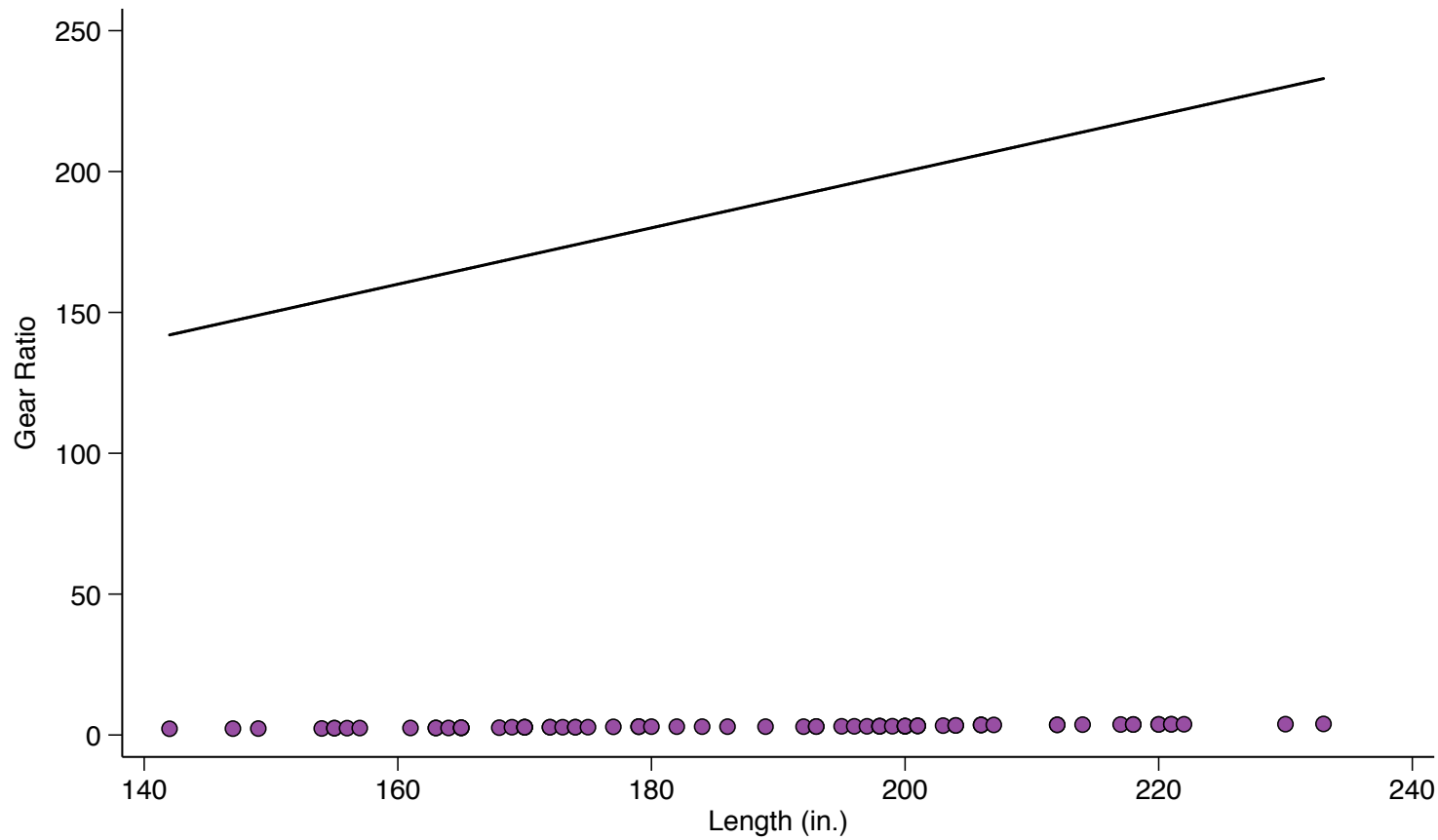
Figure 1.165: Quantiles of Displacement (cu. in.) vs Quantiles of Turn Circle (ft.)



Created on: 29 Oct 2015 at: 15:38:50

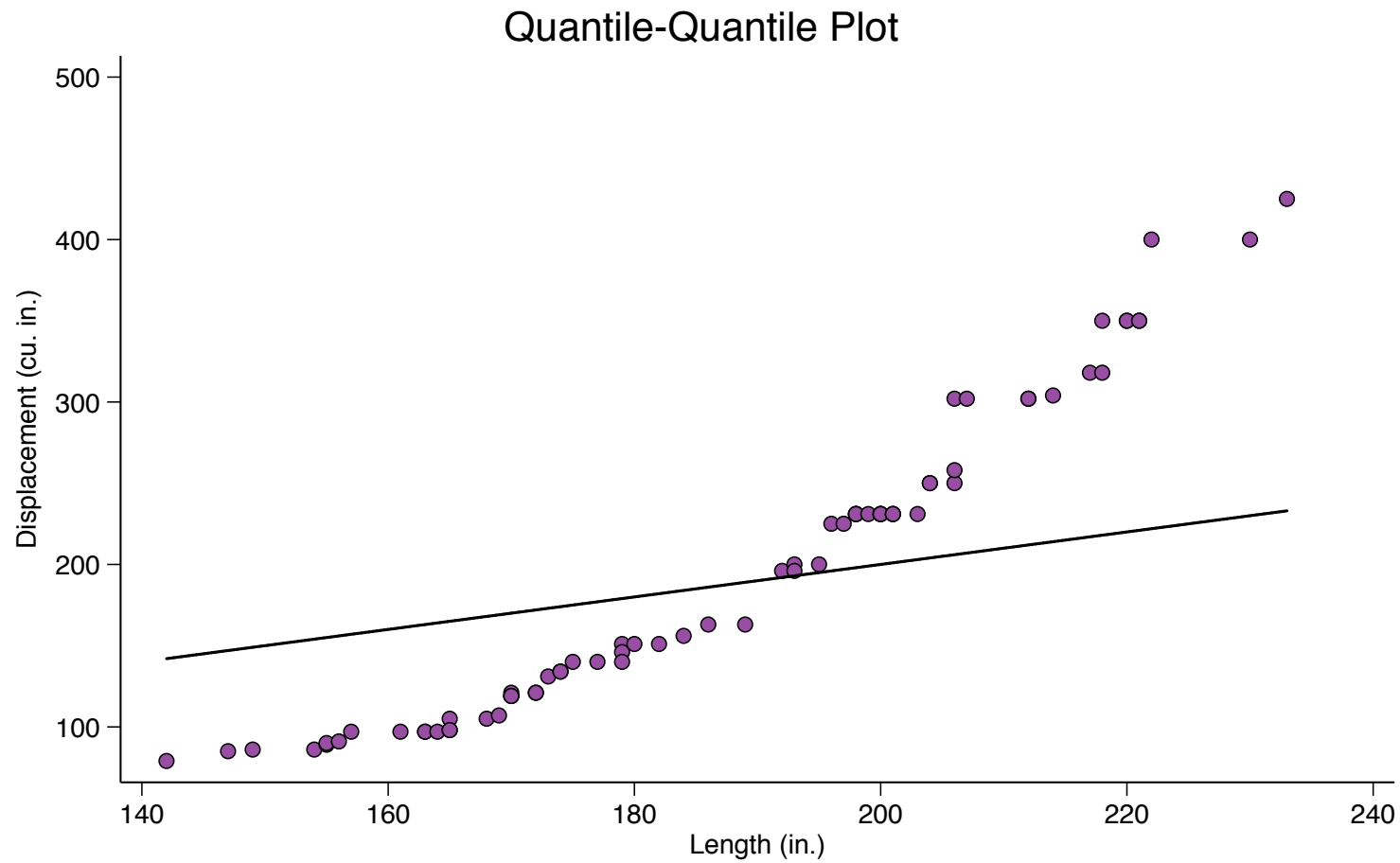
Figure 1.166: Quantiles of Gear Ratio vs Quantiles of Length (in.)

Quantile-Quantile Plot



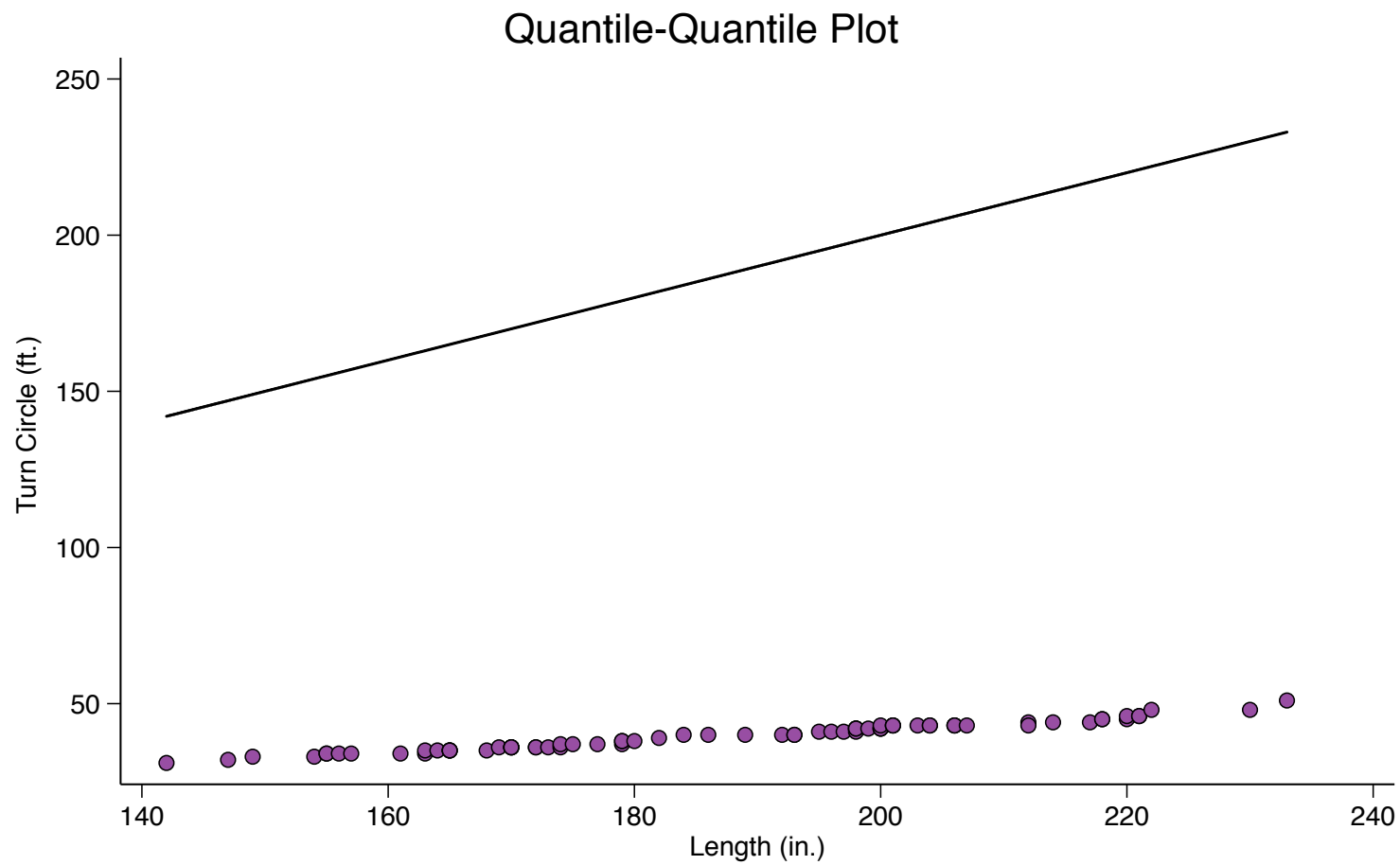
Created on: 29 Oct 2015 at: 15:38:51

Figure 1.167: Quantiles of Displacement (cu. in.) vs Quantiles of Length (in.)



Created on: 29 Oct 2015 at: 15:38:53

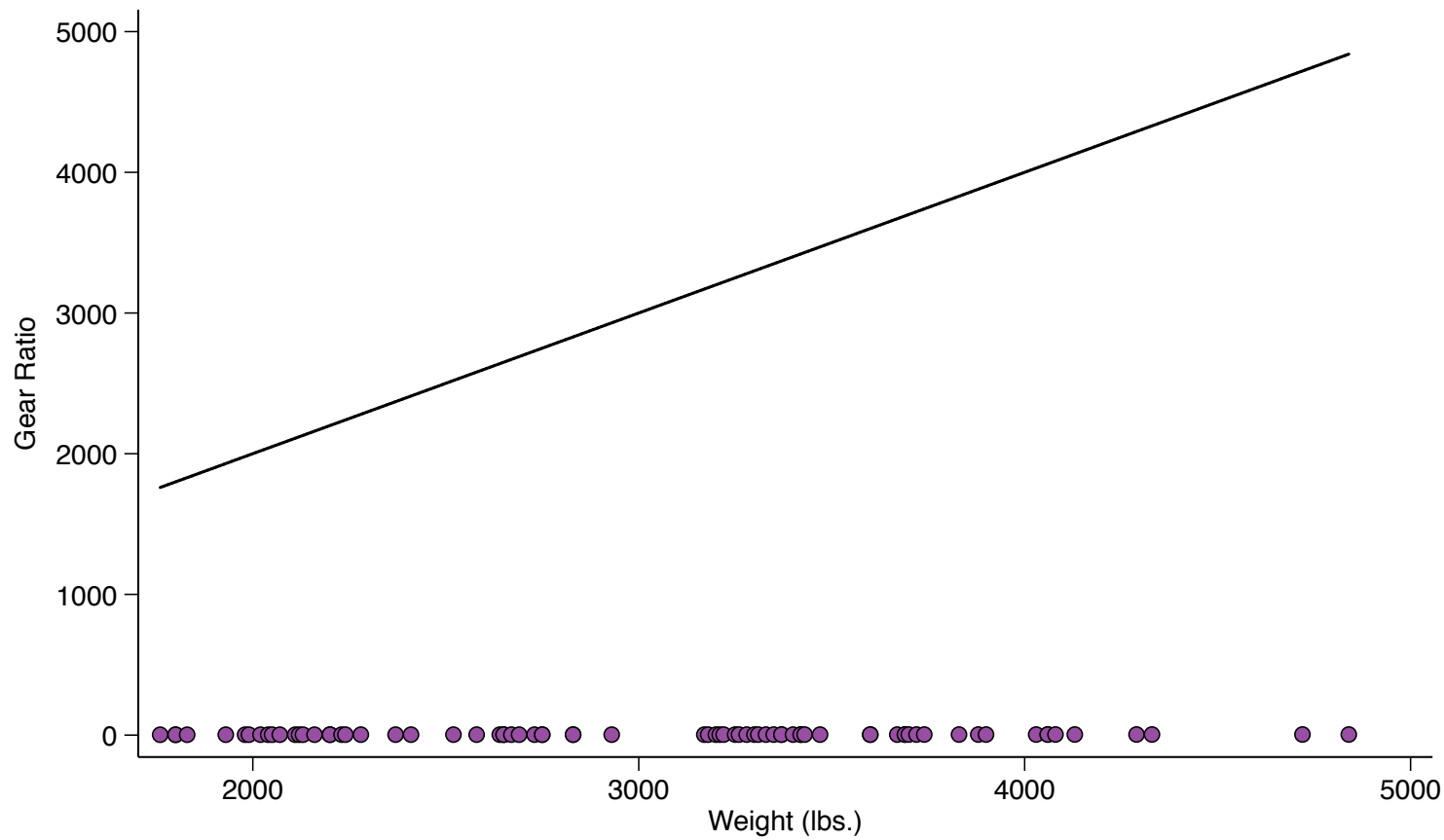
Figure 1.168: Quantiles of Turn Circle (ft.) vs Quantiles of Length (in.)



Created on: 29 Oct 2015 at: 15:38:55

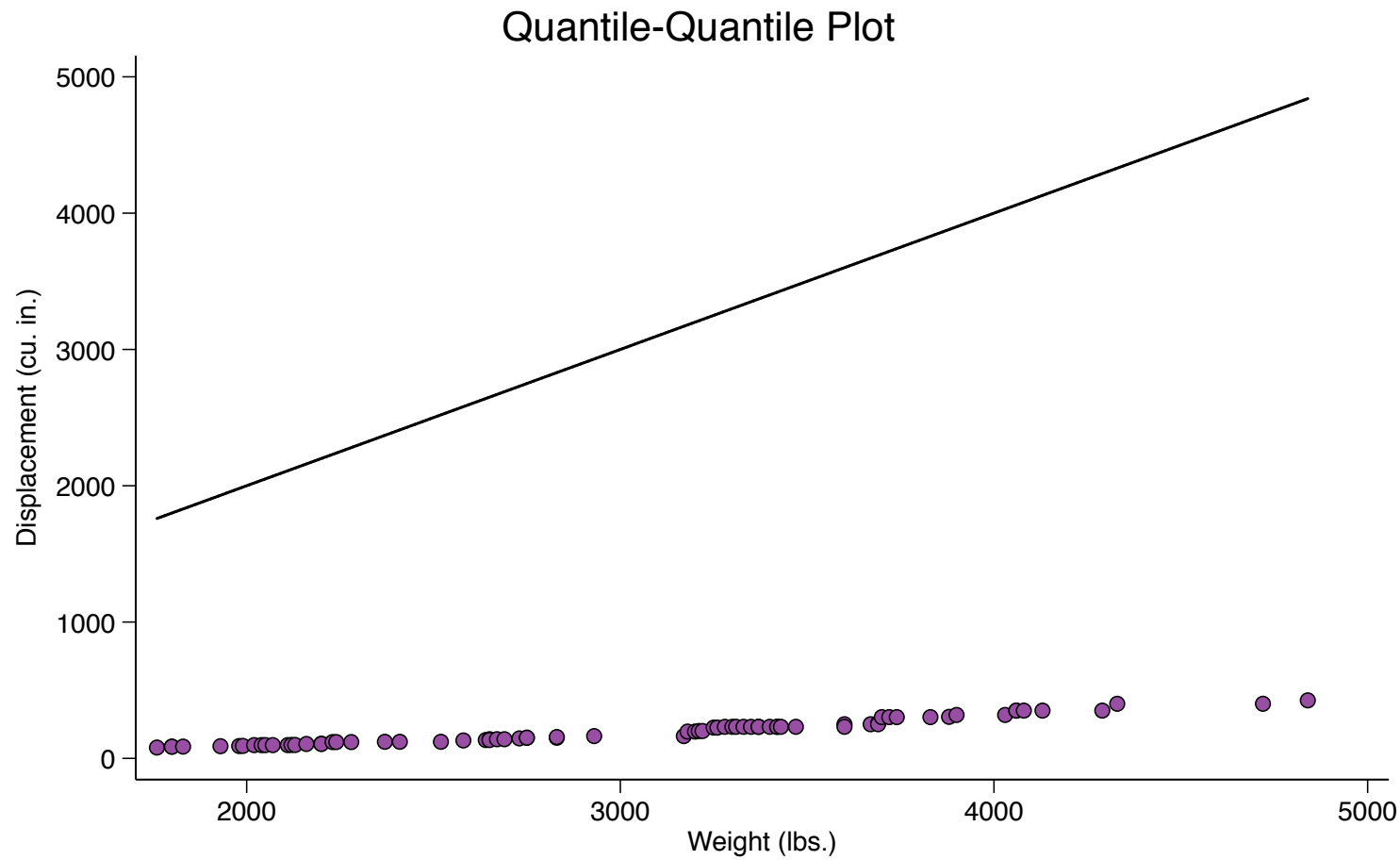
Figure 1.169: Quantiles of Gear Ratio vs Quantiles of Weight (lbs.)

Quantile-Quantile Plot



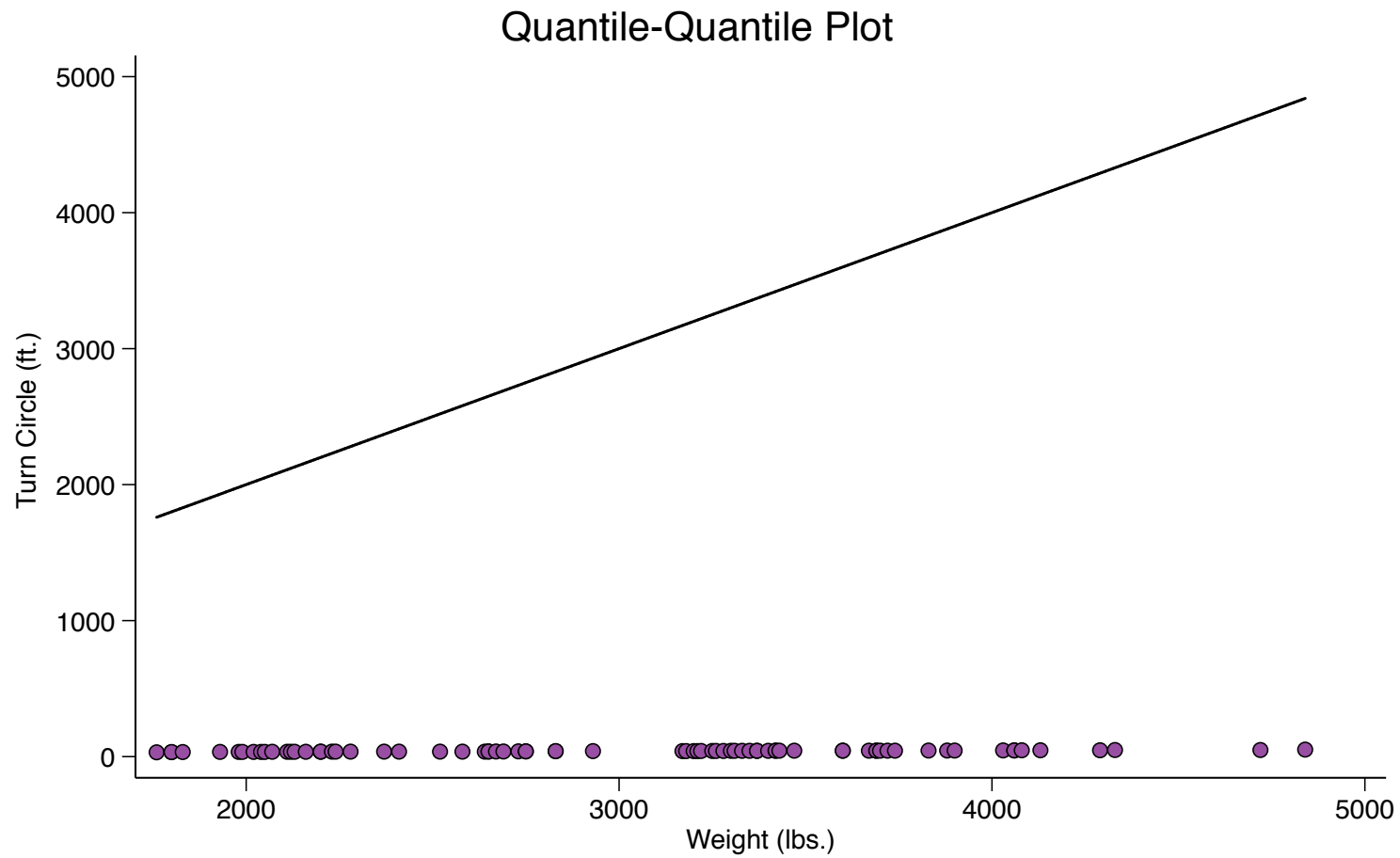
Created on: 29 Oct 2015 at: 15:38:56

Figure 1.170: Quantiles of Displacement (cu. in.) vs Quantiles of Weight (lbs.)



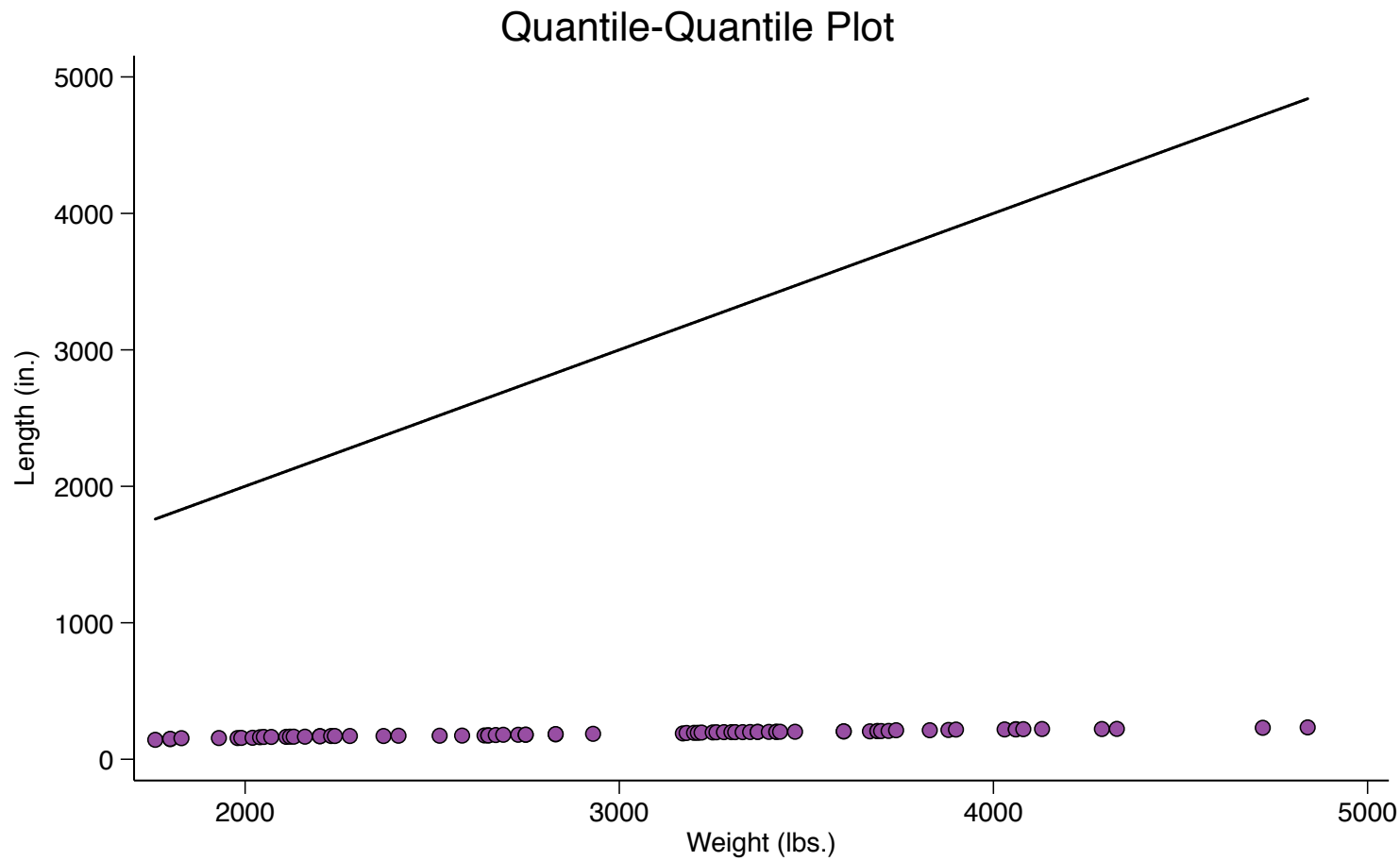
Created on: 29 Oct 2015 at: 15:38:58

Figure 1.171: Quantiles of Turn Circle (ft.) vs Quantiles of Weight (lbs.)



Created on: 29 Oct 2015 at: 15:38:59

Figure 1.172: Quantiles of Length (in.) vs Quantiles of Weight (lbs.)



Created on: 29 Oct 2015 at: 15:39:01

Figure 1.173: Quantiles of Gear Ratio vs Quantiles of Trunk space (cu. ft.)

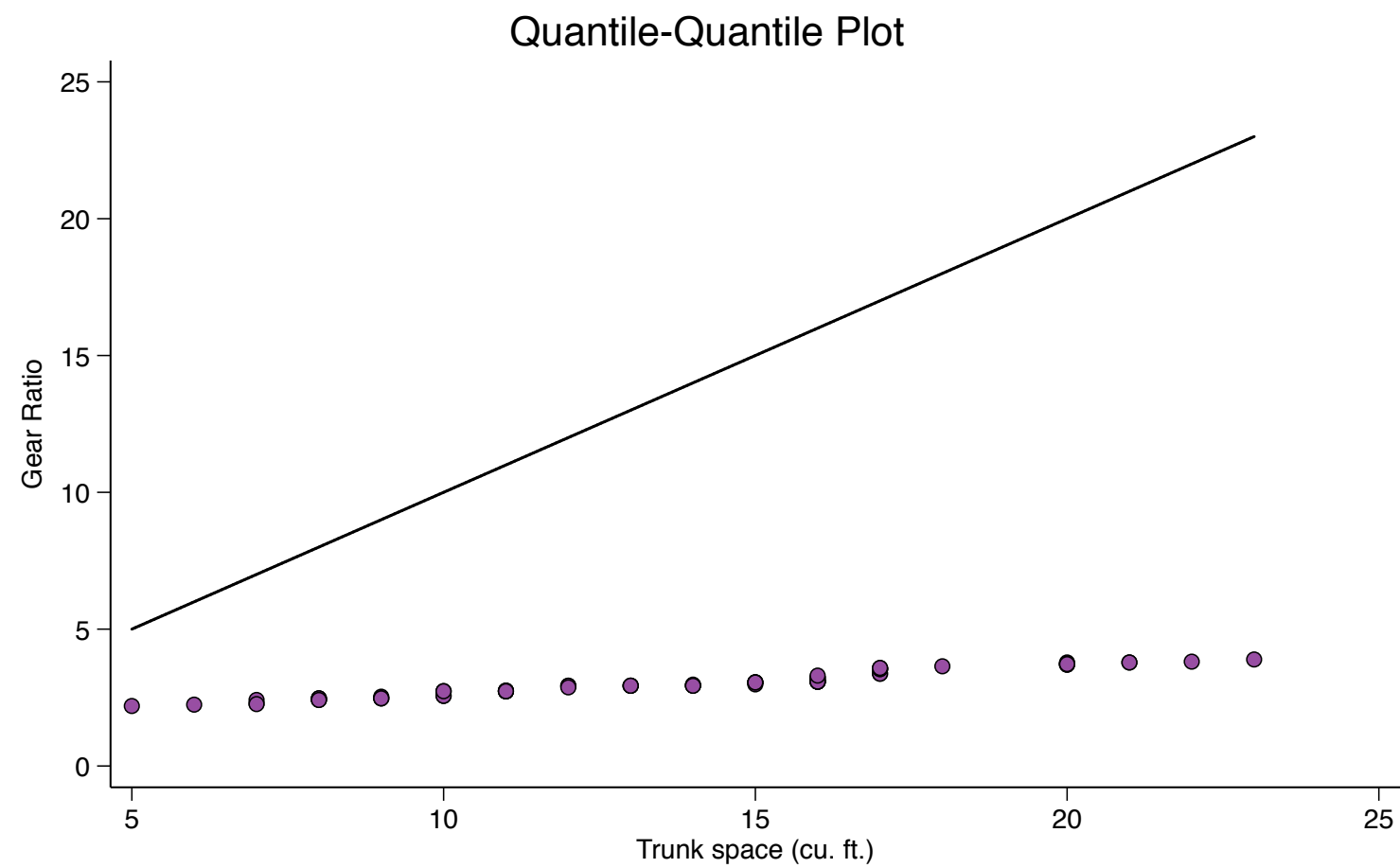
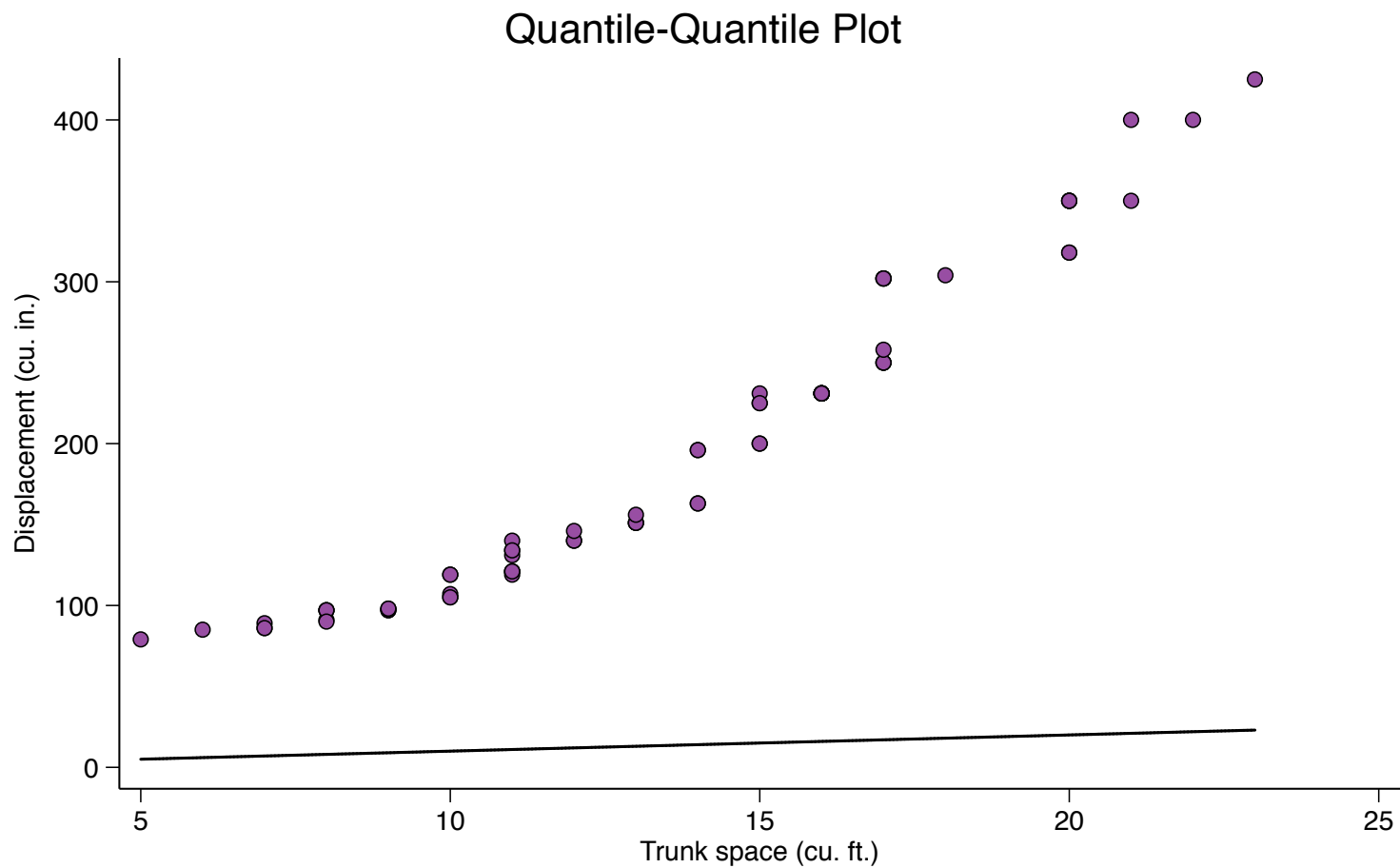
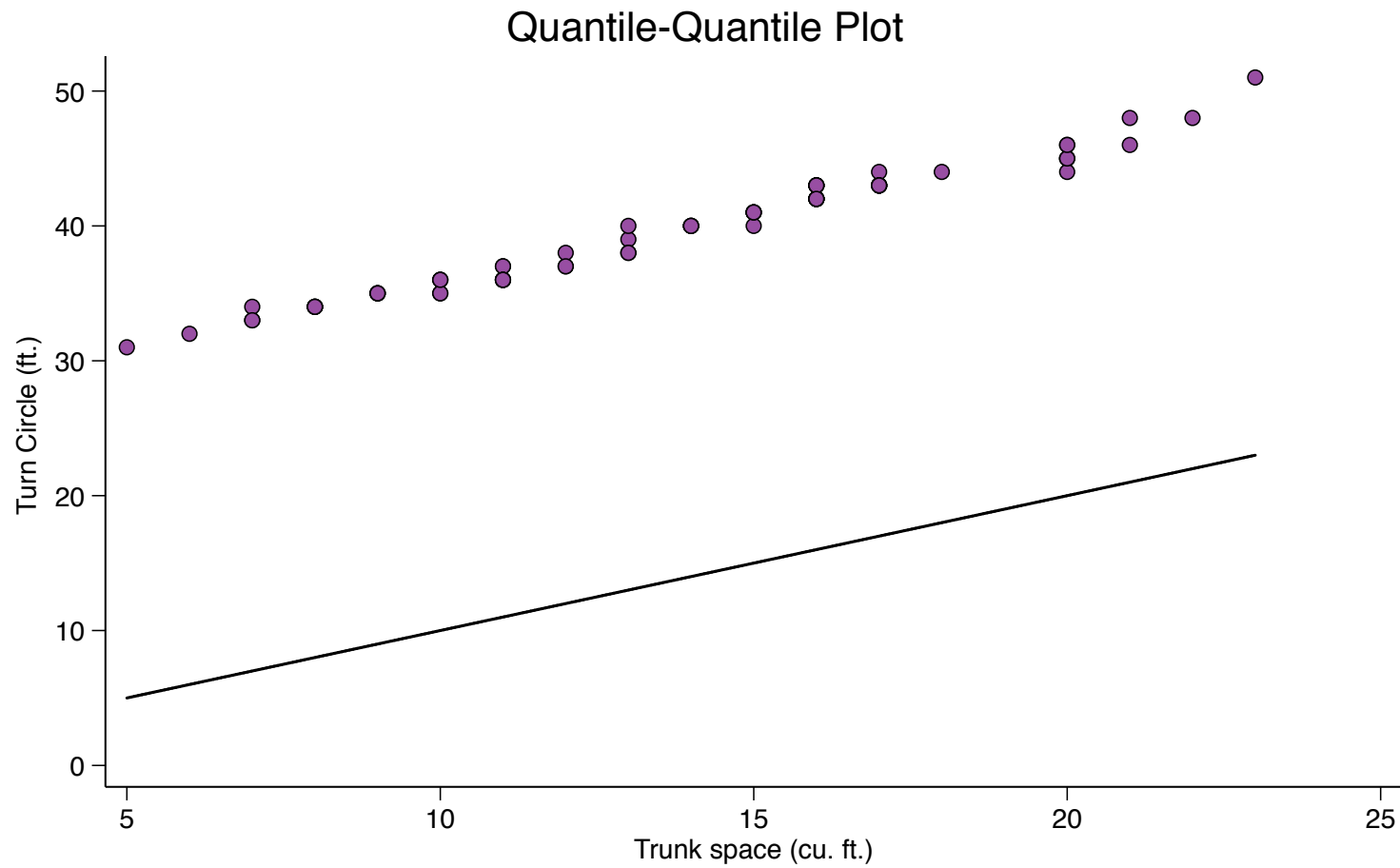


Figure 1.174: Quantiles of Displacement (cu. in.) vs Quantiles of Trunk space (cu. ft.)



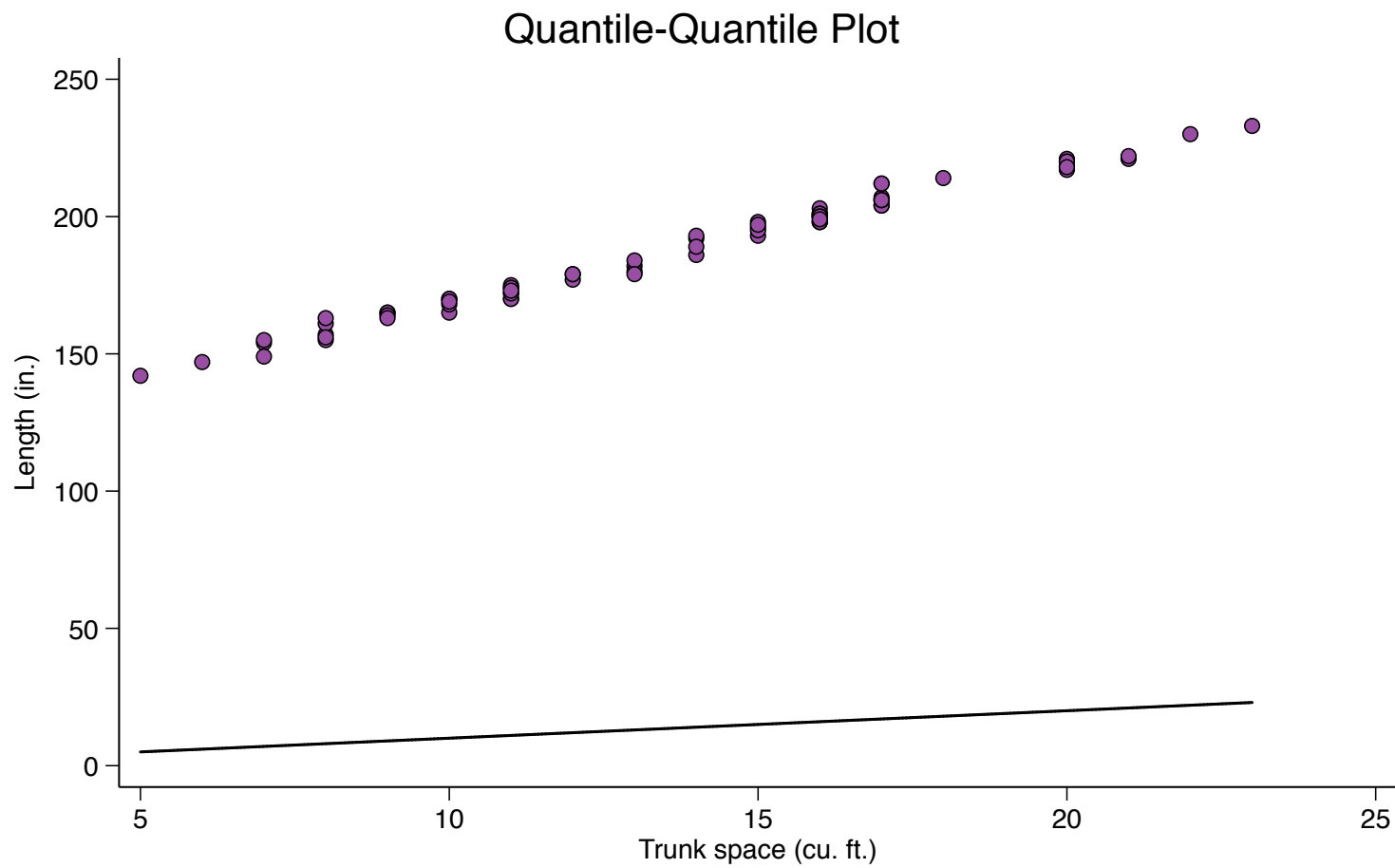
Created on: 29 Oct 2015 at: 15:39:04

Figure 1.175: Quantiles of Turn Circle (ft.) vs Quantiles of Trunk space (cu. ft.)



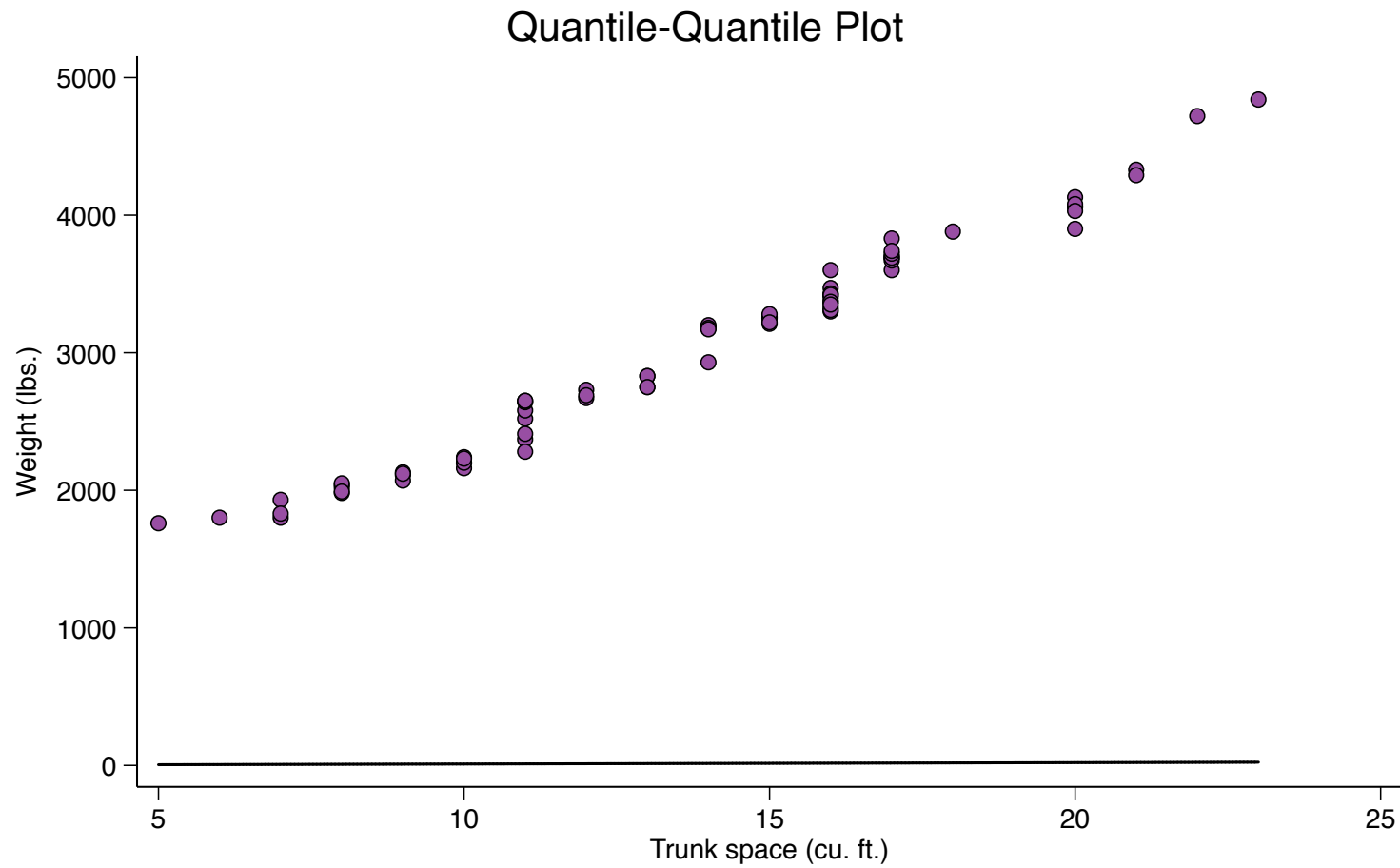
Created on: 29 Oct 2015 at: 15:39:06

Figure 1.176: Quantiles of Length (in.) vs Quantiles of Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:39:08

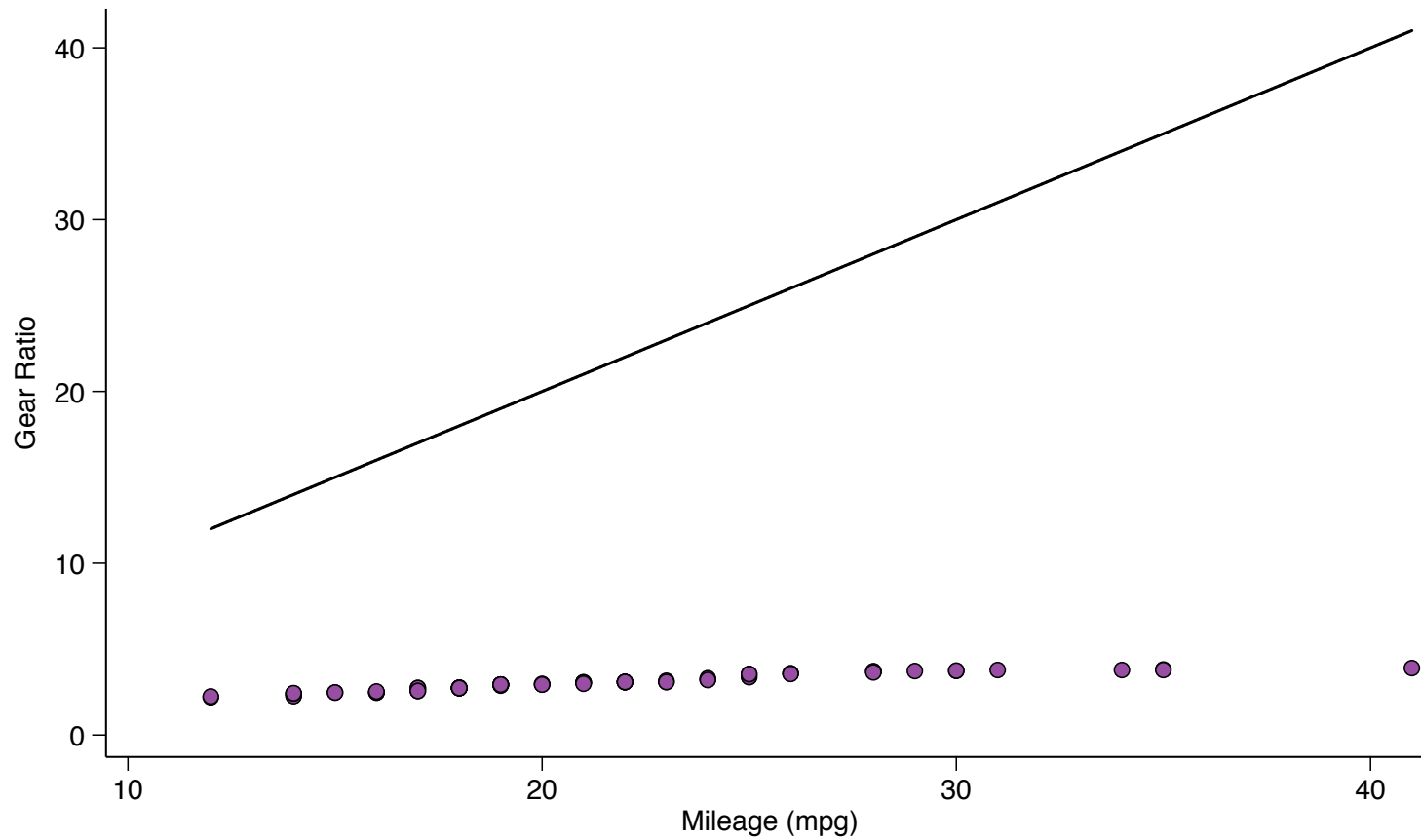
Figure 1.177: Quantiles of Weight (lbs.) vs Quantiles of Trunk space (cu. ft.)



Created on: 29 Oct 2015 at: 15:39:09

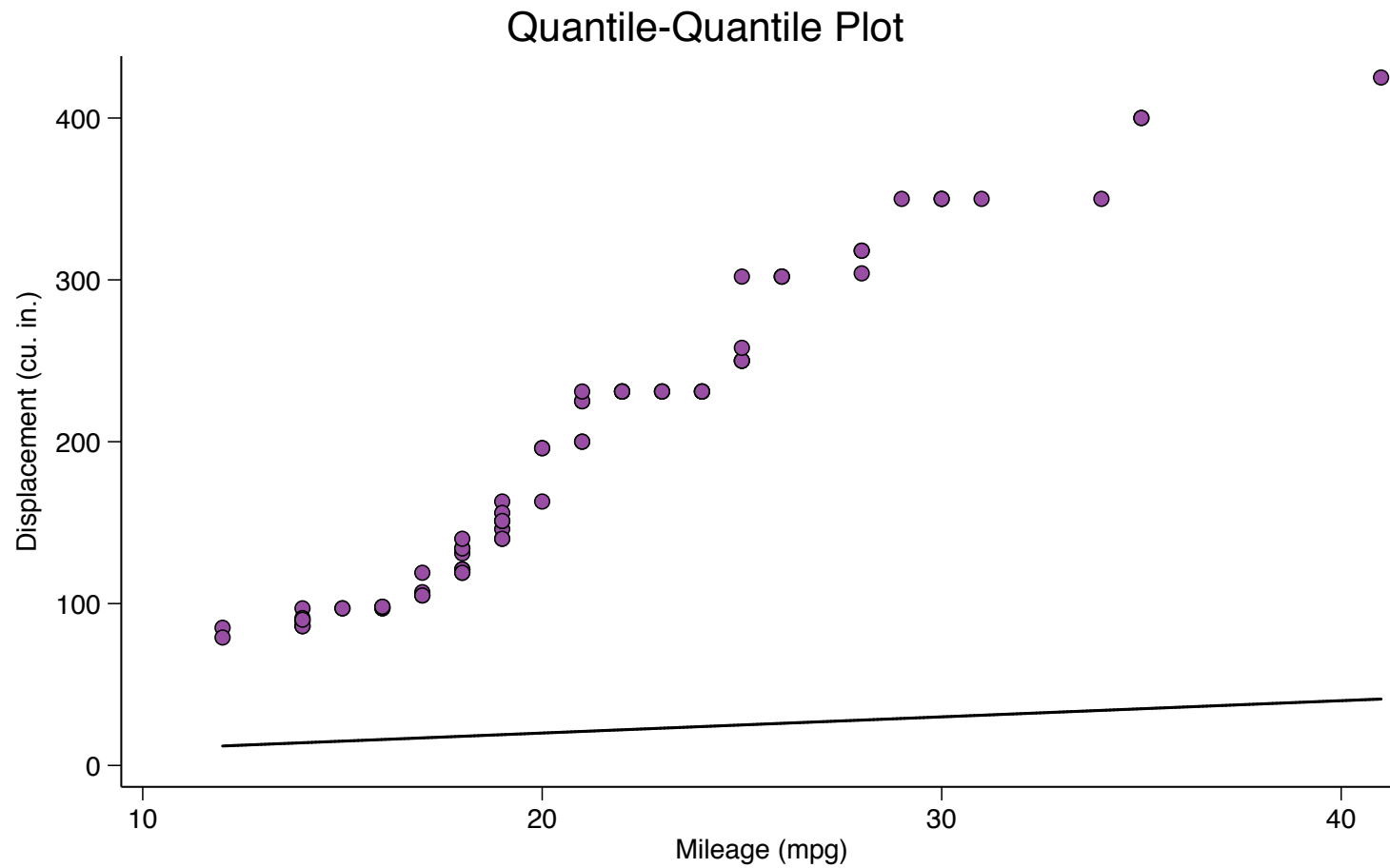
Figure 1.178: Quantiles of Gear Ratio vs Quantiles of Mileage (mpg)

Quantile-Quantile Plot



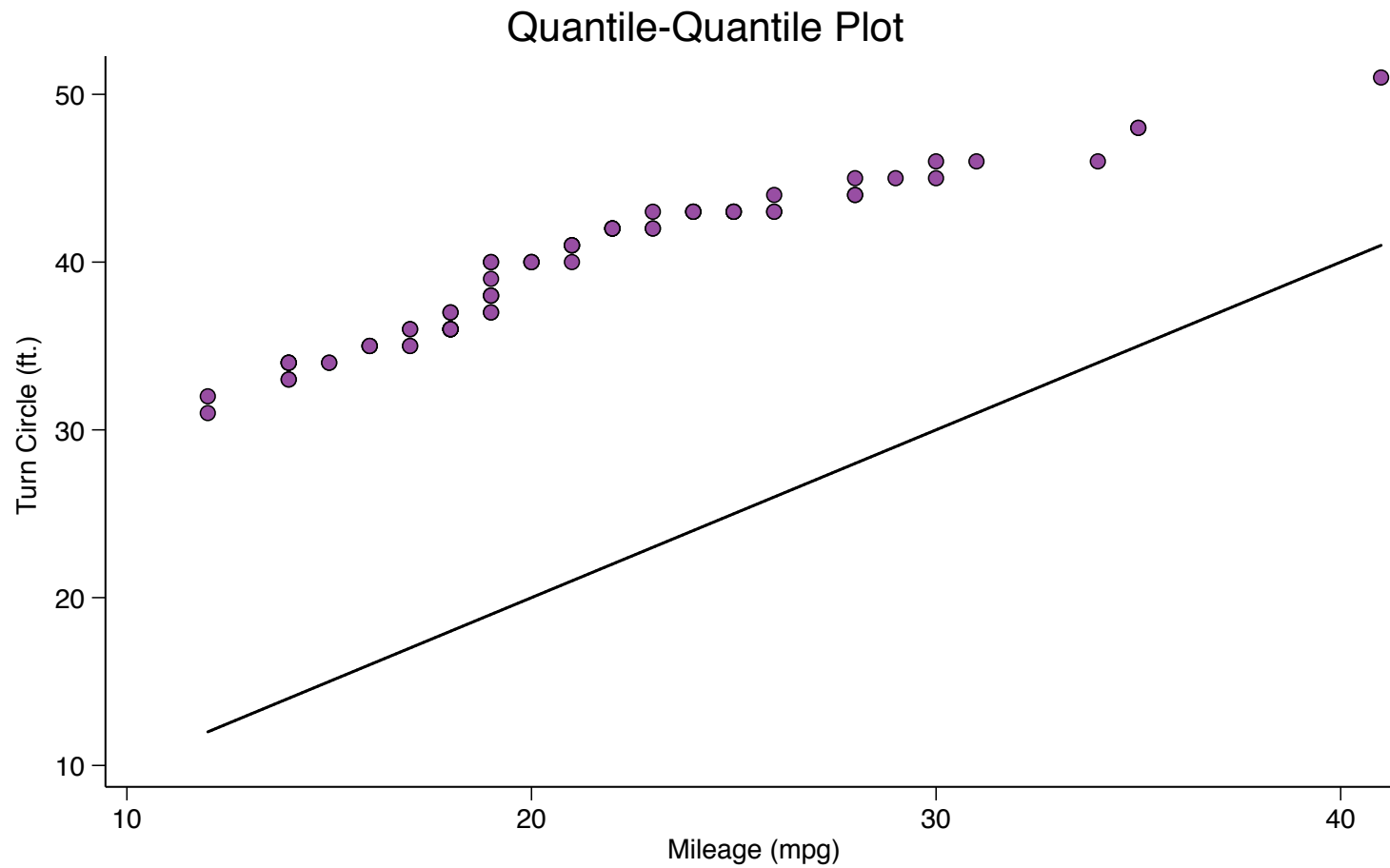
Created on: 29 Oct 2015 at: 15:39:11

Figure 1.179: Quantiles of Displacement (cu. in.) vs Quantiles of Mileage (mpg)



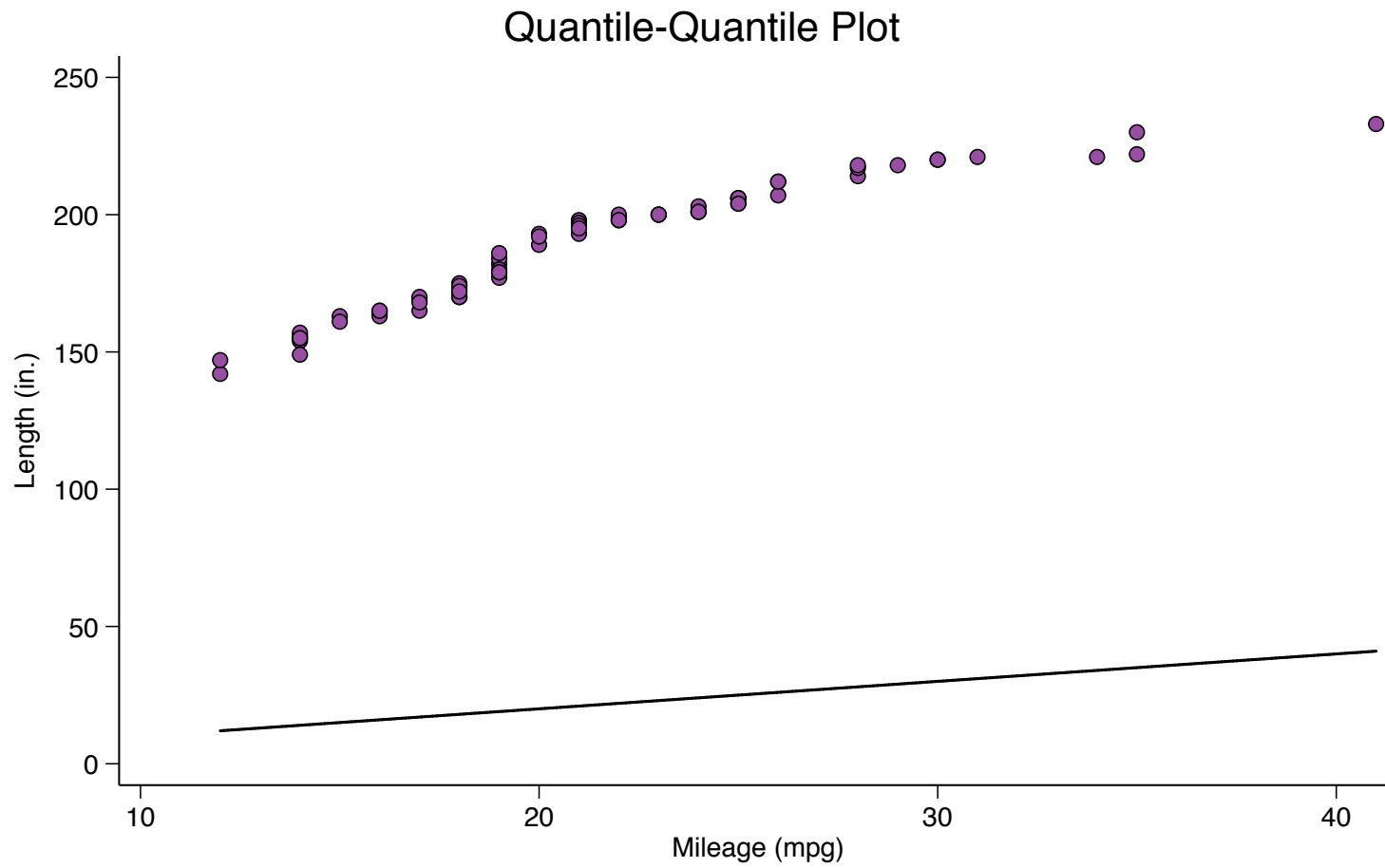
Created on: 29 Oct 2015 at: 15:39:13

Figure 1.180: Quantiles of Turn Circle (ft.) vs Quantiles of Mileage (mpg)



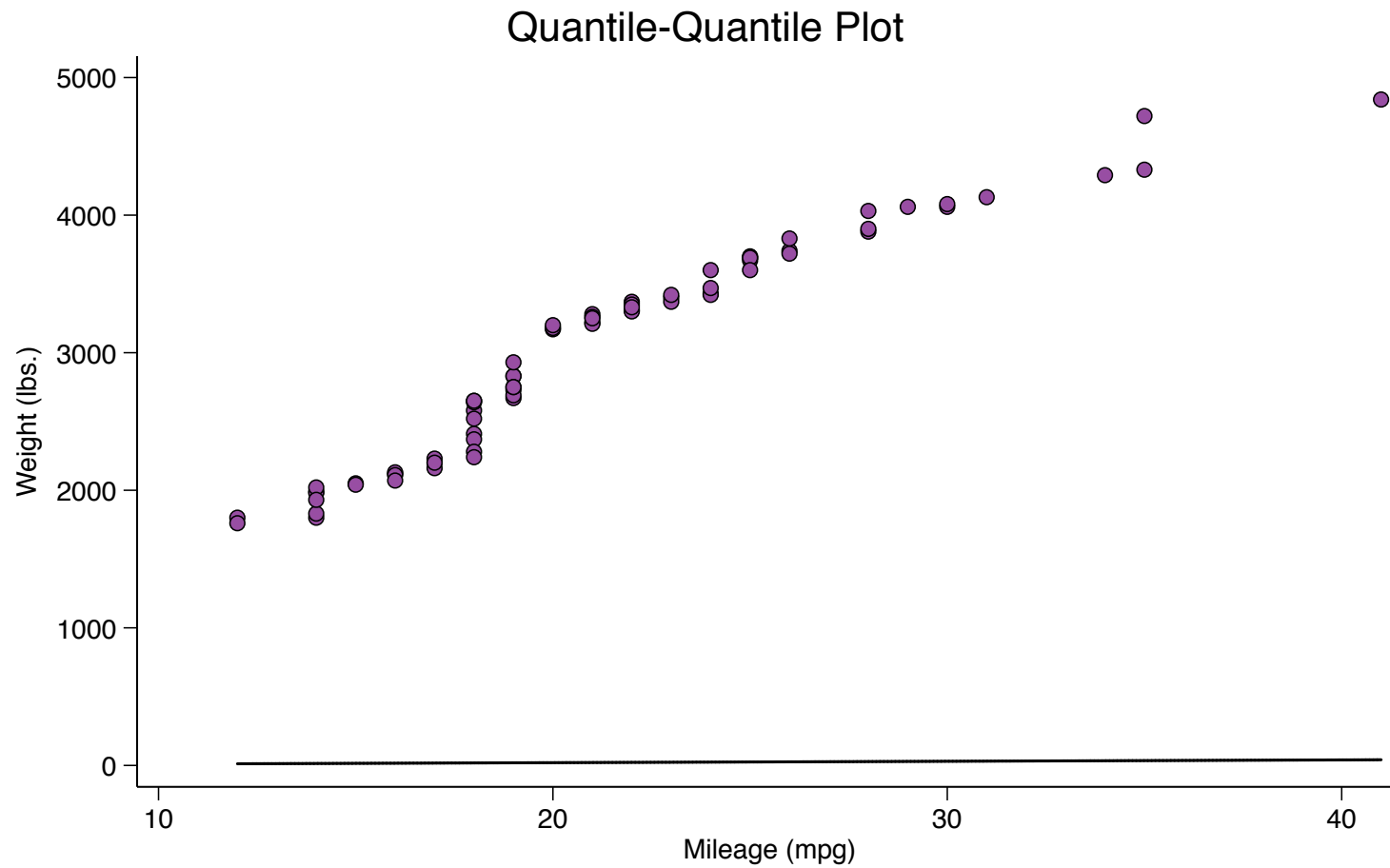
Created on: 29 Oct 2015 at: 15:39:14

Figure 1.181: Quantiles of Length (in.) vs Quantiles of Mileage (mpg)



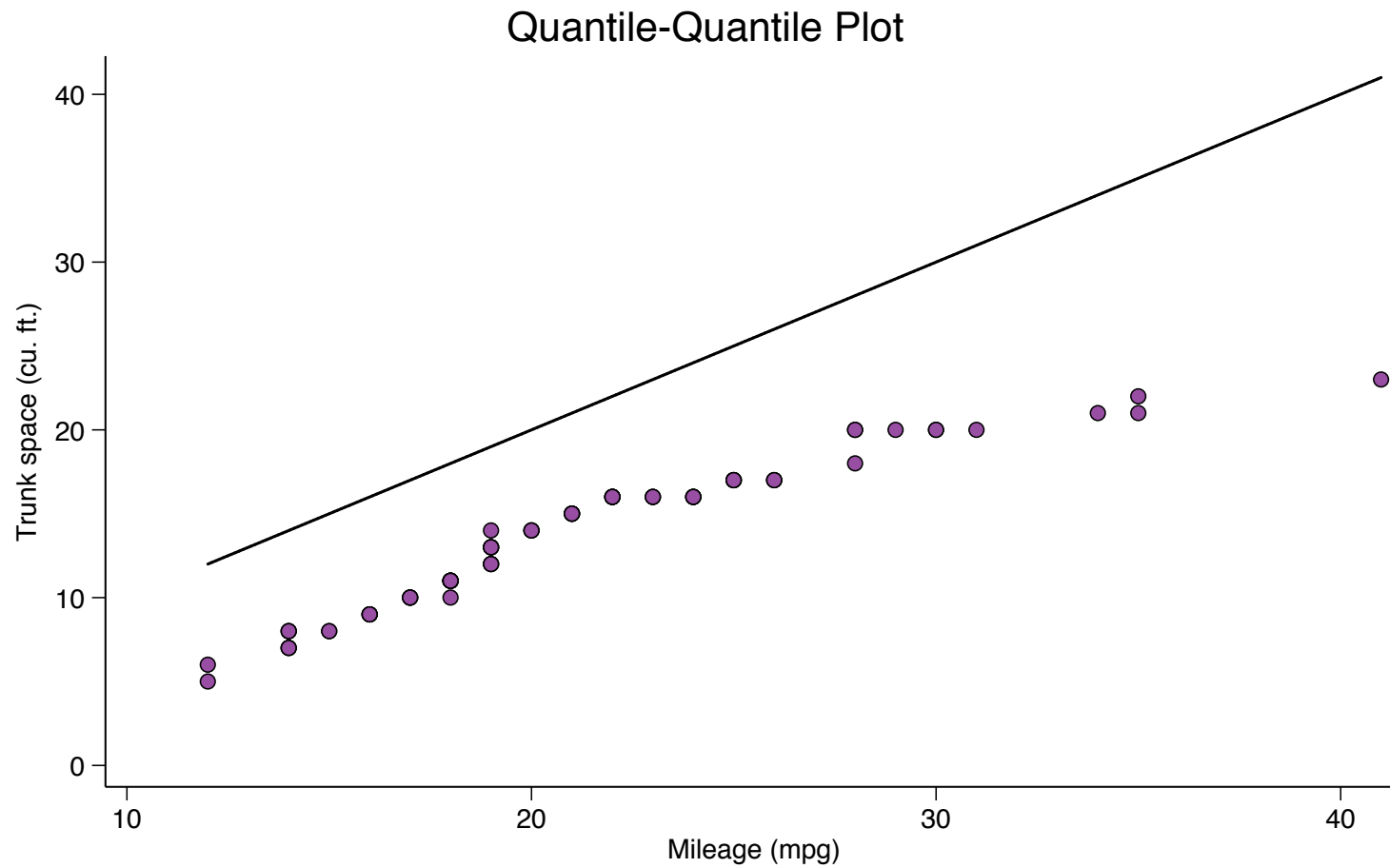
Created on: 29 Oct 2015 at: 15:39:16

Figure 1.182: Quantiles of Weight (lbs.) vs Quantiles of Mileage (mpg)



Created on: 29 Oct 2015 at: 15:39:18

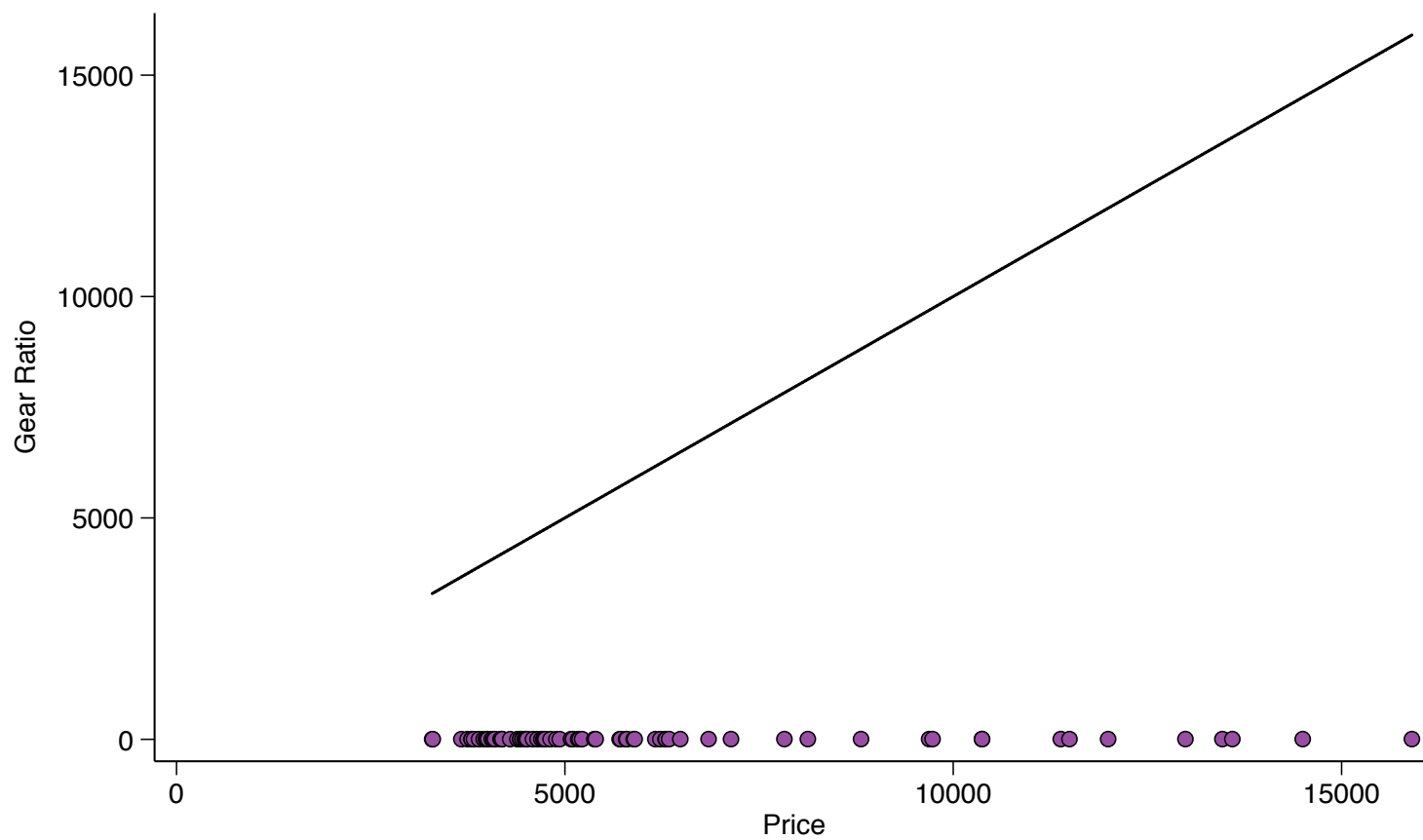
Figure 1.183: Quantiles of Trunk space (cu. ft.) vs Quantiles of Mileage (mpg)



Created on: 29 Oct 2015 at: 15:39:19

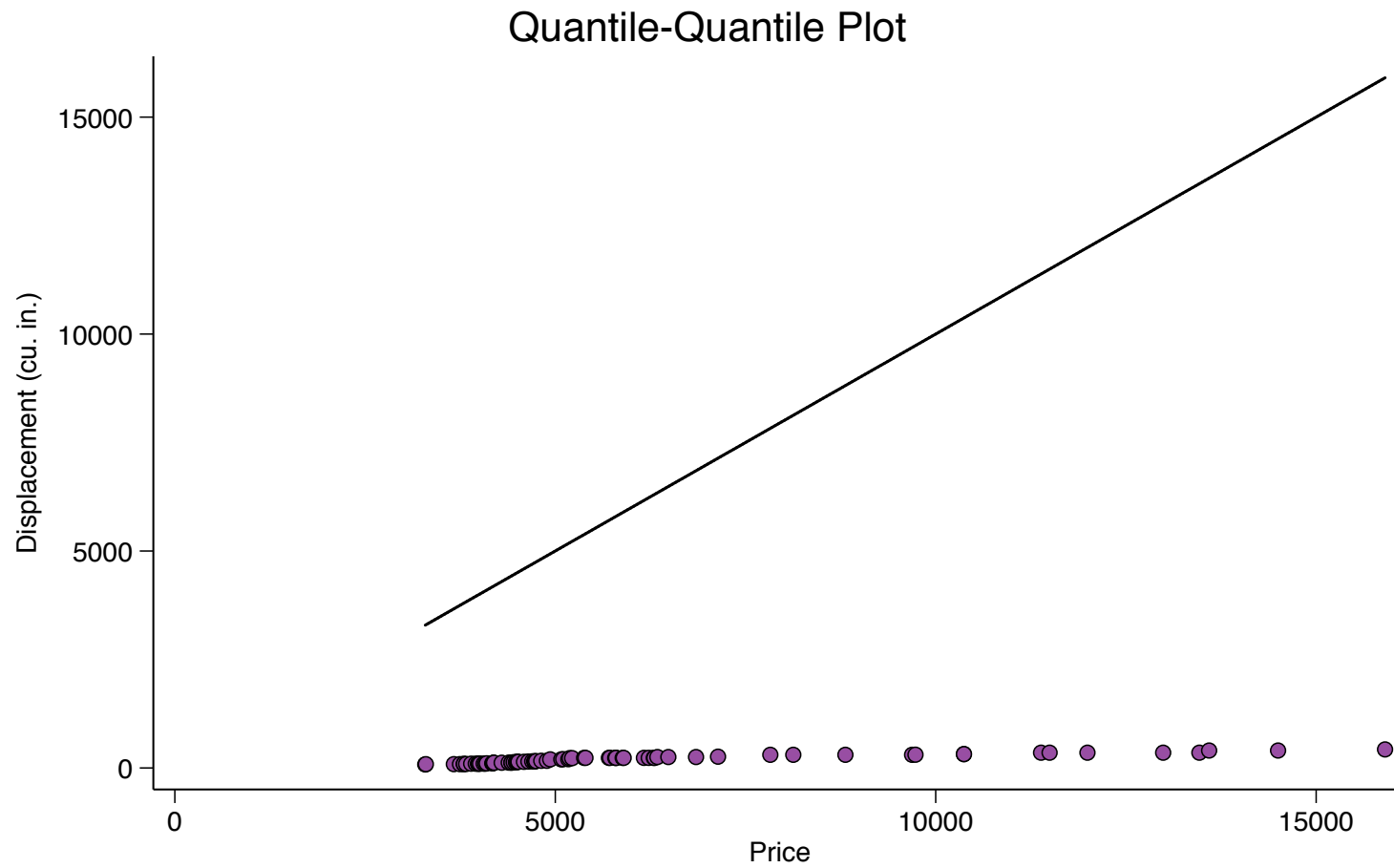
Figure 1.184: Quantiles of Gear Ratio vs Quantiles of Price

Quantile-Quantile Plot



Created on: 29 Oct 2015 at: 15:39:21

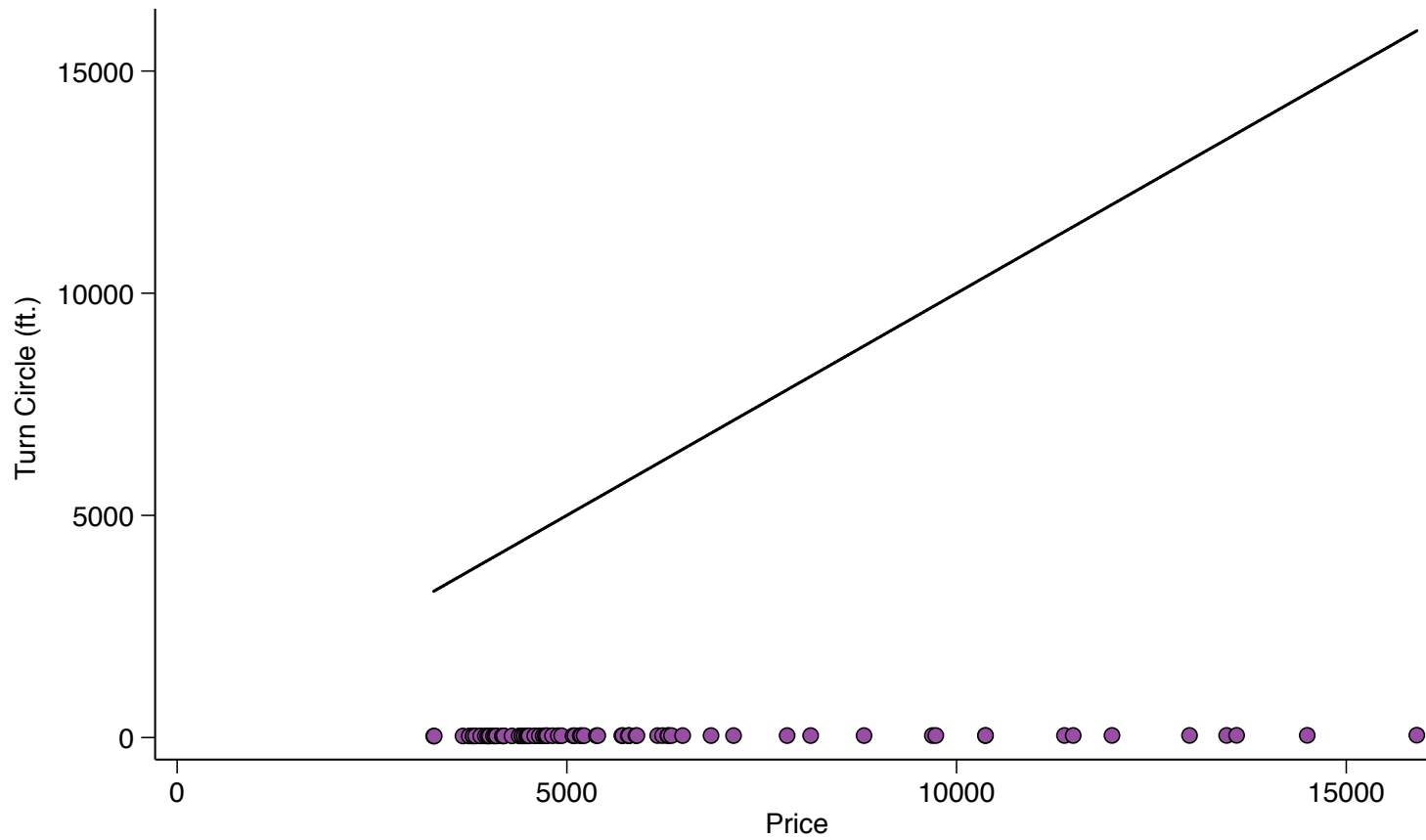
Figure 1.185: Quantiles of Displacement (cu. in.) vs Quantiles of Price



Created on: 29 Oct 2015 at: 15:39:23

Figure 1.186: Quantiles of Turn Circle (ft.) vs Quantiles of Price

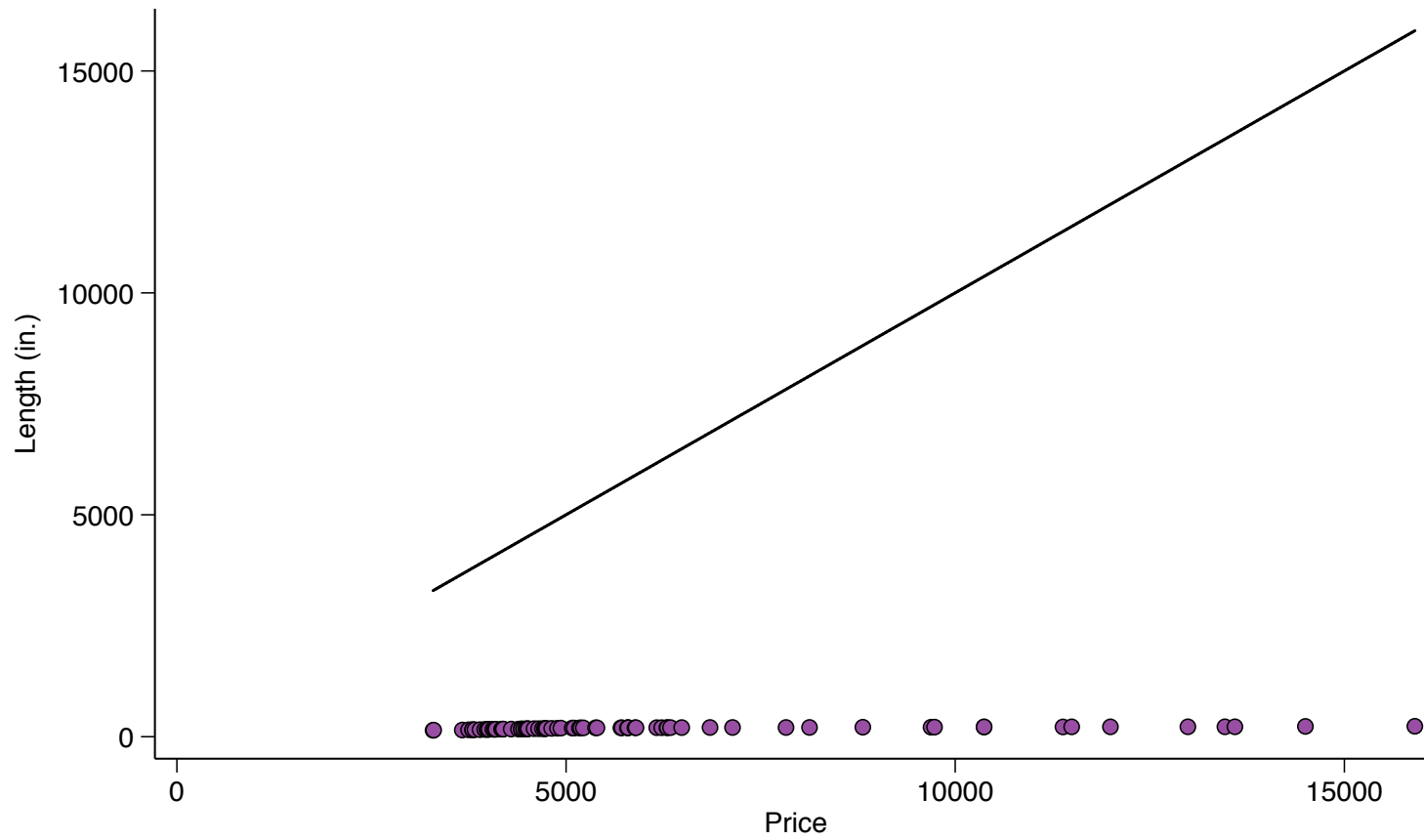
Quantile-Quantile Plot



Created on: 29 Oct 2015 at: 15:39:24

Figure 1.187: Quantiles of Length (in.) vs Quantiles of Price

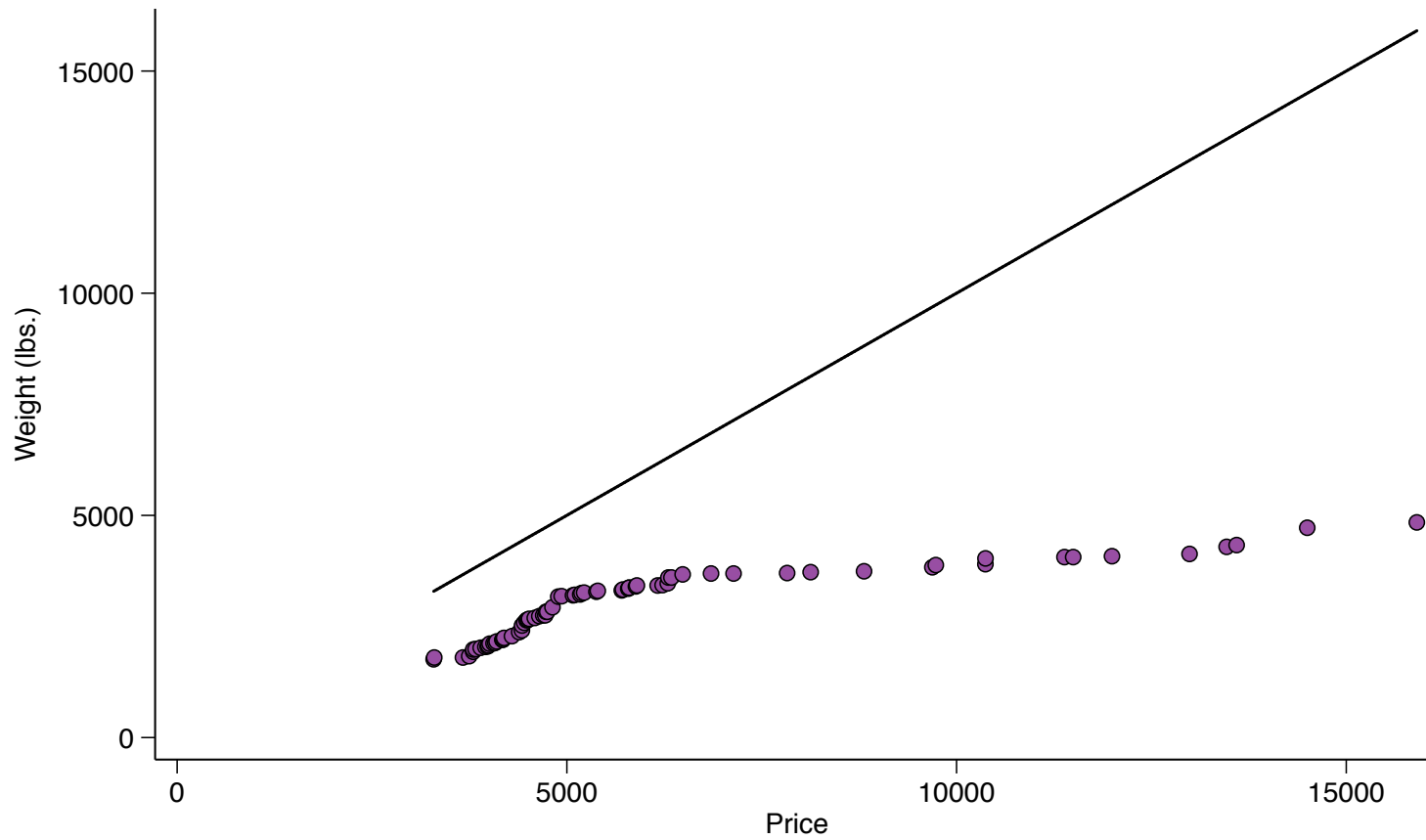
Quantile-Quantile Plot



Created on: 29 Oct 2015 at: 15:39:26

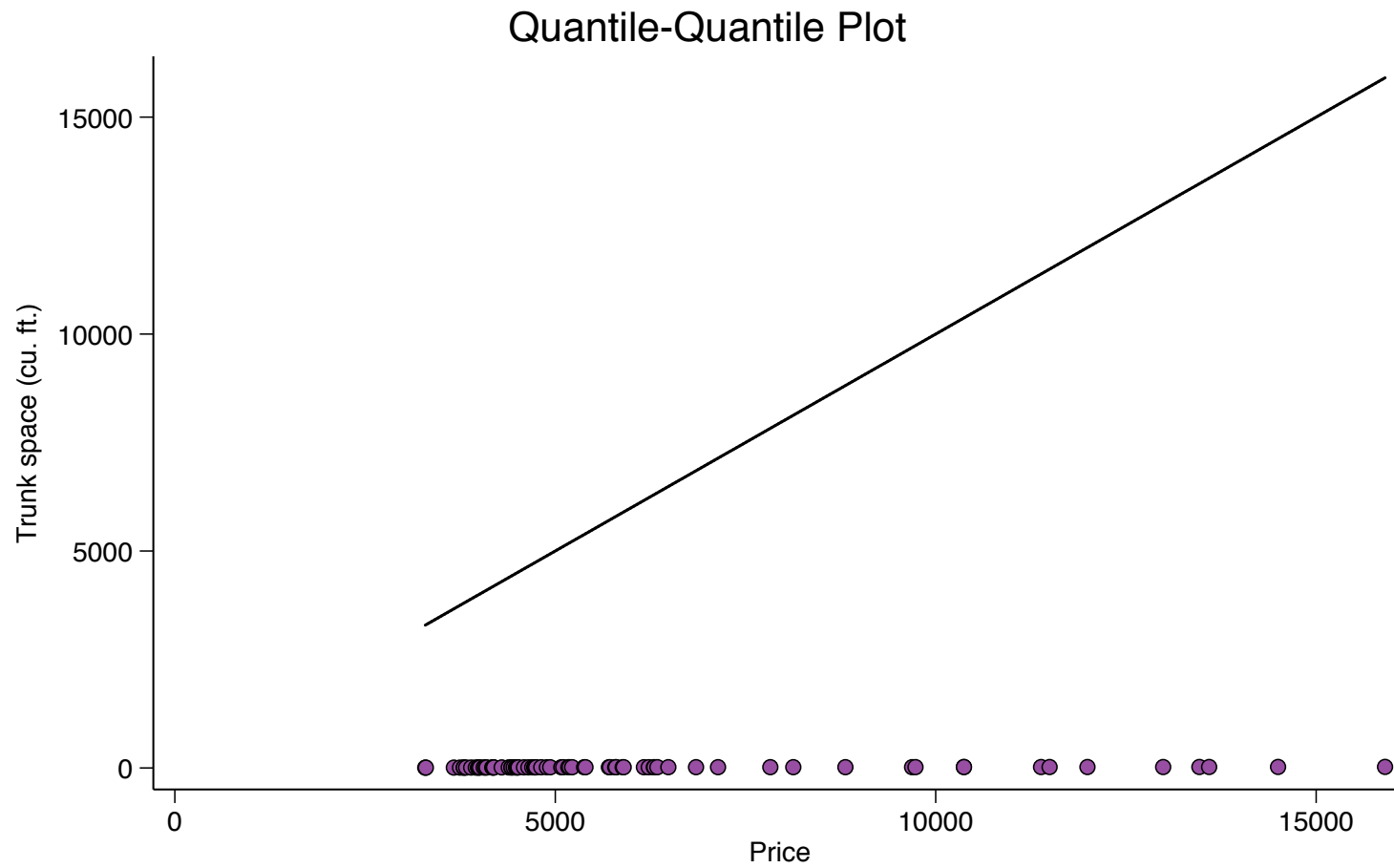
Figure 1.188: Quantiles of Weight (lbs.) vs Quantiles of Price

Quantile-Quantile Plot



Created on: 29 Oct 2015 at: 15:39:28

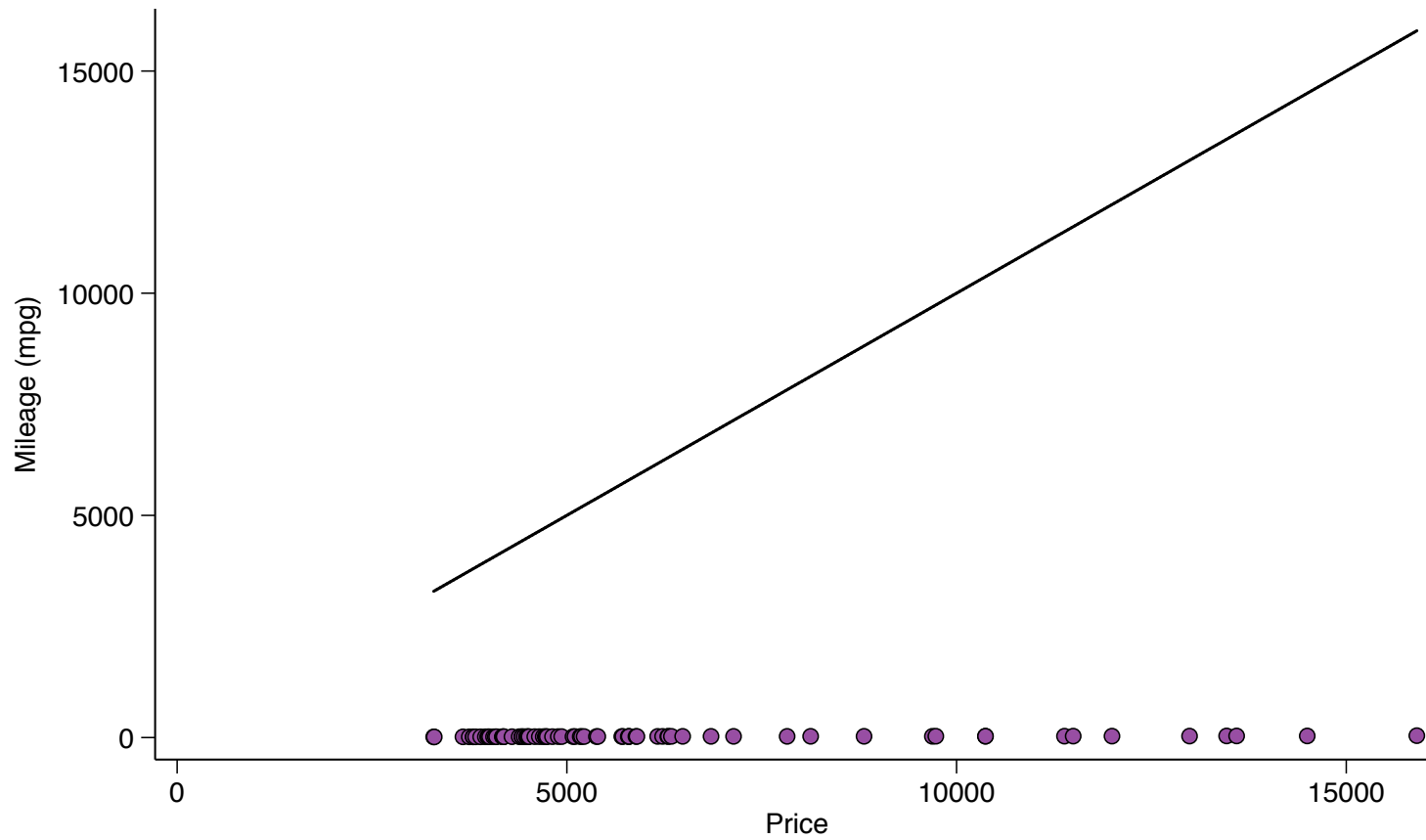
Figure 1.189: Quantiles of Trunk space (cu. ft.) vs Quantiles of Price



Created on: 29 Oct 2015 at: 15:39:29

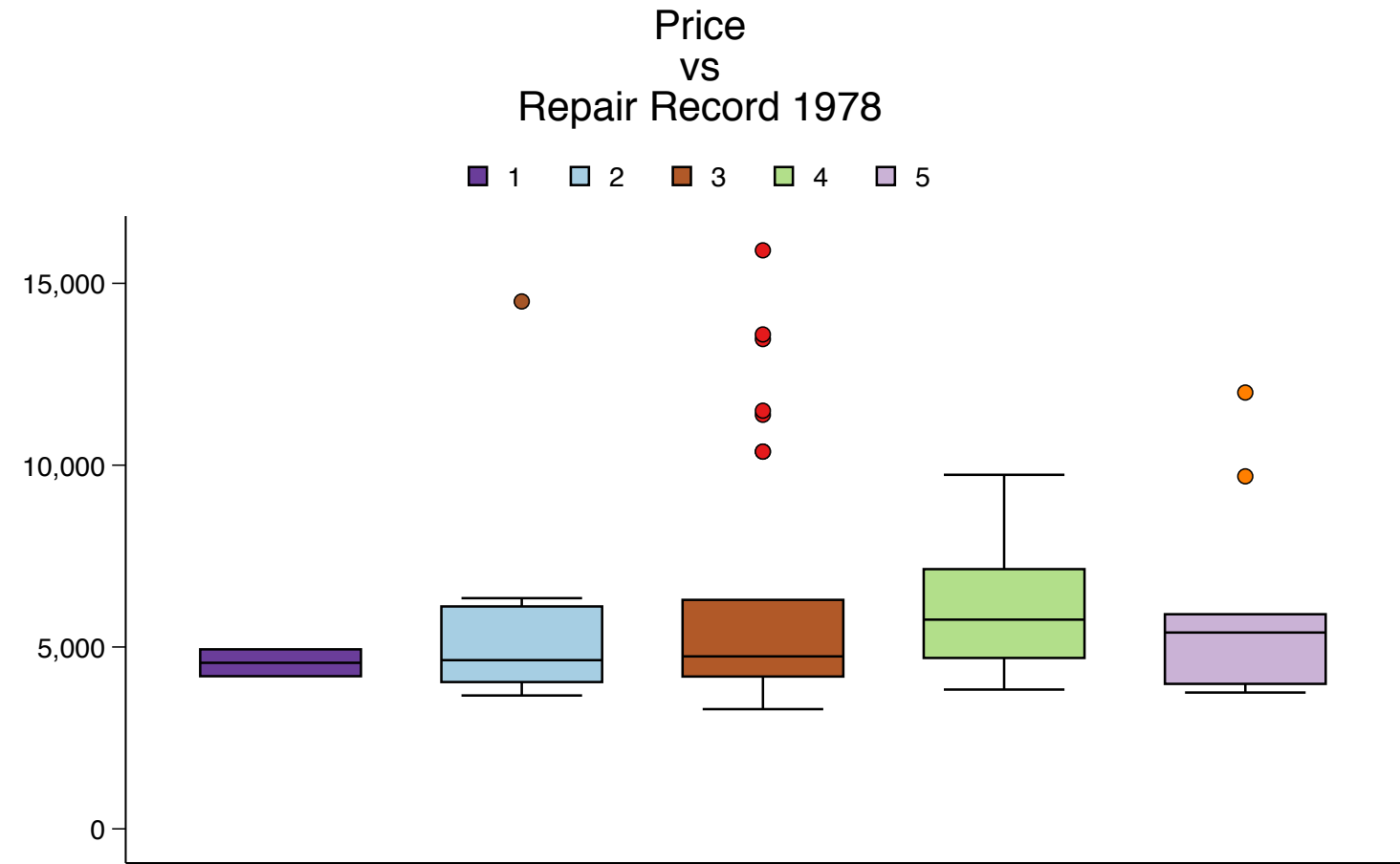
Figure 1.190: Quantiles of Mileage (mpg) vs Quantiles of Price

Quantile-Quantile Plot



Created on: 29 Oct 2015 at: 15:39:31

Figure 1.191: Box Plot of Price by Repair Record 1978



Created on: 29 Oct 2015 at: 15:39:32

Distributions by rep78.

Mileage (mpg) vs Repair Record 1978

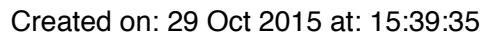
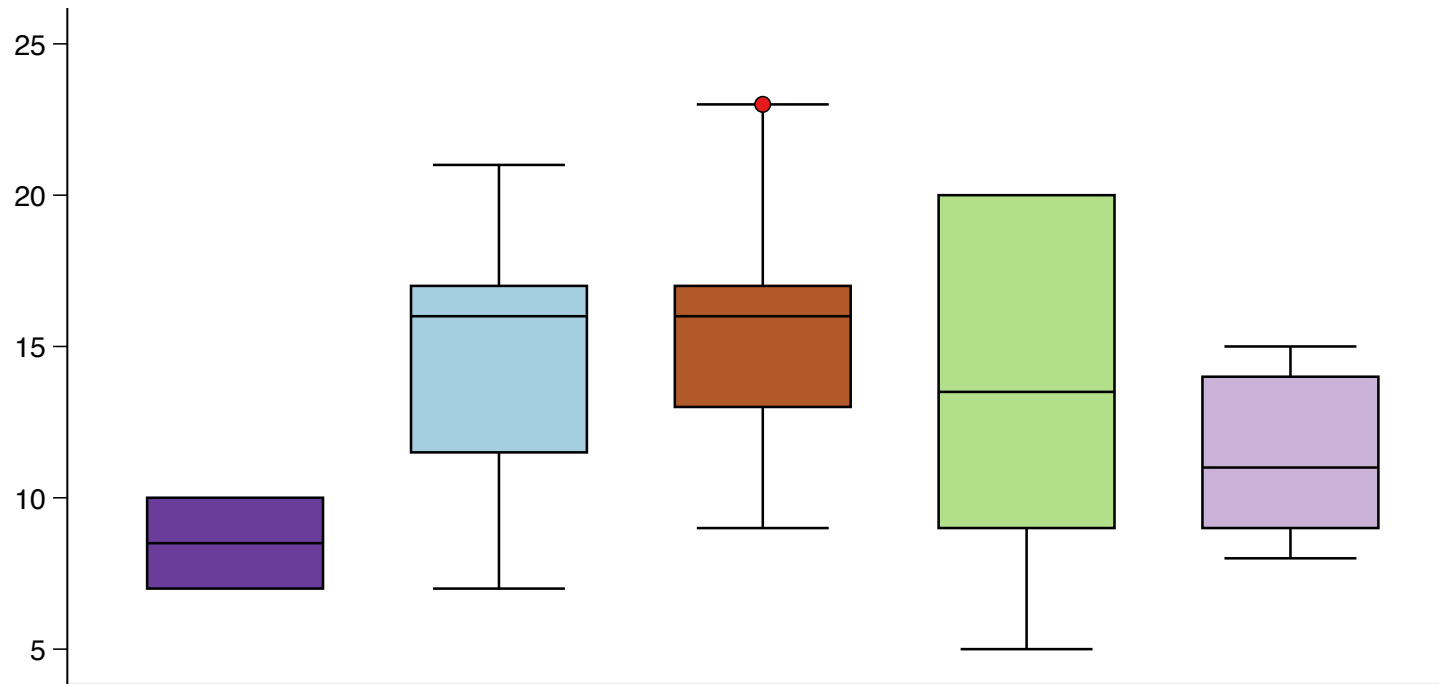


Figure 1.193: Box Plot of Trunk space (cu. ft.) by Repair Record 1978

Trunk space (cu. ft.)
VS
Repair Record 1978

1 2 3 4 5



Created on: 29 Oct 2015 at: 15:39:37

Figure 1.194: Box Plot of Weight (lbs.) by Repair Record 1978

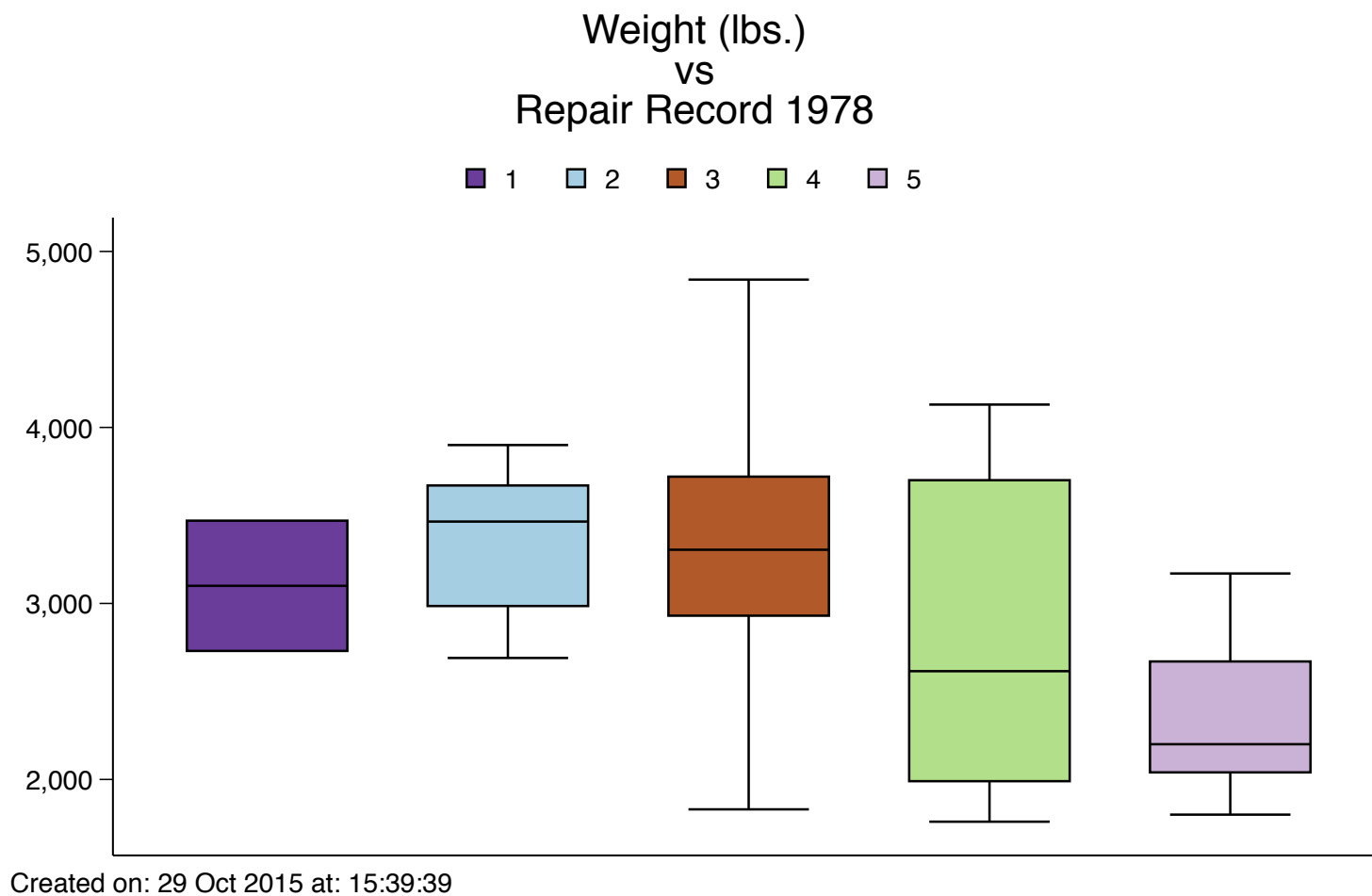
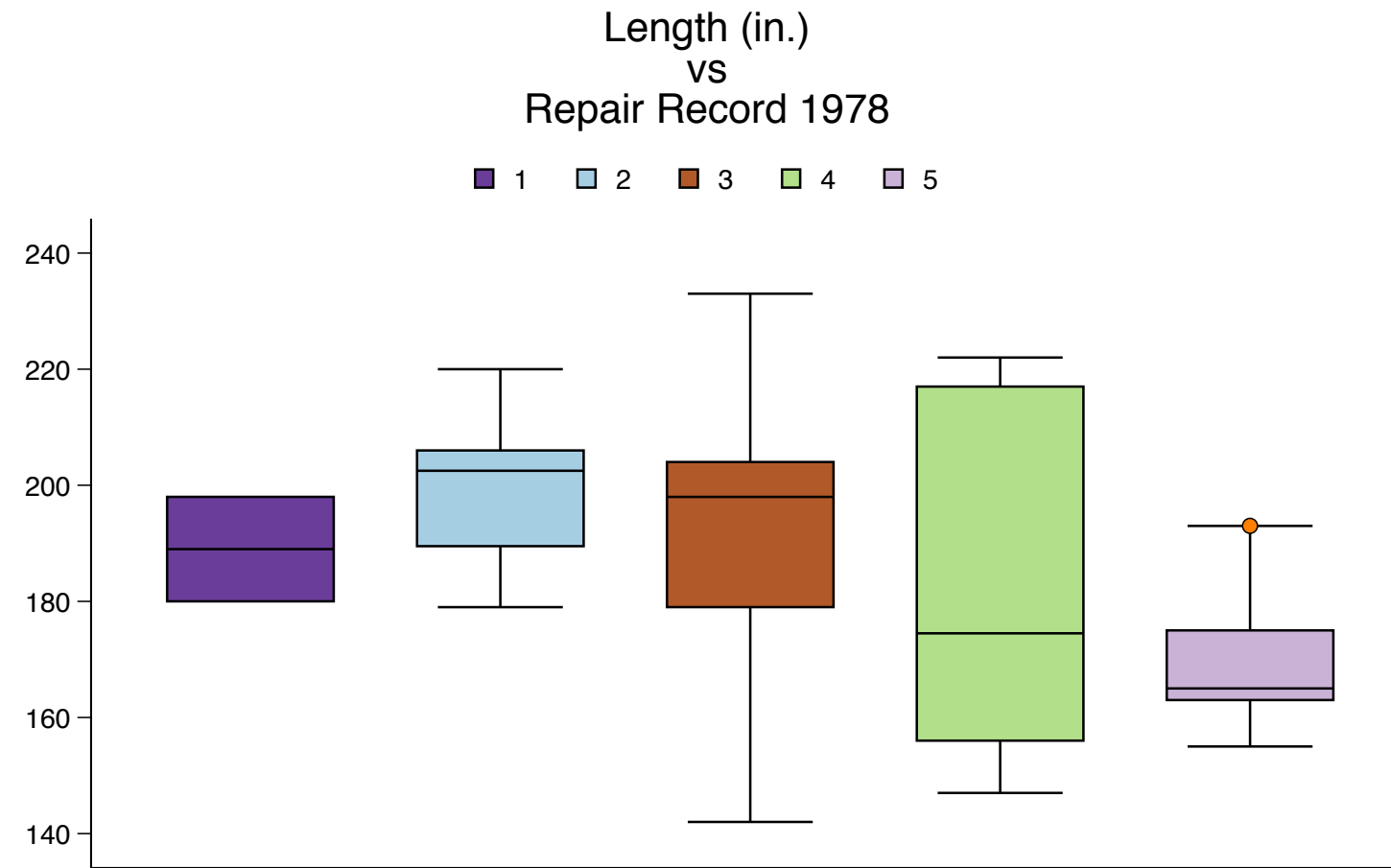
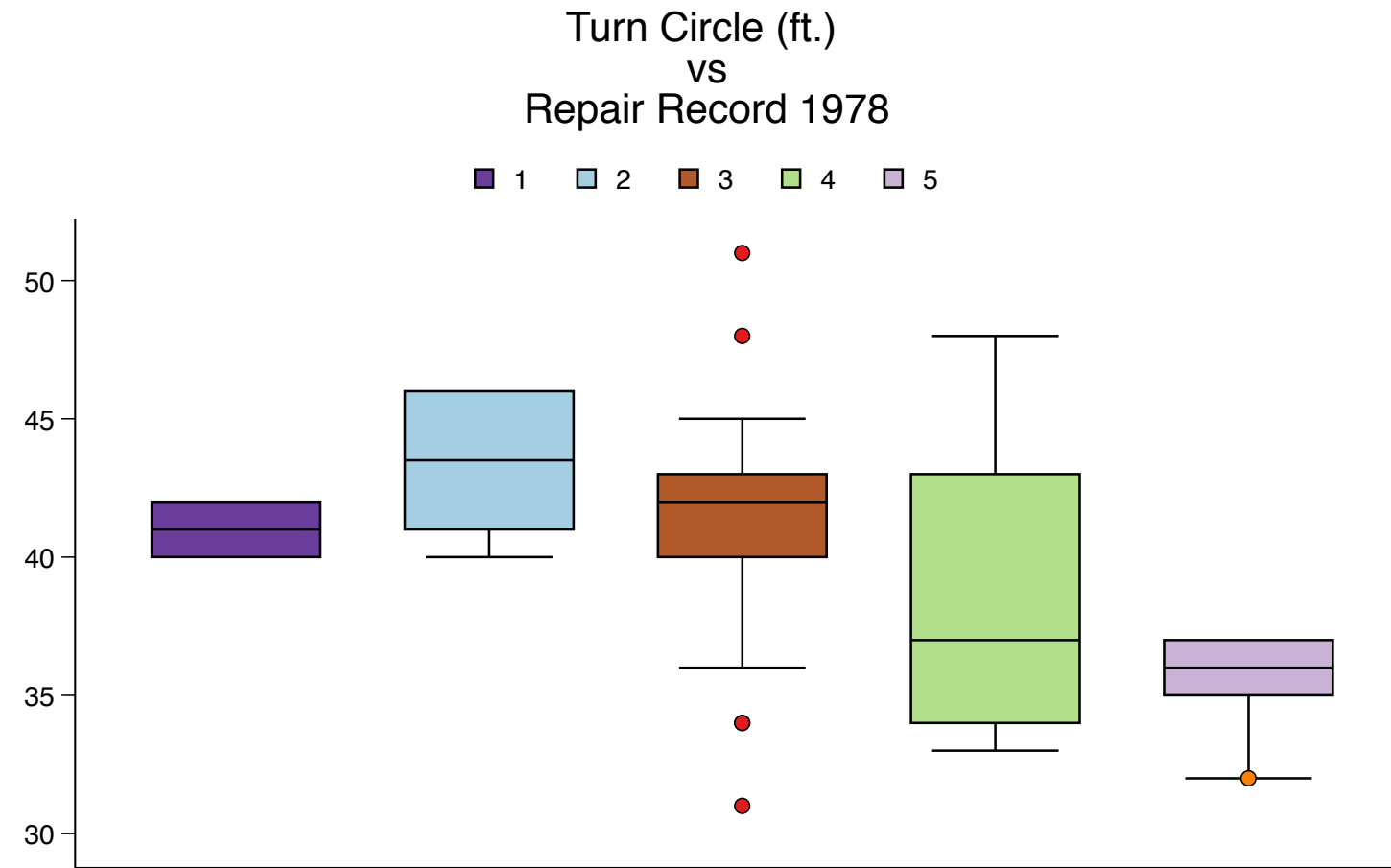


Figure 1.195: Box Plot of Length (in.) by Repair Record 1978



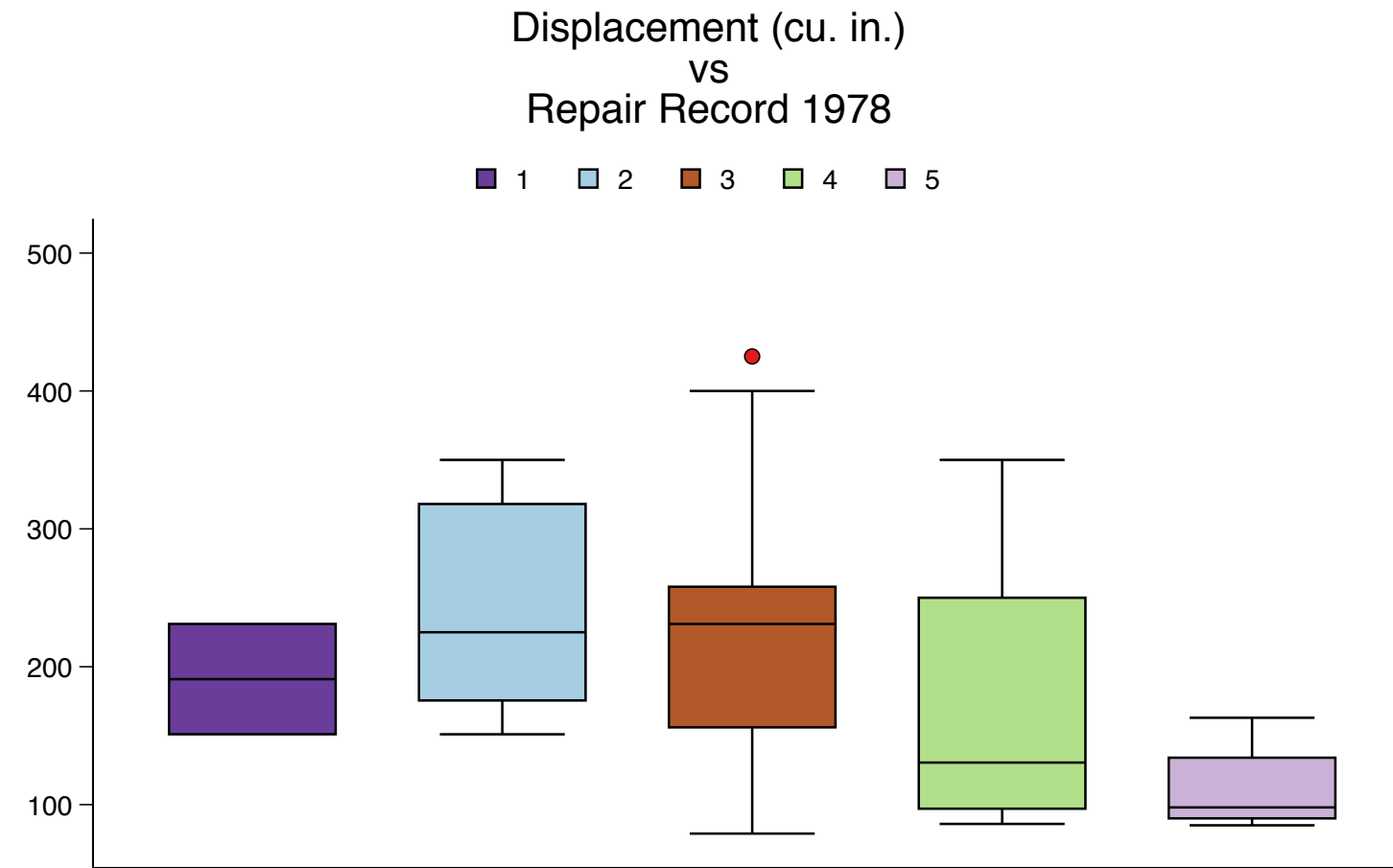
Created on: 29 Oct 2015 at: 15:39:41

Figure 1.196: Box Plot of Turn Circle (ft.) by Repair Record 1978



Created on: 29 Oct 2015 at: 15:39:43

Figure 1.197: Box Plot of Displacement (cu. in.) by Repair Record 1978



Created on: 29 Oct 2015 at: 15:39:45

Figure 1.198: Box Plot of Gear Ratio by Repair Record 1978

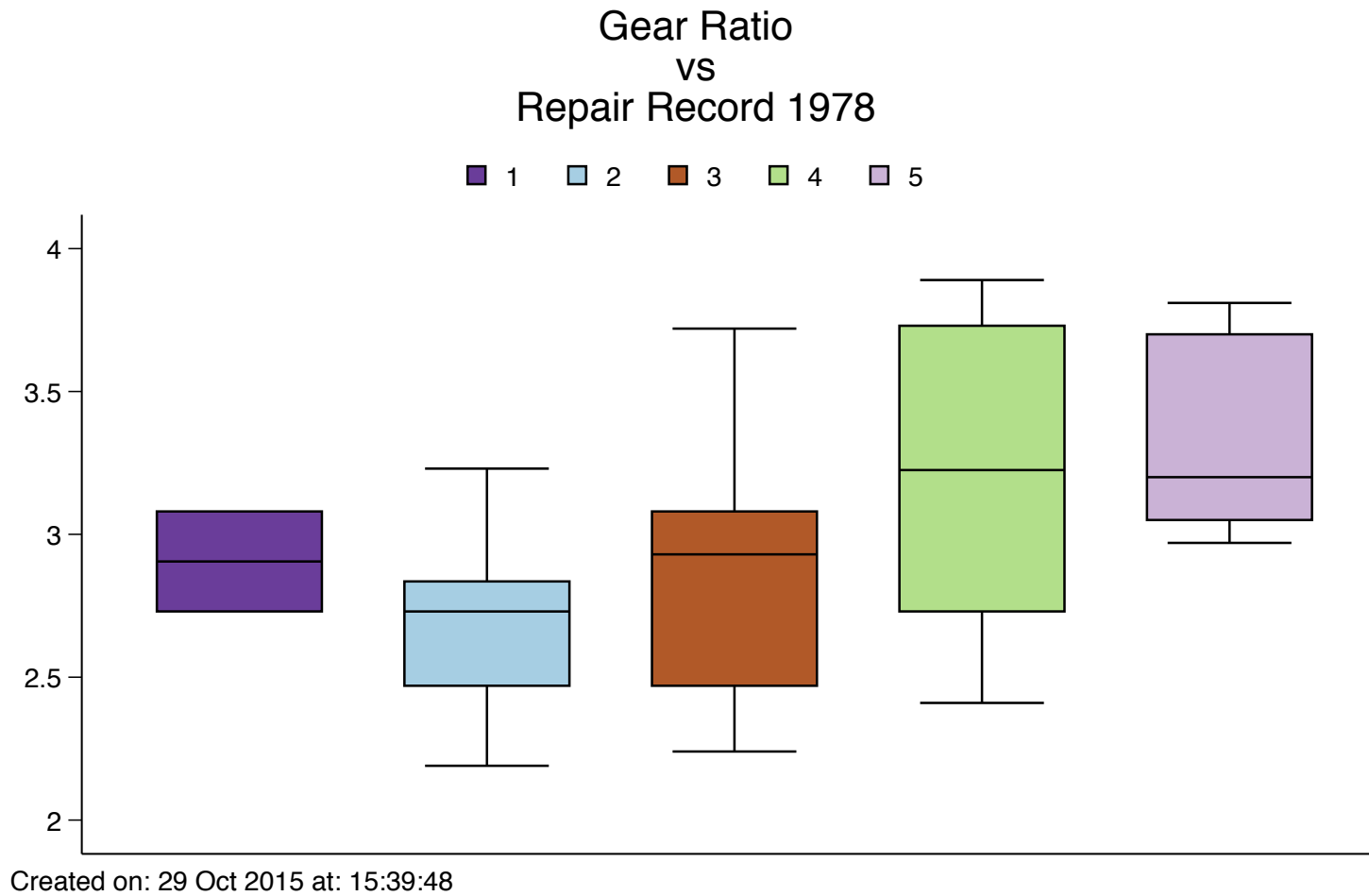
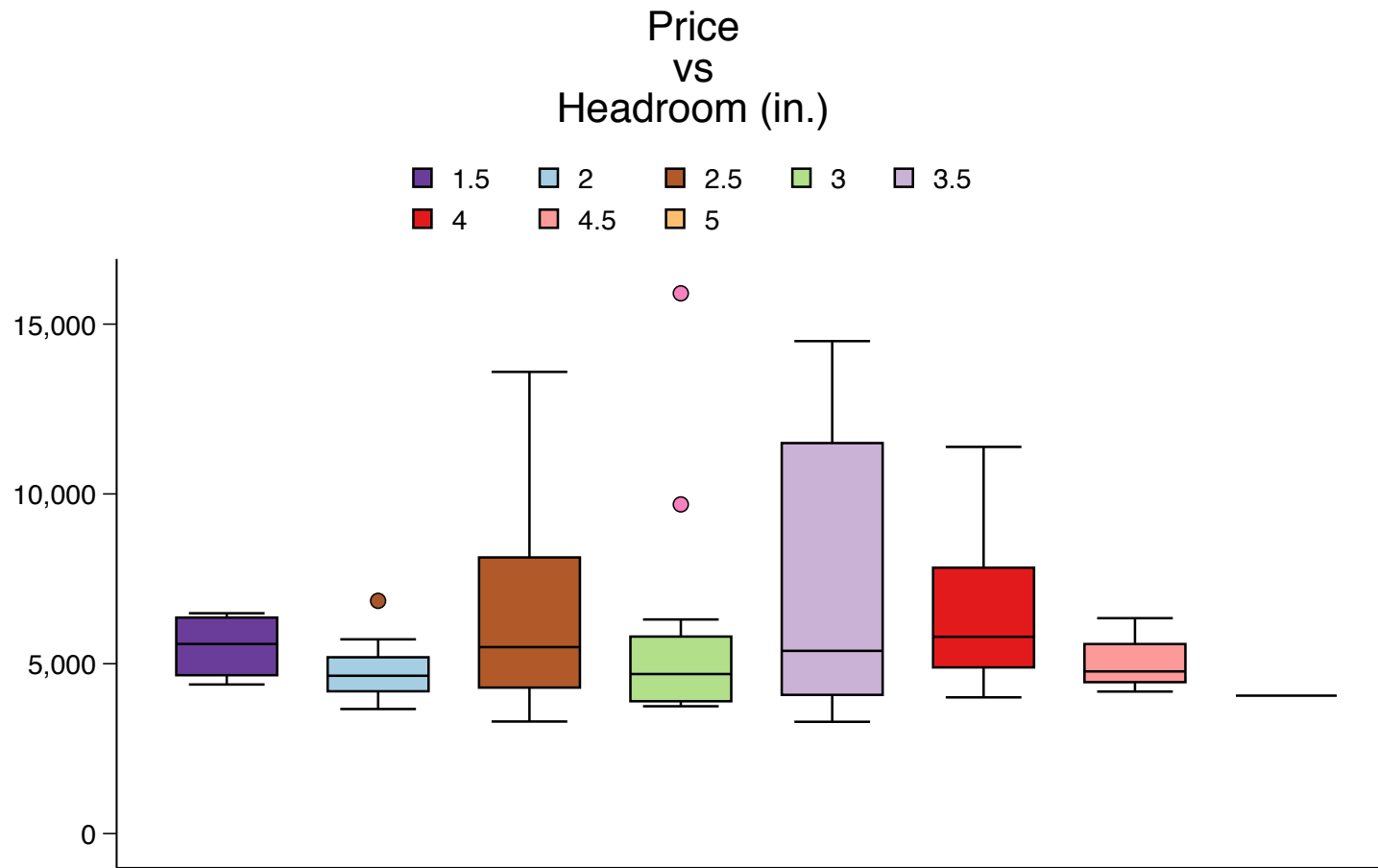


Figure 1.199: Box Plot of Price by Headroom (in.)



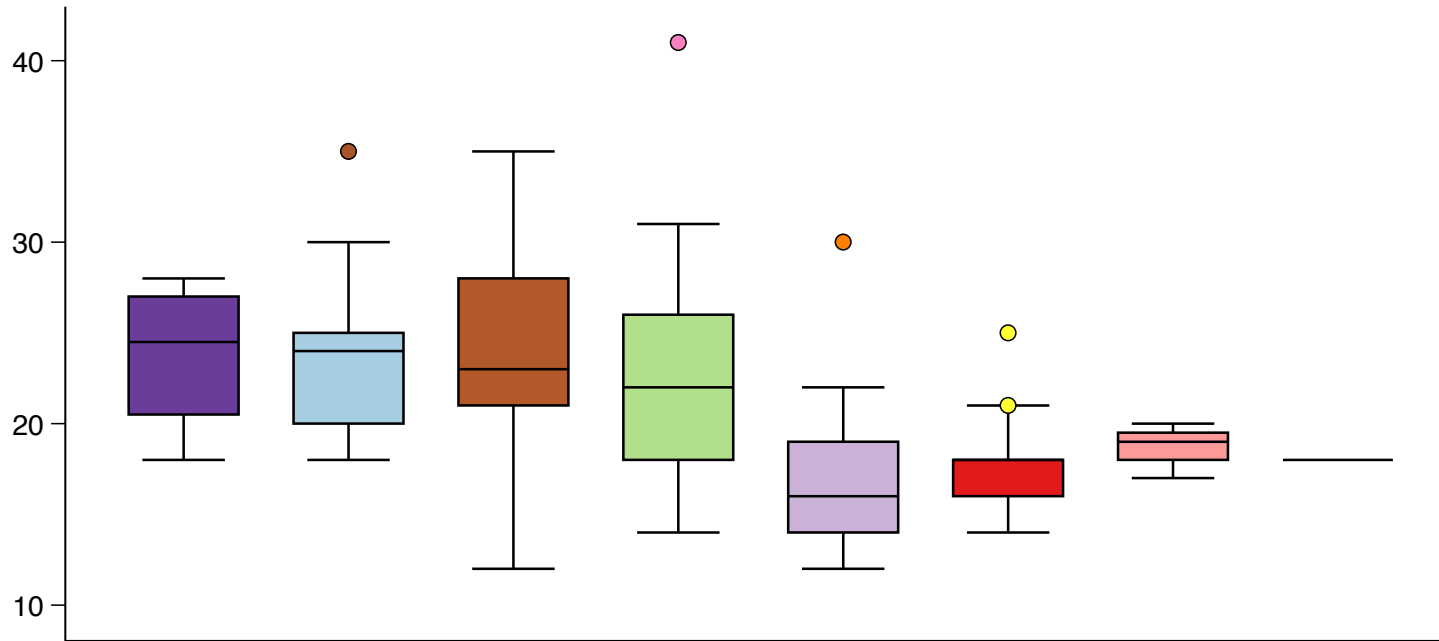
Created on: 29 Oct 2015 at: 15:39:50

Distributions by headroom.

Figure 1.200: Box Plot of Mileage (mpg) by Headroom (in.)

Mileage (mpg)
vs
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5

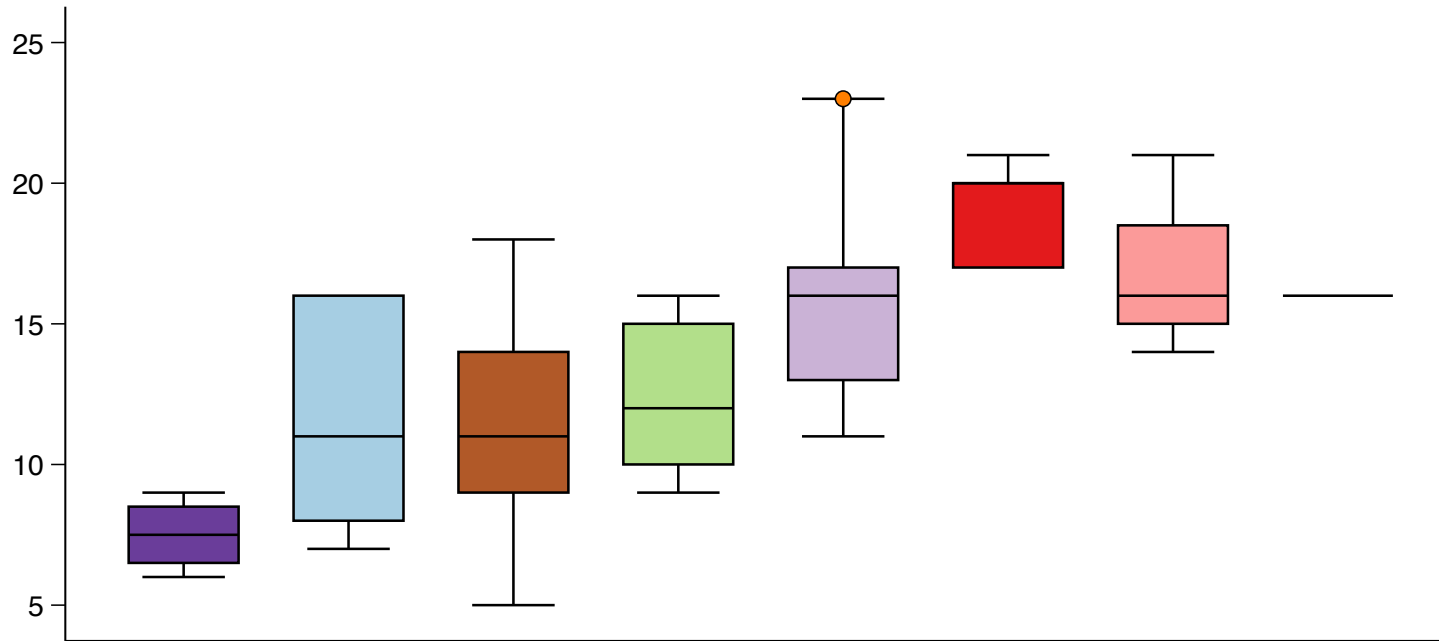


Created on: 29 Oct 2015 at: 15:39:52

Figure 1.201: Box Plot of Trunk space (cu. ft.) by Headroom (in.)

Trunk space (cu. ft.)
vs
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5

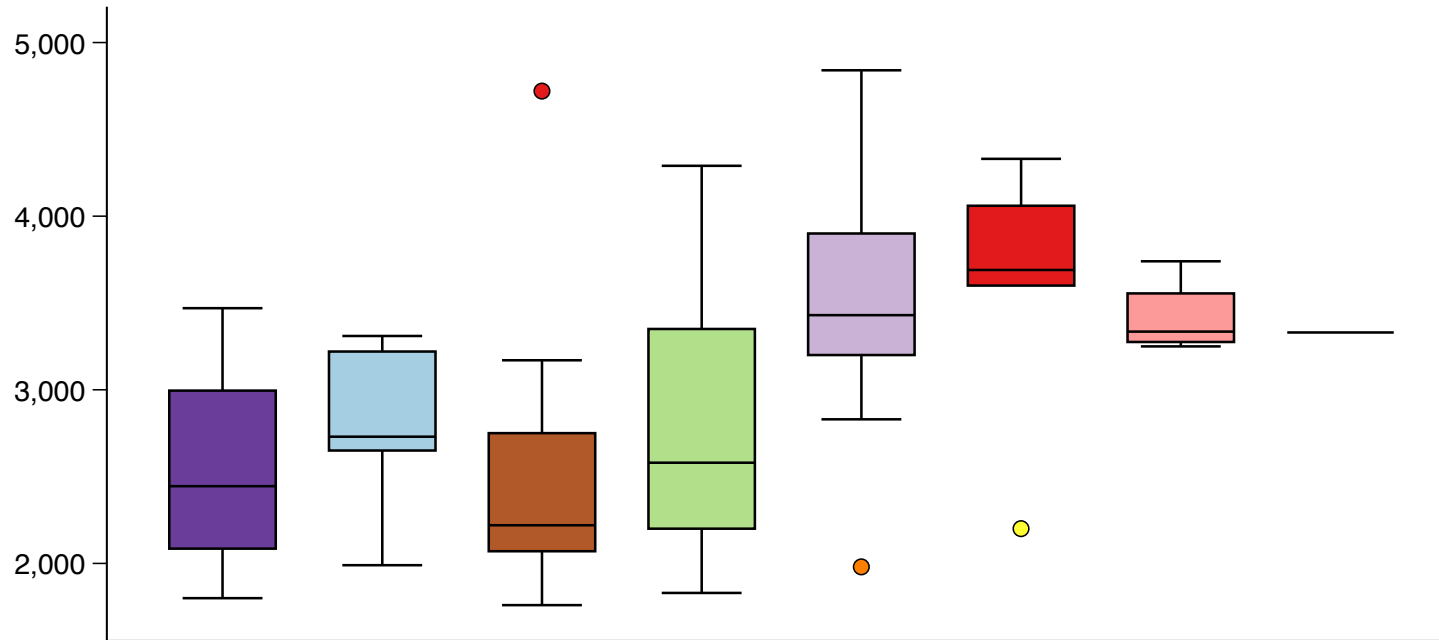


Created on: 29 Oct 2015 at: 15:39:55

Figure 1.202: Box Plot of Weight (lbs.) by Headroom (in.)

Weight (lbs.)
vs
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5

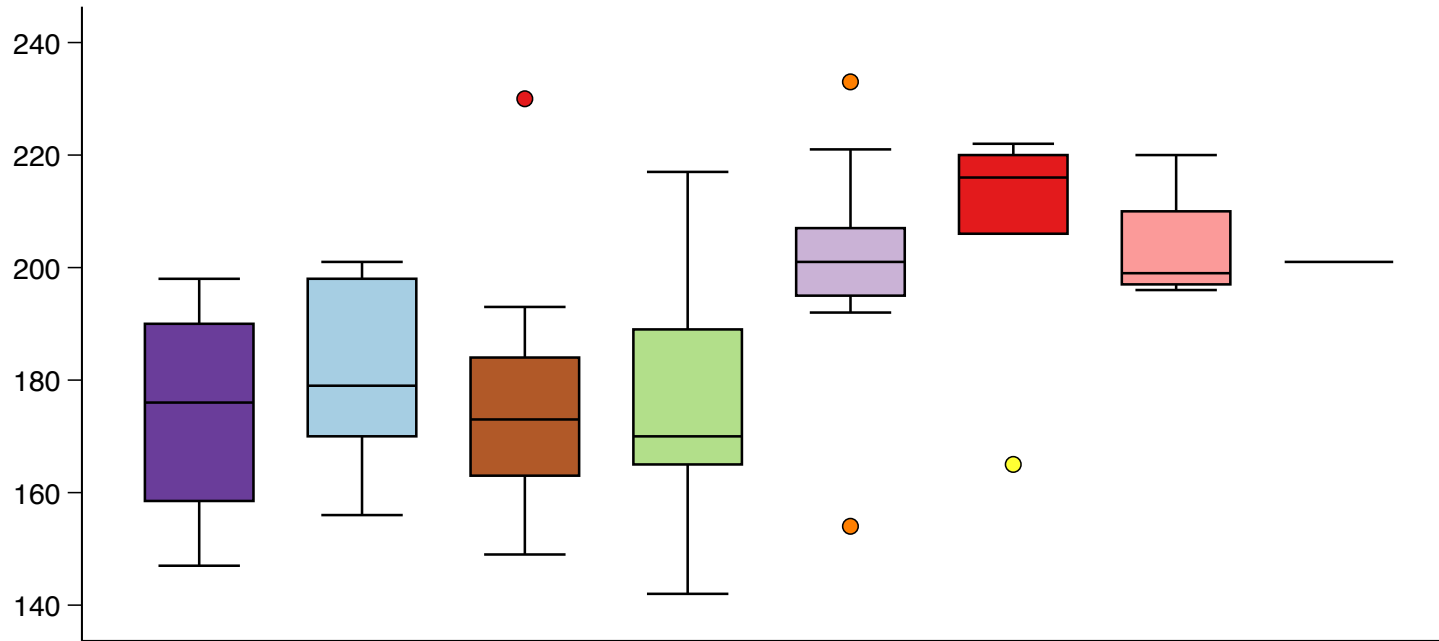


Created on: 29 Oct 2015 at: 15:39:57

Figure 1.203: Box Plot of Length (in.) by Headroom (in.)

Length (in.)
VS
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5



Created on: 29 Oct 2015 at: 15:39:59

Figure 1.204: Box Plot of Turn Circle (ft.) by Headroom (in.)

Turn Circle (ft.)
vs
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5

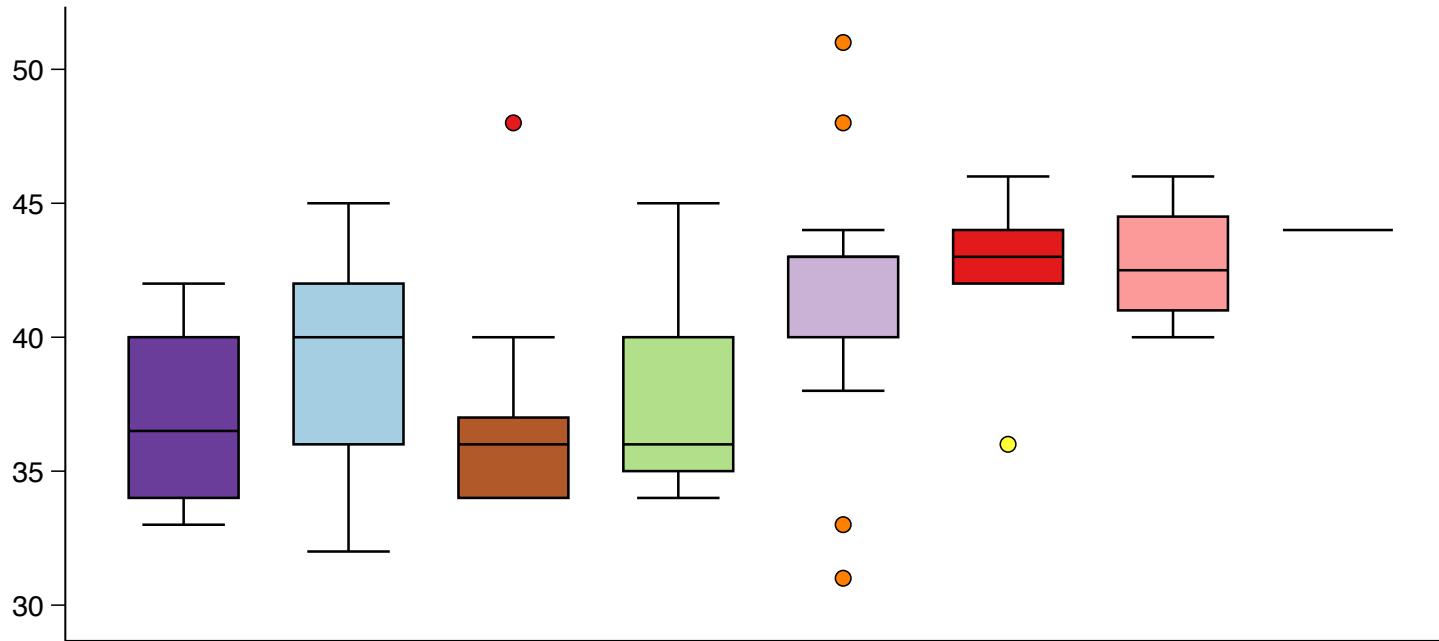
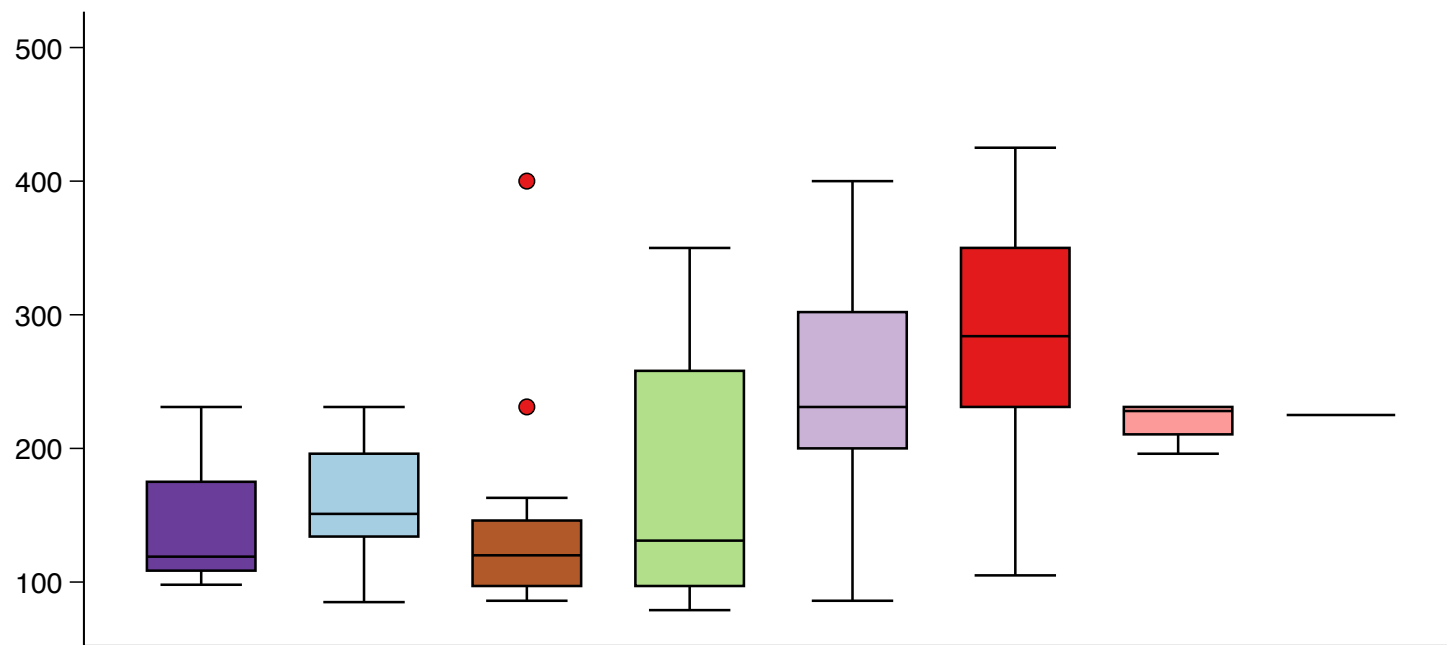


Figure 1.205: Box Plot of Displacement (cu. in.) by Headroom (in.)

Displacement (cu. in.)
vs
Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5



Created on: 29 Oct 2015 at: 15:40:04

Figure 1.206: Box Plot of Gear Ratio by Headroom (in.)

Gear Ratio vs Headroom (in.)

1.5 2 2.5 3 3.5
4 4.5 5

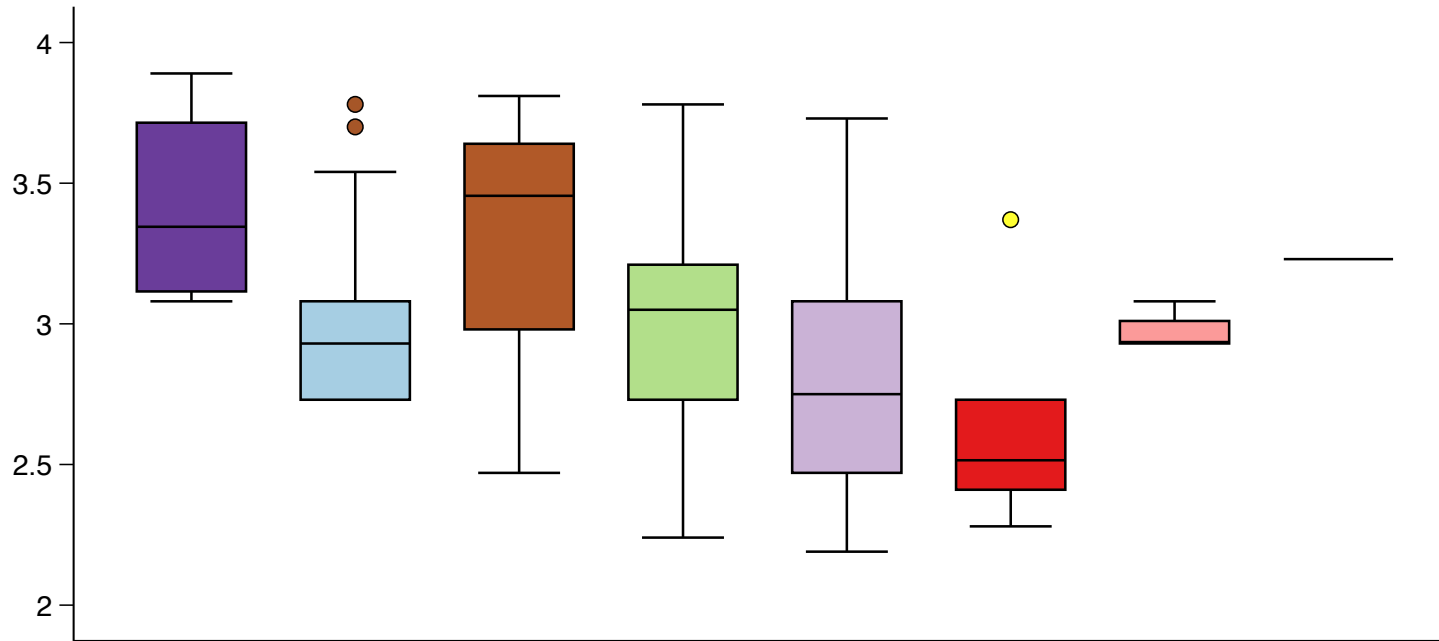
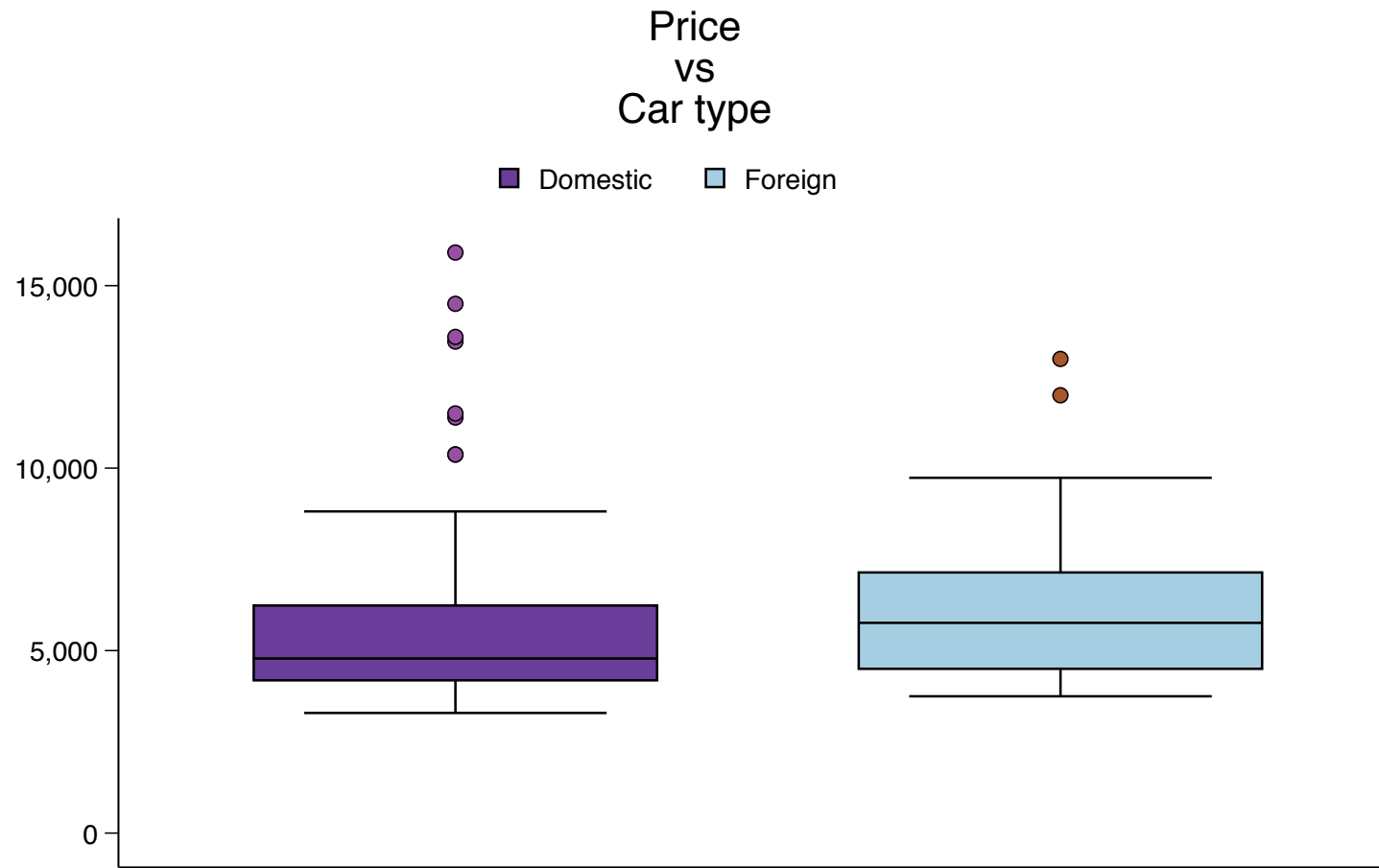


Figure 1.207: Box Plot of Price by Car type



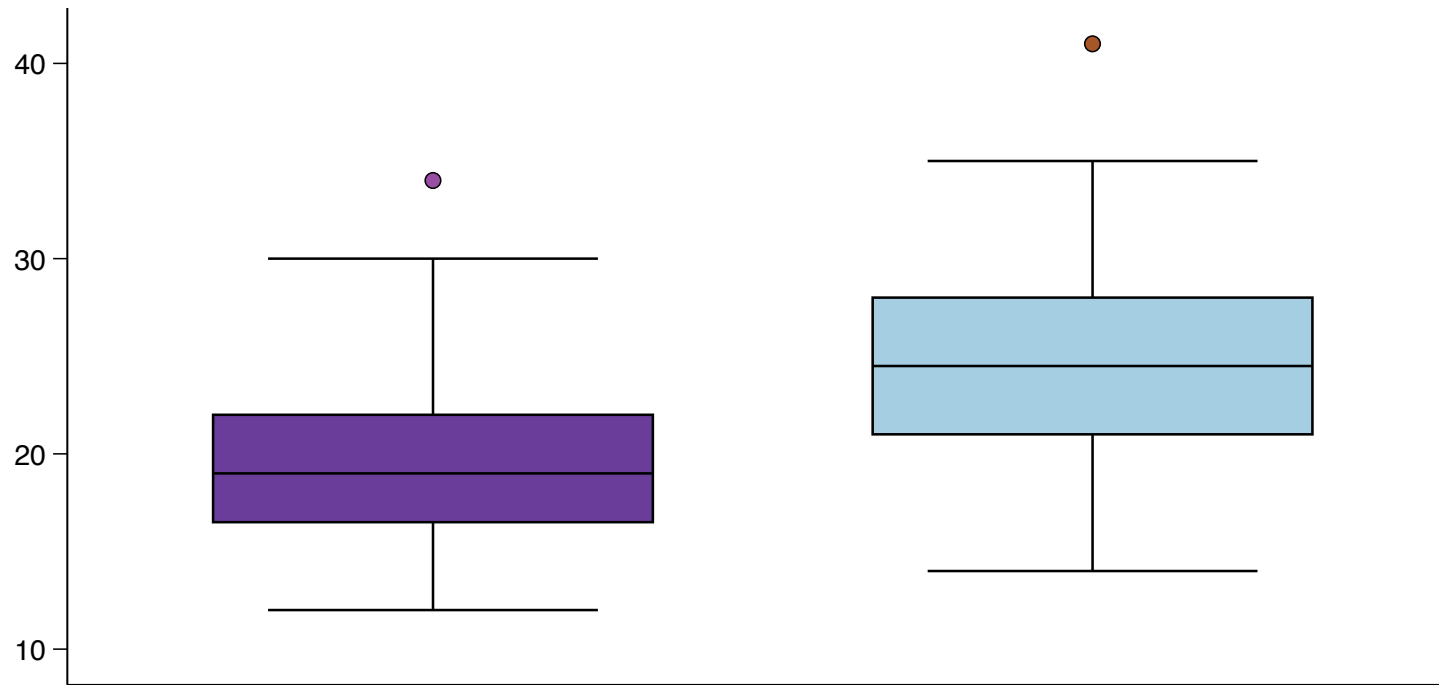
Created on: 29 Oct 2015 at: 15:40:09

Distributions by foreign.

Figure 1.208: Box Plot of Mileage (mpg) by Car type

Mileage (mpg)
vs
Car type

■ Domestic ■ Foreign

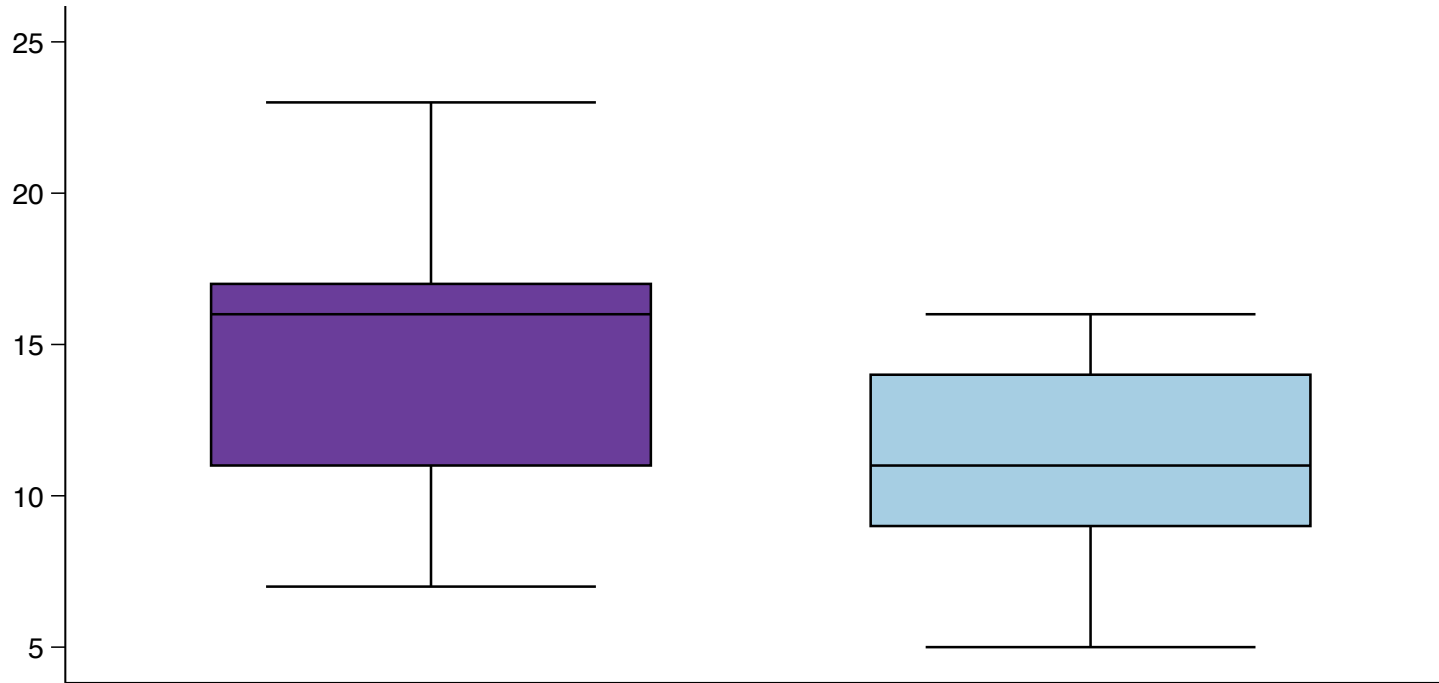


Created on: 29 Oct 2015 at: 15:40:11

Figure 1.209: Box Plot of Trunk space (cu. ft.) by Car type

Trunk space (cu. ft.)
vs
Car type

■ Domestic ■ Foreign

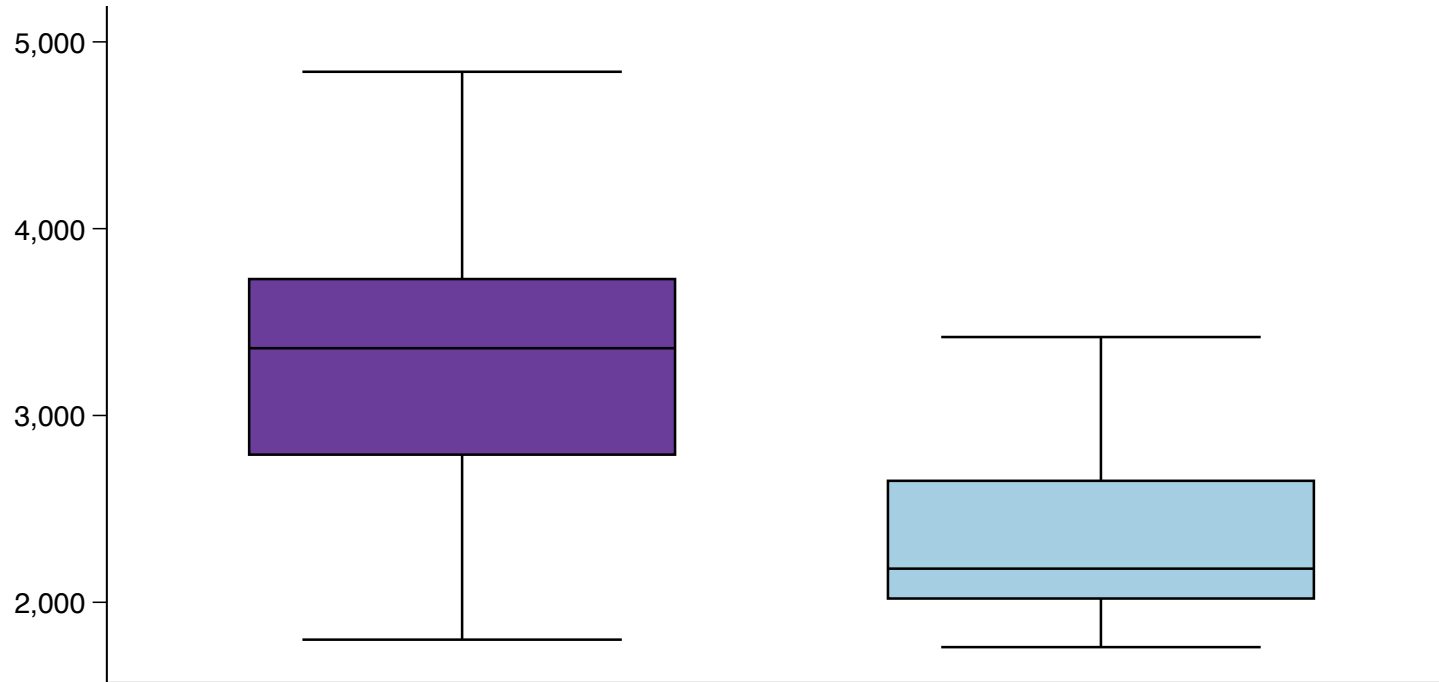


Created on: 29 Oct 2015 at: 15:40:13

Figure 1.210: Box Plot of Weight (lbs.) by Car type

Weight (lbs.)
vs
Car type

■ Domestic ■ Foreign

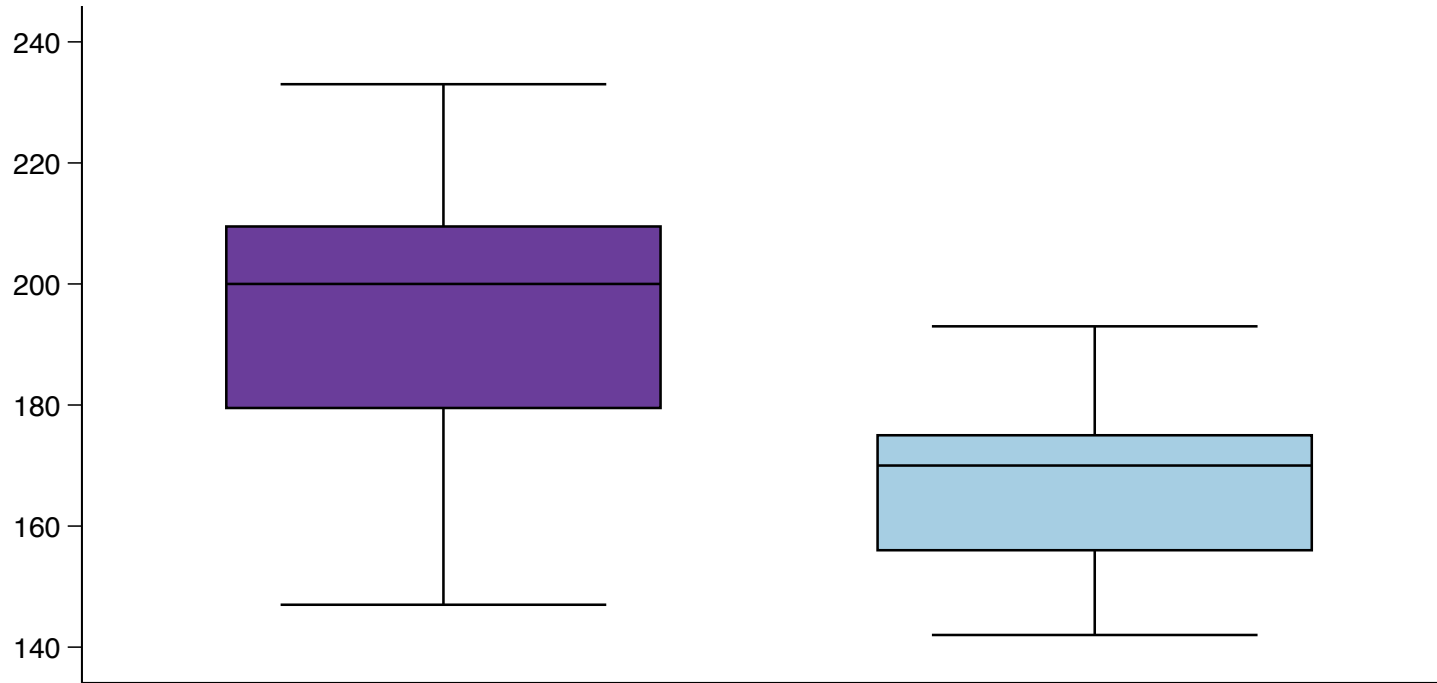


Created on: 29 Oct 2015 at: 15:40:15

Figure 1.211: Box Plot of Length (in.) by Car type

Length (in.)
vs
Car type

■ Domestic ■ Foreign

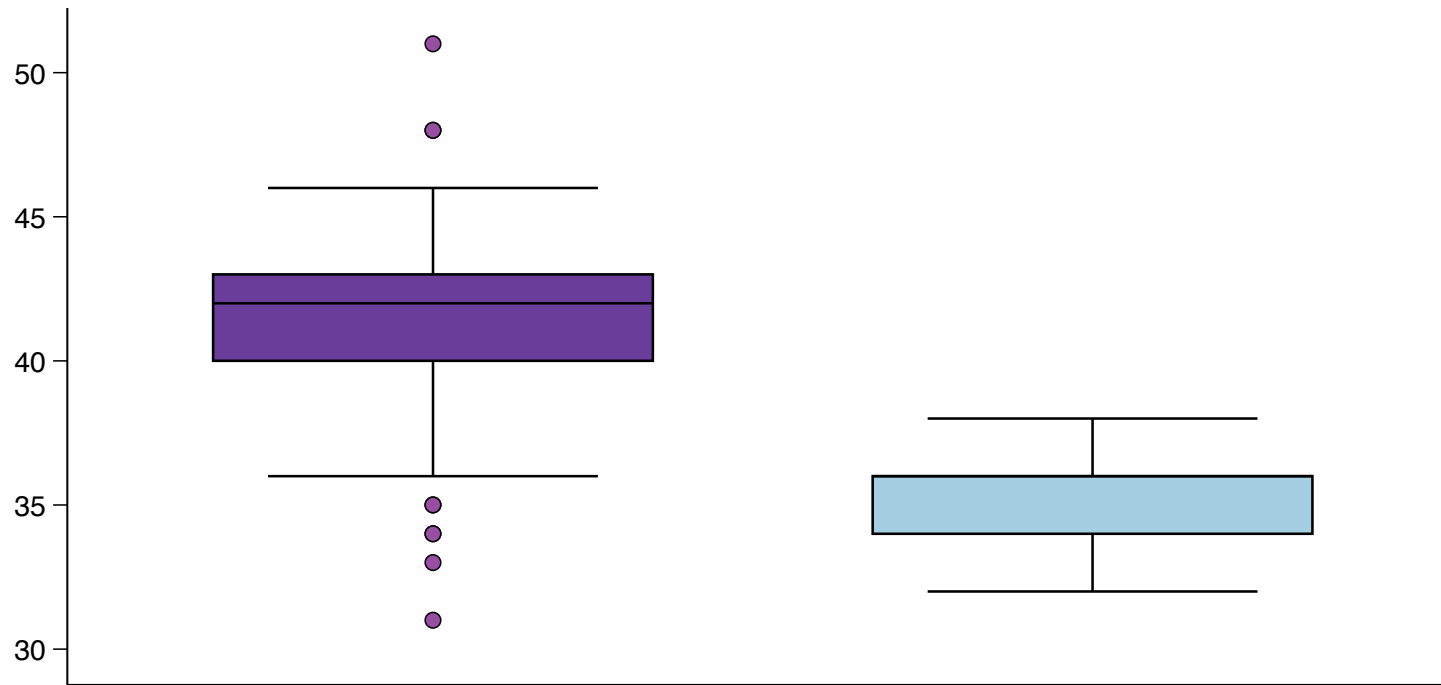


Created on: 29 Oct 2015 at: 15:40:17

Figure 1.212: Box Plot of Turn Circle (ft.) by Car type

Turn Circle (ft.)
vs
Car type

■ Domestic ■ Foreign

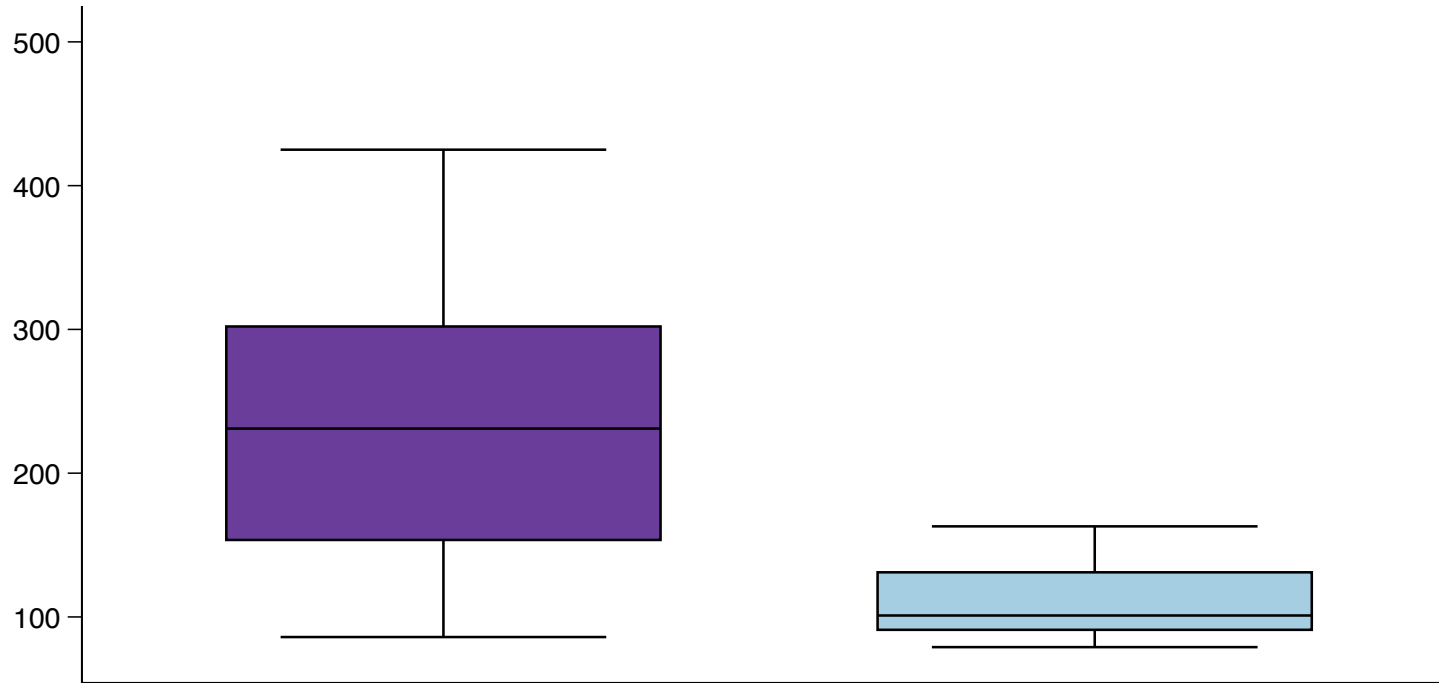


Created on: 29 Oct 2015 at: 15:40:19

Figure 1.213: Box Plot of Displacement (cu. in.) by Car type

Displacement (cu. in.)
vs
Car type

■ Domestic ■ Foreign

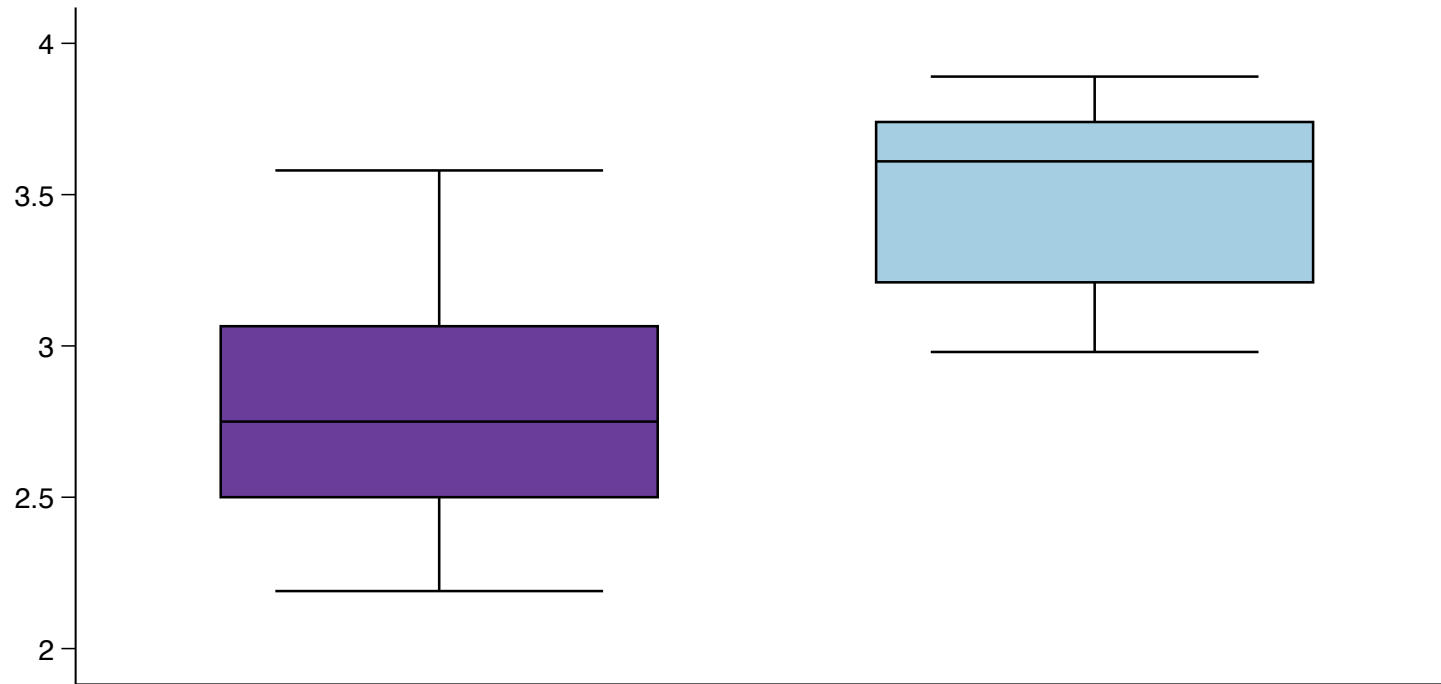


Created on: 29 Oct 2015 at: 15:40:20

Figure 1.214: Box Plot of Gear Ratio by Car type

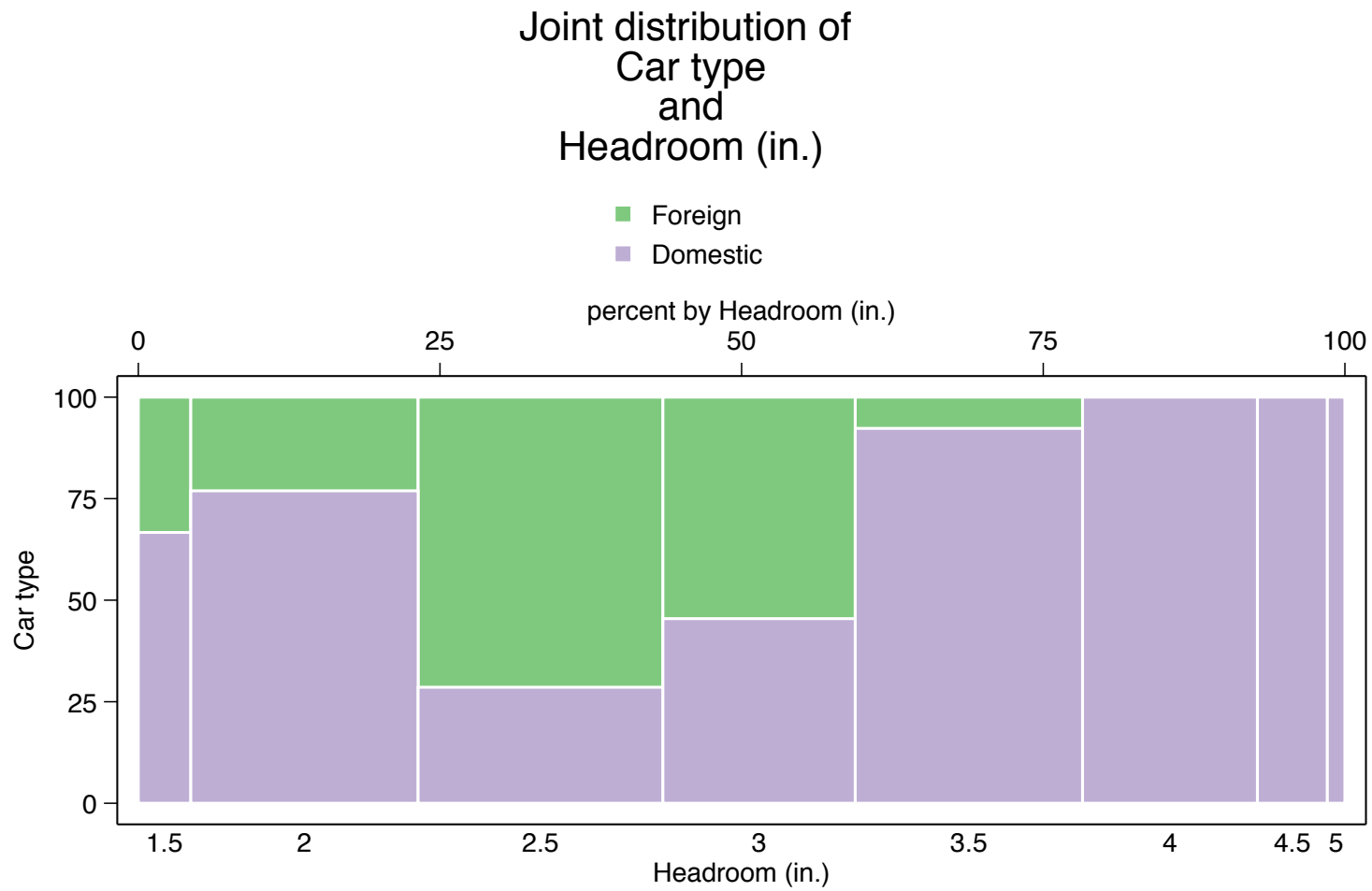
Gear Ratio vs Car type

■ Domestic ■ Foreign



Created on: 29 Oct 2015 at: 15:40:22

Figure 1.215: Mosaic Plots of Car type by Headroom (in.)



Mosaic Plots.

Figure 1.216: Mosaic Plots of Car type by Repair Record 1978

Joint distribution of Car type and Repair Record 1978

Foreign
Domestic

percent by Repair Record 1978

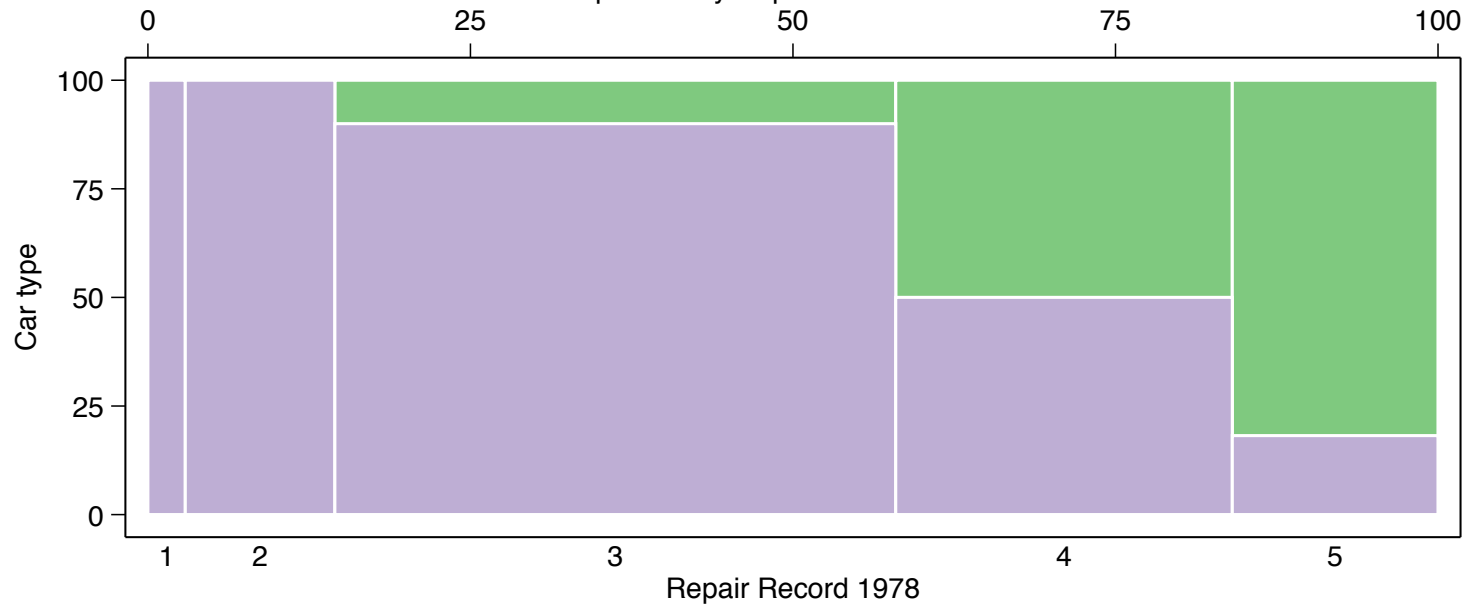
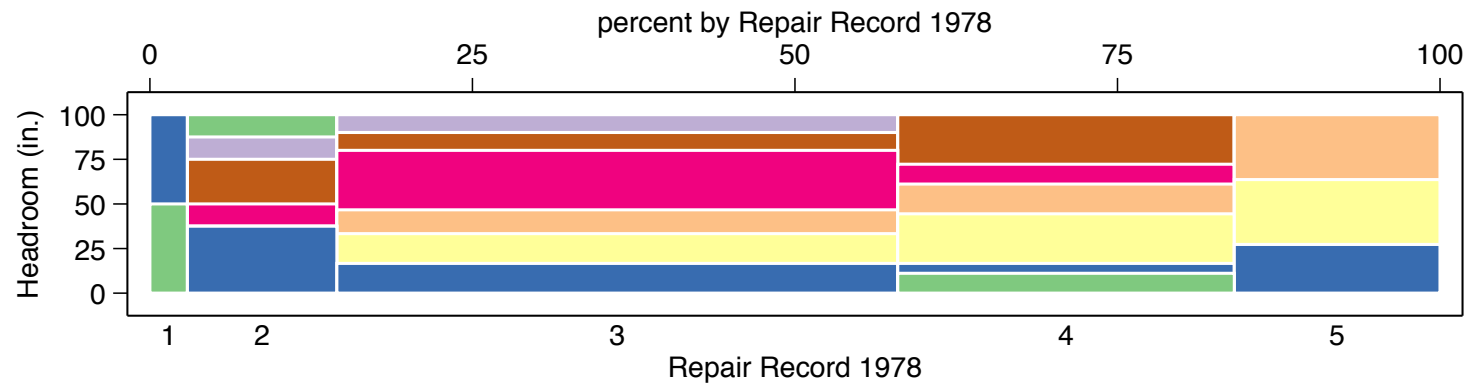
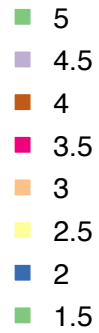


Figure 1.217: Mosaic Plots of Headroom (in.) by Repair Record 1978

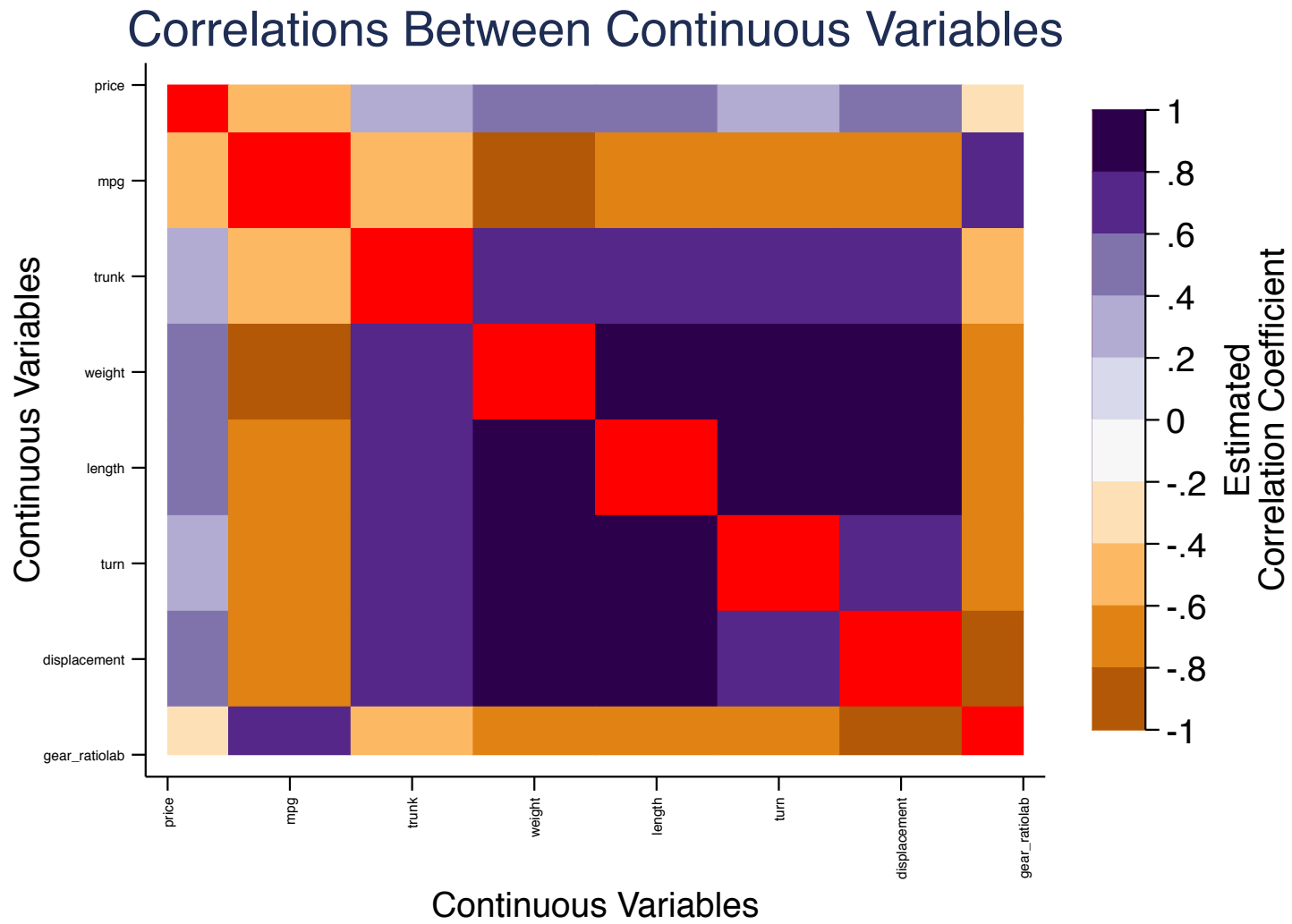
Joint distribution of
Headroom (in.)
and
Repair Record 1978



Correlations

Correlations Between Continuous Variables

Figure 1.218: Correlation Heatmap



Chapter 2.
Descriptive Statistics

Categorical Variables

Table 2.1: Distribution of Repair Record 1978

	Frequency	Percentage
1	2	2.703
2	8	10.81
3	30	40.54
4	18	24.32
5	11	14.86
.	5	6.757

Table 2.2: Distribution of Headroom (in.)

	Frequency	Percentage
1.5	4	5.405
2	13	17.57
2.5	14	18.92
3	13	17.57
3.5	15	20.27
4	10	13.51
4.5	4	5.405
5	1	1.351

Table 2.3: Distribution of Car type

	Frequency	Percentage
Domestic	52	70.27
Foreign	22	29.73

Table 2.4: Frequency of Headroom (in.) by Car type

	Domestic Frequency	Foreign Frequency
1.5	3	1
2	10	3
2.5	4	10
3	7	6
3.5	13	2
4	10	0
4.5	4	0
5	1	0

Table 2.5: Overall % of Headroom (in.) by Car type

	Domestic Overall%	Foreign Overall%
1.5	4.054	1.351
2	13.51	4.054
2.5	5.405	13.51
3	9.459	8.108
3.5	17.57	2.703
4	13.51	0
4.5	5.405	0
5	1.351	0

Table 2.6: Column % of Headroom (in.) by Car type

	Domestic Column%	Foreign Column%
1.5	5.769	4.545
2	19.23	13.64
2.5	7.692	45.45
3	13.46	27.27
3.5	25	9.091
4	19.23	0
4.5	7.692	0
5	1.923	0

Table 2.7: Row % of Headroom (in.) by Car type

	Domestic Row%	Foreign Row%
1.5	75	25
2	76.92	23.08
2.5	28.57	71.43
3	53.85	46.15
3.5	86.67	13.33
4	100	0
4.5	100	0
5	100	0

Table 2.8: Frequency of Repair Record 1978 by Car type

	Domestic Frequency	Foreign Frequency
1	2	0
2	8	0
3	27	3
4	9	9
5	2	9
.	4	1

Table 2.9: Overall % of Repair Record 1978 by Car type

	Domestic Overall%	Foreign Overall%
1	2.703	0
2	10.81	0
3	36.49	4.054
4	12.16	12.16
5	2.703	12.16
.	5.405	1.351

Table 2.10: Column % of Repair Record 1978 by Car type

	Domestic Column%	Foreign Column%
1	3.846	0
2	15.38	0
3	51.92	13.64
4	17.31	40.91
5	3.846	40.91
.	7.692	4.545

Table 2.11: Row % of Repair Record 1978 by Car type

	Domestic Row%	Foreign Row%
1	100	0
2	100	0
3	90	10
4	50	50
5	18.18	81.82
.	80	20

Table 2.12: Frequency of Repair Record 1978 by Headroom (in.)

	1.5	2	2.5	3	3.5	4	4.5	5
	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
1	1	1	0	0	0	0	0	0
2	0	3	0	0	1	2	1	1
3	0	5	5	4	10	3	3	0
4	2	1	5	3	2	5	0	0
5	0	3	4	4	0	0	0	0
.	1	0	0	2	2	0	0	0

Table 2.13: Overall % of Repair Record 1978 by Headroom (in.)

	1.5	2	2.5	3	3.5	4	4.5	5
	Overall%	Overall%	Overall%	Overall%	Overall%	Overall%	Overall%	Overall%
1	1.351	1.351	0	0	0	0	0	0
2	0	4.054	0	0	1.351	2.703	1.351	1.351
3	0	6.757	6.757	5.405	13.51	4.054	4.054	0
4	2.703	1.351	6.757	4.054	2.703	6.757	0	0
5	0	4.054	5.405	5.405	0	0	0	0
.	1.351	0	0	2.703	2.703	0	0	0

Table 2.14: Column % of Repair Record 1978 by Headroom (in.)

	1.5	2	2.5	3	3.5	4	4.5	5
	Column%	Column%	Column%	Column%	Column%	Column%	Column%	Column%
1	25	7.692	0	0	0	0	0	0
2	0	23.08	0	0	6.667	20	25	100
3	0	38.46	35.71	30.77	66.67	30	75	0
4	50	7.692	35.71	23.08	13.33	50	0	0
5	0	23.08	28.57	30.77	0	0	0	0
.	25	0	0	15.38	13.33	0	0	0

Table 2.15: Row % of Repair Record 1978 by Headroom (in.)

1.5	2	2.5	3	3.5	4	4.5	5
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Continuous Variables

Table 2.16: Descriptive Statistics of Continuous Variables

	N	μ	σ
Price	74	6165.257	2949.496
Mileage (mpg)	74	21.297	5.786
Trunk space (cu. ft.)	74	13.757	4.277
Weight (lbs.)	74	3019.459	777.194
Length (in.)	74	187.932	22.266
Turn Circle (ft.)	74	39.649	4.399
Displacement (cu. in.)	74	197.297	91.837
Gear Ratio	74	3.015	0.456

μ = Average σ = Standard Deviation

Table 2.17: Higher Order Moment Conditions

	Skewness	Kurtosis
Price	1.653	4.819
Mileage (mpg)	0.949	3.975
Trunk space (cu. ft.)	0.029	2.192
Weight (lbs.)	0.148	2.118
Length (in.)	-0.041	2.042
Turn Circle (ft.)	0.124	2.229
Displacement (cu. in.)	0.592	2.376
Gear Ratio	0.219	2.102

Table 2.18: Order Statistics

	Min.	25%ile	Median	75%ile	Max
Price	3291.000	4195.000	5006.500	6342.000	15906.000
Mileage (mpg)	12.000	18.000	20.000	25.000	41.000
Trunk space (cu. ft.)	5.000	10.000	14.000	17.000	23.000
Weight (lbs.)	1760.000	2240.000	3190.000	3600.000	4840.000
Length (in.)	142.000	170.000	192.500	204.000	233.000
Turn Circle (ft.)	31.000	36.000	40.000	43.000	51.000
Displacement (cu. in.)	79.000	119.000	196.000	250.000	425.000
Gear Ratio	2.190	2.730	2.955	3.370	3.890

This is also known as Tukey's Five Number Summary

Conditional Descriptive Statistics

Table 2.19: Averages by groups of Repair Record 1978

	1	2	3	4	5	Total
Price	4564.5	5967.6	6429.2	6071.5	5913	6146.0
Mileage (mpg)	21	19.12	19.43	21.67	27.36	21.29
Trunk space (cu. ft.)	8.500	14.62	15.27	13.50	11.45	13.93
Weight (lbs.)	3100	3353.8	3299	2870	2322.7	3032.0
Length (in.)	189	199.4	194	184.8	170.2	188.3
Turn Circle (ft.)	41	43.38	41.07	38.50	35.64	39.80
Displacement (cu. in.)	191	242.2	230.0	178.8	111.1	198
Gear Ratio	2.905	2.686	2.871	3.176	3.305	2.999

mean coefficients; t statistics in parentheses

Table 2.20: Standard Deviations by groups of Repair
Record 1978

	1	2	3	4	5	Total
Price	522.6	3579.4	3525.1	1709.6	2615.8	2912.4
Mileage (mpg)	4.243	3.758	4.141	4.935	8.732	5.866
Trunk space (cu. ft.)	2.121	4.984	3.591	5.272	2.659	4.343
Weight (lbs.)	523.3	446.0	752.4	907.3	410.6	792.9
Length (in.)	12.73	13.98	20.72	28.65	12.10	22.75
Turn Circle (ft.)	1.414	2.504	4.250	4.706	1.433	4.441
Displacement (cu. in.)	56.57	77.57	91.93	96.06	25.46	93.15
Gear Ratio	0.247	0.317	0.411	0.536	0.335	0.463

sd coefficients; *t* statistics in parentheses

Tables by groups of headroom

Table 2.21: Averages by groups of Headroom (in.)

	1_missing_5 1.5	2 1.5	2_missing_5 1.5	3 1.5	3_missing_5 1.5	4 1.5	4_missing_5 1.5	5 1.5	Total 1.5
Price	5509.5	4822.8	6591.6	5906.2	7580.9	6458.5	5018	4060	6165.3
Mileage (mpg)	23.75	23.77	23.71	23.46	17.53	17.90	18.75	18	21.30
Trunk space (cu. ft.)	7.500	11.69	11.43	12.31	16.07	19.20	16.75	16	13.76
Weight (lbs.)	2540	2761.5	2499.3	2743.1	3541.3	3662	3415	3330	3019.5
Length (in.)	174.2	180.4	175.3	175.2	201.1	210.2	203.5	201	187.9
Turn Circle (ft.)	37	39.23	36.86	37.77	41.73	42.80	42.75	44	39.65
Displacement (cu. in.)	141.8	155.5	143.4	178.3	251.3	280.9	220.8	225	197.3
Gear Ratio	3.415	3.070	3.331	3.028	2.817	2.616	2.970	3.230	3.015

mean coefficients; *t* statistics in parentheses

Table 2.22: Standard Deviations by groups of Headroom
(in.)

	1_missing_5 1.5	2 1.5	2_missing_5 1.5	3 1.5	3_missing_5 1.5	4 1.5	4_missing_5 1.5	Total 1.5
Price	1009.6	854.1	3196.5	3404.0	4086.4	2256.7	926.6	2949.5
Mileage (mpg)	4.349	4.902	6.293	7.043	4.486	3.178	1.258	5.786
Trunk space (cu. ft.)	1.291	3.772	3.390	2.626	3.240	1.549	2.986	4.277
Weight (lbs.)	693.3	484.2	761.2	812.6	644.0	570.3	222.2	777.2
Length (in.)	21.48	15.22	19.71	21.29	16.97	16.90	11.12	22.27
Turn Circle (ft.)	3.916	3.723	3.634	3.919	4.992	2.781	2.500	4.399
Displacement (cu. in.)	60.32	47.86	83.01	98.48	84.98	89.71	16.74	91.84
Gear Ratio	0.376	0.370	0.394	0.508	0.450	0.308	0.0735	0.456

sd coefficients; *t* statistics in parentheses

Table 2.23: Averages by groups of Car type

	Domestic	Foreign	Total
Price	6072.4	6384.7	6165.3
Mileage (mpg)	19.83	24.77	21.30
Trunk space (cu. ft.)	14.75	11.41	13.76
Weight (lbs.)	3317.1	2315.9	3019.5
Length (in.)	196.1	168.5	187.9
Turn Circle (ft.)	41.44	35.41	39.65
Displacement (cu. in.)	233.7	111.2	197.3
Gear Ratio	2.807	3.507	3.015
mean coefficients; t statistics in parentheses			

Tables by groups of foreign

Table 2.24: Standard Deviations by groups of Car type

	Domestic	Foreign	Total
Price	3097.1	2621.9	2949.5
Mileage (mpg)	4.743	6.611	5.786
Trunk space (cu. ft.)	4.306	3.217	4.277
Weight (lbs.)	695.4	433.0	777.2
Length (in.)	20.05	13.68	22.27
Turn Circle (ft.)	3.968	1.501	4.399
Displacement (cu. in.)	85.26	24.88	91.84
Gear Ratio	0.336	0.297	0.456
sd coefficients; <i>t</i> statistics in parentheses			