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**Кафедра И7**

**«Кафедра математической статистики и прикладной математики»**

**«Математическая статистика»**

Лабораторная работа № 4

«Оценивание параметров вероятностных распределений в пакетах STATGRAPHICS и MathCAD»

Вариант 18

**Выполнил:**

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Группа И383

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**One-Variable Analysis - geom**

Data variable: geom (Random Numbers for Dist. 1)

100 values ranging from 0,0 to 69,0

***The StatAdvisor***

*This procedure is designed to summarize a single sample of data. It will calculate various statistics and graphs. Also included in the procedure are confidence intervals and hypothesis tests. Use the Tabular Options and Graphical Options buttons on the analysis toolbar to access these different procedures.*

**Summary Statistics for geom**

|  |  |
| --- | --- |
| Count | 100 |
| Average | 18,86 |
| Median | 17,0 |
| Mode | 20,0 |
| Geometric mean |  |
| 5% Trimmed mean | 17,3556 |
| 5% Winsorized mean | 18,32 |
| Variance | 241,394 |
| Standard deviation | 15,5369 |
| Coeff. of variation | 82,38% |
| Standard error | 1,55369 |
| 5% Winsorized sigma | 14,5756 |
| MAD | 10,0 |
| Sbi | 13,8412 |
| Minimum | 0,0 |
| Maximum | 69,0 |
| Range | 69,0 |
| Lower quartile | 7,0 |
| Upper quartile | 25,5 |
| Interquartile range | 18,5 |
| 1/6 sextile | 4,0 |
| 5/6 sextile | 30,0 |
| Intersextile range | 26,0 |
| Skewness | 1,33427 |
| Stnd. skewness | 5,44712 |
| Kurtosis | 1,97913 |
| Stnd. kurtosis | 4,03989 |
| Sum | 1886,0 |
| Sum of squares | 59468,0 |

***The StatAdvisor***

*This table shows summary statistics for geom. It includes measures of central tendency, measures of variability, and measures of shape. Of particular interest here are the standardized skewness and standardized kurtosis, which can be used to determine whether the sample comes from a normal distribution. Values of these statistics outside the range of -2 to +2 indicate significant departures from normality, which would tend to invalidate any statistical test regarding the standard deviation. In this case, the standardized skewness value is not within the range expected for data from a normal distribution. The standardized kurtosis value is not within the range expected for data from a normal distribution.*

**Confidence Intervals for geom**

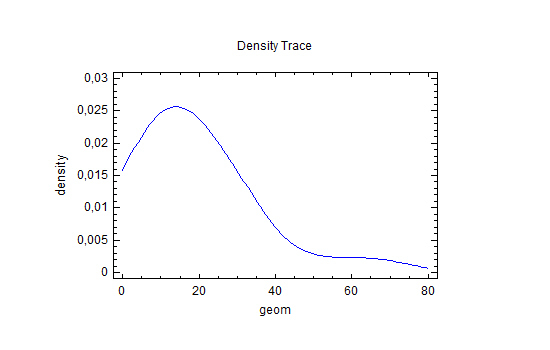
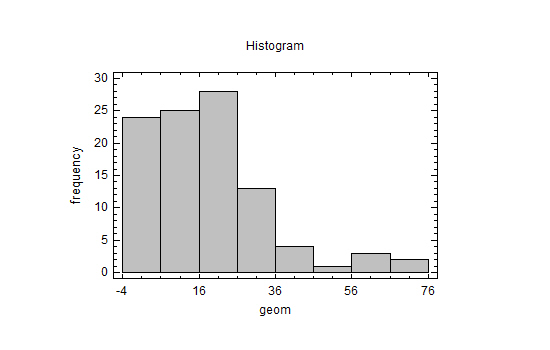
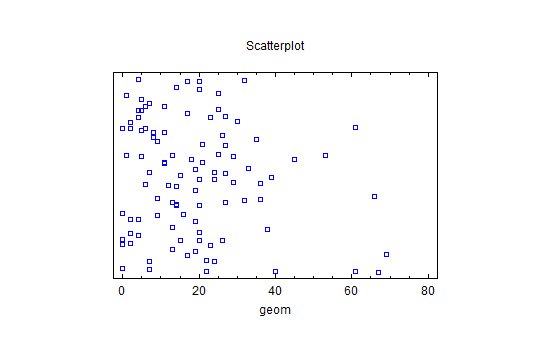
99,0% confidence interval for mean: 18,86 +/- 4,08062 [14,7794; 22,9406]

99,0% confidence interval for standard deviation: [13,1128; 18,9556]

***The StatAdvisor***

*This pane displays 99,0% confidence intervals for the mean and standard deviation of geom. The classical interpretation of these intervals is that, in repeated sampling, these intervals will contain the true mean or standard deviation of the population from which the data come 99,0% of the time. In practical terms, we can state with 99,0% confidence that the true mean geom is somewhere between 14,7794 and 22,9406, while the true standard deviation is somewhere between 13,1128 and 18,9556.*

*Both intervals assume that the population from which the sample comes can be represented by a normal distribution. While the confidence interval for the mean is quite robust and not very sensitive to violations of this assumption, the confidence interval for the standard deviation is quite sensitive. If the data do not come from a normal distribution, the interval for the standard deviation may be incorrect. To check whether the data come from a normal distribution, select Summary Statistics from the list of Tabular Options, or choose Normal Probability Plot from the list of Graphical Options.*

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