



roniSmart Intelligence
Machine Learning
DataScience
Applied Statistics
Econometrics
Text Analytics
Bayesian Models
Neural Networks

AroniSmart Intelligence™ Tutorial
Part II: Statistical Tests

AroniSmartIntelligence™: Statistics, Econometrics, Machine Learning, Data Science, Bayesian Network & Text Analytics models

Welcome Handbook & Manuals Statistical Inference Regression, Econometrics & Time Series Segmentation Bayesian Models, Machine Learning, Neural Network, and BigData Analytics Text Mining and Analytics

Welcome AroniSmartIntelligence: Smart Tools for Applied Statistics, Econometrics, Machine Learning, Data Science, Text Analytics & Big Data

Open a File in Aroni format or check the Handbook and Manuals to explore the capabilities

Open File or Dataset with the Specified Format:

Aroni Format Text or CSV Show Data

Data Set
Dataset Name: TestDataCSV.csv
Records: 180 Variables:

Simple Least-Squares and Polynomial models may use CSV format. Linear, Robust, Logistic, and Ridge Regression models require Mixed Models, Bayesian Models, Econometrics, (weights and initial partition must be in a text file)

Click on Statistical Inference

Statistics Handbook, Probabilities Reference and Manuals:

Statistics Handbook and Manuals

Descriptive Analysis and Statistic Tests:

Statistical Inference

Neural Network, Bayesian Models, Machine Learning, and BigData Analytics:

Bayesian Models, Neural Network, Machine Learning & BigData Analytics

Message text here

Regression Analysis, Mixed Models & Econometrics:

Regression Analysis & Econometrics

Text Mining and Analytics:

Text and Sentiment Analytics

Status and Log
Ready Stop Execution

AroniSmart

AroniSmartIntelligence Statistical Testing

Click Statistical Inference tab or button from AroniSmartIntelligence™ interface to access the module

AroniSmartIntelligence™: Statistics, Econometrics, Machine Learning, Data Science, Bayesian Network & Text Analytics

Welcome Handbook & Manuals Statistical Inference Regression, Econometrics & Time Series Learning, Neural Networks & Deep Learning Analytics

Grouping variables

Select Grouping Variables and the type:

female
educ

☒ Proportion
☐ Frequency Counts
☐ Average of Sample 1 Variables

Create Contingency Table

Variables browser

Available Variables

age
black
choic
finc
finc35
finc50
finc75

Sample 1 >
Sample 2 >

Model variables set one

Choose test here

Choose Statistic to Conduct and Relevant Parameter to Test

Chi-Square Goodness of Fit

☐ Parametric Statistic Test

Enter known parameter values:

Value of Known Parameter:

Value of Variable to Test:

Run Statistical Test

Top
End
Clear

Contingency table

Contingency Table for Variables: female and black:

Row: C female_0 female_1	black_0	black_1
black_0	0.38	0.51
black_1	0.02	0.10

Contingency Table for Variables: female and educ:

Row: C female_0 female_1	educ_8	educ_9	educ_10	educ_11	educ_12	educ_13	educ_14	educ_15	educ_16	educ_17	educ_18
educ_8	0.02	0.01									
educ_9	0.00	0.03									
educ_10	0.01	0.00									
educ_11	0.02	0.01									
educ_12	0.17	0.30									
educ_13	0.01	0.03									
educ_14	0.03	0.06									
educ_15	0.01	0.02									
educ_16	0.05	0.08									
educ_17	0.03	0.03									
educ_18	0.08	0.05									

Output

Message text here

Status and Log

Model has finished to run. You may check the results in the output log

Screenshot on

AroniSmart

AroniSmartIntelligence Statistical Testing

Click Statistical Testing tab from AroniSmartIntelligence™ interface to access the module

AroniSmartIntelligence™: Statistics, Econometrics, Machine Learning, Data Science, Bayesian Network & Text Analytics -> Statistical Inference

Welcome Handbook & Manuals Statistical Inference Regression Econometrics & Time Series Segmentation Decision Models Machine Learning Neural Networks and Big Data Analytics Text Mining and Analytics

1-Click here to select Two-way contingency table

☒ Two-Way: Contingency Table

Select Grouping Variables and the type:

female educ

2-Select two categorical variables

choice finc100 finc25 finc35 finc50 finc75

3-Select metric

☒ Proportion
☐ Frequency Counts
☐ Average of Sample 1 Variables

4-Click Create Contingency table

Create Contingency Table Reset Variables

Choose Statistic to Conduct and Relevant Parameter to Test

Chi-Square Goodness of Fit

☐ Parametric Statistic Test

Enter known parameter values:

Value of Known Parameter:

Value of Variable to Test:

Run Statistical Test

Top End Clear

5-Results in the Output

Contingency Table for Variables: female and black:

Row: C female_0 female_1		
black_0	0.38	0.51
black_1	0.02	0.10

Contingency Table for Variables: female and educ:

Row: C female_0 female_1		
educ_8	0.02	0.01
educ_9	0.00	0.03
educ_10	0.01	0.00
educ_11	0.02	0.01
educ_12	0.17	0.30
educ_13	0.01	0.03
educ_14	0.03	0.06
educ_15	0.01	0.02
educ_16	0.05	0.08
educ_17	0.03	0.03
educ_18	0.08	0.05

Status and Log

Model has finished to run. You may check the results in the output log

Screenshot on

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AroniSmartIntelligence Statistical Testing
Using AroniSmartIntelligence™ : Two way Contingency Table with proportion or frequency

AroniSmartIntelligence™: Statistics, Econometrics, Machine Learning, Data Science, Bayesian Network & Text Analytics -> Statistical Inference

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☒ Two-Way: Contingency Table Available Variables

Select Grouping Variables and the type:

female
educ

age
black
choice
finc100
finc101
finc25
finc35
finc50
finc75

Sample 1 > wealth89

Sample 2 >

Chi-Square Goodness of Fit

☐ Parametric Statistic Test

Enter known parameter value:

Value of Known Parameter:

Value of Variable to Test:

Contingency Table for Variables: female and educ:

Row: C	female_0	female_1
educ_8	81.58	24.50
educ_9	0.00	73.05
educ_10	118.33	0.00
educ_11	155.11	118.15
educ_12	246.75	176.82
educ_13	243.20	215.24
educ_14	309.43	85.07
educ_15	110.00	116.69
educ_16	154.44	302.79
educ_17	483.78	114.19
educ_18	236.64	336.61

Status and Log

Model has finished to run. You may check the results in the output log

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1- click on “Parametric Test” button into “off” state

2- click on popup menu “Choose Statistic to Conduct”

3- See list of non-parametric tests displayed to the right

AroniSmartIntelligence: Statistical Testing

AroniSmartIntelligence™ Non-Parametric Tests

AroniSmartIntelligence™: Statistics, Econometrics, Machine Learning, Data Science, Bayesian Network & Text Analytics -> Statistical Inference

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Descriptive Analysis Statistical Testing

☒ Two-Way: Contingency Table Available Variables Select Sample, Time, Censoring, Strata or Dependent Variables:

Select Grouping Variables and the type:

female educ age Sample 1 > finc25

female educ Sample 2 > finc50 finc75 id irain89 finc35

☐ Proportion
☐ Frequency Counts
☒ Average of Sample 1 Variables

Create Contingency Table Reset Variables

Contingency Table for Variables: female and educ:

Row: C	female_0	female_1
educ_8	81.58	24.50
educ_9	0.00	73.05
educ_10	118.33	0.00
educ_11	155.11	118.15
educ_12	246.75	176.82
educ_13	243.20	215.24
educ_14	309.43	85.07
educ_15	110.00	116.69
educ_16	154.44	302.79
educ_17	483.78	114.19
educ_18	236.64	336.61

Choose Statistic to Conduct and Relevant Parameter to Test

Anova: Factorial

☒ Parametric Statistic Test

Enter known parameter values:

Value of Known Parameter:

Value of Variable:

Run Statistical Test

Top End Clear

Outputs

Status and Log

Model has finished to run. You may check the results in the output log

Stop Execution

AroniSmart

1- click on "Parametric Statistics Test" button into "on" state

2- click on popup menu "Choose Statistic to Conduct"

3- See list of parametric tests displayed to the right

AroniSmartIntelligence: Statistical Testing

AroniSmartIntelligence™ Parametric Tests

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Descriptive Analysis Statistical Testing

☐ Two-Way: Contingency Table

Select Grouping Variables and the type:

Available Variables

Fifthvariable
Firstvariable
Secondvariable
Thirdvariable

Sample 1
Sample 2
Sample 3
Sample 4
Sample 5
Sample 6
Sample 7
Sample 8
Sample 9
Sample 10
Sample 11
Sample 12
Sample 13
Sample 14
Sample 15
Sample 16
Sample 17
Sample 18
Sample 19
Sample 20
Sample 21
Sample 22
Sample 23
Sample 24
Sample 25
Sample 26
Sample 27
Sample 28
Sample 29
Sample 30
Sample 31
Sample 32
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Sample 68
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Sample 70
Sample 71
Sample 72
Sample 73
Sample 74
Sample 75
Sample 76
Sample 77
Sample 78
Sample 79
Sample 80
Sample 81
Sample 82
Sample 83
Sample 84
Sample 85
Sample 86
Sample 87
Sample 88
Sample 89
Sample 90
Sample 91
Sample 92
Sample 93
Sample 94
Sample 95
Sample 96
Sample 97
Sample 98
Sample 99
Sample 100

Proportion
Frequency Counts
Average of Sample 1 Variables

Create Contingency Table

Statistics and Analysis Output

Diagnosis and Student Test: Chi-Square Goodness of Fit

Note: univariate statistics for Variable or Sample: Fourthvariable and Correlation/Covariance between Fourthvariable and Sixthvariable

```
{
  "Average Deviation:" = "46.96892464518515";
  "Average:" = "65.20380818333328";
  "Covariance:" = "14349.34125142846";
  "First Quartile:" = "17.244525";
  "Kurtosis:" = "-0.4702745746754151";
  "Left Tail Probability:" = "8.590483862938312e-13";
  "Median:" = "43.121115";
  "Right Tail Probability:" = "0.9999999999991409";
  "Skewness:" = "0.8087851980779643";
  "Third Quartile:" = "104.198825";
  "Two-Tail Probability:" = "1.718096772587662e-13";
  "Variance:" = "3044.719345230789";
}
```

Statistics for: Chi-Square Goodness of Fit

```
{
  "Chi-Square Statistic:" = "48766.67721183662";
  "Degrees of Freedom:" = 179;
  "Two Tail Probability:" = 0;
}
```

1- click on "Parametric Statistics Test" button into "off" state

2- select "Chi-square Goodness of Fit" from "Choose Statistic to Conduct"

3- Choose variables to test

4- Click "Run Statistical Test"

5- Results are shown in Output

Test: Chi-Square Goodness of Fit completed!

You may check the output.

Ok

Top

End

Clear

Outputs

Status and Log

Ready

Stop Execution

Screenshot

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AroniSmartIntelligence: Statistical Testing

AroniSmartIntelligence™ Non-Parametric Test: Chi-Square Goodness of Fit test

2- select “Survival: Log-Rank-Mantel-Haenszel”
from “Choose Statistic to Conduct”

1- click on “Parametric Statistics Test” button into “off” state

3- Choose categorical grouping variable in Grouping variables browser

4- Choose variables corresponding to the following in Sample 1: time, censoring (optional), strata (optional) and in Sample-2: offset variable (optional)

5- Click “Run Statistical Test”

AroniSmartIntelligence: Statistical Testing

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Descriptive Analysis | **Statistical Testing**

☒ Two-Way: Contingency Table

Available Variables

Select Grouping Variables and the type:

female
educ

age
black
choice
finc100
finc101
finc25
finc35

Sample 1 >

wealth89

Sample 2 >

Choose Statistic to Conduct and Relevant Parameter to Test

Chi-Square Goodness of Fit

☐ Parametric Statistic Test

Enter known parameter values:

Value of Known Parameter:

Value of Variable to Test:

Create Contingency Table

Reset Variables

Contingency Table for Variables: female and educ:

Row: C	female_0	female_1
educ_8	81.58	24.50
educ_9	0.00	73.05
educ_10	118.33	0.00
educ_11	155.11	118.15
educ_12	246.75	176.82
educ_13	243.20	215.24
educ_14	309.43	85.07
educ_15	110.00	116.69
educ_16	154.44	302.79
educ_17	483.78	114.19
educ_18	236.64	336.61

time: time variable
Death: censoring
Age: strata

Outputs

Status and Log

Model has finished to run. You may check the results in the output log

Stop Execution

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AroniSmartIntelligence: Statistical Testing

AroniSmartIntelligence™ Non-Parametric Test: Survival Analysis: Log Rank-Mantel-Haenszel Analysis

