
Auditmetrics AI v6.5

A step-by-step learning exercise



Auditmetrics®
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- **Installing Auditmetrics:** The document provides instructions on how to install Auditmetrics AI software, a tool for conducting audits and forecasts using statistical methods. It also lists some precautions and tips for using the software.
 - **Practice Data:** The document offers a link to download some practice audit data and explains the data structure and variables required by Auditmetrics.
 - **Auditmetrics Data Analysis:** The document guides the user through the steps of generating a random sample, validating the sample, and conducting the audit using Auditmetrics. It also shows some screenshots and tables of the results and calculations.
 - **Forecasting and Regression:** The document briefly mentions that Auditmetrics can also be used to create datasets for forecasting revenue and expenses using regression and correlation techniques.

Installing Auditmetrics

If you obtained from the Microsoft Store Auditmetrics AI software, it will be automatically loaded on the “Start Menu” on the Windows 10/11 operating system. If you are using an older legacy Windows computer and have problems, contact

Support@auditmetrics.com.

The software’s compact efficient algorithms are designed to be loaded on desktops and notepads. If you are on a company server it is best to contact IT.

Precautions:

1. For some implementations of Windows there may be a long delay in generating an Excel template. The best approach for efficient operation is to open Excel first and then leave it open minimized in the background.
2. The small business /learning version is ideal for short term cashflow monitoring, short-term tax credit and deduction analysis and customer feedback. This involves short term monthly and quarterly data.
3. Multiyear forecasting, market research and forensic accounting require random sampling of ideally multi-year accounts. This will assure statistically stable and creditable analysis in terms of statistical power.
4. Professional AuditmetricsAI V6.5 has the ability to sample data involving millions of records. It also includes forensic accounting features.
5. Section of the Excel templates are protected. If you want to access them to edit then select Review at the top menu and select “Unprotect Sheet”.

1. Practice Data

Before downloading the data, create a folder such as Audit_Practice.

Practice Audit Data is available on the internet Link:

<https://auditmetricsai.com/FileLibrary/setup.zip>

It contains:

I. An Excel Workbook AuditDataFiles.xlsx Contains:

1. **Account to be Sampled N= 21,655 - Sales data to be sampled**
2. **Account data as text for software input- The Excel data is converted as a tab delimited text file to be read into Auditmetrics AI software by Save as "Text (Tab delimited)(* .txt).**
3. **Random Sample n=721 - Generated by AUDITMETRICS AI as a comma separated file (.csv) which can be read in by Excel.**
4. **Random Sample n=721 - Generated by AUDITMETRICS AI as a comma separated file (.csv) which can be read in by Excel.**

5. **Auditor Error Finding - The auditor review sampled items and indicates which are in Error. It is expressed as number of dollars in error.**

II. AudmetDB.acddb - Exhibit of MS Access Relational Database. Useful in managing large or complicated data sources

III. Slides examining various scenarios displaying the full range of Auditmetrics analytics. The slides links references to the Springer Book.

Auditmetrics Data Structure

! Auditmetrics requires four variables exactly spelled as below; if not present, an error message will be displayed. Letter case and order of the variables do not matter.

1. **Amount** – The transaction of interest in the analysis. Preferably, data collected should be total invoice value. For example, if the account to be sampled is for restaurant cash flow, it is best to record credit card total rather than each menu item.
2. **Absamt** – Absolute value of each transaction. This variable **must be sorted** in ascending order. This is to handle credits.
3. **Transaction_ID** – An identifier for each record; in this case, it is a record count.
4. **DataSet** – A name to identify this data set.
5. **Primary Key- Optional** – If a data set is from a relational database with a primary key that links the various data tables, it is prudent to include this variable in the audit population to be sampled.

Variables 1 to 4 must be in the data file and spelled exactly as above

! The variable Absamt must be sorted in ascending order.

Variable 5 - If a data set is from a relational database with a primary key that links various data tables, it is prudent to include it in the variables to be sampled.

Transaction_ID has value when the data set is a merging of several data sources. For example, if you have two data sets of 1000 each and use MS Access to merge them into one file, then Transaction_ID 1 to 1000 is from the first data set and 1001 to 2000 from the second data set. Transaction_ID also has value when filing with the IRS. For more details, review *Appendix– Random Sampling and IRS Directives* in [Statistical Audit Automation](#) by Edward Winslow on Amazon. The full [Small Business Power Series](#) are handy briefs

2. Let's Get Started, Review Software Demo

! At this Point it will be helpful to go to [Auditmetrics V6.5 Demo](#) and start the video to see the Auditmetrics system in action. That may all you need to get started.

The first step is to load tab delimited Test_Population.txt and then select the command Button: "Potential Detail Cutoffs, the rest of the steps will be easy to follow with the help of the video.

Detail Cutoff- This is a dollar cutoff above which one reviews 100% of all transactions. A rule of thumb is that the detail stratum should represent approximately one-third of the total dollar volume, but Auditmetrics uses a more sophisticated statistical analytical approach.

! *Professional Version, Auditmetrics AI, has a button in the upper right-hand corner that allows the “Potential Detail Cutoff” button to also display Benford’s law first digit and second digit assessment. It is a useful forensic accounting tool to detect possible fraud.*

The Number of Strata The default value is 6 strata. A stratified random sample will yield more precise results than an unrestricted random sample of the same size.

Precision The default precision or margin of error on the screen is 3%. If the audit is for a formal submission to the IRS or state revenue agency, 3% is the gold standard. If you are conducting an internal audit but just want to get a preliminary look at the data, then choose less precise values such as 5% or 7%. This will result in a smaller sample, thus reducing cost and quickly identifying potential data problems. Precision is the primary driver of sample size.

Efficiency Factor You should notice on the screen the measure “Efficiency Factor.” The statistical meaning surrounding this measure are better left to the book, but the higher the efficiency the better.

! Once the three inputs are decided, select the “1. Sample Size Calculations” tab.

3. Step 1 - Generating the Sample

After deciding on the three inputs, it is time to generate the sample. We will use the inputs that were on the Video: cutoff=1600, precision=.03 and number strata=5. You can not only generate the sample but if you select the “radio button “Sample Size Excel File” you will also generate an Excel spreadsheet that documents the sample design for future reference.

4. Step 2 Validate the Sample

If the sample specifications displayed on the screen are acceptable, the next step is to generate the sample. Select button “2. Select Random Sample” and “3. Sample Validation.” These are all that are required, and two random sample files will be generated: “SampleData.txt” and “SampleData.csv.” The .csv file is a comma-separated variable file, which is a text file that can be directly read into Excel and saved as an Excel workbook. The .txt file uses a tab as a variable separator. Both files will be saved in the same folder that had originally been set up for the audit population data.

Efficiency

Total Sample

Sample Size Excel File

Sample Validation Excel File

Sample Specs:

| Freq. | Mean |
|-------|---------|
| 10101 | 19.02 |
| 5776 | 91.67 |
| 2813 | 258.69 |
| 1614 | 548.66 |
| 888 | 1106.04 |
| 463 | 1880.24 |

| Acme Inc. | | Lower Range | Upper Range | Sample Size | Mean | Std. Dev. | Total Value | Pop. Total |
|--------------------------------|-----------|-------------|-------------|--------------|------------|-----------|--------------------|---------------|
| 0 -49.99 | Stratum 1 | 0 | 50 | 67 | \$19.02 | \$14 | \$192,150 | 10,101 |
| 50-174.99 | Stratum 2 | 50 | 175 | 124 | \$91.67 | \$43 | \$529,492 | 5,776 |
| 175-399.99 | Stratum 3 | 175 | 400 | 138 | \$258.69 | \$95 | \$727,690 | 2,813 |
| 400-824.99 | Stratum 4 | 400 | 825 | 161 | \$548.66 | \$185 | \$885,532 | 1,614 |
| 825-1600 | Stratum 5 | 825 | 1,600 | 205 | \$1,106.04 | \$409 | \$982,161 | 888 |
| > 1600 -Detail | Aud 100 | | | 463 | \$1,880.24 | \$0 | \$870,549 | 463 |
| Totals Including Detail | | | | 1,158 | | | \$4,187,575 | 21,655 |
| Sampling Efficiency | 0.72 | | | | | | | |

This is the step to design the random sample. You can look in the folder you created for the sample file named SampleData.csv. This is a special text file, it is a comma separated value (.CSV) file. The advantage of this special text file is that it can be read in by MS Excel spread sheet. If the sample design is approved, then proceed with the audit. This text file can be “saved as” an actual spread sheet file (.xlsx).

5. Conduct the Audit and Document the Results.

The auditor can now use the file “SampleData.csv” to actual conduct the audit. Open the file “AuditResults.xlsx” that was downloaded to see how audit results are recorded. The SampleData.csv must pass the validation tests before it can be used.

Efficiency

Total Sample

Sample Size Excel File

Sample Validation Excel File 

N
10101
5776
2813
1614
888
463
Sample Size
Validation
n
67
124
138
161

Before proceeding with the audit, the generated sample must pass the validity test that are displayed on the screen:

| Validation Tests Listed Below | | | | | |
|-------------------------------|---------|--------|----------|----|----|
| n | Mean | SD. | Total \$ | | |
| 63 | 20.1 | 14.71 | 1266 | ok | ok |
| 61 | 72.49 | 43.7 | 4422 | ok | ok |
| 88 | 181.85 | 64.7 | 16002 | ok | ok |
| 90 | 369.14 | 96.52 | 33222 | ok | ok |
| 136 | 621.81 | 254.7 | 84566 | ok | ok |
| 152 | 1122.04 | 540.26 | 170550 | ok | ok |
| 463 | 1880.24 | 632.25 | 870549 | | |

Validation #1- Observed precision under 0.03 no need to resample

Validation #2- Strata specific test passed.

This following Excel file section documents both the Audit Population (account being sampled) and that of the sample.

| Acme Inc. | | | | | | |
|---------------------------------|------------|--------------------|------------|-------------|--------------------|-------------|
| Strata | Population | | | Sample | | |
| | Pop. Mean | Pop.Total Value | Pop. Freq. | Sample Mean | Sample Total Value | Sample Size |
| 0 -49.99 | \$19.02 | \$192,150 | 10,101 | \$17.48 | \$1,171 | 67 |
| 50-174.99 | \$91.67 | \$529,492 | 5,776 | \$89.81 | \$11,136 | 124 |
| 175-399.99 | \$258.69 | \$727,690 | 2,813 | \$250.17 | \$34,523 | 138 |
| 400-824.99 | \$548.66 | \$885,532 | 1,614 | \$544.05 | \$87,592 | 161 |
| 825-1600 | \$1,106.04 | \$982,161 | 888 | \$1,108.75 | \$227,294 | 205 |
| > 1600 | \$1,880.24 | \$870,549 | 463 | \$1,880.24 | \$870,549 | 463 |
| Total (Excluding Detail) | | \$3,317,026 | | | \$361,717 | 695 |
| Total (Including Detail) | | \$4,187,575 | | | \$1,232,266 | 1,158 |

In the next section is where the auditor records the results “Error Amount”. Also is displayed is the statistical validation test which indicates the 95% confidence interval test was passed for all sample strata.

| Audit Results | | | Strata Validity Test | | |
|---|---------------------------|----------------------|----------------------|----------------|------|
| Amount Error | Error Ratio | Pop. Est. Error Amt. | Lower 5% Alpha | Upper 5% Alpha | |
| \$88.22 | 0.075 | \$14,471.99 | 13.85 | \$21.11 | pass |
| \$486.20 | 0.044 | \$23,117.15 | 83.06 | \$96.56 | pass |
| \$1,803.27 | 0.052 | \$38,010.00 | 233.48 | \$266.86 | pass |
| \$4,406.45 | 0.050 | \$44,548.18 | 515.40 | \$572.69 | pass |
| \$9,025.15 | 0.040 | \$38,998.57 | 1,065.84 | \$1,151.66 | pass |
| \$26,976.44 | 0.031 | \$26,976.44 | | | |
|  | Auditor Enters Amt. Error | | | | |

Below is the audit result:

| | | | | | | | |
|--------------------------|------------------|-----------|--------------|----------|--|---------------|-------|
| Error (Excluding Detail) | Std. Error (\$)= | \$26891 | | | | Sample Adj= | 0.048 |
| Error (Including Detail) | | | | | | Overall Rate= | 0.044 |
| | -1 Std. Error | \$132,255 | | | | | |
| | Mid-Point | \$159,146 | Detail Error | \$26,976 | | | |
| | +1 Std. Error | \$186,037 | | | | | |

It indicates that the statistical estimated dollar amount in error is \$159,1460 with its band of standard error. The detail actual amount in error is \$26,976.

Once a sample is drawn for an audit it can be the basis to create datasets to forecast revenue and expenses. The key is to use the most powerful tools in building statistical projections, the principles of regression and correlation. Both of these statistical methods are also critical in linking the mathematical relationship between expense inputs and revenue outputs. Only when this relationship is statistically measured, can a business consistently manage revenue and cost and forecast future economic performance.