Measures of Central Tendency & Dispersion

Measures that indicate the approximate center of a distribution are called **measures of central tendency.** Measures that describe the spread of the data are **measures of dispersion.** These measures include the mean, median, mode, range, upper and lower quartiles, variance, and standard deviation.

A. Finding the Mean

The **mean** of a set of data is the sum of all values in a data set divided by the number of values in the set. It is also often referred to as an **arithmetic average**. The Greek letter μ ("mu") is used as the symbol for population mean and the symbol $\bar{x}$ is used to represent the mean of a sample. To determine the mean of a data set:

1. Add together all of the data values.
2. Divide the sum from Step 1 by the number of data values in the set.

Formula:

$$mean = \frac{\sum x_i}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

Example:

Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14

$$mean = \frac{\sum x_i}{n} = \frac{17 + 10 + 9 + 14 + 13 + 17 + 12 + 20 + 14}{9} = \frac{126}{9} = 14$$

The mean of this data set is **14**.

B. Finding the Median

The **median** of a set of data is the "middle element" when the data is arranged in ascending order. To determine the median:

1. Put the data in order from smallest to largest.
2. Determine the number in the exact center.
   i. If there are an odd number of data points, the median will be the number in the absolute middle.
   ii. If there is an even number of data points, the median is the mean of the two center data points, meaning the two center values should be added together and divided by 2.

Example:

Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14

Step 1: Put the data in order from smallest to largest. 9, 10, 12, 13, 14, 14, 17, 17, 20

Step 2: Determine the absolute middle of the data. 9, 10, 12, 13, **14**, 14, 17, 17, 20

Note: Since the number of data points is odd choose the one in the very middle.

The median of this data set is **14**.

C. Finding the Mode

The **mode** is the most frequently occurring measurement in a data set. There may be one mode; multiple modes, if more than one number occurs most frequently; or no mode at all, if every number occurs only once. To determine the mode:

1. Put the data in order from smallest to largest, as you did to find your median.
2. Look for any value that occurs more than once.
3. Determine which of the values from Step 2 occurs most frequently.

Example:

Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14

Step 1: Put the data in order from smallest to largest. 9, 10, 12, 13, 14, 14, 17, 17, 20

Step 2: Look for any number that occurs more than once. 9, 10, 12, 13, **14**, **14**, **17**, **17**, 20

Step 3: Determine which of those occur most frequently. **14** and **17** both occur twice.

The modes of this data set are **14** and **17**.

D. Finding the Upper and Lower Quartiles

The **quartiles** of a group of data are the medians of the upper and lower halves of that set. The **lower quartile**, Q_1, is the median of the lower half, while the **upper quartile,** Q_3, is the median of the upper half. If your data set has an odd number of data points, you do not consider your median when finding these values, but if your data set contains an even number of data points, you will consider both middle values that you used to find your median as parts of the upper and lower halves.

1. Put the data in order from smallest to largest.
2. Identify the upper and lower halves of your data.
3. Using the lower half, find Q_1 by finding the median of that half.
4. Using the upper half, find Q_3 by finding the median of that half.

Example:

Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14

Step 1: Put the data in order from smallest to largest. 9, 10, 12, 13, 14, 14, 17, 17, 20

Step 2: Identify the lower half of your data. **9, 10, 12, 13,** 14, 14, 17, 17, 20

Step 3: Identify the upper half of your data. **9**, 10, 12, 13, 14, **14, 17, 17, 20**

Step 4: For the lower half, find the median. 9, **10, 12,** 13

Since there are an even number of data points in this half, you will find the median by summing the two in the center and dividing by two. This is Q_1. $\frac{10+12}{2} = 11$

Step 5: For the upper half, find the median. 14, **17, 17**, 20

Since there are an even number of data points in this half, you will find the median by summing the two in the center and dividing by two. This is Q_3. $\frac{17+17}{2} = 17$

Q_1 of this data set is **11** and Q_3 of this data set is **17.**

E. Finding the Range

The **range** is the difference between the lowest and highest values in a data set. To determine the range:

1. Identify the largest value in your data set. This is called the **maximum**.
2. Identify the lowest value in your data set. This is called the **minimum**.
3. Subtract the minimum from the maximum.

Example:

Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14

Step 1: Put the data in order from smallest to largest. 9, 10, 12, 13, 14, 14, 17, 17, 20

Step 2: Identify your maximum. 9, 10, 12, 13, 14, 14, 17, 17, **20**

Step 2: Identify your minimum. **9**, 10, 12, 13, 14, 14, 17, 17, 20

Step 3: Subtract the minimum from the maximum. 20 – 9 = **11**

The range of this data set is **11.**

F. Finding the Variance and Standard Deviation

The **variance** and **standard deviation** are a measure based on the distance each data value is from the mean.

1. Find the mean of the data. (μ if calculating for a population or $\bar{x}$ if using a sample)
2. Subtract the mean (μ or $\bar{x}$) from each data value (x_i).
3. Square each calculation from Step 2.
4. Add the values of the squares from Step 3.
5. Find the number of data points in your set, called n.
6. Divide the sum from Step 4 by the number n (if calculating for a population) or $n - 1$(if using a sample). This will give you the **variance**.
7. To find the **standard deviation**, square root this number.

Formulas:

Sample Variance, s^2 :

$$s^2 = \frac{\sum(x_i - \bar{x})^2}{n-1}$$

Population Variance, σ^2 :

$$\sigma^2 = \frac{\sum(x_i - \mu)^2}{n}$$

Sample Standard Deviation, s:

$$s = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n-1}}$$

Population Standard Deviation, σ:

$$\sigma = \sqrt{\frac{\sum(x_i - \mu)^2}{n}}$$

Example: Calculate the sample variance and sample standard deviation

Consider the sample data set: 17, 10, 9, 14, 13, 17, 12, 20, 14.

Step 1: The mean of the data is 14, as shown previously in Section A.

Step 2: Subtract the mean from each data value. $17 - 14 = \mathbf{3}$; $10 - 14 = \mathbf{-4}$; $9 - 14 = \mathbf{-5}$; $14 - 14 = \mathbf{0}$

$13 - 14 = \mathbf{-1}$; $17 - 14 = \mathbf{3}$; $12 - 14 = \mathbf{-2}$; $20 - 14 = \mathbf{6}$; $14 - 14 = \mathbf{0}$

Step 3: Square these values. $3^2 = \mathbf{9}$; $(-4)^2 = \mathbf{16}$; $(-5)^2 = \mathbf{25}$; $0^2 = \mathbf{0}$; $(-1)^2 = \mathbf{1}$; $3^2 = \mathbf{9}$; $(-2)^2 = \mathbf{4}$; $6^2 = \mathbf{36}$

Step 4: Add these values together. $9 + 16 + 25 + 0 + 1 + 9 + 4 + 36 = \mathbf{100}$

Step 5: There are 9 values in our set, so we will divide by $9 - 1 = \mathbf{8}$. $\frac{100}{8} = \mathbf{12.5}$

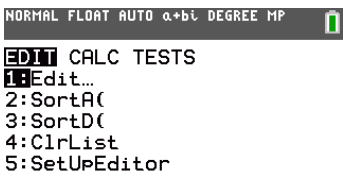
Note: This is your variance.

Step 6: Square root this number to find your standard deviation. $\sqrt{12.5} = \mathbf{3.536}$

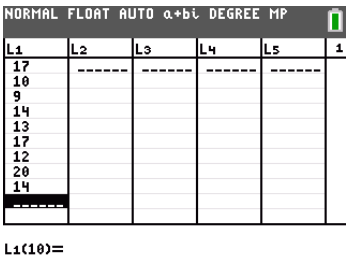
The **variance** is 12.5 and the **standard deviation** is 3.536.

G. Using the TI-84

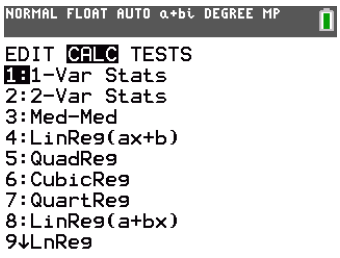
1. To enter the data values, press the STAT key. Select Edit…



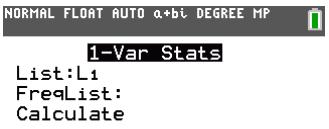
2. Enter the data values in the L1 column.

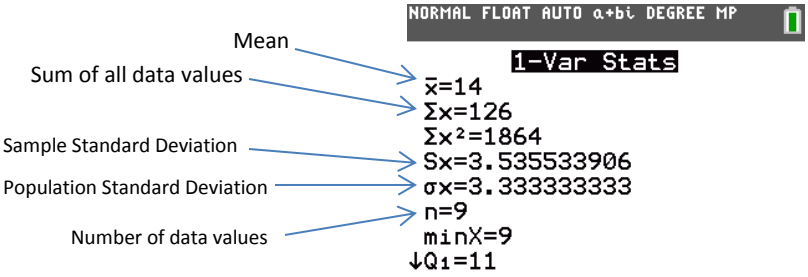


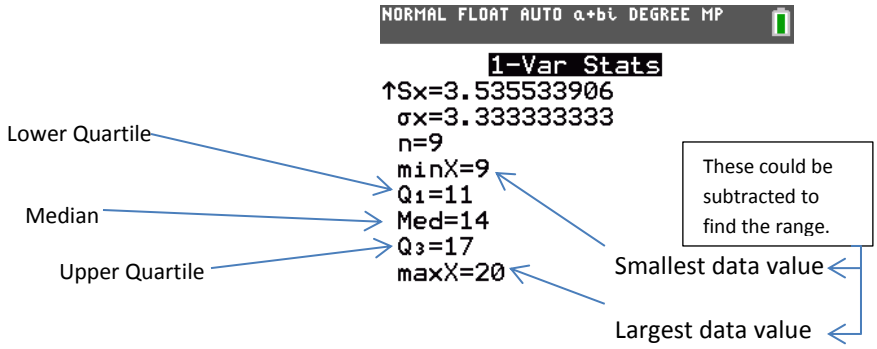
3. Press the STAT key. Under CALC, select 1-VarStats



4. Make sure the List is L1 then select Calculate.







Data Analysis & Report Writing

Measurement of central tendency, dispersion, Tests of significance based on t, f and z distribution and chi- square test, Cross tabulation. Interpretation and Report Writing: Interpretation, types of research reports, guidelines for writing a report, writing a report format, evaluation of research report.

CROSS TABULATION:

A statistical technique that describes two or more variables simultaneously and results in tables that reflect the joint distribution of two or more variables that have a limited number of categories or distinct values.

Although answers to questions related to a single variable are interesting, they often raise additional questions about how to link that variable to other variables. To introduce the frequency distribution, we posed several representative marketing research questions. For each of these, a researcher might pose additional questions to relate these variables to other variables.

For example:

_ How many brand-loyal users are males?

_ Is product use (measured in terms of heavy users, medium users, light users, and nonusers) related to interest in outdoor activities (high, medium, and low)?

_ Is familiarity with a new product related to age and education levels?

_ Is product ownership related to income (high, medium, and low)?

The answers to such questions can be determined by examining cross-tabulations. Whereas a frequency distribution describes one variable at a time, a **cross-tabulation** describes two or

Cross-Tabulation in Practice

When conducting cross-tabulation analysis in practice, it is useful to proceed along the following steps.

1. Test the null hypothesis that there is no association between the variables using the chi-square statistic. If you fail to reject the null hypothesis, then there is no relationship.

2. If *H*0 is rejected, then determine the strength of the association using an appropriate statistic (phi coefficient, contingency coefficient, Cramer's *V,* lambda coefficient, or other statistics).

3. If *H*0 is rejected, interpret the pattern of the relationship by computing the percentages in the direction of the independent variable, across the dependent variable.

4. If the variables are treated as ordinal rather than nominal, use tau *b,* tau *c,* or gamma as the test statistic. If *H*0 is rejected, then determine the strength of the association using the magnitude, and the direction of the relationship using the sign of the test statistic.

5. Translate the results of hypothesis testing, strength of association, and pattern of association into managerial implications and recommendations where meaningful.

INTERPRETATION

Definition

"Interpretation refers to the process of making sense of numerical data that has been collected, analysed and presented".

Need of Interpretation

- Maintaining Continuity of Research
- Pointers for further Research
- Communicate Significance of Research
- Transition of Exploratory Research to Experimental Research

Techniques of Interpretation

1. Explanations of the relations which the researcher has found during the research study
2. Interpretation of the lines of relationship in terms of the underlying processes
3. Finding thread of uniformity that lies beneath the diversified research findings and thereby, forming generalizations and theories.
4. Extraneous information, collected during the study, must also be considered while interpreting the final results of research study, as it may result in better understanding of the problem in hand.
5. Consulting an expert having an insight of the research study who points out omissions and errors in logical argumentation will result in correct interpretation and, add to usefulness of the research results.
6. All relevant factors affecting the problem must be considered before forming Interpretations or Generalizations. Otherwise, it may lead to in correct conclusions.

Precautions in Interpretation

1. Ensure Proper Data Collection
2. Data Analysis
3. Errors can Arise
4. Results of Hypothesis Testing
5. Statistical Measures
6. Avoid Broad Generalizations
7. Quality of Interpretation

RESEARCH REPORT

Research Report is defined as "Systematic, articulate and orderly presentation of research work in a written form.

“Research Report is a Research Document that contains basic and important aspects of a Research project.

Types of Report in Research

Reports in research are recorded data prepared by researchers following the analysis of information gathered by carrying out organized research, on average in the appearance of surveys or qualitative methods. Reports more often than not are spread athwart a cosmic horizon of topics but are focused on communicating information about a scrupulous topic and a very alcove target market. The principal motive of research reports is to put across integral details about a study for marketers to think about while designing new stratagems.

Definite events, facts, and other information based on episodes need to be relayed on to the people in charge, and creating research reports is the most successful communication device. Ideal research reports are tremendously accurate in the offered information with a comprehensible intention and conclusion. There should be a spotless and structured layout for

these reports to be valuable in relaying information. Variations of organizational characters and their goals have given birth to various types of research report writing in different categories of research. The types of reports keeping a proper congruency with the type of research fall under the subsequent variations as mentioned below:-

Preprint Report	Usually, a script designed to be circulated in the midst of fellow researchers for review, though they may end up being more properly printed or reviewed by an institution or smoothly indexed and dispersed by a clearinghouse.
Corporate Proposal Type Report	A research project meant for a corporate company can put across such reports. A corporate proposal to an agency or a bureau when applying for funding. These are usually proprietary and not widely available.
Institutional Report	Such as the annual or growth reports of government agencies, foundations, corporations, societies, and laboratories. These reports by and large give a good indication and may include bibliographies.
Contract Progress Report	The chief class of technical reports inflow produced either monthly or quarterly as required by the terms of the research indenture. The information included in the expansion report may or may not be contained in the closing report for the acquaintance.
Contract Final Report	Probably the most priceless technical report, commonly providing a good outline of the research performed beneath contract, with some editorial assessment before left goes off. There is an enormous multiplicity in the format, giving out, and indexing of these reports.
Separate Topical Technical Report	Contiguous to the journal article in terms of approach and types is this Report. Many instigate with either the subsidized or staff working on a scheme, and may be released as research memorandum, research notes, or mechanical memoranda. These reports over and over again emerge later in journals in a condensed outward appearance.
Book in Report Form	These contain examination type materials, such as appraisals and state-of-the-art reports. These appear former than the commercial book and at a lesser rate.
Committee-	The findings and execution of research by scientific elective groups. Most of these reports embrace bibliographic annotations, but their approach varies deeply. They often have poor

type Report allocation and are usually not passably described in references.

WRITING A REPORT - FORMAT

Report formats are likely to vary with the researcher or the marketing research firm conducting the project, the client for whom the project is being conducted, and the nature of the project itself. Hence, the following is intended as a guideline from which the researcher can develop a format for the research project at hand. Most formal research reports include most of the following elements:

I. Title page
II. Letter of transmittal
III. Letter of authorization
IV. Table of contents
V. List of tables
VI. List of graphs
VII. List of appendices
VIII. List of exhibits
IX. Executive summary
a. Major findings
b. Conclusions
c. Recommendations
X. Problem definition
a. Background to the problem
b. Statement of the problem
XI. Approach to the problem
XII. Research design
a. Type of research design
b. Information needs
c. Data collection from secondary sources
d. Data collection from primary sources
e. Scaling techniques
f. Questionnaire development and pretesting
g. Sampling techniques
h. Fieldwork
XIII. Data analysis
a. Methodology
b. Plan of data analysis
XIV. Results
XV. Limitations and caveats
XVI. Conclusions and recommendations
XVII. Exhibits
a. Questionnaires and forms
b. Statistical output
c. Lists

This format closely follows the earlier steps of the marketing research process. The results may be presented in several chapters of the report. For example, in a national survey, data analysis may be conducted for the overall sample and then the data for each of the four geographic regions may be analyzed separately. If so, the results may be presented in five chapters instead of one.

Title Page

The title page should include the title of the report, information (name, address, email, and telephone) about the researcher or organization conducting the research, the name of the client for whom the report was prepared, and the date of release. The title should indicate the nature of the project, as illustrated in the following example.

Letter of Transmittal

A formal report generally contains a letter of transmittal that delivers the report to the client and summarizes the researcher's overall experience with the project, without mentioning the findings. The letter should also identify the need for further action on the part of the client, such as implementation of the findings or further research that should be undertaken.

Letter of Authorization

A letter of authorization is written by the client to the researcher before work on the project begins. It authorizes the researcher to proceed with the project and specifies its scope and the terms of the contract. Often, it is sufficient to refer to the letter of authorization in the letter of transmittal. However, sometimes it is necessary to include a copy of the letter of authorization in the report.

Table of Contents

The table of contents should list the topics covered and the appropriate page numbers. In most reports, only the major headings and subheadings are included. The table of contents is followed by a list of tables, list of graphs, list of appendices, and list of exhibits.

Executive Summary

The executive summary is an extremely important part of the report, because this is often the only portion of the report that executives read. The summary should concisely describe the problem, approach, and research design that was adopted. A summary section should be devoted to the major results, conclusions, and recommendations. The executive summary should be written after the rest of the report has been completed.

Problem Definition

This section of the report gives the background to the problem, highlights the discussions with the decision makers and industry experts, and discusses the secondary data analysis, the qualitative research that was conducted, and the factors that were considered. Moreover, it should contain a clear statement of the management decision problem and the marketing research problem.

Approach to the Problem

This section should discuss the broad approach that was adopted in addressing the problem. This section should also contain a description of the theoretical foundations that guided the research, any analytical models formulated, research questions, hypotheses, and the factors that influenced the research design.

Research Design

The section on research design should specify the details of how the research was conducted. This should include the nature of the research design adopted, information needed, data collection from secondary and primary sources, scaling techniques, questionnaire development

and pretesting, sampling techniques, and fieldwork. These topics should be presented in a nontechnical, easy-to-understand manner. The technical details should be included in an appendix. This section of the report should justify the specific methods selected.

Data Analysis

This section should describe the plan of data analysis and justify the data analysis strategy and techniques used. The techniques used for analysis should be described in simple, nontechnical terms.

Results

This section is normally the longest part of the report and may comprise several chapters. Often, the results are presented not only at the aggregate level but also at the subgroup (market segment, geographical area, etc.) level. The results should be organized in a coherent and logical way. For example, in a health care marketing survey of hospitals, the results were presented in four chapters. One chapter presented the overall results, another examined the differences between geographical regions, a third presented the differences between for-profit and nonprofit hospitals, and a fourth presented the differences according to bed capacity. The presentation of the results should be geared directly to the components of the marketing research problem and the information needs that were identified. The details should be presented in tables and graphs, with the main findings discussed in the text.

Limitations and Caveats

All marketing research projects have limitations caused by time, budget, and other organizational constraints. Furthermore, the research design adopted may be limited in terms of the various types of errors, and some of these may be serious enough to warrant discussion. This section should be written with great care and a balanced perspective. On one hand, the researcher must make sure that management does not overly rely on the results or use them for unintended purposes, such as projecting them to unintended populations. On the other hand, this section should not erode their confidence in the research or unduly minimize its importance.

Conclusions and Recommendations

Presenting a mere summary of the statistical results is not enough. The researcher should interpret the results in light of the problem being addressed to arrive at major conclusions. Based on the results and conclusions, the researcher may make recommendations to the decision makers. Sometimes marketing researchers are not asked to make recommendations because they research only one area but do not understand the bigger picture at the client firm. If recommendations are made, they should be feasible, practical, actionable, and directly usable as inputs into managerial decision making. The following example contains guidelines on conclusions and recommendations.

GUIDELINES FOR WRITING A REPORT

i. Readers

A report should be written for a specific reader or readers: the marketing managers who will use the results. The report should take into account the readers' technical sophistication and interest in the project, as well as the circumstances under which they will read the report and how they will use it. Technical jargon should be avoided. As expressed by one expert, "The readers of your reports are busy people; and very few of them can balance a research report, a cup of coffee, and a dictionary at one time." Instead of technical terms such as *maximum likelihood, heteroscedasticity,* and *nonparametric,* use descriptive explanations. If some technical terms cannot be avoided, briefly define them in an appendix. When it comes to marketing research,

people would rather live with a problem they cannot solve than accept a solution they cannot understand. Often the researcher must cater to the needs of several audiences with different levels of technical sophistication and interest in the project. Such conflicting needs may be met by including different sections in the report for different readers, or by separate reports entirely.

ii. Easy to Follow

The report should be easy to follow.5 It should be structured logically and written clearly. The material, particularly the body of the report, should be structured in a logical manner so that the reader can easily see the inherent connections and linkages. Headings should be used for different topics and subheadings for subtopics. A logical organization also leads to a coherent report. Clarity can be enhanced by using well-constructed sentences that are short and to the point. The words used should express precisely what the researcher wants to communicate. Difficult words, slang, and clichés should be avoided. An excellent check on the clarity of a report is to have two or three people who are unfamiliar with the project read it and offer critical comments. Several revisions of the report may be needed before the final document emerges.

iii. Presentable and Professional Appearance

The appearance of a report is important. The report should be professionally reproduced with quality paper, typing, and binding. The typography should be varied. Variation in type size and skillful use of white space can greatly contribute to the appearance and readability of the report.

iv. Objective

Objectivity is a virtue that should guide report writing. Researchers can become so fascinated with their project that they overlook their scientific role. The report should accurately present the methodology, results, and conclusions of the project, without slanting the findings to conform to the expectations of management. Decision makers are unlikely to receive with enthusiasm a report that reflects unfavorably on their judgment or actions. However, the researcher must have the courage to present and defend the results objectively. The rule is, “Tell it like it is.”

v. Reinforce Text with Tables and Graphs

It is important to reinforce key information in the text with tables, graphs, pictures, maps, and other visual devices. Visual aids can greatly facilitate communication and add to the clarity and impact of the report. Guidelines for tabular and graphical presentation are discussed later.

vi. Terse

A report should be terse and concise. Anything unnecessary should be omitted. If too much information is included, important points may be lost. Avoid lengthy discussions of common procedures. Yet brevity should not be achieved at the expense of completeness.

vii. Guidelines for Tables

Statistical tables are a vital part of the report and deserve special attention. The numbers in parentheses in the following sections refer to the numbered sections of the table.

A. Title and Number

Every table should have a number (1a) and title (1b). The title should be brief yet clearly descriptive of the information provided. Arabic numbers are used to identify tables so that they can be referred to in the text.

B. Arrangement of Data Items

The arrangement of data items in a table should emphasize the most significant aspect of the data. Thus, when the data pertain to time, the items should be arranged by appropriate time period. When order of magnitude is most important, the data items should be arranged in that order (2a). If ease of locating items is critical, an alphabetical arrangement is most appropriate.

C. Basis of Measurement

The basis or unit of measurement should be clearly stated (3a).

D. Leaders, Rulings, and Spaces

Leaders, dots, or hyphens are used to lead the eye horizontally, impart uniformity, and improve readability (4a). Instead of ruling the table horizontally or vertically, white spaces (4b) are used to set off data items. Skipping lines after different sections of the data can also assist the eye. Horizontal rules (4c) are often used after the headings.

E. Explanations and Comments: Headings, Stubs, and Footnotes

Explanations and comments clarifying the table can be provided in the form of captions, stubs, and footnotes. Designations placed over the vertical columns are called *headings* (5a). Designations placed in the left-hand column are called *stubs* (5b). Information that cannot be incorporated in the table should be explained by footnotes (5c). Letters or symbols should be used for footnotes rather than numbers. The footnotes should come after the main table, but before the source note.

F. Sources of the Data

If the data contained in the table are secondary, the source of data should be cited (6a).

viii. Guidelines for Graphs

As a general rule, graphic aids should be employed whenever practical. Graphical display of information can effectively complement the text and tables to enhance clarity of communication and impact. As the saying goes, a picture is worth a thousand words. The guidelines for preparing graphs are similar to those for tables. Therefore, this section focuses on the different types of graphical aids.

A. Geographic and Other Maps

Geographic and other maps, such as product-positioning maps, can communicate relative location and other comparative information. Geographic maps can pertain to countries, states, counties, sales territories, and other divisions. For example, suppose the researcher wanted to present information on the relative number of Coca-Cola Company bottlers versus the bottlers for PepsiCo and other competitors for each state in the United States. This information could be effectively communicated in a map in which each state was divided into three areas, proportionate to the number of Coca-Cola, PepsiCo, and other bottlers, with each area in a different color. Chapter 21 showed examples of product-positioning maps derived by using MDS procedures.

B. Round or Pie Charts

In a **pie chart**, the area of each section, as a percentage of the total area of the circle, reflects the percentage associated with the value of a specific variable. A pie chart is not useful for displaying relationships over time or relationships among several variables. As a general

guideline, a pie chart should not require more than seven sections.8 Figure 23.2 shows a pie chart for U.S. automobile sales.

C. Line Charts

A **line chart** connects a series of data points using continuous lines. This is an attractive way of illustrating trends and changes over time. Several series can be compared on the same chart, and forecasts, interpolations, and extrapolations can be shown. If several series are displayed simultaneously, each line should have a distinctive color or form. A **stratum chart** is a set of line charts in which the data are successively aggregated over the series. Areas between the line charts display the magnitudes of the relevant variables.

D. Pictographs

A **pictograph** uses small pictures or symbols to display the data. A pictographs do not depict results precisely. Hence, caution should be exercised when using them.

E. Histograms and Bar Charts

A **bar chart** displays data in various bars that may be positioned horizontally or vertically. Bar charts can be used to present absolute and relative magnitudes, differences, and change. The **histogram** is a vertical bar chart in which the height of the bars represents the relative or cumulative frequency of occurrence of a specific variable.

F. Schematic Figures and Flowcharts

Schematic figures and flowcharts take on a number of different forms. They can be used to display the steps or components of a process. Another useful form of these charts is classification diagrams.

Report Distribution

The marketing research report should be distributed to appropriate personnel in the client organization. The report could be distributed in a variety of formats including hard copy and electronic. Increasingly, research reports are being published or posted directly to the Web. Normally, these reports are not located in publicly accessible areas but in locations that are protected by passwords or on corporate intranets. The various word-processing, spreadsheet, and presentation packages have the capability to produce material in a format that can be posted directly to the Web, thus facilitating the process. There are a number of advantages to publishing marketing research reports on the Web. These reports can incorporate all kinds of multimedia presentations, including graphs, pictures, animation, audio, and full-motion video. The dissemination is immediate and the reports can be accessed by authorized persons online on a worldwide basis. These reports can be electronically searched to identify materials of specific interest. For example, a General Electric manager in Kuala Lumpur can electronically locate the portions of the report that pertain to Southeast Asia. Storage and future retrieval is efficient and effortless. It is easy to integrate these reports into the decision support system.

One good example of publishing marketing research reports on the Web is by accutips.com. They have published many marketing research reports on the Web. The reports published online deal with many different categories in marketing, such as case studies, market focus/trends, sales and marketing, data selection and mailing lists, creating successful direct mail, Web marketing, and e-marketing. You can easily go to their site at www.accutips.com and search in any of these categories. Furthermore, new Internet applications are allowing companies to share information with specific recipients within their organization.