



FIFTH EDITION

DONALD S. TULL

DELLI HAWKINS

# MARKETING RESEARCH

*Measurement & Method*





FIFTH EDITION

# MARKETING RESEARCH

*Measurement  
& Method*

Donald S. Tull  
Del I. Hawkins

Department of  
Marketing and Business Environment  
University of Oregon, Eugene

A TEXT WITH CASES

Editor: Michele Rhoades  
Production Supervisor: J. Edward Neve  
Production Manager: Richard C. Fischer  
Text Designer: Patrice Fodero  
Cover Design and Illustration: Patrice Fodero

This book was set in Caledonia by Progressive Typographers, Inc., printed and bound by R. R. Donnelley & Sons. The cover was printed by Phoenix Color Corp.

Copyright © 1990 by Macmillan Publishing Company, a division of Macmillan, Inc.

Printed in the United States of America

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Earlier edition entitled *Marketing Research: Meaning, Measurement and Method*, copyright © 1976. Earlier editions entitled *Marketing Research: Measurement and Method*, copyright © 1980, 1984, and 1987, by Macmillan Publishing Company.

Macmillan Publishing Company  
866 Third Avenue, New York, New York 10022

Collier Macmillan Canada, Inc.

LIBRARY OF CONGRESS CATALOGING IN PUBLICATION DATA

Tull, Donald S.

Marketing research : measurement and method : a text with cases /  
Donald S. Tull and Del I. Hawkins.—5th ed.

p. cm.

Includes indexes.

ISBN 0-02-421821-9

1. Marketing research. 2. Marketing research—Case studies.

I. Hawkins, Del I. II. Title.

HF5415.2.T83 1990

658.8'3—dc20

89-34951  
CIP

Printing: 2 3 4 5 6 7 8      Year: 0 1 2 3 4 5 6 7 8 9

# The Macmillan Series in Marketing

---

Beisel  
Contemporary Retailing  
Berman and Evans  
Retail Management: A Strategic Approach,  
Fourth Edition  
Bockus  
Advertising Graphics, Fourth Edition  
Bowersox, Closs, and Helferich  
Logistical Management, Third Edition  
Chapman and Bradley  
Dynamic Retailing, Second Edition  
Cohen  
The Practice of Marketing Management  
Etzel and Woodside  
Cases in Retailing Strategy  
Evans and Berman  
Principles of Marketing, Second Edition  
Evans and Berman  
Marketing, Fourth Edition  
Galloway, Evans, and Berman  
Paintco III: A Computerized Marketing  
Simulation  
Greer  
Cases in Marketing, Fourth Edition

Hair, Anderson, and Tatham  
Multivariate Data Analysis, Second Edition  
Johnson and Wood  
Contemporary Logistics, Fourth Edition  
Lill  
Selling: The Profession  
Mowen  
Consumer Behavior, Second Edition  
O'Connor  
Personal Selling  
Tull and Hawkins  
Marketing Research, Fifth Edition  
Tull and Kahle  
Marketing Management  
Weilbacher  
Advertising, Second Edition  
Weilbacher  
Cases in Advertising  
Weilbacher  
Marketing Management Cases, Fourth Edition  
Wood and Johnson  
Contemporary Transportation, Third Edition

# Preface to the Fifth Edition

---

This is an introductory text in marketing research. As such, it is primarily concerned with *decisional* research rather than *basic* research. Decisional research is done to provide information for a pending decision. Basic research is done primarily to advance the level of scientific knowledge.

A “good” decisional research project results in helping to make the best decision that can be made at the least cost of making it. A good basic research project results in the best estimate that can be made or the best hypothesis test that can be run. These differing objectives result in differing ways of deriving *meaning*, applying *methods*, and making *measurements* in the two types of research.

This book is concerned with the doing of good decisional research, specifically good marketing research. The competently conducted marketing research project provides information to help identify, structure, and solve a marketing problem. The information it provides will have *meaning* to the manager who is to use it so that it will be relevant to his perception of the problem and will have the required level of accuracy. It will have been obtained by using the *methods* and making the *measurements* appropriate for the problem. The project will have been designed in such a way that the information will be *worth more than it costs* to obtain and will be provided at the *time* it is needed.

As those who have some acquaintance with decisional research projects are aware, meeting these requirements is not easy. The problems of proper design and sound implementation in basic research are serious ones; they are compounded in decisional research by the insistent constraints of time and of the economics of information acquisition.

In this text we have attempted to deal with these problems as clearly and directly as possible. Our continuing concern has been the illustration of the concepts and techniques discussed by the use of actual examples. Students, whether they are users or doers of research, are better motivated and taught when they can see how a concept is applied or learn how a technique is used in actual situations.

This edition is a comprehensive revision that both updates and extends the topics covered in the fourth edition. In it, we have made a conscious effort to include even more examples of marketing problems whose solution was aided, or could have been aided, by applying one or more of the techniques that we discuss. Also *new to this edition* are several other changes which bear mentioning, as they make the text easier for instructors and students to use:

- A more open, attractive design, including the functional use of color to highlight important material.
- More, but shorter and more focused, chapters.
- Up-to-date coverage of the electronics and computer revolution sweeping the marketing research field.
- A continuing real-world case that runs throughout the text, allowing students to apply new material to a familiar context.

We share the difficulty of most authors of giving adequate recognition to those who have contributed to their work. Our students have been a continuing source of helpful comments and suggestions. Our colleagues, both here at Oregon and at other universities, have also provided many useful suggestions. The reviewers for this edition each provided unusually perceptive comments, and so deserve individual recognition. They are:

Panos Apostolidis	University of Scranton
Joseph Bellizzi	Arizona State University
Ray DeCormier	Central Connecticut State University
Lawrence Feick	University of Pittsburgh
Donald Fuller	University of Central Florida
Roger Gates	University of Texas—Arlington
Pat Kennedy	University of Oregon
Peter LaPlaca	University of Connecticut
D. B. Lund	University of Nevada—Reno
Suzanne McCall	East Texas State University
Steve Perkins	Pennsylvania State University
Paul Prabhaker	DePaul University
Arno Rethans	California State University—Chico
David Santee	Hallmark Cards

Ken Schneider	St. Cloud University
Bruce Smackey	Lehigh University
Richard Skinner	Kent State University
Hale Tongren	George Mason University
Tom Yokum	DePaul University

We are also indebted to the many practicing marketing researchers and research organizations that supplied examples, illustrations, and material for cases.

They each have contributed to this being a much better book than it could possibly have been without their help. All have our sincere thanks. None are in any way responsible for any shortcomings that may remain.

Particular thanks must go to Michael Capizzi of Burgoyne, Inc. His comments, criticisms, and suggestions were invaluable in anchoring this text solidly in reality. He is a practicing marketing researcher who is not only concerned about the education of future marketing managers but is willing to invest considerable time and effort to improve the educational process.

Finally, we thank Jan Clayton, who not only deciphered our frequently illegible notes, but typed with speed, accuracy, and a constant sense of humor.

Eugene, Oregon

D. S. T.  
D. I. H.

# Supplementary Material for the Text

---

**Markstat Statistical Package** We have responded to the increased attention given to microcomputers and their applicability in solving marketing problems with an integrated version of MARKSTAT, a microcomputer package developed for the marketing research course by Peter LaPlaca at the University of Connecticut. This software is packaged with a student exercise manual which has been integrated with the data and underlying research concepts found in the Tull/Hawkins text.

**Data Disks** For those who wish only to have the data from several cases and applications found in the text, these data are also available separately on computer disk to adopters.

**Instructor's Manual** This comprehensive resource contains teaching objectives, quiz and demonstration questions and problems, review questions, and transparencies.

**Test Bank** This edition of Tull/Hawkins provides a separate test bank that contains a large selection of over 2700 multiple choice and true/false questions, many of which have been class tested.

**Microtest** A microcomputer testing system is available to adopters that provides the test bank on computer disk for the IBM, Apple, and TRS-80 microcomputers.



# To the Student

---

What you will want to learn from the course in which this text is being used will depend in part on whether you plan to be in a management position in which you will *use* marketing research, or whether you intend to be a marketing researcher and *do* research.

Those who are going to be users of research need to learn to judge how useful research information would be to help solve specific marketing problems, and how to evaluate the quality of the information promised by a research proposal. Those who are going to be marketing researchers need to learn how to design and conduct sound research projects at the least possible cost.

We have kept both of these objectives in mind in writing this text. We have attempted to give a thorough description of the underlying principles in each of the topic areas to enable a researcher to design and conduct a sound research project. In addition most of the topic areas have suggested step-by-step procedures for applying these principles in practice (how to design a research project, how to set up a sampling plan, how to prepare a questionnaire, and how to select the methods of analysis to use are examples.

Wherever possible we have used actual examples to illustrate the application of these principles and procedures. We have provided the opportunity to evaluate the quality of research proposals or information in each of the topic areas through an extensive use of examples, illustrations, discussion questions, problems, and cases.

In studying this material, we recommend that you read the review questions at the end of the chapter *before* you read the chapter. They will prepare you for the key terms and ideas in the chapter. After you read the chapter, try

to answer each review question. This will serve as a review and a measure of your surface knowledge of the key terms and concepts. Once you are comfortable with these questions, examine the discussion questions/problems. They are designed to enhance your *understanding* and *ability to use* the material in the chapter. Answering these questions requires only the textbook and, for some, a calculator. The project questions require you to “leave the room” to interview people, use library or computer resources, or otherwise actually *do* marketing research.

Whether you intend to be a user or a doer of research, this is a textbook that you may want to keep. It has been said that knowledge is of two kinds: to know a subject ourselves, or to know where we can find information about it. We have attempted to make this book useful for both purposes.

Donald S. Tull  
Del I. Hawkins

# Contents

---

<b>1</b>	<b>THE NATURE OF MARKETING RESEARCH</b>	<b>1</b>
1	The Nature of Marketing Research	3
	The Function of Marketing Research	5
	Information and Decision Making	7
	The Marketing Research Department	14
	The Research Industry	16
	Marketing Research Careers	18
	Review Questions	20
	Discussion Questions/Problems	21
	Projects	22
2	Marketing Information and Decision Support Systems	24
	Marketing Information Systems (MIS)	25
	Marketing Decision Support Systems (MDSS)	31
	Marketing Budget	38
	Review Questions	39
	Discussion Questions/Problems	39
	Projects	40

### 3 The Research Process and Research Design 42

The Research Process	43
The Nature of Research Design	44
Steps in the Research Design Process	44
Potential Errors Affecting Research Designs	58
Review Questions	62
Discussion Questions/Problems	63
Projects	64

---

## SECTION 1 CASES 66

I-1 Weyerhaeuser I: The Role of Marketing Research	66
I-2 Weyerhaeuser II: Problem Definition and Research Design	68
I-3 Lemonade Price Level Proposal	71

---

## 2 The Sources of Research Data 75

### 4 Secondary Data 77

The Nature of Secondary Data	78
Internal Sources of Secondary Data	81
External Sources of Secondary Data	84
An Application of Secondary Data	100
Review Questions	102
Discussion Questions/Problems	102
Projects	103

### 5 Commercial Surveys, Audits, and Panels 105

Commercial Surveys	106
Audits	115
Panels	117
Data Available from Commercial Surveys, Audits, and Panels	125
Using Commercial Surveys, Audits, and Panels	132
Review Questions	133
Discussion Questions/Problems	134
Projects	134

6	Survey Research	137	
	The Nature of Survey Research	138	
	Criteria for the Selection of a Survey Method	148	
	Nonresponse Error in Survey Research	157	
	Review Questions	170	
	Discussion Questions/Problems	171	
	Projects	172	
7	Experimentation	181	
	The Nature of Experimentation	183	
	Types of Errors Affecting Experimental Results	184	
	Experimental Design	191	
	Conclusions Concerning Experimental Designs	206	
	<i>Ex Post Facto</i> Studies	207	
	Review Questions	209	
	Discussion Questions/Problems	210	
	Projects	211	
8	Experimental Environment	214	
	Laboratory Experiments	215	
	Field Experiments	223	
	Test Marketing	225	
	Review Questions	241	
	Discussion Questions/Problems	242	
	Projects	243	

---

## SECTION 2 CASES 247

II-1	Weyerhaeuser III—Secondary Data	247
II-2	Weyerhaeuser IV—Alternative Data Sources	247
II-3	Weyerhaeuser V—Survey Methodology	248
II-4	Substantiation of Bufferin Advertising Claim	250
II-5	Market Facts, Inc.	251

<b>3</b>	<b>Measurement Techniques in Marketing Research</b>	<b>255</b>
<b>9</b>	<b>Measurement in Marketing Research</b>	<b>257</b>
	The Concept of Measurement	258
	Scales of Measurement	262
	Components of Measurements	268
	Measurement Accuracy	271
	Measurement Development	277
	Review Questions	279
	Discussion Questions/Problems	280
	Projects	282
<b>10</b>	<b>Questionnaire Design</b>	<b>285</b>
	The Nature of Questionnaire Design	286
	Preliminary Decisions	289
	Decisions About Question Content	290
	Decisions About Question Phrasing	302
	Decisions About the Response Format	308
	Decisions About the Question Sequence	313
	Physical Characteristics of the Questionnaire	315
	Decisions About the Pretest	319
	Review Questions	320
	Discussion Questions/Problems	321
	Projects	323
<b>11</b>	<b>Direct Response Attitude Scales</b>	<b>329</b>
	Rating Scales	330
	Attitude Scales	345
	Which Scale to Use?	350
	Review Questions	351
	Discussion Questions/Problems	352
	Projects	353
<b>12</b>	<b>Derived Attitude Scales</b>	<b>357</b>
	Conjoint Analysis	359
	Perceptual Mapping	370
	Review Questions	386
	Discussion Questions/Problems	387
	Projects	388



13	Qualitative Research	391
	Depth Interviews	392
	Projective Techniques	402
	Review Questions	411
	Discussion Questions/Problems	411
	Projects	412
14	Observation and Physiological Measures	415
	Observation	416
	Physiological Measures	424
	Review Questions	431
	Discussion Questions/Problems	431
	Projects	432

---

## SECTION 3 CASES 435

III-1	Weyerhaeuser VI: Questionnaire Design and Attitude Measurement	435
III-2	Price Premium, Warranty, and Brand Name Study	445
III-3	Foote, Cone, & Belding, Inc.: Masked Recognition Experiment	447
III-4	BRX Intermedia Comparison Test: A Proposed Research Design for Testing the Relative Effectiveness of Media	450
III-5	United States Postal Service Test Market of the Indian Head Penny Stamp	452

---

## 4 Sampling and Data Analysis 459

15	Sampling and Research: The Sampling Process	461
	Census Versus Sample	462
	The Sampling Process	464
	Sampling Situations	481
	Review Questions	487
	Discussion Questions/Problems	488
	Projects	489

16	Sample Size Determination	491	
	Methods of Determining Sample Size	492	
	The Sampling Distribution	494	
	Traditional Statistical Methods of Determining Sample Size		500
	Sample Size, Incidence, and Nonresponse	517	
	Review Questions	518	
	Discussion Questions/Problems	519	
	Projects	521	
17	Data Reduction and Estimation	523	
	An Example Involving New Product Research		525
	Data Reduction	527	
	Statistical Estimation	550	
	Review Questions	555	
	Discussion Questions/Problems	556	
	Project	558	
18	Univariate Hypothesis Tests	560	
	Hypothesis Tests Requiring Interval Data	561	
	Hypothesis Tests Using Ordinal Data	579	
	Hypothesis Tests Using Nominal Data	587	
	Review Questions	593	
	Discussion Questions/Problems	594	
19	Multivariate Hypothesis Tests	597	
	ANOVA Without Interaction	598	
	ANOVA With Interaction: Factorial Designs		604
	ANOVA Assumptions	606	
	Review Questions	606	
	Discussion Questions/Problems	607	
20	Measures of Association	609	
	Measures of Association Between Two Variables		611
	Multivariate Measures of Association	619	
	Review Questions	632	
	Discussion Questions/Problems	632	
21	Sales Forecasting	637	
	Judgmental Methods of Forecasting	639	
	Forecasting by Time Series Analysis and Projection		643

---

Causal Methods of Forecasting	657
Error Costs and the Value of Forecasts	664
The Choice of Forecasting Model(s)	665
Review Questions	668
Discussion Questions/Problems	669
Projects	672

---

## SECTION 4 CASES 676

IV-1	Weyerhaeuser VII: Sample Design, Size, and Selection	676
IV-2	Weyerhaeuser VIII: Data Analysis	677
IV-3	Burgoyne Information Service's Sampling Plan for a Mini-Market Controlled Store Test	678
IV-4	Classic Coke, New Coke, Pepsi-Cola Taste Test	681
IV-5	National Piano and Organ Survey Proposal	686
IV-6	Vernon Steel Supply	689

---

## 5 Marketing Research Reports and Ethical Issues 691

22	Marketing Research Reports	693
	Preparing the Written Research Report	693
	Preparing Oral Presentations	708
	Reading Research Reports	712
	Review Questions	714
	Discussion Questions/Problems	715
	Projects	718
23	Ethical Issues in Marketing Research	719
	The Nature of Ethical Issues in Marketing Research	723
	Corporate Espionage	737
	Review Questions	737
	Discussion Questions/Problems	738
	Projects	740