

成本会计精要（第4版）

Fundamentals of Cost Accounting (Fourth Edition)

威廉·莱恩 (William N. Lanen)
[美] 香农·安德森 (Shannon W. Anderson) 著
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美国麦格劳-希尔教育出版公司工商管理最新教材 (英文版)

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Fundamentals of Cost Accounting
(Fourth Edition)

清华大学出版社
北京

William N. Lanen, Shannon W. Anderson, Michael W. Maher

Fundamentals of Cost Accounting, 4th ed.

ISBN: 9780078025525

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图书在版编目(CIP)数据

成本会计精要:第4版=Fundamentals of Cost Accounting:英文/(美)莱恩,(美)安德森,(美)马厄著. —北京:清华大学出版社,2015

(美国麦格劳-希尔教育出版公司工商管理最新教材)

ISBN 978-7-302-40901-4

I. ①成… II. ①莱… ②安… ③马… III. ①成本会计—高等学校—教材—英文 IV. ①F234.2

中国版本图书馆CIP数据核字(2015)第156347号

责任编辑:王青

封面设计:常雪影

责任印制:沈露

出版发行:清华大学出版社

网 址: <http://www.tup.com.cn>, <http://www.wqbook.com>

地 址:北京清华大学学研大厦A座 邮 编:100084

社总机:010-62770175 邮 购:010-62786544

投稿与读者服务:010-62776969, c-service@tup.tsinghua.edu.cn

质量反馈:010-62772015, zhiliang@tup.tsinghua.edu.cn

课 件 下 载: <http://www.tup.com.cn>, 010-62770175 转 4903

印 刷 者:清华大学印刷厂

装 订 者:三河市新茂装订有限公司

经 销:全国新华书店

开 本:203mm×260mm

印 张:36.75

版 次:2015年8月第1版

印 次:2015年8月第1次印刷

印 数:1~4000

定 价:65.00元

产品编号:064130-01

中国的学生要不要使用英文版的教材，一直有争议。有人认为，我们应该使用自己编写的教材，这样才能更准确地反映我们在课堂上所要表达的观点。用国外的原版教材，有些隔靴搔痒，不能解决中国的实际问题。持不同意见的观点认为，尽管各国在管理体制上有意识、制度、文化等差异，但管理本身是在国际环境下具有共同性的问题。特别是，中国的企业在经济全球化的环境下，需要更多地了解国外的管理理论与现状。在这种情况下，就需要引进一些外版的教材。一则，用于满足我们教学的部分需求；二则，更好地了解外版教材的教学服务体系；三则，为我们的师生创造英语教学的环境。

在进行 2004 年本科教指委的工作规划时，我曾特别谈及，要加强对本科教育中教书“育人”、服务于学生的使命的认识，继续优化专业课程设计，扩大精品课程建设，增加专业导向课程，尤其要加强对国际商科与经济管理学科教学进展的研究，并引进最新的教学成果，包括教材及教学资源。这一切都是为了更好地为国家与社会培养更好的人才。

为此，清华大学出版社与美国麦格劳-希尔教育出版公司合作，引进出版这套“精编版”的英文工商管理教材，也是这一理念的体现。这套教材吸收国际最新教学成果，提供全方位的教学资源，并借助英语的语言媒介，将会大力提升与发展中国工商管理教学水平，提高学生使用英语语言和和网络手段获得长久的终身学习的能力和兴趣，进而提高我国工商界的国际竞争力。这是一件具有重大意义的工作。

在讨论引进国际上在工商管理教学的最新成果时，确定了引进本套教材及教学资源的基本格调，即对“国际最新教学成果”的几个共同认识：一是国际上教学技术的进展走到了哪一步，我们就引进到哪一步。二是要注意教学技术的发展给教学及教材带来的影响，我们要借鉴新的教学辅助手段。

最近几年，我在美国授课的过程中，注意到教学网络技术——课程管理系统（course management system, CMS）。通过这个教学辅助系统，教师可以将所要讲授的课程内容简单地张贴到一个系统化的网页上，包括教学演示文件（PPT）、章节提要（Lecture Notes）、在线阅读资料以及问答题、简答题，还有课后大作业等，还可以很简单地开设自己课程的在线论坛（BBS）。学生在注册后，便成为在线学生，通过该平台与教师交互，完成习题，在线提交作业，在线考试，自动出评测分析报告。这一切是以教师为中心，完全解决了教师对于自己教学内容以及对学生及教学过程的网络化、数字化管理的问题，并可多次复用、异地复用。这个在线学习系统（BlackBoard, WebCT, eCollege 等）不同于国内各高校自己研发的以学籍管理或居于录像、课件的远程教学为中心的校园管理平台，直接解决大学的核心问题：即“大师”们对课程教学内容的管理问题，成为对教师授课

最好的在线数字化辅助支持平台。

2004 年的春季学期，中国人民大学商学院 247 位教师，所有 364 门课程全面上线，2000 多名学生在线注册学习，引发了人大商学院一场真正意义上的“教学革命”。教师与学生实现了很好地沟通与互动，学生之间也有了很好地学习讨论的天地。目前，我校商学院的经验，已经成为赛尔毕博支持国内院校教学上线发展的典范，成为 BlackBoard 在国内的示范教学网站。

课堂教学同网络平台结合之后，又给教学带来了新的挑战，也给教材和教材的出版商们带来了新的机遇。历史悠久的麦格劳-希尔教育出版公司积极适应这种挑战，在商科及经管教材的出版上做了战略性的调整：即将教材本身做“薄”，出版一批新型的、跨媒介的教材：将研讨性、探索性、展开式的学习内容放到网上，将动态交互性的内容放到网上；印刷版的教材从过去强调各章节内容全面，呈现教学过程、学习环节，转向注重概念性及引导性，展现学习的核心内容。同时，他们将与教材配套的教学资源做得更“全”，将更多的内容上线后全面依托网络，更加动态地呈现教学内容及教学过程；并为不同的教学平台提供完全解决方案，提供跨平台的不同版本的内容“子弹”。无论采用 BlackBoard 或 WebCT 等平台，教师们都可以从出版商处获得标准的教学资源包，为自己采用的教材轻松搭建课程网站，实现教学的在线革命。

总之，教学在革命，教学的手段也在革命。我们要看到工商管理教学在国际上的各种变化，努力跟上时代的发展变化，使我们的学生真正获得国际水准的教育。为此，我衷心地感谢这批教材的国外作者们，正是他们不懈的教学实践，给我们学科的发展带来源源的活力；同时感谢国内外的出版界人士，感谢他们对教材、教材市场的永恒的追求，不断地帮助我们提升教学的水准；衷心希望这批适应新的教学需要的国际最新教材的出版能抛砖引玉，再次带动整个工商管理教育无论是本科、高职高专教学，还是 MBA、EMBA 教学的发展。

子曰：“学而时习之，不亦说乎。”在这场教学革命中，我们有更大的勇气面临新的教学的挑战，将中国的工商管理教育推向世界一流！

徐二明

中国人民大学

出 版 说 明

为了适应经济全球化的发展趋势,满足国内广大读者了解、学习和借鉴国外先进经济管理理论和管理经验的需要,清华大学出版社与国外著名出版公司麦格劳-希尔教育出版集团合作影印出版了一系列商科英文版教材。鉴于大部分外版教材篇幅过长,且其中部分内容与我国的教学需要不符,我们请专家学者结合国内教学的实际要求,对所选图书进行了必要的删节。我们所选择的图书,基本上是在国外深受欢迎、并被广泛采用的优秀教材的删减版,其主教材均是该领域中较具权威性的经典之作。

为有效控制定价以便减轻学生购买教材的负担,本书删去了原书的第15~18章。我们在对原版图书进行删节的同时仍采用了原书的页码,因此文中提到的页码或内容有可能已被删掉从而无法找到,由此给读者带来的诸多不便,我们深表歉意。

由于原作者所处国家的政治、经济和文化背景等与我国不同,对书中所持观点,敬请广大读者在阅读过程中注意加以分析和鉴别。

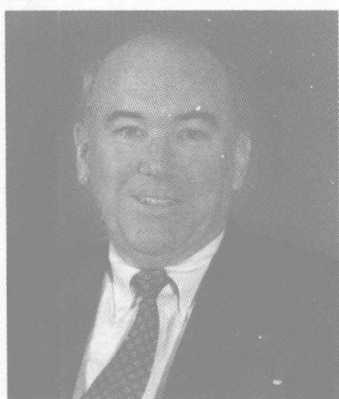
我们期望这套影印书的出版对我国经济管理科学的发展能有所帮助,对我国商科的教学,尤其是商学本科的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议;同时也欢迎有关专业人士向我们推荐您所接触到的国外优秀图书。

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2015年4月

About the Authors



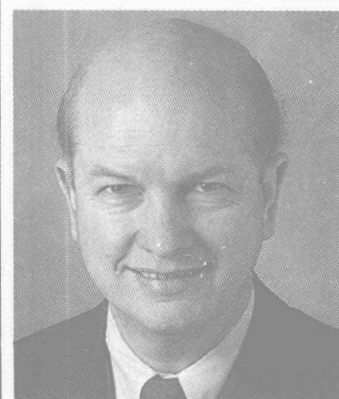
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William Lanen is a professor of accounting at the **University of Michigan**. He previously taught at the **Wharton School** at the **University of Pennsylvania**. He received his AB from the **University of California-Berkeley**, MS from **Purdue University**, and his PhD from the **Wharton School**. He has taught cost accounting to undergraduates, MBA students, and executives, including in global programs in Europe, South America, and Asia. He currently is the director of the Office of Action-Based Learning at the Ross School of the University of Michigan. His research focuses primarily on performance evaluation and rewards.



Shannon W. Anderson

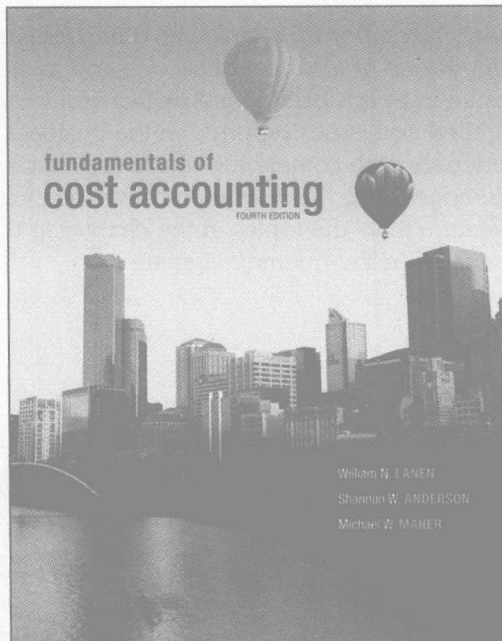
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Michael Maher is a professor of management at the **University of California-Davis**. He previously taught at the **University of Michigan** and was a visiting professor at the **University of Chicago**. He received his MBA and PhD from the **University of Washington** and his BBA from **Gonzaga University** and was awarded a CPA by the State of Washington. He has published more than a dozen books, including several textbooks that have appeared in numerous editions. He has taught at all levels from undergraduate to MBA to PhD and executives. His research focuses on cost analysis in service organizations, corporate governance, and white-collar crime.

Providing a Clear View



For a student, taking a cost accounting course can be like finding yourself in tall grass: surrounded by dense concepts and far from the path to mastery. *Fundamentals of Cost Accounting* gives students a clear view by lifting them above the overgrowth. By focusing on the fundamental concepts that students will need and employing a conversational writing style that keeps them engaged throughout the course, *Fundamentals* focuses students on comprehension rather than memorization and provides a context for their learning. The material is presented from both a preparer and a user perspective, allowing instructors to provide both accounting majors and nonmajors with an effective and relevant understanding of cost accounting topics. In this fourth edition, the text continues to provide the following core features:

Readability

Fundamentals of Cost Accounting continues to be praised as one of the most readable texts on the market. Lanen, Anderson, and Maher employ a conversational writing style that students can understand, making concepts and topics more accessible. Throughout the text, exhibits and illustrations provide visuals to further assist students in understanding how complex topics fit together in a logical way.

“*[Fundamentals of Cost Accounting]* is a very readable text with excellent examples and illustrations.”

—Robert Elmore
Tennessee Technological University

Conciseness

Short, readable chapters that focus on core cost accounting concepts give Lanen, Anderson, and Maher a leg up on the competition. While other texts tend to tack on topics and fit concepts into chapters in seemingly arbitrary ways, *Fundamentals of Cost Accounting* presents basic topics in a coherent sequence, helping students to see the integration of the concepts quickly and easily.

Relevance

Each chapter of *Fundamentals of Cost Accounting* opens with **The Decision**—a real dilemma faced by a manager in one of a variety of service and manufacturing companies. These vignettes tie in to the **Business Application** boxes later in the chapter, which highlight related issues reported in the business world and the authors' own experiences with companies where they have worked or conducted research, demonstrating the relevance of cost accounting to the real world. **The Debrief** feature links the topics in the chapter to the decision dilemma faced by the manager in the opening vignette.

“Clear and easy to read.”

—Molly Brown
James Madison University

“The text has a good, broad coverage that can be adapted to meet the needs of the cost accounting course.”

—Donald Campbell
Brigham Young University–Idaho

“Lanen provides a succinct and readable text for the basics of cost accounting. The emphasis is on the fundamentals.”

—Jay Holmen
University of Wisconsin Eau Claire

“Its topical coverage is very good and its layout and readability are also very good.”

—David Bukovinsky
Wright State University

“The writing is excellent, accompanied by many useful illustrations.”

—Leslie Kren
University of Wisconsin Milwaukee

Step into the Real World

5

Chapter Five

Cost Estimation

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- LO 5-1 Understand the reasons for estimating fixed and variable costs.
- LO 5-2 Estimate costs using engineering estimates.
- LO 5-3 Estimate costs using account analysis.
- LO 5-4 Estimate costs using statistical analysis.
- LO 5-5 Interpret the results of regression output.
- LO 5-6 Identify potential problems with regression data.
- LO 5-7 Evaluate the advantages and disadvantages of alternative cost estimation methods.

The Decision

I've read several books on cost analysis and worked through decision analysis problems in some of my college classes. Now that I own my own business, I realize that there was one important thing that I always took for granted in doing those problems. We were always given the data. Now I know that doing the analysis once you have the data is the easier part. How are the costs determined? How do I know if they are fixed or variable? I am trying to decide whether to open a new store and I need answers to these questions. I thought about the importance of being able to determine fixed and variable costs after reading an

article about all things, the costs of text messaging [see the Business Application item "The Variable Cost of a Text Message" on the next page]. The article talked about the low variable costs of sending text messages and the implications for pricing services. Although I am in a different industry, the basic principles still apply.??

Charlene Cooper owns Charlene's Computer Care (3C), a network of computer service centers located throughout the South. Charlene is thinking about opening a new center and has asked you to help her make a decision. She especially wants your help estimating the costs to use in the analysis.

Why Estimate Costs?

When managers make decisions, they need to compare the costs (and benefits) among alternative actions. Therefore, managers need to estimate the costs associated with each alternative. We saw in Chapter 4 that good decisions require good information about costs; the better these estimates, the better the decision managers will make. In this chapter, we discuss how to estimate the cost data required for decision making.

Chapter Opening Vignettes

Do your students sometimes wonder how the course connects with their future? Each chapter opens with *The Decision*, a vignette in which a decision maker needs cost accounting information to make a better decision. This sets the stage for the rest of the chapter and encourages students to think of concepts in a business context.

Business Application The Variable Cost of a Text Message

Text messaging is a common add-on service to mobile phones, but how profitable is it for the phone companies? In September 2008, the chairman of the Senate Antitrust Committee sent letters to four major telecommunications companies asking for information about prices and costs. His interest was prompted by a price increase from \$.10 to \$.20 for the pay-per-use service.

Although the companies did not discuss the costs of text messaging in their responses, the variable cost can be estimated by the engineering method. First, how does a text message use the carriers' resources?

A text message initially travels wirelessly from a handset to the closest base-station tower and is then transferred through wired links to the digital pipes of the telephone network, and then, near its destination, is converted back into a wireless signal to traverse the final leg, from tower to handset.

How does sending a text message impact the network?

In the wired portion of its journey, a file of such infinitesimal size is inconsequential. Srinivasan Keshav, a professor of computer science at the University of Waterloo in Ontario, said, "Messages are small. Even though a

What does this mean for the costs?

Professor Keshav said that once a carrier invests in the centralized storage equipment—the cost of storing a terabyte now is only \$100 and dropping—and the staff to maintain it, its costs are basically covered. "Operating costs are relatively insensitive to volume," he said. "It doesn't cost the carrier much more to transmit a hundred million messages than a million."

In other words, the variable costs are close to zero. What are the implications for pricing? With no incremental fixed or variable costs associated with the texting product, carriers profit from offering unlimited messaging at an affordable rate.

Once one understands that a text message travels wirelessly as a stowaway within a control channel, one sees the carriers' pricing plans in an entirely new light. The most profitable plan for the carriers will be the one that collects the most revenue from the customer: unlimited messaging, for which AT&T and Sprint charge \$20 a month and T-Mobile, \$15.

Source: Randall Stross, "What Carriers Aren't Eager to Tell You

Business Application

Do your students need help connecting theory to application? The *Business Application* examples tie in to *The Decision* chapter-opening vignettes and are drawn from contemporary journals and the authors' own experiences. They illustrate how to apply cost accounting methods and tools.

"[The Business Application features are] a very helpful piece to help students see how the course material becomes relevant in the professional world."

—N. Ahadiat
University of California Pomona

Debrief

Do your students understand how to apply the concepts in each chapter to become better decision makers? All chapters end with a Debrief feature that links the topics in the chapter to the decision problem faced by the manager in the opening vignette.

The Debrief

After considering the cost estimates in Exhibit 5.8, Charlene commented:

“This exercise has been very useful for me. First, I learned about different approaches to estimating the cost of a new center. More important, I learned about the advantages and disadvantages of each approach.”

When I look at the numbers in Exhibit 5.8, I have confidence in my decision to open a new center. Although there is a range in the estimates, all of the estimates are below my expected revenues. This means I am not going to spend more time on reconciling the cost estimates because I know that regardless of which estimate I think is best, my decision will be the same.”

SUMMARY

Accurate cost estimation is important to most organizations for decision-making purposes. Although no estimation method is completely accurate, some are better than others. The usefulness of a cost estimation method depends highly on the user's knowledge of the business and the costs being analyzed.

The following summarizes the key ideas tied to the chapter's learning objectives.

LO 5-1 Understand the reasons for estimating fixed and variable costs. The behavior of costs, not the accounting classification, is the important distinction for decision making. Cost estimation focuses on identifying (estimating) the fixed and variable

“Good illustrations and real-world examples. It has broad and comprehensive topic coverage.”

—Robert Lin
California State University East Bay

All applicable Exercises are included in Connect Accounting®

connect
ACCOUNTING

EXERCISES

5-25. Methods of Estimating Costs: Engineering Estimates

Custom Homebuilders (CH) designs and constructs high-end homes on large lots owned by customers. CH has developed several formulas, which it uses to quote jobs. These include costs for materials, labor, and other costs. These estimates are also dependent on the region of the country a particular customer lives. Below are the cost estimates for one region in the Midwest:

Administrative costs	\$20,000
Building costs – per square foot (basic)	\$ 90
Building costs – per square foot (moderate)	\$ 150
Building costs – per square foot (luxury)	\$ 225
Appliances (basic)	\$15,000
Appliances (moderate)	\$25,000
Appliances (luxury)	\$45,000
Utilities costs (if required)	\$40,000

Required

A customer has expressed interest in having CH build a moderate, 3,000 square-foot home on a vacant lot, which does not have utilities. Based on the engineering estimates above, what will such a house cost to build?

5-26. Methods of Estimating Costs: Engineering Estimates

Cray-Z Consultants provides management accounting advice to not-for-profit firms. It employs three levels of consultants, based on experience and education: partner, senior, and associate. When Cray-Z considers bidding on jobs, it estimates the costs using a set of stan-

(1.O 5-2)

(1.O 5-2)

End-of-Chapter Material

Being able to assign end-of-chapter material with confidence is important. The authors have tested the end-of-chapter material over time to ensure quality and consistency with the chapter content.

“This is an excellent cost accounting book with quality end of chapter materials.”

—Judy Daulton
Piedmont Technical College

“Well written; good end-of-chapter material.”

—R. E. Bryson
University of Alabama in Huntsville

Excel is essential to contemporary cost accounting practice, and Lanen 4e integrates Excel where appropriate in the text. Several exercises and problems in each chapter can be solved using the Excel spreadsheet templates found on the text's Online Learning Center or *Connect* Library. An Excel logo appears in the text next to these problems.

5-30. Methods of Estimating Costs: High-Low

Adriana Corporation manufactures football equipment. In planning for next year, the managers want to understand the relation between activity and overhead costs. Discussions with the plant supervisor suggest that overhead seems to vary with labor-hours, machine-hours, or both. The following data were collected from last year's operations:

(LO 5-4)

Month	Labor-Hours	Machine-Hours	Overhead Costs
1	3,625	6,775	\$513,435
2	3,575	7,035	518,960
3	3,400	7,600	549,575
4	3,700	7,265	541,400
5	3,900	7,955	581,145
6	3,775	7,895	572,320
7	3,700	6,950	535,110
8	3,625	6,530	510,470
9	3,550	7,270	532,195
10	3,975	7,725	565,335
11	3,375	6,490	503,775
12	3,550	6,020	564,210

"Strong end of chapter and test bank materials. Strong inclusion of Excel in the chapters"

—Michael Flores,
Wichita State University

INTEGRATIVE CASE

5-57. Cost Estimation, CVP Analysis, and Decision Making

(LO 5-4, 5, 8)

Luke Corporation produces a variety of products, each within their own division. Last year, the managers at Luke developed and began marketing a new chewing gum, Bubbs, to sell in vending machines. The product, which sells for \$5.25 per case, has not had the market success that managers expected and the company is considering dropping Bubbs.

The product-line income statement for the past twelve months follows:

Revenue		\$14,682,150
Costs		
Manufacturing costs	\$14,440,395	
Allocated corporate costs (@5%) ...	734,108	15,174,503
Product-line margin		\$ (492,353)
Allowance for tax (@20%)		98,470
Product-line profit (loss)		\$ (393,883)

All products at Luke receive an allocation of corporate overhead costs, which is computed as 5 percent of product revenue. The 5 percent rate is computed based on the most recent year's corporate cost as a percentage of revenue. Data on corporate costs and revenues for the past two years follow:

	Corporate Revenue	Corporate Overhead Costs
Most recent year	\$106,750,000	\$5,337,500
Previous year	\$ 76,200,000	4,221,000

Integrative Cases

Cases can generate classroom discussion or be the basis for good team projects. These integrative cases, which rely on cost accounting principles from previous chapters as well as the current chapter, ask students to apply the different techniques they have learned to a realistic situation.

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