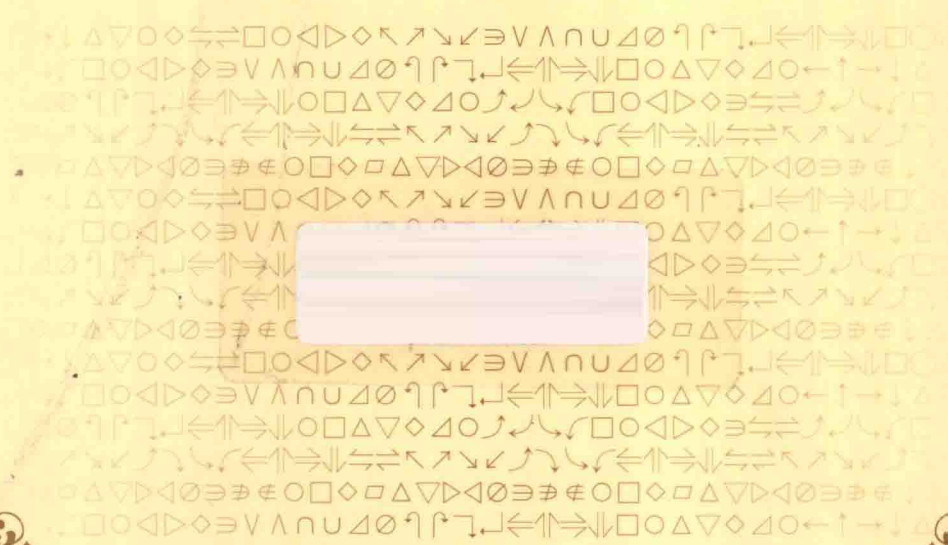




特别影印版

微观经济理论

安德鲁·马斯-科莱尔
迈克尔·D. 温斯顿 著
杰里·R. 格林



微观经济理论

特别影印版

安德鲁·马斯-科莱尔
迈克尔·D. 温斯顿 著
杰里·R. 格林

 上海财经大学出版社

图书在版编目(CIP)数据

微观经济理论 = Microeconomic Theory: 英文/(美) 马斯—科莱尔
(Mas-Colell, A.), (美) 温斯顿 (Whinston, M.D.) (美) 格林 (Green, J.R.)
著. —影印本. —上海: 上海财经大学出版社, 2014. 5
ISBN 978-7-5642-1748-8/F · 1748

I. ①微… II. ①马…②温…③格… III. ①微观经济学-教材-英文
IV. ①F016

中国版本图书馆 CIP 数据核字(2013)第 205812 号

- 责任编辑 袁 敏
- 封面设计 张克瑶
- 习题翻译 钱晓明



WEIGUAN JINGJI LILUN
微观经济理论

特别影印版

安德鲁·马斯—科莱尔
迈克尔·D. 温斯顿 著
杰里·R. 格林

上海财经大学出版社出版发行
(上海市武东路 321 号乙 邮编 200434)
网 址: <http://www.sufep.com>
电子邮箱: webmaster@sufep.com

全国新华书店经销
上海华教印务有限公司印刷
上海叶大印务发展有限公司装订
2014 年 5 月第 1 版 2014 年 5 月第 1 次印刷

890mm×1240mm 1/16 62.5 印张 1367 千字
印数: 0 001—5 000 定价: 125.00 元

Microeconomic Theory

Andreu Mas-Colell, Michael D. Whinston, Jerry R. Green

Copyright © 1995 by Oxford University Press, Inc.

THIS BOOK IS BASED ON *Microeconomic Theory*. This SPECIAL CHINESE VERSION is published by arrangement with Oxford University Press for sale/distribution in The Mainland (part) of the People's Republic of China (excluding the territories of Hong Kong SAR, Macau SAR and Taiwan Province) only and not for export therefrom.

本特殊中文影印版由牛津大学出版社授权, 仅限在中华人民共和国大陆地区(不包括香港特别行政区、澳门特别行政区和中国台湾省)出版、发行, 不得出口。

本版本专有出版权属上海财经大学出版社
版权所有 翻版必究

Preface

Microeconomic Theory is intended to serve as the text for a first-year graduate course in microeconomic theory. The original sources for much of the book's material are the lecture notes that we have provided over the years to students in the first-year microeconomic theory course at Harvard. Starting from these notes, we have tried to produce a text that covers in an accessible yet rigorous way the full range of topics taught in a typical first-year course.

The nonlexicographic ordering of our names deserves some explanation. The project was first planned and begun by the three of us in the spring of 1990. However, in February 1992, after early versions of most of the book's chapters had been drafted, Jerry Green was selected to serve as Provost of Harvard University, a position that forced him to suspend his involvement in the project. From this point in time until the manuscript's completion in June 1994, Andreu Mas-Colell and Michael Whinston assumed full responsibility for the project. With the conclusion of Jerry Green's service as Provost, the original three-person team was reunited for the review of galley and page proofs during the winter of 1994/1995.

The Organization of the Book

Microeconomic theory as a discipline begins by considering the behavior of individual agents and builds from this foundation to a theory of aggregate economic outcomes. *Microeconomic Theory* (the book) follows exactly this outline. It is divided into five parts. Part I covers individual decision making. It opens with a general treatment of individual choice and proceeds to develop the classical theories of consumer and producer behavior. It also provides an introduction to the theory of individual choice under uncertainty. Part II covers game theory, the extension of the theory of individual decision making to situations in which several decision makers interact. Part III initiates the investigation of market equilibria. It begins with an introduction to competitive equilibrium and the fundamental theorems of welfare economics in the context of the Marshallian partial equilibrium model. It then explores the possibilities for market failures in the presence of externalities, market power, and asymmetric information. Part IV substantially extends our previous study of competitive markets to the general equilibrium context. The positive and normative aspects of the theory are examined in detail, as are extensions of the theory to equilibrium under uncertainty and over time. Part V studies welfare economics. It discusses the possibilities for aggregation of individual preferences into social preferences both with and without interpersonal utility comparisons, as well as the implementation of social choices in the presence of incomplete information about agents' preferences. A Mathematical Appendix provides an introduction to most of the more advanced mathematics used in the book (e.g., concave/convex

functions, constrained optimization techniques, fixed point theorems, etc.) as well as references for further reading.

The Style of the Book

In choosing the content of *Microeconomic Theory* we have tried to err on the side of inclusion. Our aim has been to assure coverage of most topics that instructors in a first-year graduate microeconomic theory course might want to teach. An inevitable consequence of this choice is that the book covers more topics than any single first-year course can discuss adequately. (We certainly have never taught all of it in any one year.) Our hope is that the range of topics presented will allow instructors the freedom to emphasize those they find most important.

We have sought a style of presentation that is accessible, yet also rigorous. Wherever possible we give precise definitions and formal proofs of propositions. At the same time, we accompany this analysis with extensive verbal discussion as well as with numerous examples to illustrate key concepts. Where we have considered a proof or topic either too difficult or too peripheral we have put it into smaller type to allow students to skip over it easily in a first reading.

Each chapter offers many exercises, ranging from easy to hard [graded from A (easiest) to C (hardest)] to help students master the material. Some of these exercises also appear within the text of the chapters so that students can check their understanding along the way (almost all of these are level A exercises).

The mathematical prerequisites for use of the book are a basic knowledge of calculus, some familiarity with linear algebra (although the use of vectors and matrices is introduced gradually in Part I), and a grasp of the elementary aspects of probability. Students also will find helpful some familiarity with microeconomics at the level of an intermediate undergraduate course.

Teaching the Book

The material in this book may be taught in many different sequences. Typically we have taught Parts I–III in the Fall semester and Parts IV and V in the Spring (omitting some topics in each case). A very natural alternative to this sequence (one used in a number of departments that we know of) might instead teach Parts I and IV in the Fall, and Parts II, III, and V in the Spring.¹ The advantage of this alternative sequence is that the study of general equilibrium analysis more closely follows the study of individual behavior in competitive markets that is developed in Part I. The disadvantage, and the reason we have not used this sequence in our own course, is that this makes for a more abstract first semester; our students have seemed happy to have the change of pace offered by game theory, oligopoly, and asymmetric information after studying Part I.

The chapters have been written to be relatively self-contained. As a result, they can be shifted easily among the parts to accommodate many other course sequences. For example, we have often opted to teach game theory on an “as needed” basis,

1. Obviously, some adjustment needs to be made by programs that operate on a quarter system.

breaking it up into segments that are discussed right before they are used (e.g., Chapter 7, Chapter 8, and Sections 9.A–B before studying oligopoly, Sections 9.C–D before covering signaling). Some other possibilities include teaching the aggregation of preferences (Chapter 21) immediately after individual decision making and covering the principal-agent problem (Chapter 14), adverse selection, signaling, and screening (Chapter 13), and mechanism design (Chapter 23) together in a section of the course focusing on information economics.

In addition, even within each part, the sequence of topics can often be altered easily. For example, it has been common in many programs to teach the preference-based theory of consumer demand before teaching the revealed preference, or “choice-based,” theory. Although we think there are good reasons to reverse this sequence as we have done in Part I,² we have made sure that the material on demand can be covered in this more traditional way as well.³

On Mathematical Notation

For the most part, our use of mathematical notation is standard. Perhaps the most important mathematical rule to keep straight regards matrix notation. Put simply, vectors are always treated mathematically as *column vectors*, even though they are often displayed within the written text as rows to conserve space. The transpose of the (column) vector x is denoted by x^T . When taking the inner product of two (column) vectors x and y , we write $x \cdot y$; it has the same meaning as $x^T y$. This and other aspects of matrix notation are reviewed in greater detail in Section M.A of the Mathematical Appendix.

To help highlight definitions and propositions we have chosen to display them in a different typeface than is used elsewhere in the text. One perhaps unfortunate consequence of this choice is that mathematical symbols sometimes appear slightly differently there than in the rest of the text. With this warning, we hope that no confusion will result.

Summation symbols (\sum) are displayed in various ways throughout the text. Sometimes they are written as

$$\sum_{n=1}^N$$

(usually only in displayed equations), but often to conserve space they appear as $\sum_{n=1}^N$, and in the many cases in which no confusion exists about the upper and lower limit of the index in the summation, we typically write just \sum_n . A similar point applies to the product symbol \prod .

2. In particular, it is *much* easier to introduce and derive many properties of demand in the choice-based theory than it is using the preference-based approach; and the choice-based theory gives you *almost* all the properties of demand that follow from assuming the existence of rational preferences.

3. To do this, one introduces the basics of the consumer’s problem using Sections 2.A–D and 3.A–D, discusses the properties of uncompensated and compensated demand functions, the indirect utility function, and the expenditure function using Sections 3.D–I and 2.E, and then studies revealed preference theory using Sections 2.F and 3.J (and Chapter 1 for a more general overview of the two approaches).

Also described below are the meanings we attach to a few mathematical symbols whose use is somewhat less uniform in the literature [in this list, $x = (x_1, \dots, x_N)$ and $y = (y_1, \dots, y_N)$ are (column) vectors, while X and Y are sets]:

<i>Symbol</i>	<i>Meaning</i>
$x \geq y$	$x_n \geq y_n$ for all $n = 1, \dots, N$.
$x \gg y$	$x_n > y_n$ for all $n = 1, \dots, N$.
$X \subset Y$	weak set inclusion ($x \in X$ implies $x \in Y$).
$X \setminus Y$	The set $\{x: x \in X \text{ but } x \notin Y\}$.
$E_x[f(x, y)]$	The expected value of the function $f(\cdot)$ over realizations of the random variable x . (When the expectation is over all of the arguments of the function we simply write $E[f(x, y)]$.)

Acknowledgments

Many people have contributed to the development of this book. Dilip Abreu, Doug Bernheim, David Card, Prajit Dutta, Steve Goldman, John Panzar, and David Pearce all (bravely) test-taught a very early version of the manuscript during the 1991–92 academic year. Their comments at that early stage were instrumental in the refinement of the book into its current style, and led to many other substantive improvements in the text. Our colleagues (and in some cases former students) Luis Corchón, Simon Grant, Drew Fudenberg, Chiaki Hara, Sergiu Hart, Bengt Holmstrom, Eric Maskin, John Nachbar, Martin Osborne, Ben Polak, Ariel Rubinstein, and Martin Weitzman offered numerous helpful suggestions. The book would undoubtedly have been better still had we managed to incorporate all of their ideas.

Many generations of first-year Harvard graduate students have helped us with their questions, comments, and corrections. In addition, a number of current and former students have played a more formal role in the book's development, serving as research assistants in various capacities. Shira Lewin read the entire manuscript, finding errors in our proofs, suggesting improvements in exposition, and even (indeed, often) correcting our grammar. Chiaki Hara, Ilya Segal, and Steve Tadelis, with the assistance of Marc Nachman, have checked that the book's many exercises could be solved, and have suggested how they might be formulated properly when our first attempt to do so failed. Chiaki Hara and Steve Tadelis have also given us extensive comments and corrections on the text itself. Emily Mechner, Nick Palmer, Phil Panet, and Billy Pizer were members of a team of first-year students that read our early drafts in the summer of 1992 and offered very helpful suggestions on how we could convey the material better.

Betsy Carpenter and Claudia Napolilli provided expert secretarial support throughout the project, helping to type some chapter drafts, copying material on very tight deadlines, and providing their support in hundreds of other ways. Gloria Gerrig kept careful track of our ever-increasing expenditures.

Our editor at Oxford, Herb Addison, was instrumental in developing the test teaching program that so helped us in the book's early stages, and offered his support throughout the book's development. Leslie Phillips of Oxford took our expression of appreciation for the look of the Feynman Lectures, and turned it into a book design that exceeded our highest expectations. Alan Chesterton and the rest of the

staff at Keyword Publishing Services did an absolutely superb job editing and producing the book on a very tight schedule. Their complete professionalism has been deeply appreciated.

The influence of many other individuals on the book, although more indirect, has been no less important. Many of the exercises that appear in the book have been conceived over the years by others, both at Harvard and elsewhere. We have indicated our source for an exercise whenever we were aware of it. Good exercises are an enormously valuable resource. We thank the anonymous authors of many of the exercises that appear here.

The work of numerous scholars has contributed to our knowledge of the topics discussed in this book. Of necessity we have been able to provide references in each chapter to only a limited number of sources. Many interesting and important contributions have not been included. These usually can be found in the references of the works we do list; indeed, most chapters include at least one reference to a general survey of their topic.

We have also had the good fortune to teach the first-year graduate microeconomic theory course at Harvard in the years prior to writing this book with Ken Arrow, Dale Jorgenson, Steve Marglin, Eric Maskin, and Mike Spence, from whom we learned a great deal about microeconomics and its teaching.

We also thank the NSF and Sloan Foundation for their support of our research over the years. In addition, the Center for Advanced Study in the Behavioral Sciences provided an ideal environment to Michael Whinston for completing the manuscript during the 1993/1994 academic year. The Universitat Pompeu Fabra also offered its hospitality to Andreu Mas-Colell at numerous points during the book's development.

Finally, we want to offer a special thanks to those who first excited us about the subject matter that appears here: Gerard Debreu, Leo Hurwicz, Roy Radner, Marcel Richter, and Hugo Sonnenschein (A.M.-C.); David Cass, Peter Diamond, Franklin Fisher, Sanford Grossman, and Eric Maskin (M.D.W.); Emmanuel Drandakis, Ron Jones, Lionel McKenzie, and Edward Zabel (J.R.G.).

A.M.-C., M.D.W., J.R.G.

Cambridge, MA
March 1995

目 录

序 1

第一篇 个体决策

第 1 章 偏好与选择	5
1.A 引言	5
1.B 偏好关系	6
1.C 选择准则	9
1.D 偏好关系与选择准则的联系	11
习题	15
第 2 章 消费者选择	17
2.A 引言	17
2.B 物品	17
2.C 消费集合	18
2.D 竞争性预算	20
2.E 需求函数与比较静态分析	23
2.F 显示偏好弱公理与需求规律	28
习题	36
第 3 章 经典需求理论	40
3.A 引言	40
3.B 偏好关系:基本性质	41
3.C 偏好与效用	46

2 微观经济理论

- 3.D 效用最大化问题 50
- 3.E 支出最小化问题 57
- 3.F 对偶性:数学导论 63
- 3.G 需求、间接效用与支出函数的联系 67
- 3.H 可积性 75
- 3.I 经济变化的福利评估 80
- 3.J 显示偏好强公理 91
- 附录 A: 瓦尔拉斯需求的连续性与可微性 92
- 习题 96

第 4 章 汇总需求 105

- 4.A 引言 105
- 4.B 汇总需求与汇总财富 106
- 4.C 汇总需求与弱公理 109
- 4.D 汇总需求与代表性消费者的存在 116
- 附录 A: 汇总的正则化效应 122
- 习题 123

第 5 章 生产 127

- 5.A 引言 127
- 5.B 生产集合 128
- 5.C 利润最大化与成本最小化 135
- 5.D 单一产出的成本与供给的几何描述 143
- 5.E 汇总 147
- 5.F 效率生产 149
- 5.G 企业目标的注释 152
- 附录 A: 线性活动模型 154
- 习题 160

第 6 章 不确定下的选择 167

- 6.A 引言 167
- 6.B 期望效用理论 168
- 6.C 货币彩票与风险规避 183

6.D	收益与风险描述的收益分布比较	194
6.E	状态依赖效用	199
6.F	主观概率理论	205
	习题	208

第二篇 博弈论

第 7 章	非合作博弈基础	219
7.A	引言	219
7.B	何谓博弈?	219
7.C	博弈的展开形描述	221
7.D	策略与博弈的标准形描述	228
7.E	随机选择	231
	习题	233
第 8 章	同时行动博弈	235
8.A	引言	235
8.B	占优策略和劣策略	236
8.C	理性化策略	242
8.D	纳什均衡	246
8.E	不完全信息博弈:贝叶斯·纳什均衡	253
8.F	错误的可能性:颤抖手精炼	258
	附录 A:纳什均衡的存在性	260
	习题	262
第 9 章	动态博弈	267
9.A	引言	267
9.B	序贯理性、逆向归纳与子博弈精炼	268
9.C	信念与序贯理性	282
9.D	合理期信念与前向归纳	292
	附录 A:有限期与无限期的双边谈判	296
	附录 B:展开形颤抖手精炼纳什均衡	299
	习题	301

第三篇 市场均衡与市场失灵

第 10 章 竞争市场	311
10.A 引言	311
10.B 帕累托最优与竞争均衡	312
10.C 局部竞争均衡分析	316
10.D 局部均衡的基本福利定理	325
10.E 局部均衡模型的福利分析	328
10.F 自由进入与长期竞争均衡	334
10.G 局部均衡分析的结语	341
习题	344
第 11 章 外部性与公共物品	350
11.A 引言	350
11.B 简单的双边外部性	351
11.C 公共物品	359
11.D 多边外部性	364
11.E 私人信息和次优解	368
附录 A: 非凸性与外部性理论	374
习题	378
第 12 章 市场势力	383
12.A 引言	383
12.B 垄断定价	384
12.C 寡头垄断的静态模型	387
12.D 重复相互作用	400
12.E 进入	405
12.F 竞争极限	411
12.G 影响未来竞争的策略性事前承诺	414
附录 A: 无限重复博弈与无名氏定理	417
附录 B: 策略性进入威慑与妥协	423
习题	428

第 13 章	逆向选择、信号传递与甄别	436
3.A	引言	436
3.B	信息非对称性与逆向选择	437
3.C	信号传递	450
3.D	甄别	460
	附录 A: 信号传递博弈的合理信念精炼	467
	习题	473
第 14 章	委托—代理问题	477
14.A	引言	477
14.B	隐藏行动(道德风险)	478
14.C	隐藏信息(与垄断甄别)	488
14.D	隐藏行动与隐藏信息:混合模型	501
	附录 A: 隐藏行动模型的多种努力水平	502
	附录 B: 隐藏信息的委托—代理模型的形式解	504
	习题	507
第四篇 一般均衡		
第 15 章	一般均衡理论: 范例	515
15.A	引言	515
15.B	纯交换: 埃奇沃斯方盒	515
15.C	消费者与生产者的经济	525
15.D	2×2 的生产模型	529
15.E	一般均衡与局部均衡理论	538
	习题	540
第 16 章	均衡及其基本福利性质	545
16.A	引言	545
16.B	基本模型与定义	546
16.C	福利经济学第一基本定理	549
16.D	福利经济学第二基本定理	551
16.E	帕累托最优与社会福利最优	558

16.F	帕累托最优的一阶条件	561
16.G	应用	566
	附录 A:可行配置集合的技术性质	573
	习题	575
第 17 章	均衡的实证理论	578
17.A	引言	578
17.B	均衡:定义与基本方程	579
17.C	瓦尔拉斯均衡的存在	584
17.D	局部唯一性与指数定理	589
17.E	完全可能:索南夏因—曼特尔—德布鲁定理	598
17.F	均衡的唯一性	606
17.G	比较静态分析	616
17.H	摸索过程稳定性	620
17.I	大经济与非凸性	627
	附录 A:福利方程刻画均衡	630
	附录 B:瓦尔拉斯均衡存在性的一般方法	632
	习题	641
第 18 章	竞争均衡的基础	652
18.A	引言	652
18.B	核与均衡	652
18.C	瓦尔拉斯均衡的非合作基础	660
18.D	再分配界限	665
18.E	均衡与边际生产力原理	670
	附录 A:合作博弈理论	673
	习题	684
第 19 章	不确定性的一般均衡	687
19.A	引言	687
19.B	状态依存物品的市场经济:描述	688
19.C	阿罗—德布鲁均衡	691
19.D	序贯交易	694

19.E	资产市场	699	
19.F	不完备市场	709	
19.G	不确定性的一般均衡模型的企业行为	713	
19.H	不完全信息	716	
	习题	725	
第 20 章	均衡与时间	732	
20.A	引言	732	
20.B	跨期效用	733	
20.C	跨期生产与效率	736	
20.D	均衡:单个消费者的情形	743	
20.E	平稳路径、利率和黄金定律	754	
20.F	动态	759	
20.G	均衡:多个消费者	765	
20.H	跨期叠代	769	
20.I	非均衡动态的注释:摸索与学习	778	
	习题	782	

第五篇 福利经济学与激励

第 21 章	社会选择理论	789	
21.A	引言	789	
21.B	特例:两个备择对象的社会偏好	790	
21.C	一般情形:阿罗不可能性定理	792	
21.D	可能性结论:限制定义域	799	
21.E	社会选择函数	807	
	习题	812	
第 22 章	福利经济学基础与公理化谈判	817	
22.A	引言	817	
22.B	效用可能性集合	818	
22.C	社会福利函数与社会最优	825	
22.D	社会福利函数的不变性	831	

22.E	公理化谈判	838
22.F	联盟谈判:沙普利值	846
	习题	850

第 23 章 激励与机制设计 857

23.A	引言	857
23.B	机制设计问题	858
23.C	占优策略实施	869
23.D	贝叶斯实施	883
23.E	参与约束	891
23.F	最优贝叶斯机制	897
	附录 A:实施与多重均衡	910
	附录 B:完全信息环境的实施	912
	习题	918

数学附录 926

M.A	导数的矩阵表示	926
M.B	齐次函数与欧拉公式	928
M.C	凹函数与拟凹函数	930
M.D	矩阵:(半)负定性及其他性质	935
M.E	隐函数定理	940
M.F	连续函数与紧集	943
M.G	凸集和分离超平面	946
M.H	对应	949
M.I	不动点定理	952
M.J	无约束最大化	954
M.K	约束最大化	956
M.L	包络定理	964
M.M	线性规划凹函数	966
M.N	动态规划	969

索引 971